

Doctor of Philosophy (Education)

**Student retention in distance
education using on-line
communication.**

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BBus BEd (Hons)

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Certificate of Originality

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

Signed: _____ **Date:** _____

Dedication

This dissertation is dedicated to my father, William (Bill) Ewart Gladstone Twyford (1932 –2000). Dad’s love of learning and thorough research skills facilitated and inspired my academic endeavours.

Acknowledgements

Any project of this magnitude always requires the support and sacrifices of many people. Firstly, I would like to acknowledge the Open Training and Education Network and, in particular, the Property Services section - within which this research took place - for their support. I would especially like to thank Keren Northcote, the then Property Services' Administrative Assistant, for her assistance in undertaking this project. Of course, thanks must also be given to the students who participated in the experiment and provided valuable feedback.

I would especially like to extend my appreciation to my supervisor, Dr Robert Pithers, for his guidance and extensive feedback. I was very privilege to have the benefit of his wisdom. I am also grateful to Dr Shirley Saunders for her generous comments when reviewing and assessing my work.

Finally, I would like to thank those closest to me, my husband, Darren, and two daughters, Arki and Indigo. Their support and understanding while I completed this project was appreciated.

Abstract

Distance education has suffered from lower retention and completion rates when compared to conventional, face-to-face teaching. A major reason associated with students not persisting with their studies in distance education has been the lack of interaction between the teacher and the learner. This lack of interaction tends to result in students feeling isolated and, consequently, can impact on the students' motivation to complete or to even start their studies. The primary aim of this research was to investigate the effect of a program of faculty-initiated motivational messages sent via electronic mail and designed in accordance with Keller's ARCS model of motivation. The question was whether such an intervention would reduce students' sense of isolation and improve their motivation, resulting in more student commencements and completions.

The research reported was empirical-analytical in nature. It employed experimental and control groups of students. The former experienced the email messages while the latter did not experience these messages. The results of this study indicated that the use of collective motivational email messages was a significantly effective strategy to increase student participation in and completion of distance education modules. In addition, a survey-based questionnaire was employed to examine students' perceptions of their distance learning experience. The results revealed that many students appreciated this form of communication support and, importantly, perceived the email messages as having influenced their motivation and, at least in some respect, their effort in the modules.

The results of this study validated some of the elementary findings of Visser (1998). In contrast, however, to the findings of Visser's (1998) study, which involved only a small number of students, the present study revealed that the sending of collective motivational communication via electronic mail was an effective way to positively influence the effort of large numbers of students. This

was seen to be a beneficial finding for distance education providers' world wide,
as large numbers of students typify most distance institutions.

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1 Research problem and literature review

1.1 The problem: Attrition in distance education

Education can occur in many forms and one that has become increasingly popular for adults and learning institutions alike, is distance education. This educational technique is generally distinguished from conventional education by the separation of the learner from the teacher. The student works alone, guided by study material, while the teacher is in a geographic location quite apart from the student. This process has several advantages for the student and the institution. For example, the student has the advantages of being able to study what subject they want, at a location and time that suits them and their family. One major benefit of this type of education for the institution is economic: the ability to service a large number of students at a relatively low cost per student.

Distance education has established itself as an important part of the education system in Australia and in other places around the world. The awards gained through distance education institutions through off-campus study are usually the same as those achieved by students who have studied on-campus. Students may take advantage of this system by being able to move back and forth between internal and external programs. In fact, many of the 150,000 distance education students who study each year for tertiary awards across Australia are

within commuting distance of their institutions. It is the convenience of not having to visit a campus that this form of learning allows that is attractive to students (Cumpston, Blakers, Evans, Maclachlan & Others, 2001). Hence, the element of geographic 'distance' in 'distance education' is often not really reflective of the students' enrolment in distance education.

Nevertheless, despite the worldwide growth of distance education, there remains a major problem with high rates of attrition in distance education institutions (Chyung, 2001; Powell, 1991; Scalese, 2001; Simpson, 2004; Tresman, 2002;). Historically, the problem of some students not persisting with distance education courses has not gone unnoticed. In the mid 1980's, according to Rekkedal (1985, p.14) since the mid-sixties, "...there is no doubt that drop-out is the problem which has been given the highest priority among researchers within correspondence or distance education". Wilkinson and Sherman (1991) have agreed with this viewpoint, finding 'attrition and procrastination' being given a high priority in distance education research. Post 2000, attrition in distance education remains a major problem despite new developments in on-line learning and research has been conducted on this issue by Castles (2004), Kellogg (2003), Martinez (2003) and Moody (2004).

Researchers for more than fifty years have highlighted the research which has been focused on students' reasons for not reaching their educational goals. They also indicated the problem researchers appear to have in agreeing about how to

describe the problem itself. For instance, the foregoing researchers mention 'drop-out', 'attrition' and 'procrastination', in reference to the same prominent issue of students not finishing their courses. Zajkowski (1997, p.14) identified additional terms used to describe the issue in the available literature including, 'withdrawal' or other terms which used language that reflected a more positive approach such as: 'persistence', 'progress', 'success', or 'completion'.

When different terms and hence, methods of measurement, are used to report on distance education students failing to continue their studies it makes it difficult to compare data from separate institutions. This is especially the case when different institutions have employed different systems of enrolment or have different policies on what data is included within their completion figures (Powell, 1991). For example, are students who complete all assessment tasks but ultimately fail the assessed module included in 'persistence' figures?

Whilst acknowledging the difficulties with the definition of key terms, measurement issues and institutional comparisons, the gravity of the attrition problem over time throughout Australia and the world is evident in the research of a range of different researchers (e.g. Carr & Ledwith, 1988; Fritsch & Strohle, 1989; Lake 1999; Moore & Kearsley, 1996; Rekkedal, 1983; Terry, 2001; and Zajkowski, 1997). Lake (1999) identified the withdrawal rate for students studying by distance at the Murdoch University in Australia to be 'unacceptably high' at 43%. This figure seems not to be out of the ordinary when

compared to other distance education institutions throughout Australia and the world. According to Moore and Kearsley (1996), historically non-completion rates were found to be in the range of 30-50%. Zajkowski (1997) collected average 'completion' rates for the years 1982, 1989, and 1990 across various countries such as the United Kingdom, Norway and New Zealand as well as institutions such as Open University (UK), the FernUniversität (Western Germany) and Athabasca University (Canada). She found the average completion rates were evenly distributed between 29% and 68%. Research by Fritsch and Strohle (1989) at the German Open University showed that only 10% of 1,900 students who enrolled in a distance course completed the final examination. Carr and Ledwith (1988) found that 'attrition' rates exceeded 30% in distance learning institutions such as the Open University in England and a comprehensive study by Rekkedal (1982), involving 1,417 students over a 2 year period at the NKI School in Norway, revealed that almost 12% of the students did not even submit one assignment (cited in Case & Elliot, 1997, p.30). More recently, Terry (2001), in a study undertaken on the differences in attrition rates between students studying the same business course at a North American university, found that the attrition rates for students studying the course on-line were between 33% and 48% while the students attending the face-to-face lectures had lower attrition rates of between 13% and 23%.

In the early 1990's, Shale (1992) argued that it does not matter how the numbers are packaged or that the numbers may differ considerably according to the

formulae that are chosen for their computation and according to variations in institutional practices. What is important is that those figures stand for individuals whose educational goals have been impeded. This represents an unsatisfactory outcome for the students, for their teachers and for the relevant educational organisations in many Western countries.

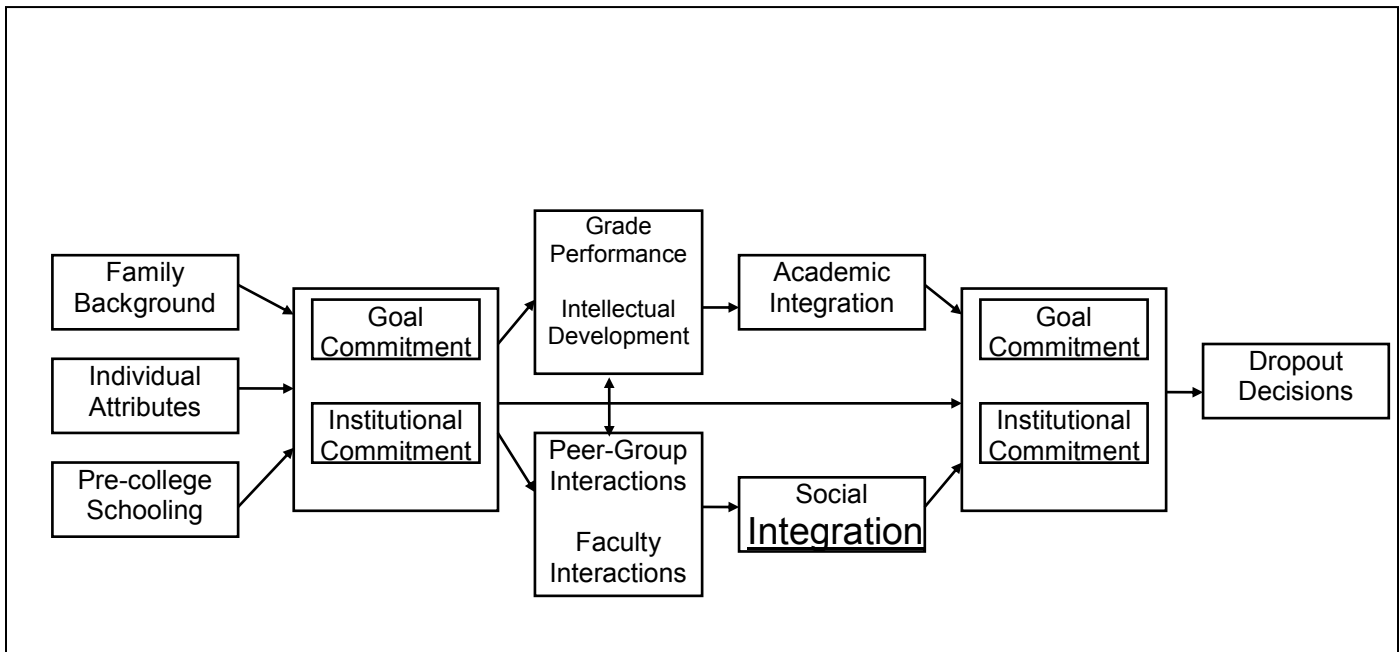
From the 1980s it has been argued that from an institutional perspective, the wastage resulting from incomplete subjects and courses is a major concern (Scales, 1984). Since then, distance education administrators have been anxious to identify the reasons for students not persisting in their distance education courses and in educational approaches that will minimise non-working students and maximise subject competitions. Researchers such as Tinto (1975) and Kember (1995) over the years have argued for more research to identify the factors involved in students' drop-out decisions. These studies have inspired much contemporary research (Brindley, 2000; Castles, 2004; Kellogg, 2003; Muilenberga & Bergeb, 2005; Nitsch, 2003). The present research has been designed to address that issue and to lead to a better understanding of the reasons for student drop-out. Institutions might then be able to develop programs that promote future student retention; an aim seen to be of much importance in distance education (e.g. Bryant, Kahle & Schafer, 2005; Calvert, 2005; Cleary & Nicholls, 1998; Sweet, 1986).

1.2 Models of Attrition

Theoretical models of the attrition or 'drop-out' process proposed by Tinto (1975), Bean and Metzner (1985), Brindley (1988), Kember (1995) and Castles (2004) in short have indicated that lack of persistence in distance education courses in educational institutions is a complex phenomenon influenced by a multitude of variables (Kember, 1990, p.11). These variables, however, are not independent but appear to influence each other. Morgan and Tam (1999) for example, found that no single factor can be attributable to student drop-out. Instead it appears to be based on the interaction of numerous situational, institutional, dispositional and epistemological factors. This means that theoretical positions about the reasons for student attrition based on single variable causative factors are likely to be much too simplistic in practice.

Nevertheless, there has been an abundance of research in relation to single attributes linked to student non-completion. No one, however, had considered the interrelationship of the possible causative variables until Tinto in 1975. Tinto (1975) recognised the need to consider the attrition problem in adult education and to conceptualise in a more complex way, the problem of student drop-out in the form of a predictive theoretical model. A schematic representation of Tinto's (1975) model is shown in Figure 1.1.

Figure 1.1: Tinto's (1975) conceptual model for drop-out



The development of Tinto's model was based on two major constructs: Van Gannep's (1960) "rites of passage" and Durkheim's (1961) theory of suicide (Kember, 1995). Van Gannep's (1960) concept identified life as a series of stages or passages as evidenced by changes in the person's status or group membership. For example, when a high school graduate enrolls in a university. Van Gannep stated that the transition or "rite of passage" between one life stage and another, involves a three-stage process of: separation (from the previous group or status), transition (introductory stages of integration and adaption) and incorporation (acceptance as a member of the new group). While Durkheim's model of suicide proposed that egotistical suicide was more likely to occur when a person was isolated from society due to not being able to integrate or establish membership with the community.

It had been Durkheim's (1961) theory of suicide, however, that had had the greatest influence on models of attrition. Similarly to Tinto, Spady (1971), who is generally recognised with introducing the first 'descriptive' model of attrition, also used Durkheim's (1961) theory of suicide as an analogy for student drop-out. Spady (1971) and subsequently, Tinto (1975) found similarities between an individual's integration into society and the decision to commit suicide in Durkheim's theory on the one hand and the integration of a student into the social and academic system of an educational institution and the decision to drop-out on the other.

In the model of drop-out that Tinto (1975) devised, he argued that

...the process of drop-out from college can be viewed as a longitudinal process of interactions between the individual and the academic and social systems of the college during which a person's experiences in those systems continually modify his goal and institutional commitments in ways which lead to persistence and/or varying degrees of drop-out (pp.94-95).

The research Tinto (1975) used to develop a theoretical model had shown that the individual's family background, prior educational experiences and their inherent attributes appeared to influence the development of educational expectations as well as the commitment that a student brings with them into the educational institution. Furthermore, "It is these goal and institutional commitments that are both important predictors of and reflections of the person's experiences...in the college environment" (Tinto, 1975, p.96).

Starting from the given levels of goal and institutional commitment that a student brings to the commencement of study at an institution, it is the student's integration into the academic and social systems that lead to new levels of commitment (Tinto, 1975, p.96). The greater the level of integration into the academic and social systems the student achieves, the greater the level of commitment to a specific institution and to the goal of course completion. Tinto's model indicated that either low goal commitment or low institutional commitment could lead to a drop-out decision.

It can be deduced from Tinto's model that given a student's prior commitment to the goal of completion, the lower a individual's commitment to the institution, through insufficient integration, the more likely the student is to drop out from that institution.

Pascarella and Terenzini conducted a number of validation studies testing Tinto's model (1979a; 1979b; 1980). Their studies found support for the use of the model for theoretical and research purposes as well as for planning institutional retention strategies. In particular, they found that the model's social and academic integration components were significant for identifying those students who were likely to continue their studies and those who are likely to drop-out of an educational institution.

Tinto's (1975) model may be a valid predictive model for those students whose data it was designed from and for: namely, full-time campus based, higher

education students. However, adult part-time students and distance education students would usually have less interaction with the institution's faculty and fellow students and therefore, the element of social integration would surely not contribute in the same way to their work and completion goals or institutional commitment (Brindley, 1987). Consequently, four major models have been developed since the Tinto model was conceived in an attempt to look at a range of theoretical components. These models are by Bean and Metzner (1985), Brindley (1987), Kember (1995) and Castles (2004).

Bean and Metzner (1985) developed a predictive model of the attrition process based on 'non-traditional' students. A non-traditional student was defined as a student older than 24, and/or one who does not live in a campus residence, and/or one who is a part-time student or some combination of these three factors (Bean & Metzner, 1985, p.489). The model predicted that drop-out decisions would be likely to be based on four sets of major factors: 1. background and defining variables of the student such as age, enrolment status and gender; 2. academic variables such as study habits and academic advising; 3. environmental variables such as finances and hours of employment; and 4. psychological variables such as perceived utility of studies, satisfaction, goal commitment and stress. These four sets of variables were said to interact with each other to produce performance outcomes in the form of marks and/or an intention to leave, which could lead to a drop-out decision (Brindley, 1987, p.92).

Bean and Metzner's model, in relation to the relationship between factors in the model and the specification of particular variables included within the factors, was developed with reference to the previous models of Spady (1970), Tinto (1975) and Bean (1982; 1985) and a synthesis of attrition research with traditional students attending residential institutions, descriptive literature on non-traditional students and attrition research relating to non-traditional students. Bean and Metzner's model differed from those of Spady (1971) and Tinto (1975) because it focused on non-traditional students. They omitted social integration as a primary component of their model but elevated variables from the external environment to a more important position, when compared to the importance of college social integration variables, in the decision for a non-traditional student to drop-out. Bean and Metzner (1985) believed enrolling in an institution part-time would reduce the amount of student-to-student and student-to-faculty contact and therefore, the student would be less likely to be influenced by the social environment of the institution.

A particular strength of Bean and Metzner's study and model was the extensive theoretical research underpinning the development of their model. However, due to Bean and Metzner's decision to omit social integration from their model, the discussion of the element of student-faculty interaction was limited and the work of Flinck (1978) and Rekkedal (1981) in this area apparently ignored. The influence of student motivation on the drop-out process was also not considered

in-depth, though the psychological variables of utility, satisfaction, goal commitment and stress were discussed and included in the model.

Whilst acknowledging these omissions from Bean and Metzner's research, the model's focus on the non-traditional student was an important catalyst for further research into this area. In particular, Brindley (1987) found Bean and Metzner's research "...a useful starting point for the development of a model of attrition and retention strategies for adult distance learners" (p.44). Brindley's study was conducted at the Athabasca University, an open admission distance education institution for students across Canada. The purpose of the exploratory study was to examine students' experiences of studying via distance education in an attempt to identify significant incidents and factors which either facilitated or hindered the student's study (Brindley, 1987, p.4). These factors were then used to modify the Bean and Metzner model to reflect and create a theoretical model of attrition for distance education, which was more robust than the Bean and Metzner model.

Of particular note in the Brindley (1987) study for the present research, was the importance of incidents related to academic support which a student received from the tutor/teacher. This category, termed 'personalised instructional support', was the third highest reported incident by students in hindering or facilitating their study. This category was one of the items included in the academic variables when Brindley customised Bean and Metzner's model for distance education.

Brindley (1987, p.94) identified the need for the modified Bean and Metzner model to be tested for reliability and validity in the same way the Tinto model had been examined by Pascarella and Terenzini (1980). However, no published attempt to operationalise or test it seems to have been reported. The lack of testing of the model, was the reason Kember chose Tinto's model over Brindley's in the development of a further model of attrition in comprehensive distance education. Kember (1995, p.45) stated that Brindley's model may be perfectly plausible "...but without empirical testing it is difficult to have any confidence in the validity or applicability of the model(s)". Kember also believed that the process of testing a model normally leads to its modification and development; a process from which Brindley's model had not benefited. Nonetheless, Kember did not provide any reasons why he chose not to empirically test or operationalise Brindley's model but instead chose to develop his own model.

Kember (1995) had been an active researcher in the area of student progress and attrition in open and distance education since the early eighties and it was an accumulation of his research studies that were used in the development of his model of student persistence in 1995. The data used for model development was collected from Universities in the United Kingdom, Papua New Guinea, Australia and Hong Kong, over the period pre-1972 to 1990. Nevertheless, the research outcomes achieved by comparing cohorts of students from such diverse cultures over such a large period of time is questionable due to variances in student

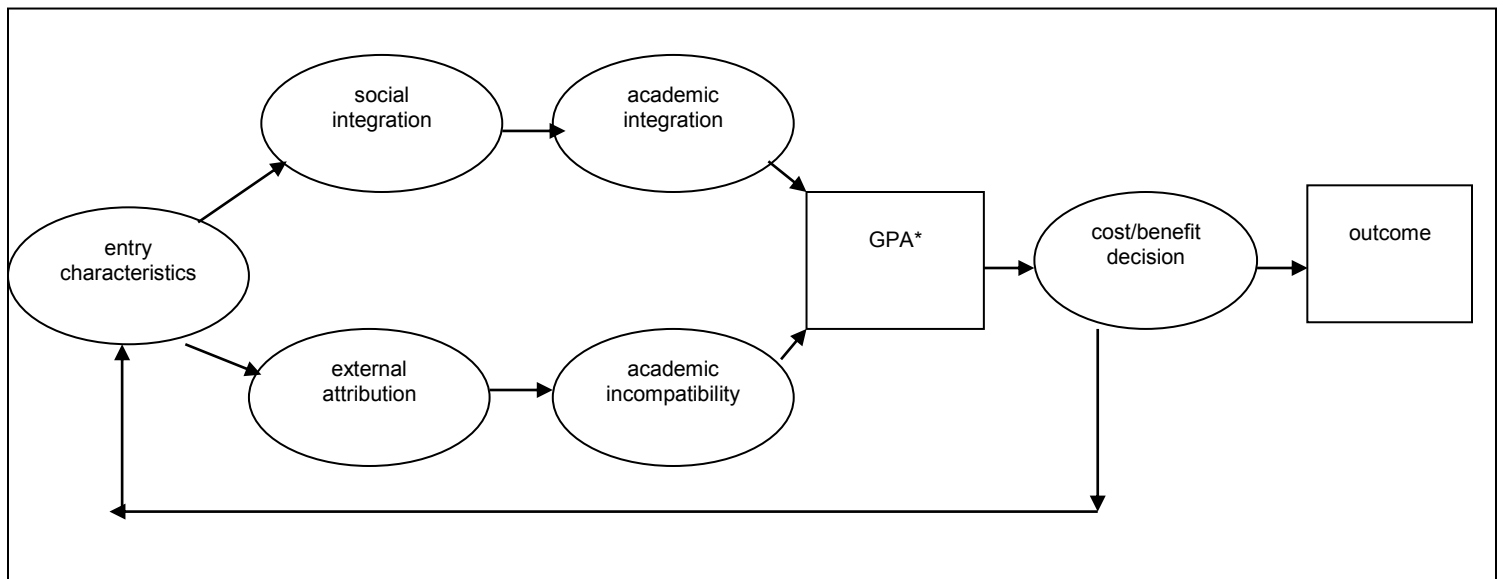
characteristics, environments and changes in teaching methodologies and technology.

Kember's 'Model of Student Progress' used Tinto's model as a starting point as he regarded it as the most widely accepted of those models available. Hitherto, it had been extensively tested and reported on. In adapting Tinto's model for the distance education setting, Kember redefined the variables of academic and social integration. This was because he believed the academic and social environments were different for full-time, on-campus students (the students on which Tinto's model was based) and those of adult, part-time distance education students. Full-time on-campus students, predominantly young recent high school graduates, often have to make a physical transition from their previous abode to the campus, away from established friends and the comfort of family to an unknown environment. This is in contrast to adult part-time students who, predominantly, do not move away from their existing living arrangements. Instead, these students needed to add the new role of 'student' to their current obligations and in many cases, already existing roles as parents, employees and carers. While the full-time on-campus students' transition to a new stage of life and possible community may be initially more difficult, this physical separation was seen by previous theorists to facilitate the establishment of strong ties to a campus community. The adult part-time student, however, not separating from their existing lifestyle and social circles, would find it more difficult or so it was

thought, to build these strong ties to an educational institution (Kember, 1995, p.48).

In order to reflect the circumstances of adult part-time students studying in distance education institutions, Kember believed he needed to modify and adapt the social and academic variables in Tinto's model. In redefining the variables, Kember proposed to define academic integration to encompass all issues relating to the offering of the course to the student by the institution. This included the learning materials and interaction between the student and the administrative or teaching sections. He then defined social integration to refer to the extent to which the student was able to incorporate the needs of study with their existing and on-going commitments of work, family and social life. A schematic representation of Kember's model is shown in Figure 1.2.

Figure 1.2 Kember's (1995) Model of Student Progress



*GPA = Grade Point Average

Kember's linear model of attrition begins with a component based on entry characteristics, including the demographic, and educational background and experience of the student. Kember believed that entry characteristics played an important role in determining how well a student was able to achieve academic and social integration, but he did not believe the cumulative research then to date suggested that they alone were good predictors of students' course completion.

The students then follow either one of two paths in the model: the positive path, toward social and academic integration or the negative path, towards external attribution and academic incompatibility. These two paths addressed the issue of integrating study demands into the academic and social environments (Kember, 1995, p.1).

Given the entry characteristics a student brings with them to a course of study, the level of academic and social integration would influence two outcomes according to Kember's model. Firstly, the level of academic achievement the student achieves, reflected in the grades the student obtains, is referred to as Grade Point Average (GPA) in the model. The second and main outcome influenced would be the level of persistence, which was reflected by the ratio of student course modules completed to those attempted.

In between these two outcomes in the model, Kember also included a cost/benefit analysis and recycling loop to show how students balance the

decision between persistence and drop-out (Kember, 1995, p.128). The student has to decide whether the costs of studying, which include not only financial costs but also those of time and effort, are worthwhile in terms of the intrinsic and extrinsic benefits and rewards derived from their course of study. This analysis by the student can occur at various times throughout the course. Those on a positive track will have been more likely to successfully integrate into the academic and social systems and may rarely confront the cost/benefit decision. Those, however, who are on a negative track, will regularly contemplate the decision to continue or withdrawal. Students on a negative track tend to identify external attributes, such as insufficient time, unexpected events and distractions for their lack of progress. They apparently also experience academic incompatibility, in the form of poor language skills, negative course evaluation, having a surface approach to learning and being extrinsically motivated. According to Kember (1995, p.128) the inclusion of a recycling loop is important in the model as it provides a mechanism if a change in their behaviour occurs for students to switch from one track to the other. Quite importantly, it also means that the institution can influence students' academic progress towards the positive track. This is a feature of the model that is to be tested by the present research.

More recently, Castles (2004) has undertaken a study of the factors affecting part time adult learners at the Open University in the United Kingdom. The research resulted in the development of a model of persistence containing 12 factors.

These factors were categorised as either (i) social and environmental, (ii) traumatic or (iii) intrinsic. While the model needs to be further researched in order to be predictive, Castles (2004) believed that the model can still assist institutions address some of the problems with persistence in distance education and support the student's progress in a positive direction.

The forebears of the various attrition models have all stressed the importance of an institution gaining a better understanding of the factors involved in the drop-out decisions for its particular students (Bean & Metzner 1985; Brindley 1987; Castles, 2004; Kember 1995; Tinto, 1975). Cleary & Nicholls (1998, p.17) in their report to the Victorian Office of Training and Further Education on 'Understanding and Improving Module Completions', agreed with this position and they recommended that distance education providers undertake a systematic collection of data as to the reasons for withdrawal/failure so that they could assess their performance in relation to this client group. This information would be used to feed into subsequent strategies for improvement. The suggested research would enable institutions to develop customised programs that might better increase students' commitment to the institution and hence, hopefully, reduce attrition.

1.3 An Institute approach to attrition

A customised approach to attrition within distance education institutions is necessary because the institutions vary greatly in many policy areas that can impact on the strategies to be implemented to reduce attrition. For instance, entry requirements and levels that can be either highly competitive or dictated by open access policies; the funding basis for public institutions can be either based on the number of enrolments or number of completions or a combination of both. The method of assignment submission may vary. For example, where some institutions have specific due dates for assignments and tests, others have no specified due dates. The latter allowing students to select the pace at which they would like to work. Given these institutional differences, every educational institution needs to understand the reasons for attrition given their own particular characteristics in order to best tackle the problem.

The research literature indicated that there were generally three different approaches undertaken for investigating student attrition in particular institutions (Morgan & Tam, 1999). The first approach was to profile their students to identify the factors which place them at risk of dropping out. The second approach was to investigate the specific features of any courses with high or low completion rates. The third approach was to ask the students themselves to identify the reasons behind their decision to withdrawal from study; these are often referred to as 'exit studies'. The students' reasons could relate to internal psychological variables

and/or external environmental reasons (Boshier, 1973 cited in Morgan & Tam, 1999).

Exit studies, the last mentioned method, is a popular approach to determining attrition causes for education institutions. However, having students self-evaluate the factors and reasons for non-completion and completion has presented an interesting anomaly. Brindley (1988) found that completing and non-completing students reported similar incidents that hindered or facilitated them during their study. For example, both completers and non-completers experienced changes in circumstances which hindered their studies. It seems that the completers, however, responded differently than the non-completers to these changed circumstances.

Studies undertaken by Garland (1993a) and Morgan and Tam (1999) into the potential barriers to persistence in distance education were also consistent with the findings of Brindley (1988). That is, widespread commonality was discovered between completing and non-completing students in terms of the types of barriers which might affect their decision to persist (Morgan & Tam, 1999). The strength of feeling or emotional response, however, to which the non-completers and completers perceived the barriers to persistence, such as changes in circumstances or marks received, is debatable. Garland's (1993a) study found that both drop-out and persisting students reported a similar intensity of response, as evidenced by the negative and positive words used by students in

describing the experiences encountered during their studies. Gibson and Gaff (1992), however, found the intensity to which completers and non-completers perceived the barriers differed significantly.

Even though the intensity of response experienced between completers and non-completers is debatable, it is apparent that the barriers to persistence, such as a poor learning environment or lack of time, which hindered some students or facilitated other students' study experience, are similar for completers and non-completers. Garland (1993a) concluded that the decision to persist or not remained an idiosyncratic one for each individual student. It depended on how the student related to the experience in the particular circumstance. The decision to withdrawal or persist reflected each student's uniqueness in terms of "...values, beliefs, attitudes, motives, self concept, past experiences and abilities" (Garland, 1993a, p.195). Morgan and Tam (1999, p.98) agreed, however, adding that even though the decision to continue studying or not may be idiosyncratic, institutions and personnel within those institutions can affect a student's behaviour in favour of continuing to course completion by facilitating a positive experience for the student.

In 2000, the Open Training and Education Network (OTEN), a large New South Wales distance education institution (and the institution where the current study took place) undertook an 'exit study' to identify the factors and reasons for its students dropping out. The exit study involved 3000 students randomly selected

from a population of 8997 students (Kirkby, 2000). The study, not based on any theoretical model, investigated the perceived reasons for students not submitting more than one assignment in their whole course during 1999. It was conducted by way of a mail and telephone survey and had a 26% response rate (765 responses). Though the response rate may be considered somewhat low, Neuman (1997) states that a response rate of 10% to 50% is common for mail surveys of distance education students. Kirkby (2000) stated that, despite the limited response rate, the profile of the survey respondents matched the profile of the sample in relation to demographic features such as gender, educational status, employment status, age, location, disability and students receiving some form of government financial assistance to study.

In Kirkby's study, the first two major perceived reasons identified by students for withdrawing being family (56%) or job related reasons (45%) related to external environmental factors and were beyond the control of OTEN. Findings by other researchers have also shown that family responsibilities, work commitments and changes in personal circumstances were the most common reason reported by students for discontinuing their studies (Bean & Castles, 2004; Metzner, 1985; Moody, 2004; Brindley, 1987; Rekkedal, 1981; Woodley & Parlett, 1983).

However, this does not provide an opportunity for institutions, such as OTEN, to negate their responsibility for supporting students. Instead, Morgan and Tam (1999) believed, all distance providers needed to complete further investigation to identify and deal with those barriers to student completion that were within

their influence. Post 2000, a number of researchers have investigated institutional influence including Brindley (2000), Castles (2004) and Kellogg (2003). Findings are equivocal and more research needs to be undertaken.

Indeed in Kirby's OTEN study (2000), the third and fourth highest reasons for withdrawal were related to issues of motivation/confidence (25%) and reasons related to studying by distance education (20%) respectively. The latter reason was primarily reported to be due to a lack of student-teacher interaction. These contributing factors for drop-out at OTEN of: 1. lack of motivation; and 2. student-teacher interaction, were issues that the institutional distance education policies could conceivably influence, that is given the theoretical positions of researchers such as Kember (1995) and Castles (2004) discussed earlier. The OTEN outcome in 2000 was also a reason that the current study was undertaken.

1.3.1 Motivation issues

The identification of lack of motivation and student-teacher interaction being perceived reasons for 'dropping out' at OTEN both relate to a student's sense of isolation while studying. Isolation is a major cause of withdrawal from educational institutions according to many researchers, (e.g. Carr, 2000; Cropley & Kahl, 1983; Harrington, 1979; Hora & Kling, 2001; Lake, 1999; Okun, Benin & Brandt-Williams, 1996; Terry, 2001; Towles, Ellis & Spencer, 1993).

In fact, Harrington (1979) found that the most frequently stated reason for non-completion in correspondence study was a sense of perceived isolation. In the late 1970s, this sense of 'isolation' appeared to discourage students studying at home and affected their motivation to both begin and to complete their studies.

Cropley and Kahl (1983) in yet another relevant study in the 1980s, considered the psychological impact on students of the correspondence model in their study. They found, once again, that one of the major problems encountered by distance learners was the isolation they felt and hence, its debilitating effect on motivation. Unlike face-to-face learners, who find themselves in a setting where "the normal and natural thing to do is to engage in learning activities", the distance learner is often in physical surroundings where "different behaviours are more usual", like working, watching TV, washing up, or playing with the kids (Cropley & Kahl, 1983, p. 31). Studying in these surroundings, which reminds them of the various commitments they have to meet, makes many distance learners feel guilty, or so it is argued, because of their realisation that their wish to study is at the expense of their partner, children or work (Miller, 1991, cited in Schuemer, 1993, pp.2-3).

The isolation from a learning environment, in the case of the distance learners, makes them more dependent on their own motivational resources, than is the case for face-to-face learners. The distance students need to be more responsible for their learning, making their own arrangements about when, what,

and where to learn. They need to resist all of the tempting alternative activities and provide their own encouragement and rewards (Cropley & Kahl, 1983, p.36).

Cropley and Kahl (1983) also found that another of the consequences of the more difficult distance learning situation and the greater isolation of distance learners was that the students were less confident about their ability to complete their studies. Towles, et al's (1993) research findings generally agreed with this outcome. They found that without the additional support of the institution, the distance learner was dependent on self-motivation to see each course to completion. Given that correspondence courses are largely self-paced, 'the institution rarely knows ahead of time that a student may be at risk of failing to complete' (p.3).

Lake (1999), while also supporting isolation as being a major cause of withdrawal in distance education courses, differentiated external students between physical and psychological isolation. Physical isolation was seen as the geographic isolation of a student from material or human resources, including the inevitable, delayed response times in communication between the student and the teacher. He defined psychological isolation, however, as the sense the student feels from being separated from the teacher, the faculty and from peers who could provide support.

One of the consequences identified by Okum, Benin, and Brandt-Williams (1996) of such psychological isolation from academic staff was minor educational issues not being clarified and misunderstandings occurring and expanding. These misunderstandings could then disrupt studies or become major sources of confusion and frustration affecting student performance. In order to address these possible interfering factors, Lake (1999, p.17) believed timely and accessible communication by institutional staff with distance students was required.

It is clear from the research reported so far that isolation, both physical and psychological from the academic environment and in particular, the academic staff, is a critical issue influencing distance education students' motivation to begin and complete their studies. Post 2000 studies on the impact of isolation on distance learners also confirm previous concerns (Castles, 2004; Hora & Kling, 2001; McCracken, 2004; Wojciechowski & Palmer, 2005). It stands to reason that strategies likely to increase retention in distance education would need to consider ways of bridging and reducing this isolation from the teacher and faculty that any distance student is likely to experience.

1.3.2 Student and Teacher Interaction

As previously mentioned in the discussion of the major theoretical models of attrition, a substantive theoretical element in Tinto's (1975) work, and subsequently of Kember's (1995), was that of Durkeim's theory of suicide (1961).

In the development of these models, Tinto and Kember had drawn parallels between an individual's unsuccessful integration into society and the decision to commit suicide in Durkheim's theory. This comparison was based on the unsuccessful integration of a student into the social and academic system of an educational institution and the decision to drop-out or not complete their course. One method of successfully integrating individuals into society that Durkheim distinguished to assist individuals at-risk of committing suicide, was to establish feelings of collective affiliation with society. In terms of integration into an institution, Kember (1995, p.184) stated collective affiliation refers to the 'sense of belonging' the student feels with the college or course. Mahoney and Morgan (1991), who originated the term 'sense of belonging' in this context, suggested that the students' feelings of affiliation with a particular institution do have an influence on drop-out rates.

Increases in collective affiliation between the student and the institution can occur through achieving a sufficient level of positive communication between the two (Kember, 1995). This communication can occur through a variety of mediums, such as telephone, postal mail, electronic mail, video-conferencing or direct face-to-face contact and via a myriad of personnel, such as admission, administration and teaching staff. For example, a teacher sending letters or cards of encouragement through the postal mail to students. Kember (1995) suggested that the need for collective affiliation, in terms of student integration and subsequent retention, placed a responsibility on the institution to try and make their students feel that they belong and that they are valued members of

the institution. Kember (1995, p.184), however, did acknowledge that in distance education achieving collective affiliation can be difficult to achieve in practice.

Research over the past twenty-five years has shown that the frequency and quality of contact between students and faculty staff may significantly impact upon students having positive attitudes and commitment towards the institution. Noticeably, these factors influenced persistence (McGivney, 2004; Ortiz-Rodriguez, Telg, Irani, Grady Roberts & Rhoades, 2005; Pascarella & Terenzini, 1980). For example, Hezel and Dirr (1990) found that distance students valued communication with their teachers very highly. In their study, the ability to communicate and interact with other students was considered of less importance by most students.

The importance of student-teacher interaction and its impact on increasing a student's sense of institutional integration in a distance education setting has been identified as an essential element for student success by Lentell (1994), Rekkedal (1985), Catchpole (1992), Simpson (2004) and Kember (1995). Lentell (1994) noted that

... important though all the services offered in distance education are, however splendid the written texts, and however smooth the organisational system, however refined the quality measurement tools, it is the relationship between the tutor and the learner that determines success or failure (p.51).

Rekkedal (1985) found that personalised contact by the teacher in the form of telephone calls or letters – where the teacher combined the roles of the teacher and counsellor - could make a distance learner feel less isolated and significantly reduced drop-out. While Catchpole (1992) made a case for more faculty-student contact in distance education and Simpson (2004) expressed the benefits of “proactive contact”.

Using Kember’s model (1995) (see Figure 1.2) it can be predicted that student progress could be enhanced by tutor-student contact as it is supposed to contribute to enhancing collective affiliation. He encouraged institutions to introduce strategies whereby the staff initiated contact with students as he believed “the human contact of the academic support system provides a clear opportunity for enhancing collective affiliation” (Kember, 1995, p.207). Kember’s (1995) experience and research showed, however, that collective affiliation is more likely to be the result if the teachers used the student-teacher interaction time on teaching and counselling the student, rather than focusing on strategies devoted solely to socialisation.

Traditionally, interaction between the teacher and the student in the correspondence model of education occurs through written means. This takes the form of learning materials and in addition, two-way communication via mail correspondence. The communication usually occurs from the student to the teacher in the form of completed assignments, followed by communication back

to the student from the teacher in the form of feedback on assignments submitted. The core element of a substantial number of distance education programs is still the correspondence model of distance education, although it is acknowledged that this is changing due to the influence of computers on distance education.

In the early 1980s, Potter (1983) investigated student and teacher opinions on the correspondence model (referred to as the 'home study' model by Potter) at Murdoch University in Western Australia. He undertook to assess student and teachers' opinions through a mail survey to determine their perceptions on the current modes of delivery and interaction at the university. He then elicited their preferred form of external study and amount of interaction that had occurred with the teachers.

The overall impression given by 84% of the respondents, both the teachers and the students, was that the current external studies process at Murdoch University was most adequately described as 'home study'. Home study was defined in the survey as

...the course-writer's responsibility was perceived to be the production of a comprehensive package; the tutor's responsibility was to mark assignments; and the student's responsibility to work through the course alone. Interaction between the student and the tutor was acknowledged to be minimal (Potter, 1983, p.101).

However, the survey revealed that the preferred form of external study experience, identified by students and tutors, was the 'distance teaching' mode of

external studies. This was described within the survey as 'the student is guided through the course by the tutor who supplements course materials with face-to-face and/or telephone-based interaction' (Potter, 1983, p.101). The choice of the 'distance teaching' mode of external studies suggested the preference for a process that incorporated more interaction between the teacher and the student, than occurred in 'home study' or, as it is more commonly known, 'correspondence study'.

Other research has shown that courses and subjects that only have correspondence study materials need to be complemented by improved and changed arrangements for the two-way communication to help eliminate feelings of isolation by students (Flinck, 1978, p.22). Nevertheless, the type of student-teacher interaction and support that can occur in distance education to supplement the correspondence model needs careful consideration. Those support mechanisms that require learners to be at a specific place at a specific time, such as face-to-face tutorials, video-conferencing and audio-conferencing, are only of limited use for institutions. This is because, for many of the students who chose to study in part or full utilising a distance education institution, the barrier to studying on-campus is not the physical distance to the campus but the need to have flexible arrangements. The challenge does not seem to be physically getting to the campus but the timing of such requests (e.g. to attend lectures, tutorials, practicals and the like) given their other responsibilities and various competing interests, in terms of time.

This is not to say however, that these time and place specific instructional tools are not valuable within a distance education context but for a large percentage of students, delivery essentially needs to be asynchronous. Spencer (1980) designed an experiment to investigate a variety of methods to facilitate feedback between teachers and students. The aim being to determine the relative usefulness of the different methods in reducing attrition in distance education. The results revealed that students preferred opportunities for telephone contact with their teachers. The telephone version of this method produced completion rates that were, on average, 13 % better than the other methods used within the study.

1.4 Teletutoring

The use of the telephone in an educational setting, in fact, originated in 1939, when it was used in the United States of America to meet the needs of homebound and hospitalised students (Moore, 1981, p.26). Historically, of the various uses of the telephone in education, it is 'teletutoring' which has had the greatest interest for distance education in relation to assisting and promoting integration of the student into an educational institution (Flinck, 1976, p.180). Teletutoring is a system that allows an individual student to communicate with the teacher and receive individual help and support during their studies (Flinck, 1978).

Teletutoring occurs by either the student or the teacher taking the initiative to contact each other. The reason for the call can vary, depending on the individual needs of the student. A teacher may call a student to check on his or her progress, explain assignments and when required, to encourage student motivation and commitment to their studies. Students may call the teacher to help them in various ways. For instance, to learn from their printed and other materials, resolve student difficulties, provide students with access to a teacher or counsellor. They may call to clarify requirements for self-assessment exercises and written assignments or to obtain guidance on problems associated with their studies (Brindley, 2000; Sweet, 1987; Twyford, 1998).

As expressed by Flinck in 1978, the purpose of the telephone calls was usually not specifically for the further delivery of course content but to facilitate two-way communication between the student and the teacher so as to assist the student overcome some of the difficulties associated with learning in isolation. From the 1950s, the primary goal of the teacher in teletutoring was seen as being to utilise this two-way communication to inspire and motivate students to continue their studies with enthusiasm (Childs, 1957, cited in Scales, 1984, p.269). This view was also demonstrated by Bááth and Wangdahl (1976, p.16), who believed the most important function of a teacher was 'stimulating, supporting, and strengthening students' motivation'.

There have been a number of experimental studies within overseas distance education institutions that have applied teletutoring in various forms (Brindley, 2000; Flinck, 1978; Rekkedal, 1985; Rekkedal, 1989; Rekkedal & Qvist-Eriksen, 2004; Scales, 1984; Sweet, 1986). In general, it seems that the possibility of direct contact with the teacher via a telephone is seen as motivating and helpful in the learning process of the individual student. The studies generally have shown that there is a positive trend or relationship reported between student persistence and teletutoring, although differences in student retention rates (when compared to control groups of non-teletutored students) however, have not often been statistically significant. For example, Brindley (2000) in her study on the influence of faculty-initiated support (in the form of two telephone calls and two follow-up letters) for distance learners at a Canadian university found that there was no significant effect on learner behaviour or satisfaction however, a strong positive relationship between social support and learner satisfaction was revealed. A recent evaluation of support services in E-learning by Rekkedal and Qvist-Eriksen (2004) also found that where telephone contact by faculty staff features, the students appreciate it.

Research on the potential effectiveness of increased teacher-student interaction via the telephone, provided the impetus for an Australian study of this phenomenon by Twyford (1998). The study was undertaken at a major Australian provider of distance education, located in Sydney called the Open Training & Education Network (OTEN). The design of the experiment extended the work of

Rekkedal (1989) in particular, by emulating certain research methods for comparison purposes. In the studies undertaken by Twyford (1998) and previously by Rekkedal (1989), the conventional study materials were supplemented with teletutoring.

The results of the Twyford (1998) experimental study reflected in an Australian context, those of other major European studies in the area, where the intervention via student-teacher interaction via the telephone, was a positive influence on increasing student persistence. The data showed that telephone contact by teachers had a positive influence or trend on student persistence but the differences for increased working and completion rates between an experimental and a control group of non-teletutored students were not statistically significant. Results similar to Rekkedal's (1989) study were also achieved when surveying the attitudes of the students to the increased interaction. The students were in favour of the increased student-teacher interaction, indicating their perception that it had a positive impact on their study experience, although in reality, overall, the data analysis showed that it did not achieve that outcome.

However, the Rekkedal (1989) and Twyford (1998) studies differed in relation to the surveyed attitudes of the teachers to teletutoring. The teachers in Rekkedal's study found teletutoring had increased their own motivation. The teachers reported that this increased motivation was helping them to do a better job and

making their other duties as distance teachers more interesting (Rekkedal, 1989, p.38). These findings were in contrast to the attitudes of the teachers in the Twyford (1998) study, who believed that teletutoring had no impact on their work, motivation or satisfaction (p.104). In the Twyford (1998) study, it was apparent that while the teachers thought the interaction with the students was worthwhile, they found the task onerous and somewhat demotivating, given all of their other duties.

It was acknowledged by Twyford (1998), as a limitation of her study, that the teletutoring experiment was undertaken at a time when a major restructuring of the institution had occurred and the teaching sections were affected by a massive reduction of part-time teaching hours. These reductions in teaching hours created greater work loads for all of the teachers. Given these circumstances, the allocation of another task to undertake, especially one which could be as time consuming as teletutoring, might be expected to have affected the teacher's opinions of their workload, which justifiably, would be negative.

Recent observations at this distance provider, have indicated that the part-time teaching hours available have not increased since 1998. Therefore, any student support mechanism implemented there that involved increased student-teacher interaction, would need to take into consideration the extra time teachers would need for its implementation. It is also important, in this era of fiscal restraint in education, that any method employed to increase student-teacher interaction

would be cost-efficient, especially as student support is already considered an expensive service in distance education (Bates, 1991; Threlkeld & Brzoska, 1994 cited in Visser, Plomp & Kuiper, 1999; Calvert, 2005). Calvert (2005) questioning whether the impact of particular strategies and approaches are worth the effort and expense.

There is no doubt that teletutoring, with its one-on-one contact via the telephone, is relatively expensive in terms of the cost of the teacher's time and the cost of the calls. It is especially so for large distance education providers like the one used in Twyford's 1998 study, with approximately 32,000 students enrolled each year, throughout Australia and the world. While one-on-one teacher-student interaction would be the ultimate goal in order to reduce isolation and increase motivation, any student support method applied needs to be time and cost efficient in terms of performance and management and preferably, able to influence the greatest number of students.

The challenge of developing an efficient student support method that aims at improving the motivation of distance education students was also identified by Lya Visser (1998). Her solution was to extend existing student support in a distance education college, which offered international students a Diploma or Masters degree in Distance Education, using a motivational communication component in the form of a structured set of written motivational messages (Visser, et al., 1999, p.405). This method of student support was referred to as

the Motivational Messages Support System (MMSS). The aim of the MMSS study was to find out if supplementing existing student support, in the form of motivational communication, would increase student completion rates.

1.5 Motivational Messages Support System (MMSS)

The MMSS consisted of a number of motivational messages in the form of letters and greeting-card type messages that were sent out by the postal mail to the students at regular times during their distance education course. The timing of the messages was based on the learner's perceived motivational needs. These motivational messages were specifically designed to influence the motivational disposition of the distance education students so that they would become and stay motivated to continue and finish the course successfully.

The study consisted of two phases: a pilot study, that aimed at developing the MMSS system, including the design of the messages and the main study which aimed at assessing the effectiveness and cost-efficiency of the MMSS (Visser, et al., 1999, p.405).

1.5.1 Visser's Pilot Study

In the pilot study, a series of letters and greeting cards were developed based on a motivational design model developed by Keller, referred to as the 'ARCS' model (Keller, 1983, 1987). Keller considered the many concepts and theories

that attempted to explain various aspects of motivation and chose to ground his model in expectancy-value theory (eg. Porter & Lawler, 1968). Expectancy-value theory assumes “that people are motivated to engage in an activity if it is perceived to be linked to satisfaction of personal needs (the value aspect), and if there is a positive expectancy for success (the expectancy aspect)” (Keller, 1983, p.5). The resultant model has a strong theoretical basis but also was designed to be useful for developing a set of motivational categories and prescriptive strategies.

Keller’s ARCS model defined four major conditions or stages that have to be met or addressed for students to become and remain motivated (Keller, 1983, p.9). The initials of these four conditions - Attention, Relevance, Confidence and Satisfaction - gave Keller’s model the acronym ARCS.

The first condition for motivating instruction, according to Keller (1983), is to gain and maintain the **attention** of the learner. Although this may be easy initially, especially in face-to-face classes with pregnant pauses, dramatic statements or theatrical performances, the real challenge is in maintaining it throughout the course or module. It is necessary to stimulate their curiosity or arousal often throughout the module, through the use of humour, paradoxes and inquiry (Bohlin, 1990, p.3). In distance education, outside of the design of the learning materials, attention may be stimulated by unexpected contact by a variety of mediums and speedy feedback on assignments. In motivational messages to

students, attention can be stimulated by bringing pacing into the module, offering teacher assistance and rewarding early completion through complimenting learners personally (Visser, 1998, p.67).

Once attention has been gained, the student is expected to assess the **relevance** of the instruction in terms of the significance of the content to their present and future career opportunities and also the relevance of the manner in which it is taught before becoming highly motivated. The instructor needs to make clear the topics to be covered and how the topic relates to the bigger picture of the course and the student's goals. Once the student is convinced about why they have to study the content, they will also consider the manner of the instruction in terms of offering opportunities for satisfying needs such as affiliation, through working in groups or building self-esteem and confidence by showing individual achievement. In distance education, outside of the design of the learning materials, relevance may be shown through feedback on assignments, relating the course content to the student's goals and by providing feedback that relates to student's daily circumstances. To help distance education students manage conflicting interests, relevance can also be demonstrated by providing assistance to students with establishing priorities and managing time and by providing extra relevant material such as newspaper articles or publications (Visser, 1998, p.59).

The element of **confidence**, in Keller's ARCS model of motivation, relates to the student's attitude towards success or failure. Essentially, it refers to a student's expectation or belief that if they try to do something they will succeed. According to Keller (1983, p.11), theorists have various terms and concepts for this notion, including 'expectancy for success' (Fibell & Hale, 1978), 'self-fulfilling prophecy' (Jones, 1977), and 'personal causation' (Bandura, 1977). The student's attitude towards success or failure can influence his/her actual effort and performance. Confidence may be cultivated by clearly demonstrating the requirements for success, defining standards of performance, helping students set realistic goals and facilitating students' feelings that they have control over the outcome of their academic performance. In distance education, outside of the design of the learning materials, confidence can also be supported by encouraging students to set study plans and goals and to send in their first assignment early in order to overcome early 'jitters' and prevent further delays in commencement. In motivational messages to students, expectancy of success can be encouraged by emphasising that the learner can succeed if effort is put into the course, by the teacher showing empathy, by providing encouragement and setting personal challenges at appropriate times (Visser, 1998, p.67).

Finally, according to Keller's ARCS model, fostering the element of **satisfaction**, through reinforcing student accomplishment is important for sustaining motivation. Reinforcement theory suggests that students should be motivated if the task and resultant reward for successful completion is carefully described and

appropriate reinforcement provided strategically throughout (Keller, 1983, p.11). Bohlin (1990, p.3) suggested student satisfaction could be addressed through providing appropriate recognition for success, giving informative and corrective feedback and by supporting intrinsic motivation. In distance education, outside of the design of the learning materials, student support plans should aim at making students feel satisfied frequently (Visser, 1998, p.61). This can occur through providing timely, encouraging feedback and supportive comments in relation to their progress in the course. In motivational messages to students, satisfaction can be fostered through short turn-around times for assignments being encouraged, referring to positive feelings a student will have when the course is completed successfully and rewarding early completion through personal compliments (Visser, 1998, p.67).

Though the ARCS model (Keller, 1983) had been successfully used in traditional educational settings to help learners maintain or increase their motivation, it had never before been used in a distance education setting until Visser's study in 1998. Visser (1998, p.55) believed that the ARCS model of motivation would be a valuable tool to use in the design of her study and creation of her motivational messages. This was due to the ARCS model's flexibility in being able to be utilised for a wide variety of teaching methods and processes and its systematic approach to design of motivational strategies.

The result of Visser's pilot study was the establishment of Motivational Messages Support System (MMSS) ready to be used in practice. The aim of Visser's main study was to assess the MMSS for its effectiveness and cost-efficiency.

1.5.2 Visser's Main Study

During Visser's main study, which coincided with the course year, two different types of messages were sent to distance education students selected for the study: collective motivational messages and personalised motivational messages. The collective messages used the same set of messages for all students, while the personalised messages allowed the teacher to add personal remarks to the standard, prepared messages that were addressing the perceived motivational needs of the students (Visser, et al., 1999). To consider the impact of the different type of messages, three different groups were assessed. One group received personalised messages, one group collective messages and there was a 'control' group, who received only the normal support elements provided by the college. This, it was hoped, would allow the most effective form of message and cost efficient method to be determined.

The study was carried out in 1996-97 using the students who were international postgraduate distance students of the University of London (England) and the International Extension College in Cambridge (England). There were 63 students in three courses initially in the group who experienced the motivational communication. The motivational communication was, of course, provided in

addition to the traditional print-based notes and audio-cassettes that every student received as well as the feedback on all assignment work submitted from the teacher. As 50-70% of the students were from developing countries with limited access to fax and email technology, the researcher decided to send the motivational messages out in the postal mail.

Of the 63 students exposed to the experimental independent variable, 31 students in two different courses received the collective messages, while 32 in two different courses were to receive the personalised messages. Eighteen students, in another different course (Course A), were allocated to a control group. Visser (1998), in employing different intact courses for the experimental and control groups, may have introduced selection bias as a result of differences in the requirements and difficulty of the different courses (see Cohen and Manion, 1994). Thus there may have been a problem with experimental bias. It should also be noted that within this study the researcher also acted as one of the teachers/tutors to 27 of the students in the experimental groups. This as a possible source of bias is discussed later in this chapter. Table 1.1 provides a summary of the MMSS study (Visser, 1998, p.93).

At the end of the experimental period, however, the researcher found that the tutor for course D had only sent out one motivational communication. This tutor apparently had found the personalised messages too onerous a task to complete. One motivational communication was insufficient in terms of the

experimental quota, which required a minimum of four motivational communications to be sent out. Therefore, only 45 students in total experienced the independent variable overall. Of these, 31 students experienced the collective messages and only 14 students experienced the personalised messages.

Table 1.1: Overview of the MMSS Study (Visser, 1998)

Course Code	Number of Students	Type of messages	Message designer	Tutor
A	18	No messages	Not applicable	External tutor
B1	13	Collective	Researcher (Course tutor)	External tutor (the researcher)
B2	14	Personalised	Course tutor	External tutor (the researcher)
C	18	Collective	Researcher with course tutor	Staff member of the college
D	18	Personalised	Course tutor	External tutor

The findings of the research suggested that the messages overall were effective in increasing completion rates when compared to previous years where no intervention had been implemented. When comparing completion rates from the previous years 1995/6, overall, the difference was statistically significant. For the years 1995 to 1997, those who did not experience the MMSS intervention had a completion rate of 34% (n=62), while those students who did experience the MMSS intervention had a completion rate of 61% (n=64).

No significant differences in completion rates, however, were found between the two different types of messages, the collective and the personalised (Visser, et al, 1999, p.410). This result led Visser to believe that the use of collective, prepared messages would be just as viable as a method of support and as well, easier to facilitate for the teachers. This supposition was also supported by the actions of the teacher of Course D, who found the task of sending personalised messages to be too difficult. The only personalised messages having been sent out in the experiment, were by the researcher herself. It may be, however, that the researcher acting as tutor and experimenter, leads to a question of possible bias. The researcher, may have been unintentionally personally motivated to see the experimental results turnout as she had predicted. The use of prepared messages, for the collective system, also had the additional benefit of being more cost-efficient means of support (Visser, 1998, p.172).

The justification for using collective messages was also supported by the outcomes and experience of Twyford (1998) in her teletutoring experiment conducted at OTEN. In common with Visser, Twyford found that the implementation of any student support systems needed to be as teacher friendly as possible to increase the likelihood of its successful adoption both during and after the life of the experiment.

Within her study, Visser's also analysed the influence of the MMSS on those enrolled for the first time compared to re-enrolees or repeaters in the course. In

1997, the results showed that the percentage of students who completed on their first time enrolled, overall, was higher than for students who were repeaters.

These results suggested that for maximum influence and hence, optimal utilisation of resources, the use of motivational strategies, in this case the MMSS, are best suited to first time enrolling students. Table 1.2 illustrates the influence on completion rates for those first time enrolees and repeaters in Courses B/C in 1997 who experienced the MMSS intervention and those in Courses A/D who did not have this experience.

Table 1.2: 1997 completion rates for first time and repeating students in Visser's (1998) MMSS study.

Course Code	Enrolment	MMSS intervention	No. of students	No. of completers	Percentage completed
B & C	1 st time	Yes	24	19	79%
B & C	Repeaters	Yes	21	10	48%
A & D	1 st time	No	10	5	50%
A & D	Repeaters	No	26	9	35%

The students in Visser's study were also surveyed to determine their attitudes towards the support method. The findings suggested that the students appreciated the motivational messages. The final questionnaire had a 55.6% response rate (25/45), and of the 25 responses, 22 said the motivational messages had encouraged them to continue, while 23 said the messages had contributed to their pleasure (Visser, et al., 1999).

However encouraging the results for the MMSS program were in relation to the improvement in completion rates and students' appreciation of the support

received, the validity and reliability of the results may be questionable because of the particular limitations of the study (see Campbell and Stanley, 1963). Two possible limitations of the study concerning experimental and control group lack of equivalence and possibility of experimental bias have already been mentioned but there are others.

For example, another limitation of the study, not acknowledged by Visser, was in relation to external motivational forces on the students. Visser (1998, p.180) stated that most of the students were sponsored for at least the cost of the course. The motivational component of having an external person or organisation paying for some of each student's tuition would place different and possibly stronger motivational forces on students, than would occur for other students who were self-financing. No differentiation of these varying motivational forces had been examined and accounted for in her study. For example, were most of the self-financing students in the control group?

Another limitation of the study occurred in the representation of the results. According to Visser (1998, p.84), the effectiveness of the MMSS study in distance education courses, would be shown "...when a higher percentage of students than the years before complete the courses successfully." Specifically, in terms of quantifiable data, Visser stated that the effectiveness of the MMSS study would be demonstrated if, for the course year 1997, a greater percentage of students than the average of the courses in 1995 and 1996, completed the

course successfully (Visser, 1998, p.130). Contradictorily, Visser then used data from 1996 for Course C, which was used for the pilot study, combined with the results for determining effectiveness, when she stated she would use 1997 data.

The addition of the previous year results to compare with the year the experiment was undertaken, however, faces possible problems of internal validity in terms of maturation (see Campbell and Stanley, 1963; Cohen and Manion, 1994). Though essentially the environment and conditions may have been the same for those two previous years to 1997, a more tightly controlled study with increased validity, would have been provided if Visser had compared the experimental results to control group results obtained in the same year as the experiment took place. In saying this, Visser did utilise a control group (Course A, in the design of her study) but she did not use its data as her major comparative group, when measuring relative group effectiveness. Perhaps this was due to her wanting to compare like-with-like, that is, compare data from Course B with Course B. This is a more valid and preferable position, however, the study would also have benefited from the data used for comparison purposes coming from the same enrolment period to control for any extraneous variables such as changes in course content, student demographics or assessment events.

Visser, however, did provide limited information about the control group in Course A. Of the 18 students enrolled in Course A, seven students finished, giving a completion rate of 39% (Visser, 1998, p.131). No results for Course A

were provided for the previous years 1995/6 for comparison purposes. To provide a more accurate representation of the results for the experimental year of 1997, the results for all courses are provided in Table 1.3. Consistent with the results when compared to previous years, the results for 1997 revealed that the MMSS appeared to be an effective strategy for increasing completion rates for students. Specifically, those students in Courses A and D, who did not experience the intervention, had a completion rate of 39%, whereas those students in Courses B and C who experienced either the personalised or collective messages had completion rates of 67% and 61%, respectively.

Table 1.3: 1997 completion rates for all courses in Visser's (1998) MMSS study

Course Code	MMSS	No. of Students	No. of Completers	Percentage completed
A	No	18	7	39%
B	Yes (personalised & collective)	27	18	67%
C	Yes (collective)	18	11	61%
D	No (only 1 message sent)	18	7	39%

The marginal improvement in completion rates in Course B (67%) compared to Course C (61%), who both experienced the MMSS, could perhaps be attributed to the researcher acting as the tutor in relation to sending out the messages for those students in Course B. As already mentioned, the researcher's possible bias toward hoping for a positive outcome of the MMSS study may have influenced the amount of effort put into the tasks required, when compared to the

other tutors and this may have influenced the results. Visser (1998, p.105), did acknowledge the possibility of the researcher's expectancy effect in terms of bias for those students in Course B.

Another limitation, acknowledged by Visser (1998), was that the MMSS study was conducted with a relatively small number of students involved, even though at the college in which the experiment took part, the 45 students involved were equivalent to approximately 50% of the entire student population. In the majority of distance education institutions, however, there are usually large numbers of students enrolled and so the generalisability of the study to wider populations and distance settings, especially in other countries, would be limited. In particular, the organisation of the student support system with only a small number of students involved, may also have 'procedural' limitations when implemented in a large distance educational organisation. For large distance education providers, the evaluation of the success of the implementation and management of any student support system, would need to be based on much larger student sample.

Another area where the external validity of the Visser (1998) study may be problematic comes from the distinctiveness and lack of representativeness of the available study's sample, when compared to the population to which the researcher sought to generalise her findings. The college in which her study took place had 100 students from 30 different countries, of which 50-70% were

described as “developing nations”. In the pilot stage of the study, 19 students participated from 13 different countries on five continents. The students, therefore, came from a number of different countries. In the main study, however, the origin of the students selected were not stipulated. It could be assumed, given that the number of students in the main study represented nearly 50% of the total population in the college, that the students were also from many different countries. While the cultural diversity of students who participated in the experiment may be representative of that available population, it would have limited representativeness to the much more homogenous nature of most distance education communities at large. Visser (1998, p.185) acknowledged, however, that the MMSS study operated in a limited environment and called for more research to be undertaken requiring similar studies in different contexts.

In addition to the foregoing limitations of Visser’s (1998) study, another problem was the lack of consideration of the importance of early intervention following enrolment. This initial early intervention is seen as a vital component in student support by other researchers. Many researchers have shown that there exists a significant relationship between student behaviour following enrolment and student completion, particularly in regard to early assignment submission (Billings, 1988; James, 1997; Pfeiffer & Sabers, 1970; Robinson, 1995; Sheets, 1992; and Wong & Wong, 1978-9). For example, Billings (1988) found that students who do not submit an assignment within 40 days of receiving learning materials were more likely not to ever start working. Billing’s findings reinforced

those of Armstrong, Toebe, and Watson's earlier study (1985 cited in James, 1997). They found that of the students who submitted assignments in the first two weeks, 84% completed the course. Of those students who waited two months or more to submit an assignment, 75% did not complete at all.

In Visser's (1998, p.93) study she stated, "The dates for despatch of the motivational messages were based on data obtained during the pilot study and on a structured interview involving tutors of the College." No further details of this data, however, were provided. From information provided by Visser, it is evident that the main study was conducted between March 1997 and November 1997. The first introductory letter was sent on 10 April 1997 with a second letter, offering assistance in pacing the assessment tasks in the course, sent another month later on 10 May 1997. These dates would indicate that at least a two-month period had elapsed between the date the student commenced their studies and the posting of the first communication specifically designed to encouraged the student to send in an assignment. On 30 June 1997, the students were then sent a message indicating that the first assignment was due on 30 June 1997. This, along with an indication that it was sent the day the assignment was due, indicated a 3-month period had lapsed between the time the student enrolled and the time they received an encouragement to submit the first assignment. In accordance with the research discussed above, the timing of the motivational messages in Visser's (1998) study may have been poorly

conceived, especially during the important initial period of a course following enrolment.

In Visser's study the motivational messages were sent to students using the regular postal service in England. The main reason for this was the students, who were mostly based in developing countries around the world, lacked access to electronic mail and facsimile (fax) facilities (Visser, 1998, pp. 182-183). Since the time the experiment was undertaken, in the mid-1990's, access to electronic media has increased significantly. Visser acknowledged this change, even amongst the students during the life of the experiment and went on to recommend that further research be conducted using more modern communications, such as electronic mail and using a greater number of students (Visser, et al., 1999, p.410).

Visser (1998, p.183) mentioned a follow up study she had commenced using electronic mail, more commonly referred to as 'email', as the medium for dispatch. Visser's study involved 18 students enrolled in Course B in 1998, 13 of whom chose to receive extra support, in the form of motivational messages, and 5 only wanting to utilise the regular tutorial services. Of the 13 participants, ten had access to email facilities. These students received normal tutoring via email and five motivational messages sent out by email plus one via the post. The projected results of this study showed that completion rates from the students who consciously chose to be apart of the extended support program were

expected to be 94%. This outcome compared to no submission of any assignments for the 5 'regular' students at the point in time the results were recorded (Visser, 1998, p.184). Unfortunately, to date, no thorough details or actual results have been published for this study. Given the small number of students involved, however, this initial investigation obviously has significant limitations.

Indeed, email, as a medium of distance communication, has many benefits compared to the regular postal mail for any distance institution faculty and its students. For the faculty, it has the benefit of not being as physically demanding and time consuming as producing and mailing out large numbers of letters. One of the prominent advantages of electronic mail for the use of communicating with students is the ease of editing, storing, duplicating and delivering messages (Tao, 1995). The faculty also has the assurance that the message has arrived at its intended address as email messages that do not 'get through', send an automatic reply to the sender that the message has not been delivered. However, like the postal mail, even though the message may have been delivered, there is no guarantee that the message has been read. For the institution the benefits of email are that it is a relatively cost effective means of support, once the computer system is available, and its ability to be time efficient has further cost benefits in terms of utilisation of human resources.

Email also provides students with the benefit of being able to easily interact with appropriate faculty members by reading the message and then simply responding by 'clicking on' the 'reply' button. McComb (1994, p.160) has argued that the ability of students to easily interact with teachers has altered the traditional relationship between teachers and students, with the power relationship now being more equalised. This "equalization phenomenon", as Hawisher and Moran (1993) described it, having the possible benefits of "involving marginal members of educational institutes and facilitating students' participation as a whole" (Tao, 1995, p.28).

For these reasons the use of an on-line technology as the means to motivate distance students, forms the basis of this current study. While acknowledging the various limitations of Visser's (1998) research, it did provide valuable information, useful in the design of the present study, whose aim was also to examine the effectiveness of motivational communication in distance education. Elements of Visser's (1998) study, such as the utilisation of the ARCS model in the design of motivational communications and the findings in terms of the valid use of collective messages and targeting first time enrolees were utilised but modified for the current study's research design.

In the present study, however, an attempt was made to improve on and extend Visser's (1998) research in a number of important areas. For example, the present study was designed to allow a much greater number of students to

participate, it used on-line technology and contained a control group to enable an evaluation of the effectiveness of the motivational communication. In addition, in the present study, the experimental and control groups consisted of students from the same enrolment year in contrast to comparisons made with completion rates from previous years, as occurred in Visser's study.

It is acknowledged that there was a study undertaken by Kellogg (2003) on the influence of computer generated email reminders on the rate in which distance students of the Virginia Tech in the United States of America submitted assignments and completed subjects. In Kellogg's (2003) study the computer generated emails were sent 24 hours after the students in the Master of Arts course had failed to submit an assignment by the suggested due date. The aim of the email reminders was to motivate students to submit assignments and encourage them to monitor their own progress. The content of the singular email message was "simple and brief" (Kellogg, 2003, p.41). The results indicated that the influence of the computer generated email reminders, as designed in Kellogg's (2003) study, did not significantly influence the assignment submission rates or course completion rates of the distance learners. A survey of the participants in the experiment revealed though that the students found the email reminders helpful and they had made the students feel less isolated.

Kellogg's (2003) research, however, was published after the commencement of the current study's experiment. The methodology and results of Kellogg's (2003)

study, therefore, were unable to influence the current study's design. Due to the sample size in Kellogg's (2003) study being small (N = 82; 40 participants in the control group and 42 in the experimental group) and the sample being taken from one distance-learning program the results may not be generalisable to other populations.

2 Background

2.1 Statement of Problem

The research evidence presented in Chapter 1 has shown that a widely recognised problem with distance education is post-secondary students who do not persevere with their studies. What was also shown there was that the relatively high percentage of students who drop-out from distance education courses may represent not only unsatisfactory financial outcomes for the institution and the student but also stand for individuals whose educational goals have been either not met or impeded.

The reasons for students withdrawing from their studies can vary, including situational, institutional, dispositional or epistemological factors. Situational factors are those that arise from a student's life circumstances (Castles, 2004; Morgan & Tam, 1999). For example, these factors might be poor family support, money problems or change in circumstances such as a changed employment situation. Institutional factors are difficulties the student experiences with the institution (Castles, 2004; Morgan & Tam, 1999). For example, learning materials arriving late, inflexible course structure or insufficient communication with teachers. Dispositional factors are personal problems that impact on the student's persistence behaviour (Castles, 2004; Morgan & Tam, 1999). For example, these factors might be unclear goals, poor motivation, study or time

management problems. Finally, epistemological factors are those impediments caused by the content of the subject/course itself or the perceived difficulty of that content (Castles, 2004; Morgan & Tam, 1999). For example, these factors might be lack of prerequisite knowledge or the course not having sufficient opportunities for practical application of theory.

A major reason associated with students not persisting with their studies in distance education, however, that an institution may influence, is the lack of interaction between the teacher and the learner (institutional factors). As has already been shown, this lack of interaction has been linked to students feeling isolated and consequently, can impact on the student's motivation to complete or even start their studies.

2.2 Need for the study

Attrition in distance education appears to continue to be a significant area in need of further research, because of its economic implications for education institutions and students. Researchers have consistently identified from an institutional perspective, that the wastage in physical, financial and human resources resulting from incomplete subjects and courses is a major concern (Bryant, Kahle & Schafer, 2005; Calvert, 2005; Howell, Laws & Lindsay, 2004; Moody, 2004; Scales, 1984). This is especially the case in terms of its influence on funding in vocational education and training in Australia, where there has

been a recent policy shift towards outcome-based performance measures as distinct from activity-based assessment (Cleary & Nicholls, 1998; Grace & Smith, 2001). This means funding is increasingly becoming more focused on how many students complete the course, instead of the number of students enrolled and working in the course. It is within this changed current government educational policy context that student support strategies that minimise non-working students and maximise subject completions, is viewed as most important.

Student support, however, is considered an expensive service in distance education (Bates, 1991; Calvert, 2005; Kellogg, 2003; Threlkeld & Brzoska, 1994 cited in Visser, et.al., 1999). This view, when combined with an era of fiscal restraint in education, requires any student support mechanism, which is to be employed in distance education, to be cost and time efficient. One such way of achieving this outcome is to have messages delivered by electronic mail.

Investigating the effects on distance students of motivational messages delivered via electronic mail, therefore, is seen to be an important area of student support. One worthy of exploration because of its possibilities of reaching and supporting large numbers of students at a reasonable cost to the institution and in a time-efficient manner for teachers.

2.3 Purpose and significance of the study

The present study aims to investigate the ‘actual’ effect of motivational strategies as opposed to the ‘perceived’ effects on the interest, effort, and performance of adult distance learners.

The major focus of the present research was to investigate ways of improving the interactive communication between the institution and the distance student as well as to explore a way to enhance students’ motivation in order to minimise the likelihood of attrition. In the area of maximising student retention there is much background research upon which to draw (e.g. Bryant, Kahle & Schafer, 2005; Rekkedal, 1989; Rekkedal & Qvist-Eriksen, 2004; Twyford & Pithers, 2000; Visser, 1998).

This empirical/analytic study aims to contribute to the knowledge in the area of student withdrawal and support in distance education to benefit educational providers and ultimately, assist more students achieve their educational goals.

This was achieved by investigating an approach that does not currently feature in published research in distance education, namely, using motivational messages delivered to students via electronic mail (commonly referred to as ‘email’ throughout this dissertation).

It is hoped that this study will add to the research that has already occurred in respect to the relationship between student course persistence and increased student-teacher interaction. In this investigation, the conventional study materials were supplemented with motivational messages, via email, from the teacher. The aim of this process was to increase the interaction between the student and the teacher and thereby, influence the student's motivation to begin, continue, and complete his or her distance studies.

2.4 Definition of major terms

Just as distance education institutions around the world differ in terms of entrance requirements, support provided, access policies and assessment requirements, differences are also found in the way institutions and countries define various terms. To provide clarity for the reader, as well as a link to other published research in this area, definitions are provided for the following terms that are used in particular ways in this study:

- *Assessable event*: A compulsory item of work to be completed by the student. Examples of assessable events include assignments, tests, examinations, fieldwork, practical assessments, and so on.
- *Module or subject*: These two terms are used interchangeably within this thesis and refer to one complete component within a course of study. A course typically has many modules or subjects to be completed.

- *Course:* A structured collection of modules/subjects which are required to be successfully completed to be eligible to graduate with a particular qualification.
- *Working:* For students to be classified as 'working', the students are required to submit at least one assessable event in a module.
- *Completion:* This event is deemed to occur when the student successfully passes all assessable events for a module or subject.

2.5 Research Setting

The present study was undertaken at the Open Training & Education Network (OTEN) within the Property Services section of the Faculty of Business. OTEN is an Institute of the New South Wales Technical and Further Education (TAFENSW) organisation within the Department of Education and Training (DET). The role of TAFENSW is to provide vocational education and training to a wide variety of industries and also to provide basic and pre-vocational education courses. OTEN is the only distance education specialist within TAFENSW, catering for students who live within Australia and overseas.

OTEN is the largest distance education provider in Australia with enrolments consistently above 32,000 students each academic year. There are approximately 750 staff, including 140 full-time teachers, 150 part-time teachers and 220 off-site teachers.

The importance of investigating new methods to increase student persistence and engagement with a subject and hence, course completion has become very important at OTEN because, like other publicly funded organisations, the funding basis in Australia is increasingly changing from activity-based assessment to outcome-based performance measures (Cleary & Nicholls, 1998; Grace & Smith, 2001).

This change in funding emphasises the need to get distance students working and keep them working until they complete all of their modules and subsequently courses. It is within this climate that OTEN, as a major Australian distance education provider, is interested in and supportive of any initiatives likely to increase student participation and module completion.

2.5.1 Distance education at OTEN

Distance education at OTEN is carried out by various instructional forms and mediums, including written materials, audio-conferencing, video-conferencing, on-line delivery, orientation sessions, face-to-face tutorials, practical sessions and field days. However, the predominant instructional form is a correspondence model, where the learning materials are print-based and the student studies by himself or herself, without direct contact with a teacher (Taylor, 2001). This is similar to the basic distance education process in other developed Western countries.

The student receives the course learning materials in the mail. The learning materials contain information to assist the student to progress through the module, support advice and the assignments to be submitted for successful completion of the module or subject. They also contain the study units, which are divided into subject content areas. In constructing the learning materials, OTEN is aware that the written material needs to be well-structured and self-instructional. This material needs to emulate the explanations that a traditional face-to-face teacher would provide, whilst supporting and motivating the student; just as researchers in the field have suggested (e.g. Bernard, Abrami, Lou, Borokhovski et al., 2004; Flinck, 1978, p.13). The student is expected to work through the learner materials, supplementing this material by reading relevant text books and other material. The distance material assists the student to complete assignments and prepare for examinations.

The student sends to the college the completed assignments. The student is then allocated to a teacher by the administrative staff, who then forwards the assignment to that teacher for feedback and marking. That teacher may be a full-time, part-time, or off-site teacher. The distance teacher provides written feedback and allocates marks or grades, then returns the assignments directly to the student. These marks or grades are also provided as records to the administrative staff.

Given this system of correspondence education, communication with the student is generally only through written means. Nonetheless, the student is able to talk to teachers with subject knowledge (but not necessarily the specific teacher who assesses their assignments) by taking the initiative to telephone a relevant subject-matter specialist teacher. Telephone numbers are provided to students who live outside the metropolitan area of Sydney, where the OTEN Institute is physically located. These are only charged at local call fees within Australia, commonly referred to as '1300 numbers'.

This description of the general learning process at OTEN, shows that the interaction between the teacher and the student varies considerably. It varies according to the inclination of the teacher and the student to interact and also according to the needs of the student, rather than being governed by any set guidelines or policies of OTEN. This has been the process for many years, however, in an attempt to improve retention rates, new methods to support students utilising current physical, human, and financial resources need to be investigated.

2.6 Research Design

The primary aim of the present research study was to investigate the effect of a program of faculty-initiated motivational messages via electronic mail to examine

the students' sense of isolation and hopefully, improve their motivation to start and complete their course subjects.

The primary cause and effect problem posed at the core of this study suggested a research design that was quasi-experimental. This empirical study, therefore, was designed to use an Experimental and Control groups of distance students. The former group experienced an intervention, a treatment or independent variable that was composed of motivational messages sent via email, while the latter or Control groups did not experience the messages. This research methodology was designed to study how a group of OTEN students react to the motivational email messages, in comparison to the normal practices of correspondence education, experienced by a similar group of 'control' students.

In determining the research design for this study, reference was made to Cleary and Nicholls' (1998) report, 'Understanding and Improving Module Completions' in vocational education and training in Australia. Cleary and Nicholls' (1998, p.3) stated "Institutes can act to improve completion rates, but such action is best undertaken at a micro level." They believed any strategies implemented to improve completion rates could be best achieved through both teacher and management initiative at an institute level. This study conforms to this recommendation by being conducted in one teaching section within an Institute, the Open Training and Education Network (OTEN) of TAFE NSW, details of which were provided earlier in this chapter.

Cleary and Nicholls' (1998, p.26) also provided an Improvement Model that they suggested teachers and institutes could utilise to assist module completion rates. The Improvement Model for strategies to improve completion rates at an institute level involved eight stages. The eight stages are detailed under the title 'Process' in Table 2.1. Details of how the current study was designed to reflect the suggestions of those eight stages appear alongside each stage under the heading 'Present study basic details'.

Cleary and Nicholls' (1998), Improvement Model included a feedback loop at Stage 7- Record Results. If the results suggested an intervention strategy was not successful then the model suggested a return to Stage 5, Design intervention strategy, to redesign the intervention strategy or design a new strategy. To corroborate results, Cleary and Nicholls (1998) also suggested that if at Stage 7, the results show the intervention was successful, the strategy should be implemented again, in other course areas.

Table 2.1 Details of the present study linked to Cleary and Nicholls' (1998) Improvement Model.

Stage	Process	Present study basic details
1	Identify the problem	High drop-out in distance education modules at OTEN.
2	Develop a measure to record performance	Measures to indicate activity are in the form of frequency tallies for students who submit one assignment or more in a module (working), and those who complete modules.
3	Record performance	Using an experimental group and two Control groups, measure performance in each group for comparison purposes at the end of the study.
4	Identify and analyse reasons for problems	Using analysed data from Kirkby (2000), problems of motivation and lack of teacher-student interaction were indicated as being important issues relating to withdrawal in a distance module/course (eg. at OTEN).
5	Design intervention strategy	An Email Support Program (ESP) was developed to provide regular motivational communication from the faculty to the students with email availability throughout the same initial four modules in courses.
6	Implement Strategy	ESP implemented for students enrolled in the same four modules in the 2001 academic year.
7	Record results	To be detailed in the Results Chapter.
8	Publish outcomes	Information on the study to be published in the form of a PhD dissertation and, hopefully, later appropriate publications.

In terms of designing an intervention strategy (Stage 5) in Cleary and Nicholls' Improvement Model, Keller (1983, p.15) provided specific guidelines for the development of motivational strategies so that they were effectively integrated into the instruction. Keller (1983) stated that motivation based retention strategies should:

1. not take up too much time;
2. not detract from the learning objectives;
3. fall within the time and money constraints of the development and implementation aspects of the instruction;
4. be acceptable to the audience; and
5. be compatible with the delivery system, including the instructor's personal style.

These five guidelines were considered and applied when designing the intervention strategy used in this study.

The study on motivational messages by Visser (1998) in the United Kingdom as previously discussed in Chapter 1 also provided some useful hints on the process of designing an intervention strategy based on motivational communication. Visser's (1998) research design included one control group and two experimental groups. One of the experimental groups experienced 'collective messages' and the other experimental group experienced 'personalised' messages. The findings of Visser's (1998) study found no significant differences in student completion rates between the collective and the

personalised messages so, for the purposes of this study, only collective messages were used.

Visser's (1998) finding in terms of the possible benefits for the teachers and the institution was only one basis for the use of collective messages in the present study. For teachers, the use of standard collective messages was easier to use and took less time, which might be expected to increase the chance of the ongoing successful implementation of the student support system by them. From an institution's viewpoint the use of collective messages had the benefit of being more cost-efficient than personalised messages, a point Visser (1998, p.172) had noted earlier.

Of the 45 students who experienced the experimental element in its entirety in Vissers's study, 31 of these students in two different courses received the collective messages. Visser (1998) acknowledged that there were relatively small numbers of students involved and stated that further research was required into the systematic use of motivational communication using greater numbers of students. The present study aims to systematically use motivational communication in a different country, culture and context to Visser (1998) and as well, use a relatively large student sample.

In Visser's (1998) study, the motivational communication was in the form of two initial letters and six greeting cards. They were sent over an 8-month period using the regular postal service. The use of more modern means of

communication, such as electronic mail, seemed to Visser to be a useful area in furthering this type of research, although it had not been used by Visser. It has the benefits of rapid motivational feedback and the possibility of establishing dialogue between the teacher and the individual student. It also requires less 'physical' time to send numerous emails, compared to printing, folding, addressing and posting letters by regular postal mail. In the present study, the motivational communication was distributed using electronic mail facilities.

In the current study, in addition to the data obtained on student reactions to the motivational email messages as measured by the study success variables of 'working' and 'completion' rates, student attitudes towards faculty-initiated motivational email messages were also explored by means of a short, descriptive postal survey. Visser (1998) had also attempted such a process with her small sample. In the current study, after all of the motivational messages had been sent to a student in the Experimental group, a questionnaire was sent to them to identify their reactions and responses to the email messages in terms of content, format, pacing and perceived influence. A second, similar questionnaire was also sent to those experimental participants who were 'non-complete' to assess their perceived reasons for non-completion.

The obtained quantitative and qualitative data from the questionnaires were then analysed. The data from the questionnaires was quantified to percentages and where deemed appropriate, an appropriate statistical test performed.

Comparisons were then made between the students who completed the subjects

and those who did not within the Experimental group. One advantage of this process was that the data obtained in this research, at least in some respects, could be compared to Visser's (1998) original findings. The study was also designed so that the survey data could also be compared to the OTEN specific study conducted by Kirkby (2000) on the reasons for non-completion.

Table 2.2: Details of the basic research design utilised in this study.

Group	Selection into groups	Treatment of groups	Measures
Experimental group	Selection into group based on notified email availability, module selection, new students and permission granted.	Independent variable - motivational electronic communication.	Dependent variables: Measures of study progress in the form of working, completion and withdrawal rates, and student attitudes to motivational communication.
Primary Control group 1 (students with no email addresses)	Selection into group based on: no notified email availability, module selection, and new students.	Treatment of Control group - no type of motivational communication delivered.	Measures of study progress in the form of working, completion and withdrawal rates.
Control group 2 (students with email addresses)	Selection into group based on notified email availability, module selection and new students.	<i>Same treatment as Control group 1 - no type of motivational communication delivered.</i>	Measures of study progress in the form of working, completion and withdrawal rates.

In summary, the design of the present study took the form illustrated in Table 2.2.

It should be noted that two Control groups were used in this study. Both of the Control groups experienced the traditional form of correspondence education, without the additional contact and support provided by the motivational messages. The only difference between the Control groups was that one group had notified their email access and the other did not. The reason for having two

Control groups, therefore, was to assess if access to technology in the form of email and a knowledge of computers had any influence on the study's dependent variables: students' study behaviour in terms of assignment submission and module completion.

2.7 Research Hypotheses and Questions

The major research question that flowed from the present researcher's aim was whether faculty-initiated motivational email messages would affect learner persistence in a distance education course in the form of increased participation and completion of modules. A by-product of the primary issue was an exploration of the influence on course participation and completion rates by students with access and availability to computer technology.

A number of research hypotheses and research questions guided this study. Overall, these were designed to test the effectiveness of this form of support for students in terms of influence on student effort and interest in the modules. Specific reasons for non-completion were also explored from students' perspectives, as were the demographic characteristics of students who successfully completed and those who do not complete. In addition to hypotheses and research questions, it was also of specific interest to see how a faculty-initiated motivational email support system might be organised at OTEN, and what benefits might flow to the students.

Specifically, there were four hypotheses and seven research questions that guided the research:

Research Question 1: Do faculty-initiated email messages affect working and completion rates?

Hypothesis 1a: Faculty-initiated email messages will significantly increase the 'working' (i.e. first assignment submission) rates of OTEN distance education students.

Hypothesis 1b: Faculty-initiated email messages will significantly increase the module completion rates of OTEN distance education students.

Research Question 2: In what ways does access to computer technology affect distance education learners?

Hypothesis 2: There will be no significant between-group differences between the two Control groups on submission and completion rates. In other words, access to computer technology is not likely to have any significant effect on these rates.

Research Question 3: In what ways do email messages affect distance education learners?

Hypothesis 3: That the Experimental group, on average, would submit the first assignment in significantly less time than the Control groups (average time taken from enrolment to submission of the first assignment and module completion).

Research Question 4a: In the Experimental group, what are the characteristics of the students who complete compared to those who do not complete their studies?

Research Question 4b: In the Control groups, what are the characteristics of the students who complete compared to those who do not complete their studies?

Research Question 5: What are the perceived reasons for module non-completion?

Research Question 6: What are the students' perceptions and attitudes towards faculty-initiated email messaging?

A detailed description of the design and methodology utilised in the current study is provided in Chapter 3.

3 Method

3.1 Population, Samples and Subjects

3.1.1 The population

The overall population for this study were the students of the Open Training and Education Network (OTEN) in 2001, the year this study was undertaken. OTEN is an Institute of the New South Wales Technical and Further Education (TAFENSW) organisation within the Department of Education and Training (DET) in New South Wales, Australia. It is the largest provider of distance education courses in Australia.

In that year, OTEN enrolled 32,066 students, of which 8085 (25%) were re-enrolments and 23981 (75%) were new course enrolments. This extensive population allowed relatively large samples to be chosen for the present study. Demographic information about the students was acquired only on a voluntary basis at OTEN. In 2001, the demographic profile of OTEN students was as follows. The majority of OTEN students were female (57%) and were primarily between 20 and 39 years of age. Outside of these ages, 14% of students were less than 19 years of age, 17% were between 40 and 49 years of age, and 8% of students were over 50 years of age. Given the Institute is a distance education specialist it is of no surprise that the majority of students were located outside of the Sydney metropolitan area with 58% of students living in regional New South

Wales, interstate or overseas. It is interesting to note that 42% of the students were located within the Sydney metropolitan area. They would have possible access to many face-to-face institutions but chose to study via distance education at OTEN.

Of the students who provided information in relation to their employment status, 49% were in full-time employment, 15% were in part-time employment, and 36% of the students were unemployed. The majority (80%) of courses at OTEN have a course administration fee and of those, 66% of students were fee paying students and 34% received government assistance in the form of an exemption from paying the admission charge. In terms of minority group representation at OTEN, 9% of students' stated English was not the main language spoken at home, a similar percentage of students were recorded as having a form of disability. Only 4% of students identified as being indigenous Australians of Aboriginal or Torres Strait Island descent.

Samples: Background and demographics

The Business Faculty is the largest faculty in OTEN with 13,787 enrolled students in 2001. It consists of study areas in Accounting, Law, Administrative Services, Property Services, Information Technology, Banking and Finance, and Small Business and Management. Within the Business Faculty, the Property Services section has students enrolled in a variety of courses related to real estate, property management and real estate valuation. The courses range in

complexity from the basic Statement of Attainment to the Advanced Diploma level. In 2001 the Property Services section had 2,439 enrolled students.

Generally speaking, the students within the Business Faculty and the Property Services section are representative of the demographic profile of OTEN.

Specifically, the Business Faculty and Property Services students are representative of OTEN population described earlier in terms of place of abode, the number of students who spoke a language other than English at home, the percentage of students with a disability, those of Aboriginal or Torres Strait Islander descent and the number of students who received government financial assistance while undertaking a course.

Within the Business Faculty and Property Services, however, there were some areas of slight demographic difference with the OTEN population in the 2001 academic year that should be noted. Firstly, slightly more students were female in the Business Faculty, when compared with those who compose the overall OTEN population (67% versus 57%, respectively). Administrative Services, the largest section within the Business Faculty, predominantly having female students, may explain this difference.

The Property Services section of the Business Faculty, however, is representative of the OTEN population with 56% of the students being female. Secondly, these students are similar to the OTEN population in that the students

are primarily between 20 and 39 years of age, however, there were fewer students aged 19 years and under in the Business Faculty and Property Services section. While there were 8% of students aged 19 years and under enrolled in each of the Business Faculty and the Property Services section, this age group represented some 14% of students in OTEN. This difference can be attributed to the Access Faculty in OTEN catering to students who are undertaking primary and high school studies. Lastly, the Business Faculty and the Property Services section are slightly different to other sections of OTEN in terms of the number of students unemployed. There were 36% of students unemployed in the OTEN population in 2001, compared to 30% of the students in the Business Faculty and 27% in the Property Services section. This difference may be explained by the number of students of school age and those undertaking introductory and pre-vocational courses in the Access Faculty of OTEN. Nonetheless, such differences were minor ones.

There were some other reasons for using the Property Services section from which to select samples for the present study. Firstly, samples drawn from the Property Services section of OTEN were chosen for the study as the researcher had knowledge of the institution and specifically of the section's processes and procedures, having worked there previously as a teacher for seven years. This experience made the researcher aware of the common questions, misunderstandings and problems these students were likely to experience when undertaking distance education courses and in particular, the modules chosen for

this study. This knowledge assisted the researcher in selecting appropriate modules and in compiling the content of the motivational messages to be used in the study. The use of a teacher's personal experience and knowledge in the analysis and design of a motivational strategy is supported by Keller (1987). Secondly, the Property Services section consistently has above 2000 students enrolled each academic year. This large group of students meant relatively large representative sub-samples could be chosen. Thirdly, and very importantly, the students in the Property Services section were representative of the Business Services faculty and of other OTEN distance students as a whole, which would be likely to improve the reliability of any generalisation of the study outcomes. Fourthly, the Senior Management of OTEN had indicated their willingness to have such a study proceed and had given their permission to use faculty staff and students.

3.1.2 Samples: Selection

Selection of Modules

Within the Property Services student group, students enrolled in four particular modules were chosen for this study. The four modules were Real Estate Industry Overview, Introduction to Sales, Introduction to Property Management, and Real Estate Consumer Protection.

These modules are designed to cater for the needs of people who desire to work in the property industry in a number of fields including property management and

real estate selling. They introduce the students to the real estate industry's governing Awards and Acts, basic sales and property management information, various roles in the industry and the responsibilities of employers and employees to consumers.

It should be noted that these modules are the introductory modules in nearly all of the Property Services courses, regardless of the course qualification level, because of the broad area of knowledge covered by them. The assessment requirements for overall completion of the four modules required the students to successfully complete four (4) assignments and then pass one overriding test on the information covered by all four modules. If the student obtained less than 50% for an assignment, then they were required to resubmit the assignment until they obtained greater than 50%. It was not until they have done so for each of the four assignments that they qualified to sit the all-encompassing test. Students were required to obtain greater than 50% in the test to successfully pass the four modules. Refer to Table 3.1 for a summary of the assessment details for each of the four modules.

Table 3.1: Assessment details of the four modules.

Module	Equivalent Face-to-Face Hours	Number of Assignments	Number of Tests
Real Estate Industry Overview	12	1	See last module
Introduction to Sales	12	1	See last module
Introduction to Property Management	12	1	See last module
Real Estate Consumer Protection	9	1	On successful completion of the four assignments, the student sits one test covering all four modules.
Module completion requirements:	45 hours	4 assignments	1 test

These modules were chosen as they fulfilled a number of criteria relevant to the purposes of this study. Firstly, there are consistently many enrolments each year in these modules as students are required to complete them to gain entry to the real estate industry in New South Wales. This allowed a sufficient number of similar module related students to be obtained for an adequate total sample for the study. In the year 2000, the academic year prior to the start of the study, approximately 1446 students were enrolled in these modules. Secondly, the researcher's experience previously showed that students could finish these four modules in quite a short time frame. In a face-to-face classroom situation, these four modules would normally be completed in one 16-18 week semester. This student-working constraint proved useful as it allowed data to be obtained in a reasonable time period. Finally, as the introductory modules were the first modules for a wide range of qualification levels, it allowed a cross section of students, in terms of demographics, to be involved. Once again, it was expected

any improvements in the representative nature of the sample chosen would enhance the reliability of any generalisations made from the present study's conclusions.

From the group of Property Services students who enrolled in 2001 in the nominated four modules, three samples of students were determined: leading to one experimental group and two control groups.

Selection of Experimental Group Students

Participants for the experimental group were selected if they fulfilled all of the following criteria. They were all students who:

- a. were new enrollees to the Property Services section of OTEN: Using new student enrolments has been supported by research in the 1990s by Reid (1994), Robinson (1995), Moore and Kearsely (1996) and Visser (1998) whose findings showed that student support appears to be most needed in the early stages of a course. As the first stages of a course generally coincided with the first enrolment, using newly enrolled students was more likely to be beneficial for improving student retention. Selecting new students, compared to re-enrolling students, also limited the influence of past experiences and attitudes to the Property Services section and ensured a minimum level of student support previously provided;
- b. provided an email address on their enrolment form;

- c. were enrolled in all of the modules: Real Estate Industry Overview, Introduction to Sales, Introduction to Property Management and Real Estate Consumer Protection;
- d. after processing of their enrolment had been completed, agreed to participate after being informed of the Email Support Program by telephone. Limiting student involvement only to those students who confirmed interest in receiving extra student support was decided upon based on ethical motives and the projected results of a small follow-up study by Visser (1998, p.183). Visser's study involved 18 students: 13 of whom chose to receive extra support, in the form of either email or postal motivational messages and 5 only wanting to utilise the regular tutorial services. The projected results of this study showed that completion rates from the students who consciously chose to be part of the extended support program were expected to be in the order of 94%. This is compared to no assignments being submitted by the 5 'regular' students at the point in time the results were recorded (1998, p.184). While no further details of this study have been published to date and acknowledging the number of students involved were small, these preliminary findings suggested that students who consciously decide to receive motivational messages are more likely to benefit from them in terms of facilitating course completion.

To maximise the potential impact of the support program proposed for the present study, it was decided, based on Visser's findings, to make exposure to any support strategy contingent upon the students' initial confirmation of

interest instead of indiscriminately exposing students to an intervention.

Following this approach, students in the experimental group were contacted by telephone and asked whether they would like to receive additional support in the form of messages via electronic mail (email). No mention of the intent of the messages and support being 'motivational' in nature was mentioned.

No student contacted refused to be a part of the program. One student, however, did query whether their email address would then be used for marketing purposes and for unsolicited emails. The student was informed that the email address would not be used for those purposes and the student agreed to be part of this group.

There were, in total, 379 students who fulfilled the above criteria ('a' through to 'd') and these individuals were allocated to the experimental group. They were all voluntary participants who had access to an email address and had enrolled in the period from 20 January to 20 July 2001.

It should be noted that on completion of the experiment there were only 297 students left in the experimental group. Students were deleted from the experimental group for one of three reasons during the course of the experiment. Overall, this was because the researcher needed to control for some extraneous variables that could bias the final results. Firstly, students were removed if they attended a Flexilearn tutorial. Flexilearn tutorials are optional one day, face-to-face tutorials given by OTEN teachers. Successful completion of the two

competency based assessment tasks and the final test allows the student to complete the four modules on the one day. Due to this fast completion time, Flexilearn tutorials tend to be very popular and entry is competitive. Within the Experimental group, 42 of the students attended a Flexilearn tutorial and so were omitted from the experiment. Completions obtained by students attending the Flexilearn would have tended to favourably bias the results, in terms of the additional support these students received at the face-to-face tutorial and the different assessment tasks undertaken. This was, therefore, an added extraneous variable that needed to be controlled for some of the experimental subjects.

Secondly, students were removed from the Experimental group if they were successfully granted 'Recognition of Prior Learning', or 'exemptions' as they are more commonly known, after initial enrolment in those modules. Four (4) students in the Experimental group were granted RPL based on previous educational qualifications, work or life experience. These students who completed modules through RPL would not be completing the modules or undertaking the set assessment tasks, which of course, was one measure by which the success of the intervention program was to be assessed.

Finally, students were removed from the Experimental group if the email messages did not reach them. This was detected by notification in the Property Services sections' email 'Inbox' that the message had been unsuccessfully sent.

This process appeared to occur for a number of reasons. They included: the student's email box being full; people leaving their place of work and hence their email access and the collapse of the telecommunications company 'One-Tel', which made a number of students' email addresses non-existent. As a result thirty-six (36) students were removed from the Experimental group because the email messages were not confirmed as having been received.

Selection of Control Group Samples

There were two (2) control group samples selected. Both of the control groups experienced the traditional form of correspondence education, without the additional contact and support provided by the motivational messages.

The only difference between the control groups was that one group had notified OTEN of their email access and the other did not. The reason for having two control groups was to assess if access to technology in the form of email and knowledge of computers, had any effect on these students' outcomes (i.e. students' study behaviour in terms of assignment submission and their module completion).

The primary Control group (CG1) was selected, based on similar criteria to the Experimental group in order to control for other extraneous variables that could possibly bias the outcomes of the study. In this case, they were also new enrollees to the Property Services section and they had enrolled in the same four

introductory real estate modules. These students were enrolled in the corresponding period to the Experimental group being the period from 20 January to 20 July 2001. Overall, the major difference, however, between the Experimental and CG1 was that the students in CG1 did not have email addresses nominated on their enrolment forms. It was expected that the number of students who fulfilled the control group criteria would be slightly greater than the Experimental group. In fact, the overall percentage of students who indicated that they did not have email access at OTEN in the year 2000 was 58%. This proved to be the case with a larger group of 425 students who fulfilled the criteria for selection. On completion of the study, however, there were 408 students left in the Control group. Nineteen (19) students were deleted from the Control group because they had also attended a Flexilearn tutorial, described earlier, throughout the academic year.

A second Control group (CG2), importantly, also did not experience the planned experimental intervention. That is, they did not experience the email motivational messages. They were, however, similar to the Experimental group, in one other respect; they had email addresses nominated on their enrolment form. These students enrolled from the beginning of the enrolment period of 7 November 2000 to 20 July 2001. There were 127 students who fulfilled the criteria for inclusion in CG2. On completion of the experiment, however, only 123 students remained in this CG2 group as four (4) of these students it was found had attended Flexilearn tutorials during the academic year. As mentioned previously,

these students were removed from the study for the reasons already outlined for the other sample groups.

3.2 Data Collection

Keller (1983, p.16) postulated that evaluations of motivational strategies are too often based on overall marks or other achievement measures. He believed this not to be a good indicator of success for a motivational program due to the influence of other factors (e.g. educational background, study environment) outside the scope of the strategy followed in this study. His preference for evaluating the effectiveness of motivational interventions was to “use direct measures of persistence, intensity of effort, emotion and attitude.” Within the present study this approach was followed and the effectiveness of the treatment process proposed was assessed by reference to measures of persistence and through survey methodology.

This process led to data being gathered in this study from two sources; the first utilised quantitative measures of persistence from official student files at OTEN. These were in the form of the frequency of assignments submitted, modules completed and official withdrawals. The time taken from the date of enrolment to submission of the first assignment and completion of the modules was also gathered. Secondly, a specific research survey instrument, in the form of a questionnaire, was designed specifically for this study. The questionnaire design

was influenced by the questionnaires and the results of previous studies such as those by Bohlin (1990), Visser (1998) and Twyford (1998). Both of these quantitative and qualitative data collection methods were used to ascertain information on and from the distance students.

3.2.1 Official Records

The Student Administration Management system (SAM) is a computerised database system for recording all student information at OTEN. This database records all information gathered at enrolment and throughout each student's enrolment. Senior Management at OTEN had previously given permission to use the SAM database for the purposes of this study. Information on SAM used for this study included:

- a. Student Demographics: This voluntary information provided by the student on enrolment included information on a student's age, place of abode, gender, highest education qualification level gained and attempted, country of origin, language spoken at home, disabilities, employment status and if they were receiving government funding for undertaking study. Some of this information was used for comparative analysis between students in the experimental and control groups, between students who completed the modules and those who did not, and between students who had access to email technology and those who did not.

b. Student Progress Records: In concurrence with Keller's (1983) preference for evaluating the effectiveness of motivational interventions, the effectiveness of student outcomes in this study was assessed by reference to measures of persistence, in the form of student progress records. Kember (1995, p.220) concurred with Keller (1983) and suggested that the use of student progress statistics could be used as an indicator to assess the effectiveness of an improvement strategy. To this end, SAM was used to access information on each student's progress in their study modules. The information gathered included:

- the number of assignments submitted, if any and the dates that they were submitted;
- whether a student withdrew formally from the modules and when and
- when a student completed all assessment tasks.

It should be noted that throughout the academic year at OTEN, students are considered by OTEN to be 'working' when they have submitted at least one assignment/assessment task for a module. Conversely, students are defined by the organisation as 'non-working' when they do not submit any assignments/assessment tasks for a module. If at the end of the academic year, a student still has not submitted any assessment tasks for a module, they are deemed to be 'withdrawn' or as more commonly referred to in the literature, a 'drop-out'. Similarly, if a student, throughout the year, notified

OTEN in writing that they wished to withdraw from a module, then the student is also considered to be 'withdrawn'.

3.2.2 Questionnaire

To obtain and assess the Experimental group's perceptions and attitudes to the motivational Email Support Program after the intervention stage, and to determine the effect on their interest and effort in their studies, two postal questionnaires were developed. See Appendix 1 and 2. One questionnaire was sent to the Experimental group of students who completed all the assessment tasks within a 16-week time period. The second questionnaire was sent to the Experimental group of students who did not complete the assessment tasks within a 16-week time period. The 16-week period was chosen as it corresponded to the standard time taken in face-to-face institutions to complete the four modules.

The questionnaires were completely anonymous and student details were non-identifiable. A short, one page covering letter was sent with the questionnaire (See Appendix 3). Its purpose was to indicate to students the aim and importance of the survey, assure them of confidentiality and to encourage their replies. A prepaid, addressed return envelope was also prepared for use with the questionnaires. The questionnaire was not sent to the control groups because they had not experienced the motivational messages.

The basic questionnaire design mostly allowed the same questions to be asked of both the completed and non-completed students within the Experimental group. The only difference between the two questionnaires was that the students who did not complete the modules within the specified time period, were asked an additional question to elicit the main reason for non-completion at that point in time. This question was included to allow a comparison to be made with the results of an exit survey previously undertaken by Kirkby (2000) at the same institution in order to identify those factors that were perceived to have caused students not to complete their course/modules in the 1999 academic year.

The statements in the questionnaires in this study used predominantly Likert-type scales. Some of them were adapted from a previous survey instrument created in a study by Bohlin (1990). The aim of Bohlin's (1990) survey instrument had been to measure students' perceptions of the effects of given instructor strategies on their interest and effort in a face-to-face learning environment. Bohlin's resultant survey contained questions based on Keller's (1983) ARCS model of motivation and was in the form of a 42-item instrument using five point Likert-type scales. The ARCS model was described earlier in Chapter 1. Nevertheless, the present study attempted to improve on Bohlin's questionnaire by reducing the number of statements asked in relation to the ARCS model from 45 to 29. The reduction in statements was made in an attempt to encourage each student's decision to complete with accuracy the questionnaire by reducing the time and effort required. Modification and elimination of some of Bohlin's original statements

was also necessary to tailor this study's questionnaire to the specific intervention strategy used in this study and to a distance-education environment.

Nevertheless, comparative data from the studies may only be of a limited value due to the different learning environments, i.e. face-to-face instruction compared to distance education.

Visser (1998), in her doctoral study, also used a survey instrument to measure opinions of the effects of a student support intervention strategy on their interest and effort. The setting for Visser's study was different from Bohlin's (1990) study however, and it was more relevant to the present study because it was carried out in a distance education institution (albeit based in England as previously discussed). The anonymous survey instrument used in Visser's (1998) study consisted of open and closed questions with provision for qualitative remarks. Predominantly the questions related to obtaining demographic information on the participants and feedback on the design of the strategy and the particular motivational messages used in the study. Only seven, four-point statements (using a Likert scale) were included to ascertain information on the effect of the motivational communication on the students' interest and effort. This study's questionnaire by comparison, was designed to have a much greater focus on the influence of the messages on the students' study experience and also, unlike Visser (1998), encapsulated all of the elements in the ARCS model of motivation (Keller, 1983). It should also be noted, that Visser's questions and statements tended to be conceptually quite simple, which could have been due to the

students in that experiment having come from a variety of countries and mostly having non-English speaking backgrounds.

In terms of format, the survey instruments used in the present study, attempted to improve on Visser's final questionnaire in a number of areas. Firstly, in Visser's questionnaire the Likert-scale code was placed at the very beginning of the survey, which required the student to continuously look back at the legend to provide an answer; a possible source of error. In the present study the items were structured and grouped according to category and type of question. The Likert-scale code was included at various points to visually assist the student in accurate completion and, later, the researcher in data entry. Secondly, a difference in formatting occurred in this study, in terms of eliciting qualitative comments from students in the questionnaires. Visser's questionnaire allowed for qualitative comments to be made individually for fourteen items with a space for general comments provided at the end. To encourage each student's decision to complete the questionnaire in the present study in a time effective way and to encourage a good response rate, opportunity for students to provide qualitative comments was only provided at the end of the questionnaire. Finally, to encourage the student to submit the completed questionnaire in the present study, unlike in Visser's (1998) study, a prepaid envelope was included.

In the present study, for the first part of both questionnaires, there were 29 statements made each using a Likert scale. A Likert scale was used in the

present study's questionnaires as it has the advantages of providing an equidistant scale that facilitates capturing normative judgements (Rohrmann, 2002). Statements and Likert scales have the benefit for the respondents of ease of use, familiarity and comprehensibility. For the researcher they are easy to explain and produce straightforward data for presentation and for some parametric-type statistical analysis (Rohrmann, 2002).

The questionnaire statements were grouped into five categories. For ease of processing the resultant data, each category was coded with a letter and each question within the category given a number. The first five statements were based on the students' original intentions on enrolment in relation to motivation, completion, goals and work relatedness of their studies. The remaining 24 statements, divided into four categories, related to each student's actual experience of the email messages and related to the perceived influence on their study behaviour. Items within these categories covered all four areas of Keller's (1983) ARCS model in terms of Attention, Relevance, Confidence, and Satisfaction. Table 3.2 shows statement content and which element of Keller's ARCS (1983) model of motivation each one addressed.

Table 3.2: Overview of some of the questionnaire statements and their ARCS component targeted in the questionnaire. See Appendix 1 and 2 for the questionnaires.

Statement reference code in the questionnaire	Statement	ARCS component targeted
B1	I read all of the emails sent to me from Property Services.	A
B2	The number of email messages was about right.	R
B3	The timing of the email messages matched my study progress.	R
B4	The email messages made me feel anxious about my progress in the course.	C
B5	The email messages made me aware of my progress or lack of it.	C
C1	The email messages were easy to read.	A
C2	The email messages captured my attention.	A
C3	The email messages were non-threatening.	C
C4	The email messages were relevant to my study.	R
C5	The email messages were a friendly means of communication.	C
C6	The email messages aroused my interest in the subjects	A
D1	Overall, the email messages had a positive effect on my study experience.	S
D2	The email messages motivated or prompted me to submit assignments.	R,C
D3	The email messages were appreciated.	R
D4	The email messages made me think the Property Services section was interested in my study progress.	S
D5	The email messages influenced my effort in the subjects.	R,C
D6	The email messages made me feel I could actively interact with Property Services.	A
D7	My study progress benefited from the email messages.	S
D8	The email messages reduced feelings of isolation.	C
D9	I would be in favour of the email messages being	S

Statement reference code in the questionnaire	Statement	ARCS component targeted
	sent to new Property Services students.	
E1	The email messages helped me feel more confident about my ability to succeed.	C
E2	Some of the email messages helped me to link success to my goals.	C
E3	The email messages made me feel that success isn't linked to luck.	C
E4	The email messages made me feel I could succeed with some effort.	C

ARCS Code: A = Attention; R = Relevance; C = Confidence; and S = Satisfaction.

The initial questionnaire category provided three statements related to the frequency and pacing of the email messages and two statements included to elicit the student's feelings about the email messages in terms of their progress in the course. The following category of statements related to the content and format of the email messages. While these statements specifically related to the eight email messages constructed for this study, similar questions had been posed in a questionnaire by Visser (1998) in relation to her interventional strategy. The results obtained here would therefore allow some comparison with her results in that area. The next category of statements were critical to a research question in the present study as they investigated the student's opinion of the influence of the email messages on them and on their study behaviour. An overall statement was initially asked on the email messages' effect on the student's study experience. Specific statements in terms of how their study progress was affected by the email messages followed. A final statement in this category was included to elicit the student's opinion on whether they would be in

favour of the email messages being sent to new Property Services students in the future. The final category of questions provided four statements in relation to the perceived link between the email messages and a student's feelings on module success, thus covering the 'Confidence' element of Keller's (1983) ARCS model of motivation.

In the second part of both questionnaires, there were three statements also using a Likert scale and four questions asked in relation to student-faculty interaction and faculty support. Two of the statements were similar to those asked originally in an earlier telephone contact study by Twyford (1998).

As indicated previously, the questionnaire sent to those students in the experimental group who did not complete within the specified time period asked an additional question in relation to their course progress to that point in time. The resulting data enabled a between-study comparison with data previously obtained by Kirkby (2000).

Finally, in both questionnaires, space was provided for qualitative comments, if the students wished to provide them.

3.2.3 Procedural Summary

A summary of the information sources used to assess the hypotheses and research questions are presented in Table 3.3.

Table 3.3: Data collection sources to address hypotheses and research questions.

Question Number	Research Question or hypothesis	Data/Information to be gathered from:
Research Question 1	Do faculty-initiated email messages affect working and completion rates?	Student records showing the number and details of assignments submitted, especially in relation to the number of students who submitted the first assignment and those who complete all assessment events were examined for the Experimental and primary Control group (CG1).
Hypothesis 1a	Faculty-initiated email messages will significantly increase the 'working' (i.e. first assignment submission) rates of OTEN distance education students.	Student records showing the number and details of assignments submitted, especially in relation to the number of students who submitted the first assignment were examined for the Experimental and primary Control group (CG1).
Hypothesis 1b	Faculty-initiated email messages will significantly increase the module completion rates of OTEN distance education students.	Student records showing the number of students who completed all assessment events were examined for the Experimental and primary Control group (CG1).
Research Question 2	In what ways does access to computer technology affect distance education learners?	Official student records detailing assignment submission and completion rates for students with access to computer technology in Control group 2 (CG2) and those who do not in Control group 1 (CG1) were compared.
Hypothesis 2	There will be no significant between-group differences between the two control groups on submission and completion rates. In other words, access to computer technology is not likely to have any significant effect on these rates.	Official student records detailing assignment submission and completion rates for students with access to computer technology in Control group 2 (CG2) and those who do not in Control group 1 (CG1) were compared.
Research Question 3	In what ways do email messages affect distance education learners?	Student records showing the time taken from enrolment to: (i) submission of the first assignment; and (ii) completion of all assessment events for the four modules were examined for the Experimental and Control groups.

Question Number	Research Question or hypothesis	Data/Information to be gathered from:
Hypothesis 3	That the experimental group, on average, would submit the first assignment in significantly less time than the control groups (average time taken from enrolment to submission of the first assignment and module completion).	Student records showing the time taken from enrolment to: (i) submission of the first assignment; and (ii) completion of all assessment events for the four modules were examined for the Experimental and Control groups.
Research Question 4a	In the experimental group, what are the characteristics of the students who complete compared to those who do not complete their studies?	Comparison of study records and student demographic details between students who complete compared to those who do not complete in the Experimental group.
Research Question 4b	In the control groups, what are the characteristics of the students who complete compared to those who do not complete their studies?	Comparison of study records and student demographic details between students who complete compared to those who do not complete in the combined Control groups.
Research Question 5	What are the perceived reasons for module non-completion?	The Postal questionnaire sent to students in the Experimental group who had not, so far, completed the four modules at the end of the four-month email program period.
Question 6	What are the students' perceptions and attitudes towards faculty-initiated email messaging?	Postal questionnaire sent to students in the Experimental group who completed and also those who did not complete the four modules within the specified period.

3.3 The Intervention: Messages and Procedure

To establish the Email Support Program a number of preliminary tasks were undertaken.

- **Designing, writing and editing the motivational messages to be sent to the students.**

A series of eight email messages were sent over a 16-week period to assist the Experimental group students' studies and motivate them to submit assignments. This number of email messages was chosen over this time period to hopefully stimulate student curiosity towards the email messages and to limit possible student feelings of indifference towards the email messages. The time generally increased between the email messages as the program progressed. It was hoped that this procedure might assist the students to become independent learners. According to researchers (Rekkedal & Qvist-Eriksen, 2004; Temple, 1991), assisting students to become independent learners is an important component of support programs in distance education as it discourages long-term, high-level support needs of students for completion of modules and courses.

For ease in operating the Email Support Program, the emails were designed so they could be sent to all students in the experimental group regardless of their progress in the modules. This meant that the researcher did not have to individually monitor each student's progress before sending each email, which would be a very time consuming process and would limit the number of students to whom the email support messages could be sent.

The email messages were designed to congratulate the working students and support and encourage those students who had either not started working or were working at a slower pace. The email messages were written in a manner so as to be supportive to the students who are not progressing. To alleviate any student fears or anxiety, the email messages always provided contact details for the Property Services section to enable students to receive assistance or guidance and also the contact details for the professional counsellors at OTEN.

Table 3.4 provides a summary of each of the email messages, when it was sent to the student, the time that had elapsed between messages being sent and the elements in the ARCS (1983) model it covered. See Appendix 4 through to 11 for the actual email messages.

Table 3.4: Summary of the email messages and procedure

Email Message Number	Summary of message	When received	Time between emails	ARCS Component
1	Title: <u>Welcome to Property Services</u> Content: Where to start advice; how to contact Property Services staff; importance of submitting assignments early and motivational quote.	The week the enrolment was completed.	First email	A C
2	Title: <u>Websites of Interest</u> Content: Various websites given for government and professional bodies, awards and other property related sites.	Week 2	4 days	A,R
3	Title: <u>Assignment 1 Help</u> Content: Answer given for part of Question 2 in Assignment 1.	Week 3	7 days	A,R,C

Email Message Number	Summary of message	When received	Time between emails	ARCS Component
4	Title: <u>Course Progress 1</u> Content: Prompt to submit the first assignment; where to get assistance; re-enrolment; and motivational quote.	Week 5	21 days	A,R,C,S
5	Title: <u>Course Progress 2</u> Content: Prompt to submit the second assignment; reaffirm your goal in undertaking course; where to get assistance; and motivational quote.	Week 8	21 days	A,R,C,S
6	Title: <u>Course Progress 3</u> Content: Prompt to submit the third assignment; benefits of completing the modules; where to get assistance; and motivational quote.	Week 11	21 days	A,R,C,S
7	Title: <u>Course Progress 4</u> Content: Prompt to submit the last assignment; study 'plan of action'; where to get assistance; and motivational quote.	Week 14	21 days	A,R.C.S
8	Title: <u>Test Hints</u> Content: To students who have completed the four assignments for modules, test layout, length and test preparation advice.	Only when all assignments submitted.	Varied	A,R.C.S

ARCS Code: A = Attention; R = Relevance; C = Confidence; S = Satisfaction.

▪ Designing, writing and editing the questionnaires

Details of the construction of the questionnaires to be sent to the completers and non-completers in the Experimental group were given in Section 3.2.2.

- **Construction of spreadsheets and procedure for the recording and collection of the data.**

To enable the study to operate effectively a number of spreadsheets were designed and developed by the researcher to identify students in the various experimental and control groups and for managing the timely distribution of the email messages. Each week, as the students enrolled, they were allocated to an experimental or control group based on the previously outlined criteria and this information recorded onto a spreadsheet. See Appendix 12 for an example of a weekly spreadsheet.

A Gantt chart was developed to allow the researcher to effectively manage the process of sending out email messages on a weekly basis. See Appendix 13. Using an Excel spreadsheet, the weekly Experimental group's code name was recorded in a vertical column and each of the numbered email messages that were to be sent in a horizontal header row. Dates were then entered to indicate which group needed to be sent which email on which date. This meant that the researcher could manage the intervention process in a timely and ordered manner.

- **Establishment of an email address for the sending and receiving of email messages.**

Prior to this study, Property Services (OTEN) had no central point of contact for students on-line. To conduct the experiment the researcher established a

generic email address for the Property Services section in January 2001. This email address allowed the email messages for the study to be sent from a dedicated OTEN email address. The email address also facilitated students being able to email the Property Services section to have queries answered. As the Property Services section's email address was monitored throughout the day during the working week it allowed student queries to be answered quickly and efficiently.

3.4 General Procedure

The experiment was conducted over one academic year at OTEN. It ran from 1 November, 2000 to 30 November, 2001.

The Experimental group experienced the following procedure:

- After their enrolment application was processed, the students received an introductory telephone call from the enrolling officer to clarify any enrolment queries and to welcome them to OTEN. The Email Support Program was also explained and their decision on whether they would participate was obtained. See Appendix 14 for a copy of the form to record the information from the initial telephone call.
- The students were allocated to a sub-group based on the week they were enrolled to allow the email messages to be sent at the right stage for their enrolment period.
- A series of eight email messages were sent to assist each of the student's studies and motivate them to submit assignments (See 7.4 to 7.11 for copies

of the eight motivational email messages). The timeliness of the email messages, in terms of the content of the email message and the period of time they had been enrolled, was an important research consideration. For instance, the first 'welcome' email was sent the first Monday after the student enrolled; the second 'websites of interest' email was sent 4 days later, while the student was awaiting their learning materials to arrive and the third email, which gave assistance with the first assignment, was sent just after the learning materials arrived (2 weeks after enrolment).

Prior research discussed in Chapter 1 had shown such a procedure was a useful consideration in getting the students to submit assignments soon after enrolment. As such, in this study, after the student received the initial 3 emails, the next 4 emails were in relation to assignment submission progress. Each of these emails was sent every 3 weeks to allow the students time to complete each of the four assignments between email messages. The final email was optional as it related to test hints and was only sent to those students who had completed the fourth assignment or had requested it.

- When the student completed all of the assessment events (four assignments and one test) for the specified modules within the 16-week period after enrolment, the student was sent a questionnaire to ascertain their responses and attitudes to the email messages. Students in the experimental group, who did not complete any or all of the required assessment events after the 16-week enrolment period, were also sent a

questionnaire. It was sent two (2) weeks after they received the last email message.

The questionnaire was not sent to the students at the end of the academic year. It was envisaged that students might not be able to accurately recall the motivational email messages experience sufficiently if this process had occurred as it could have been up to six months since the last email message was sent. It was also thought that this lapse in time period might also contribute to a poorer response rate to the survey. It should be noted that the questionnaires were not sent to students in the Experimental group who, prior to the end of the academic year, officially withdrew from their studies.

The questionnaire should have taken approximately five to ten minutes to complete. To announce that a questionnaire was coming and to explain why it was important to complete and return it, an email message was sent to all of the students the next business day after the questionnaire had been sent out in the postal mail. According to Cohen and Manion (1994, p.98), advising respondents of the forthcoming questionnaire has been shown to have a favourable effect on response rates, as has follow-up letters. This email message summarised the type of email messages that had been sent to them over their enrolment period and stipulated that their anonymous comments would be valued. It also provided details on

how to obtain any assistance, if needed. See Appendix 15 for a copy of this email message.

- A final email was sent to all students, one week after the questionnaire, thanking those students who had returned the questionnaire and encouraging those students who had not to do so. See Appendix 16 for a copy of the email message.

In addition, throughout the experimental period, the following on-going procedural tasks were undertaken by the researcher:

1. monitoring and recording of data throughout the experimental period;
2. sending out of emails messages each week;
3. responding to students' email queries in a timely fashion;
4. sending out of questionnaires;
5. following up questionnaire returns by sending out two email messages;
and
6. analysing and filing returned questionnaires.

The methodology and procedures undertaken in this study were examined and approved by the Ethics Committee of the University of Technology, Sydney. The findings of the research are presented in Chapter 4.

4 Results

4.1 Introduction

The previous chapters justified and described the research that has taken place to assess the effectiveness of the Email Support Program (ESP) and the research methodology used for this research. This chapter will present the findings from this research. The findings are presented in the same order as the hypotheses and research questions that were posed earlier.

A major hypothesis under test in this thesis was that faculty-initiated motivational email messages would significantly affect learner persistence and completion. In addition to this hypothesis, it was also of specific interest to see how a faculty-initiated motivational email support system might be organised at OTEN and what would be the benefits to the students. The research questions that guided this study were designed to consider the effectiveness of this form of support for students in terms of influence on effort and interest in the various modules undertaken. Specific reasons for non-completion were also explored from the students' perspective, for example, the demographic characteristics of students who did and did not successfully complete. Access and availability to technology and the influence on completion rates were also considered.

Prior to the findings being presented, a brief description of the type of statistical analysis undertaken is described and the demographic data profiles of the experimental and control groups are presented.

4.2 Statistical Analyses

The statistical tests used in this research for various between-group contrasts were non-parametric. The tests included Chi-square tests. This particular test is used, where appropriate, to test for statistical significance. This test was chosen because it is an appropriate test for the type of data collected (e.g. frequency scores which are at a nominal/ordinal level of measurement). It is appreciated that some types of parametric tests (such as Analysis of Variance) can be used with Likert-scale data as used in the questionnaire for this study, which are considered to be at an interval level of measurement. The critical value for significance adopted for this study is $p = 0.05$, a value often used in statistical interpretation in educational research (Ferguson & Takane, 1989, p. 182).

4.3 Descriptive data: Demographics of experimental and control groups

Demographic information for the students was acquired only on a voluntary basis at OTEN. A table is provided in Appendix 17 comparing the demographic profiles of the Experimental group, the two Control groups, OTEN, the Business Faculty and Property Services section. A summary of this data is provided here.

In general terms, the Experimental group and the second Control group (CG2) were very similar demographically with any differences between the two groups equating to being 10% or less in magnitude. However, some differences were observed between these two groups and the other Control group, CG1, in certain areas.

The demographic areas where differences of more than 10% were observed were in the relation to place of abode, secondary and tertiary education levels achieved, employment status and government financial assistance. The students in CG1 were more likely than the Experimental group to: live in areas outside of the Sydney metropolitan area (11% difference); have left secondary school prior to the completion of Year 12 (23% difference); not have undertaken any tertiary education since leaving secondary school (14% difference); be unemployed (24% difference) and receive government financial assistance (23% difference).

The possible explanation for CG1 having a slightly different demographic profile in certain areas to those in the Experimental group and CG2, may be linked to the students in CG1 not having access to computer technology. As previously indicated in Chapter 3, the basis for assessing the students in CG1 as not having computer access was on the grounds of the students not providing an email address on their enrolment form. It is acknowledged, however, that these students may have had access to computer technology but did not have an email account or chose not to divulge this information to OTEN.

Nonetheless, access to computer technology, which was one of the defining variables that categorised students into the Experimental group or CG2, may well help to explain the differences in demographic profile observed between them and students in CG1. The data would indicate, that if a student finished Year 12 at secondary school and also had undertaken some form of tertiary education, that a student may be more likely to be employed (and hence not eligible for government financial assistance) and, therefore, be in a financial position to have access to technology. Alternatively, being more likely to be located in the Sydney metropolitan area, the student may have had greater access to public places where computer technology was available.

4.4 Hypotheses and research questions findings

4.4.1 Research Question 1 and Hypotheses 1a and 1b

In order to evaluate the overall effectiveness of the study the first research question proposed was:

Research Question 1: Do faculty-initiated email messages affect working and completion rates?

Flowing from the research question two hypotheses were created:

Hypothesis 1a: Faculty-initiated email messages will significantly increase the 'working' (i.e. first assignment submission) rates of OTEN distance education students.

Hypothesis 1b: Faculty-initiated email messages will significantly increase the module completion rates of OTEN distance education students.

To address the above research question and the two hypotheses, official student records showing the number and details of assignments submitted, especially in relation to the number of students who submitted the first assignments and those who complete all assessment events for the four modules, were examined for the Experimental and primary Control group (CG1).

At OTEN students can broadly be defined as having one of four descriptions at any particular time within a module. The types of status are: non-working, working, completed and withdrawn. It should be recalled that students are termed 'non-working' if they have not submitted any assignments or undertaken any element in the module at a particular point in time. If at the end of the academic year, they still have not submitted any assignments or undertaken any element in the module then they would be termed within distance education literature as a 'drop-out'. Students are termed to have a status of 'working' at OTEN after the submission of one assignment, in one module within a course. This is a significant status at OTEN as part of the funding is based on the number of students working, not just those enrolled. Students are termed to have a completed status for a module, when they have completed all compulsory assignments and relevant tests for the particular module concerned. In terms of

the modules selected for this study, completion is achieved when all four compulsory assignments and the one overriding test for the four modules are successfully completed.

Students are designated as withdrawn if, throughout their enrolment with OTEN, they inform the institution in writing that they intend to discontinue their studies in a particular module.

Descriptive summary data for the non-working, working and completion status of the Experimental and the primary Control group (CG1) is represented in Table 4.1.

Table 4.1: Experimental group and CG1 non-working, working and completion status.

	Experimental Group	Control Group 1	Percentage differences between the two groups
Total in Group	297	408	--
Submitted nothing (non-working status)	40.7% (121)	54.2% (221)	13.5%
Submitted one (1) assignment (working status)	57.2% (170)	43.1% (176)	14.1%
Completed all four modules (Did all 4 assignments plus completed the one test)	34.3% (102)	22.6% (92)	11.7%

The results show that the Experimental group, when compared to the Control group, had a higher percentage of students working (57% vs. 43% respectively). There were a higher percentage of Experimental group students compared to the Control group students who had completed the four modules (34% vs. 23% respectively). Therefore, in the Experimental group, 14% more students submitted one or more assignments compared to the Control group. Similar results were achieved for the final completion with 12% more students completing all four modules.

A greater number of students (13.5%) in the Control group, when compared to the Experimental, group submitted no assignments at all in the four modules.

These trends in favour of the Experimental group, where students submitted more assignments, continued over the four selected modules. For instance, 14% more Experimental group students submitted two assignments, when compared to the Control group students; 15% more students submitted three assignments; and 12% more students submitted four assignments (than for the corresponding Control group).

The students who 'officially withdrew' category, represented students who recognised they were unable to succeed in their educational goal and had notified OTEN in writing of this fact. Within the students in the Experimental group, only 2% (6 students) in total officially withdrew from their studies and only

2.7% (11) Control group students officially withdrew from their studies. This represents only less than a 1% difference between the two groups.

Hypothesis 1a: Faculty-initiated email messages will significantly increase the 'working' (i.e. first assignment submission) rates of OTEN distance education students.

The descriptive summary data (see Table 4.1) overall showed a positive between-group difference in favour of the students who were exposed to the Email Support Program. To examine the statistical validity of the between-group differences Chi-square tests were applied based on the obtained frequency scores. First, a 2 x 2 Chi-square test was applied to the observed data for the Experimental group and Control group 1 based on frequency rates for the submission and non-submission of the first assignment. It was found that there was a significant difference between the Experimental group and the Control group in relation to the frequency of submission of the first assignment ($\chi^2 = 13.7$; $p < 0.05$).

The results showed that the null-hypothesis should be rejected and it could be concluded that the email messages did, in fact, significantly increase the submission of first assignments for the Experimental group.

Hypothesis 1b: Faculty-initiated email messages will significantly increase the module completion rates of OTEN distance education students.

The descriptive summary data (see Table 4.1) overall showed a positive between-group difference for completion of the four nominated modules in favour of the students who were exposed to the Email Support Program. A 2 x 2 Chi-Square test was applied to the observed data for the Experimental group and Control group 1 based on the completion and non-completion frequency scores for the nominated modules. It was found that there was a significant difference between the experiment group and the Control group in relation to the completion of modules ($\chi^2 = 12.0$; $p < 0.05$).

The results showed that the null-hypothesis should be rejected and it could be concluded that the email messages did, in fact, significantly increase the module completion rates for the Experimental group.

4.4.2 Research Question 2 and Hypothesis 2

The prior results showed that the influence of the faculty-initiated email messages had been effective in relation to first assignment submission and module completion. Nevertheless, it could perhaps be argued that those students who had access to communications technology may have responded differently from those who did not and so a test was made of this possibility. The first assignment submission and completion rates of those students in Control group 1 were compared with students in Control group 2 (the email-control group). It was predicted in these circumstances that there would not be any significant between group differences for these groups. Research Question 2 represents the

results of the examination of whether access to computer technology may affect distance education learners?

Flowing from the research question one hypothesis was tested:

Hypothesis 2: There will be no significant between-group differences between the two Control groups on submission and completion rates. In other words, access to computer technology is not likely to have any significant effect on these rates.

To address the above research question and one hypothesis, official student records showing the number and details of assignments submitted, especially in relation to the number of students who submit the first assignments and those who complete all assessment events for the four modules, were examined for the two Control groups, Control group 1 (CG1) and Control group 2 (CG2).

Results in relation to the above research question and hypothesis are presented in Table 4.2.

Table 4.2: Comparison of non-working, working and completion statistics between CG1 and CG2.

	Control Group 1 (no computer access)	Email Control Group 2 (computer access)	Percentage differences between the two groups
Total in Group	408	123	--
Submitted nothing (non-working status)	54.2% (221)	57.7% (71)	3.5%
Submitted one (1) assignment (working status)	43.1% (176)	40.7% (50)	2.4%
Completed all four modules (Did all 4 assignments plus completed the one test)	22.6% (92)	29.3% (36)	6.7%

The results (see Table 4.2), showed that there was only nominal percentage differences in working, non-working and completion status between the Control group with no identifiable computer access (CG1) and a second Control group with identifiable computer access as illustrated by the availability of access to an email address (CG2). CG1 had slightly less students who submitted no assignments whatsoever (54%) compared to CG2 (58%), a difference of 3.5%. Consequently, CG1 had slightly more students who submitted the first assignment (43%) compared with CG2 (41%), a difference of 2.4%. When it came to completing the four modules slightly more students completed in CG2

(29%) compared to CG1 (23%). This represents a 6.7% difference between the two control groups.

Students who officially withdrew represented students who recognised they were unable to succeed in their educational goal and had notified OTEN in writing of this fact. Within the students in CG1 only 2.7% or 11 students in total officially withdrew from their studies, while 1.6% or 2 students in CG2 officially withdrew from their studies. This represents a 1.1% difference between the two Control groups.

Hypothesis 2: There will be no significant between-group differences between the two control groups on submission and completion rates. In other words, access to computer technology is not likely to have any significant effect on these rates.

As indicated by Table 4.2 for Research Question 2, there were small differences in non-working, working and completion status between the two Control groups, however to test this hypothesis a 2 x 2 Chi-square test was applied to the observed data for Control group 1 and Control group 2 (computer access) for the submission and non-submission of the first assignment. The Chi-square test found that there was no significant difference between these two groups in relation to the submission of the first assignment ($\chi^2 = 0.239$; $p > 0.05$).

A 2 x 2 Chi-square test was then applied to the observed frequency data for Control group 1 and Control group 2 (email control group) based on the completion and non-completion of the modules. Again, it was found that there was no significant difference between these groups in relation to completion of modules ($\chi^2 = 2.332$; $p > 0.05$).

These results revealed that there are no grounds for rejecting the hypothesis of independence between the two control groups (CG1 and CG2) and the null hypothesis, as predicted, was found to be tenable. Therefore, access to computer technology did not significantly influence module completion or assignment submission rates. For all future analysis of data in this study, therefore, the two Control groups, Control group 1 and Control group 2, were combined.

4.4.3 Research Question 3 and Hypothesis 3

To elicit further information about the influence of the faculty-initiated email messages on the students an additional research question was proposed:
Research Question 3: In what ways do email messages affect distance education learners?

As a result of this research question the following hypothesis was proposed:

Hypothesis 3: That the Experimental group, on average, would submit the first assignment in significantly less time than the Control groups (average time taken from enrolment to submission of the first assignment and module completion).

To address the above research question and hypothesis, official student records, showing the time taken from the date of enrolment to: (i) submission of the first assignment; and (ii) completion of all assessment events for the four modules, were examined for the Experimental and combined Control groups. This data was explored to see if exposure to the faculty-initiated email messages were able to motivate students to not only submit assessment events but also to motivate them to submit assessment events sooner than the Control group who did not experienced the email messages. In short, to see whether the messages affected not only the frequency but also the speed of the response. Results in relation to the research question and the hypothesis are presented below.

Research Question 3: In what ways do email messages affect distance education learners?

The average time taken from the date of enrolment to: (i) submission of the first assignment; and (ii) completion of all assessment events for the four modules, for the experimental and the combined Control groups is shown in Table 4.3.

Table 4.3: Average time taken (in days) to submit the first assignment and complete all assessment events for the Experimental group and the combined Control groups.

Group	Total number of students in group	Number of students who submitted the 1st assignment	Average time from enrolment to submission of first assignment (days)	Number of students who completed all four modules	Average time taken from enrolment to completion (days)
Experimental Group	297	170	56 days	102	159 days
Combined Control groups (CG1 & CG2).	531	226	62 days	128	167 days

The results showed that the Experimental group was marginally quicker, on average, than the combined Control groups in submitting the first assignment after enrolment (56 and 62 days, respectively). This is a (shorter) difference in favour of the Experimental group of six (6) days, on average, in time taken to submit the first assignment.

This trend continued in relation to the time taken, on average, to complete all the assessment tasks for the four modules, with the Experimental group completing the modules in a marginally quicker time than the combined Control groups. The Experimental group took, on average, 159 days to complete, while the combined Control groups took 167 days. This is a difference in favour of the Experimental group of eight (8) days, on average, in time taken from enrolment to completion of the four modules.

Hypothesis 3: That the Experimental group, on average, would submit the first assignment in significantly less time than the Control groups (average time taken from enrolment to submission of the first assignment and module completion).

As indicated in the above results for Research Question 3, the time taken from the date of enrolment to the submission of the first assignment and completion of all assessment events for the four modules was marginally quicker for the students who were exposed to the faculty-initiated email messages in the Experimental group compared to those in the combined Control groups.

Nonetheless, to test whether the difference was of statistical significance a 2 x 2 Chi-square test was applied to the observed data for the Experimental group and combined Control groups for the time taken from submission of the first assignment and completion of the nominated modules. It was found that the faculty-initiated email messages actually had no significant effect on the timing of submission of assignments and completion of the modules ($\chi^2 = 0.13$; $p > 0.05$).

The hypothesis that there would be a difference in favour of the Experimental group in terms of the time taken to submit assignments and complete was not therefore, shown to be tenable. It must be concluded that there was no statistically significant differences between the Experimental and Control groups in duration of time to submit assignments or to complete them. In short, the data trends in this area were not statistically significant.

4.4.4 Research Questions 4a and 4b

The identification of particular student characteristics and their influence on student drop-out has long been an area of investigation in attrition related studies and in the related literature on distance education. To explore whether certain student characteristics may have influenced students to complete the four modules or not in the experimental and Control groups in this study, two further research questions were asked:

- In the Experimental group, what are the characteristics of the students who complete compared to those who do not complete their studies?
- In the Control groups, what are the characteristics of the students who complete compared to those who do not complete their studies?

To address the two research questions above, official student records showing student demographic information were examined for the experimental and Control groups. The particular information examined related to: gender; age; place of abode; highest secondary school level achieved; country of birth; highest completed tertiary qualification prior to enrolment; employment status; and whether the student was in receipt of government financial assistance. It should be noted that students at OTEN only provide demographic information voluntarily and hence not all students in the sample provided the information.

Statistical analysis (Chi-square) was completed on each of these demographic variables to examine whether any of these variables played a significant role in

completion. There appeared to be no prior published experimental evidence to suggest the creation of hypotheses for each of these demographic variables but it was tentatively predicted that the variables would not significantly affect completion rates. The analysis was first of all confined to the Experimental group.

Research Question 4a: In the Experimental group, what are the characteristics of the students who complete compared to those who do not complete their studies?

Table 4.4 details the summary findings of the Chi-square testing; frequency data was used for the analyses.

Table 4.4: Experimental group demographic analysis of completers v. non-completers.

Variables	Chi-square value	Significance
Gender (male v. female)	0.2	No
Age (<19; 20-29; 30-39; 40-49; >50)	0.9	No
Place of abode (Sydney v. any other location)	1.8	No
Country of birth (Australia v. elsewhere)	0.8	No
Secondary education (finished in Year 9-10 v. Year 11-12)	0.7	No
Tertiary education (none; certificate; diploma; degree or higher)	2.9	No
Employment status (unemployed v. employed)	6.3	Yes*
Government financial assistance (financial assistance v. self-funded)	8.1	Yes*

* $p < 0.05$

There were two demographic variables, within the Experimental group, where a Chi-square analysis did reveal that there were significant differences between the completers and non-completers. These were in the areas of employment status and government financial assistance in undertaking the modules. In terms of employment status those students who were employed, either part-time or full-time, were significantly more likely to complete the modules than those students who were unemployed ($\chi^2 = 6.3$; $p < 0.05$). This was evidenced by a 17% difference in completion rates between these two groups. This may be explained due to the modules which were chosen for this study being compulsory to complete for those working in the real estate industry within a given time frame. Therefore, those students who were employed in the industry would have an additional motivation to complete the modules as compared to those students not employed or not employed in the real estate industry.

In terms of the students receiving government financial assistance in undertaking the modules, the Chi-square analysis, showed that those students not receiving financial assistance were significantly more likely to complete compared to those students receiving financial assistance ($\chi^2 = 8.1$; $p < 0.05$). This result related to the similar results achieved based on employment status. If a student had a job it would be unlikely that they would be receiving government financial assistance in undertaking the modules.

Research Question 4b: In the Control groups, what are the characteristics of the students who complete compared to those who do not complete their studies?

Earlier results showed that there was no significant difference between the two Control groups (CG1 and CG2) in terms of completers and non-completers, so the data for both of these groups was combined for the following analysis.

Similar Chi-square analyses, based on the frequency data, were applied to the relevant combined Control group. The results are presented in Table 4.5.

Table 4.5: Control group demographic analysis of completers v. non-completers.

Variables	Chi-square value	Significance
Gender (male v. female)	0.1	No
Age (<19; 20-29; 30-39; 40-49; >50)	3.4	No
Place of abode (Sydney v. any other location)	3.1	No
Country of birth (Australia v. elsewhere)	0.4	No
Secondary education (finished in Year 9-10 v. Year 11-12)	0.6	No
Tertiary education (none; certificate; diploma; degree or higher)	8.4	Yes*
Employment status (unemployed v. employed)	5.8	Yes*
Government financial assistance (financial assistance v. self-funded)	1.0	No

*** $p < 0.05$**

There were two demographic variables, within the Control group, where a Chi-square analysis did reveal that there were significant differences between the completers and non-completers. These were in the areas of previous level of tertiary experience and employment status. In terms of the level of tertiary education undertaken (none; certificate; diploma; and degree) prior to enrolment in the modules there was a significant difference in relation to level of tertiary education completed and module completion rates in favour of those students who had some level of tertiary education. This experience, prior to enrolment in the modules, significantly increased the likelihood of module completion ($\chi^2=8.4$; $p<0.05$).

In terms of employment status, those students who were employed, either part-time or full-time, were significantly more likely to complete compared to those who were not employed ($\chi^2=5.8$; $p<0.05$). This was evidenced by a 15.5% difference in completion rates between these two groups. This outcome may be explained because the modules which were chosen for this study were compulsory for those working in the real estate industry. Therefore, those students who were employed in the industry would have an additional motivation to complete the modules as compared to those students not so employed.

4.4.5 Survey research questions: Non-completion

It was also deemed to be important to obtain and assess the Experimental group's perceptions and attitudes to the motivational Email Support Program and

to determine its effect on their interest, motivation and effort in their studies. To enable data to be collected relevant to this objective, two postal questionnaires were developed (See Appendix 1 and 2). It may be recalled, that one questionnaire was sent to the Experimental group of students who completed all the assessment tasks within a 16-week time period. The second questionnaire was sent to the Experimental group of students who did not complete all the assessment tasks within a 16-week time period. The 16-week period was chosen as it corresponded to the standard time taken in face-to-face institutions to complete the four modules.

The only difference between the two questionnaires was that the students who did not complete the modules within the specified time period were asked an additional question to elicit the main reason for non-completion at that point in time. This question was included to enable exploration of the perceived reasons for module non-completion for those students who had received the faculty-initiated email messages in the Experimental group. They also allowed a comparison to be made with the results of an exit survey previously undertaken by Kirkby (2000) at the same institution. The exit study by Kirkby (2000) was undertaken to identify those factors that were perceived to have caused students not to complete their course/modules in the 1999 academic year.

Research Question 5: What are the perceived reasons for module non-completion?

The specific question asked in the survey to elicit the perceived reasons for module non-completion was: *What is the main reason you have not completed the subjects so far?*

The students were given six (6) categories to choose from as their main reason for non-completion to that point in time and examples provided within the categories illustrated possible reasons.

Table 4.6 presents the main reasons for non-completion in the Experimental group in rank order (most – least frequently reported). To assist with comparability to the findings of Kirkby's (2000) exit study at OTEN in 1999, the rank order given in Kirkby's (2000) study is also provided.

Table 4.6: Perceived reasons in rank order for non-completion after a 16-week period in the Experimental group and comparison of results with Kirkby's (2000) exit study at OTEN in 1999.

Rank	Reason	Percentage (raw figures)	Kirkby's findings:- Rank
1	Job Related	35% (37)	2
2	Personal/Family Related	32% (33)	1
3	Lack of motivation/confidence	12% (13)	3
4	Correspondence education related	4% (4)	4
=5	Subject content related	2% (2)	5
=5	OTEN-DE Related	2% (2)	6
-	Other	13% (14)	-
	Total	100% (105)	

Of the 76 non-completer surveys received, seven (7) students chose not to answer this question (6%). It should also be noted that even though the students were instructed to provide the main reason for non-completion, many chose to give more than one reason. Therefore, there were 105 main reasons given for non-completion.

The two most frequently given reasons for non-completion, after the 16-week period for the Experimental group, were related to the students' employment (35%) and family or personal reasons (32%) (see Table 4.6). These findings concur with the findings of Kirkby's (2000) study, except that the order of importance was reversed. The third and fourth major categories cited in both the Experimental group (and in Kirkby's study) for non-completion related to issues involving confidence/motivation and reasons related to studying by distance education. These reasons represented 12% and 4%, respectively, of non-completing students.

The remaining two categories of reasons for non-completion were identified as having an equal contributing influence (2%) for the Experimental group. These reasons were subject content related and OTEN administrative reasons. Similar findings were found in Kirkby's study.

For the Experimental group students, 13% of reasons were perceived to be outside of the major provided categories and were placed in the 'Other' category. Some examples of the 'other' reasons (with frequency of response in brackets) were:

- Believed they had completed (3)
- Difficulty getting resources (2)
- Other study commitments (2)
- Holidays (1)
- Difficulty finding place to sit exams (1)
- Too basic for them to be bothered studying (1)
- Taking too much on at one time (1)
- Planned to delay starting (1)

4.4.6 Survey research questions: Perceptions of the E.S.P.

As indicated earlier, the only difference between the two survey questionnaires developed for the Experimental group completers vs. non-completers was that the students who did not complete the modules, within the specified time period, were asked an additional question to elicit the main reason for non-completion at that point in time. This additional question was addressed in Research Question 5 (see Table 4.6).

Otherwise, all of the other questions in the surveys were developed in order to address the following major research question:

Research Question 6: What are the students' perceptions and attitudes towards faculty-initiated email messaging?

Of the 53 questionnaires sent to students who *completed* within a 16-week period from enrolment, 28 completed surveys were returned, a response rate of 53%. For a mail-based, anonymous survey, this response rate is considered very useful, as response rates of between 10% and 50% are common for mail surveys of distance education students (Neuman, 1997).

Of the 273 students who experienced the Email Support Program, but did *not* complete all assessment events in a 16-week period from enrolment, 75 students returned the survey, giving a response rate of 28%. Again, given that the survey was a mail-based and anonymous, this response rate is considered acceptable.

The statements in the questionnaire used in this study, used predominantly a Likert-type scale. The questionnaire statements were grouped into various categories. For ease of processing the resultant data, each category was coded with a letter and each question within the category given a number. The questionnaire has been described in the Method section (Chapter 3).

Nonetheless, very briefly, the first category (A) of statements included five statements to investigate the students' original intentions on enrolment. The remaining 24 statements, divided into four categories (B, C, D and E), related to the student's actual experience of the email messages and related to the perceived influence of the messages on aspects of their study behaviour. Items

within these categories were designed to cover all four areas of Keller's (1983) ARCS model in terms of Attention, Relevance, Confidence, and Satisfaction. In the second part of the questionnaires, five more questions addressed the student's actual experience of interacting with the Property Services section. Finally, in both questionnaires, space was provided for qualitative comments, if the students wished to provide them. Selected poignant and representative comments made by students are provided in the relevant categories of questions detailed to follow.

Category A statements

The first five statements in Category A, were based on the students' original intentions on enrolment in relation to motivation, completion, goals and work relatedness of their studies.

Initial intentions

The first three statements in this category were included to ascertain the student's intentions on enrolment. The first statement proposed in this category was: *When I was enrolled I was very motivated to do the course*. This statement was included to ascertain the student's initial level of motivation when undertaking their course. As indicated in Table 4.7, in total for the completers group, most respondents (96%) were initially motivated to undertake the course when they enrolled, with the remaining students (4%) being 'undecided' in their answer to this statement. Similarly, in total, the majority (91%) of non-completer

respondents were initially motivated to undertake the course when they enrolled, however the proportion of the respondents who ‘strongly agreed’ with the statement (49%) was less than in the completer group (71%). Of the remaining respondents in both groups less than 10% were ‘undecided’ in their initially level of motivation on enrolment.

Table 4.7 Initial motivation

Code	Statement	Student Group	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
A1	When I was enrolled I was very motivated to do the course.	Completers	71%	25%	4%	0	0
		Non-completers	49%	42%	7%	1%	1%
	Difference between groups		22%	17%	3%	1%	1%

The second statement proposed in this category was: *When I was enrolled I intended to complete the course.* This statement was included to ascertain a student’s initial intentions in undertaking the course in relation to completing or not completing. This statement was a direct result of Kirkby’s (2000) exit study undertaken at OTEN (the same institution where the current study took place) which revealed a small minority (13%) of students stated their goal on enrolling was not to finish the course. The intentions of these students in enrolling in a course they do not intend to complete vary, but include wanting to enrol so they are able to obtain the learning materials for their own reading with no intention to undertake assessment events. In the current study, however, as shown by the responses to this second statement detailed in Table 4.8, it would seem that

within the Experimental group, both the completers (100%) and non-completers (99%) 'agreed' that overall their intentions on enrolling was to complete the course.

Table 4.8 Initial intentions

Code	Statement	Student Group	Strongly Agree/ Agree	Undecided	Disagree/ Strongly Disagree
A2	When I was enrolled I intended to complete the course.	Completers	100 %	0	0
		Non-completers	99%	1%	0
	Difference between groups		1%	1%	0

The third statement proposed in this statement category was: *When I was enrolled I had a clear goal in undertaking the course.* This statement was included to ascertain the student's initial intentions in undertaking the course and, in particular, if they were cognisant of their goals in undertaking the course. The results are reported in Table 4.9 and indicated that the vast majority of student completers had a clear goal in undertaking the course (93%). Similarly, within the non-completers group, most respondents (82%) indicated they had a clear goal on enrolment in undertaking the course.

Table 4.9: Initial goals

Code	Statement	Student Group	Strongly Agree/ Agree	Undecided	Disagree/ Strongly Disagree
A3	When I was enrolled I had a clear goal in undertaking the course.	Completers	93%	7%	0
		Non-completers	82%	18%	0
	Difference between groups		11%	11%	0

Work relatedness of modules

The final two statements in this category, related to the perceived work relatedness of the course/modules to the student's employment now and in the future. The first statement proposed was: *I was enrolled in the course for current work requirements.* As the four modules selected for this study are generally required to be completed to work in the real estate industry, this statement was included to highlight those students who were in the position where they had to complete the modules for employment purposes and ascertain the influence of this source of motivation in terms of whether they had completed or not within the specified time frame. It was envisaged that those students who were enrolled for current work requirements would be more motivated than those who were not and hence would be more likely to complete.

As detailed in Table 4.10, however, the results showed that the opposite result was actually the case. That is, within the completers group only 32% were enrolled for current work purposes, compared to 43% of students in the non-

completers group. Interestingly, 18% of students within the completers group and 7% of students within the non-completers group were 'undecided' in relation to whether they needed to do the modules for current work purposes or not. The same percentage (50%) of students in the completers and non-completers groups were not enrolled for current work related purposes.

Table 4.10: Work relatedness - current work requirements

Code	Statement	Student Group	Strongly Agree/ Agree	Undecided	Disagree/ Strongly Disagree
A4	I was enrolled in the course for current work requirements.	Completers	32%	18%	50%
		Non-completers	43%	7%	50%
	Difference between groups		11%	11%	0

The final statement proposed in this category was: *I was enrolled in the course for future job possibilities.* This statement was included to highlight those students who were possibly motivated by future employment reasons and to ascertain the influence of this source of motivation in terms of whether they had completed or not within the specified time frame. As detailed in Table 4.11, the results revealed that most respondents in the completers (86%) and non-completers (82%) groups were enrolled for future job prospects.

Table 4.11: Work relatedness – future job possibilities

Code	Statement	Student Group	Strongly Agree/ Agree	Undecided	Disagree/ Strongly Disagree
A5	I was enrolled in the course for future job possibilities.	Completers	86%	0	14%
		Non-completers	82%	6.5%	11.5%
	Difference between groups		4%	6.5%	2.5%

Category B statements

In this category the questionnaire provided three statements related to the frequency and pacing of the email messages. Two further statements were included to elicit the student's thoughts about the email messages in terms of their progress in the course.

Frequency and pacing

In the present study, it should be recalled that a series of eight email messages were sent over a 16-week period to assist the students' studies and motivate them to submit assignments. This number of email messages was chosen over this time period to hopefully, stimulate student curiosity towards the email messages and to limit possible student feelings of indifference towards the email messages. The time interval generally increased between the email messages as the program progressed. The three initial statements in category B were included to assess if the frequency and timing of the email messages were thought to be appropriate.

The first statement in Category B was: *I read all of the emails sent to me from Property Services*. This statement was included to ascertain if the students had read the content of the email messages and hence had been exposed to the potential intention of the email messages. The resulting data is shown in Table 4.12.

Table 4.12: Reading of email messages

Code	Statement	Student Group	Strongly Agree/ Agree	Undecided	Disagree/ Strongly Disagree
B1	I read all of the emails sent to me from Property Services.	Completers	100%	0	0
		Non-completers	91%	4%	5%
	Difference between groups		9%	4%	5%

As shown in Table 4.12, all of the respondents in the completers group (100%) and the majority of respondents in the non-completers (91%) group indicated that they had read the email messages sent to them. Of the remaining students in the non-completers group, only 5% of the students indicated that they did not read all the email messages and 4% were 'undecided' in their answer.

The second statement in Category B was: *The number of email messages was about right*. The results are shown in Table 4.13.

Table 4.13: Number of email messages

Code	Statement	Student Group	Strongly Agree/ Agree	Undecided	Disagree/ Strongly Disagree
B2	The number of email messages was about right.	Completers	79%	7%	14%
		Non-completers	87%	9%	4%
	Difference between groups		8%	2%	10%

As shown in Table 4.13, the majority of respondents in the completers group (79%) and in the non-completers (87%) group indicated that the number of email messages was sufficient. This finding might also collaborate the findings for Statement B1, which indicated that the majority of respondents had read all of the email messages sent to them. One respondent particularly commented on the number of email messages received:

“I thought that the frequency of the messages was also good (neither too much nor too little). They motivated me to actually start completing the set topics/subjects.”

Of the remaining respondents, a small proportion (14%) of the completers group believed that the number of email messages was not right. This represented an even smaller percentage (4%) in the non-completers group. Unfortunately, it cannot be confirmed if this meant these respondents found that there were too many or too few email messages. Nevertheless, less than 10% of students in both groups were ‘undecided’ in their opinion on the number of email messages sent.

The third statement in Category B was: *The timing of the email messages matched my study progress*. This statement was included to ascertain whether the arrival of the email messages had been appropriate in relation to their progress in the modules in terms of undertaking the assessment events. The results are shown in Table 4.14.

Table 4.14: Timing of email messages

Code	Statement	Student Group	Strongly Agree/ Agree	Undecided	Disagree/ Strongly Disagree
B3	The timing of the email messages matched my study progress.	Completers	68%	18%	14%
		Non-completers	41%	21%	38%
	Difference between groups		27%	3%	24%

As shown in Table 4.14, the timing of the email messages in relation to progress in the course, as would be predicted, was seen to be more appropriate for the completers (68%) then for the non-completers (41%). For those in the non-completers group who ‘disagreed’ with this statement, it could indicate that the students were working at a slower pace than the pace set by the email messages. For the completers group it could indicate that the students were able to finish the modules quicker than the suggested pace set by the email messages. A similar percentage of respondents in the completers (18%) and non-completers (21%) groups were ‘undecided’ in their opinion on the timing of the email messages. Below are some typical comments made in relation to the timing of the email messages and the student’s progress in the modules:

“I found the timing perfect. It made me feel that you were with me all the way.”

“Thank you. Your emails and information are appreciated and have been timely. Please keep it up.”

“Although the emails sometimes did not relate to my progress in the course, they made me review my progress and take action.”

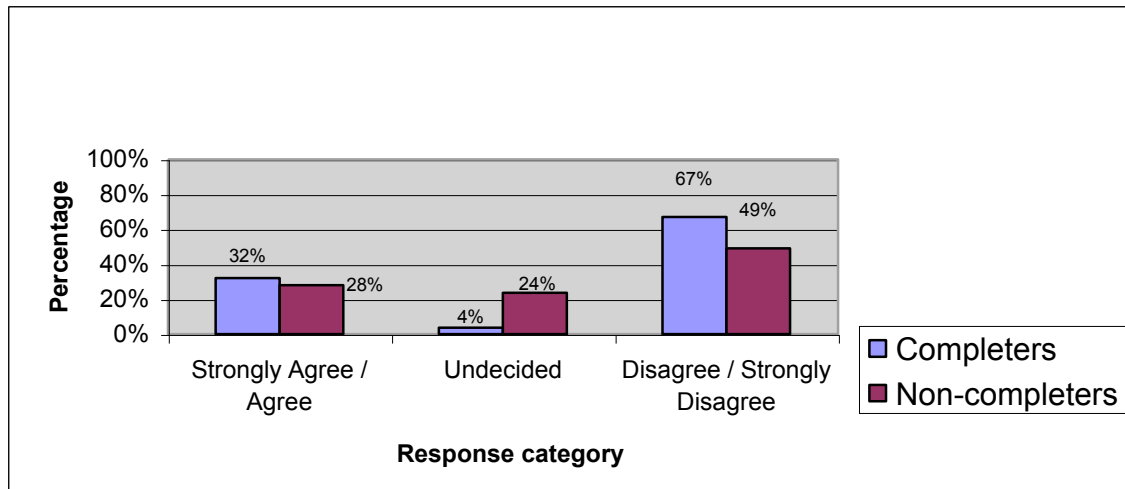
“ The email of Week 3 would have been more helpful if it had come before I submitted my assignment! The only marks I missed out on were for Question 2!!”

“I found the emails great, I was able to monitor my progress better and felt great when I was ahead of time.”

Student perceptions of progress

The final two statements in Category B, were included to find out how the email messages made the students feel in terms of their progress, or lack thereof, in the course. The first statement was: *The email messages made me feel anxious about my progress in the course*. This statement was included to determine if the pacing of the course as indicated in the email messages, had made the students feel anxious about their progress. As shown in Figure 4.1, most respondents in the completers group (67%) but fewer in the non-completers (49%) groups believed that the email messages had not made them feel anxious in terms of their progress in the course. While 4% of respondents in the completers group and 24% of respondents in the non-completers group were ‘undecided’ in their opinion on whether the email messages had made them feel anxious or not. Interestingly, a similar percentage of respondents in the completers (32%) and non-completers (28%) groups believed the email messages had made them feel anxious about their progress.

Figure 4.1: Combined response category percentage data for completers and non-completers for the statement ‘The email messages made me feel anxious about my progress in the course’.



Below are some typical comments made in relation to how the email messages had made the respondent's feel in relation to progress in the course:

"I feel the email messages should continue for new students, as it is a very helpful reminder and motivator without feeling any pressure."

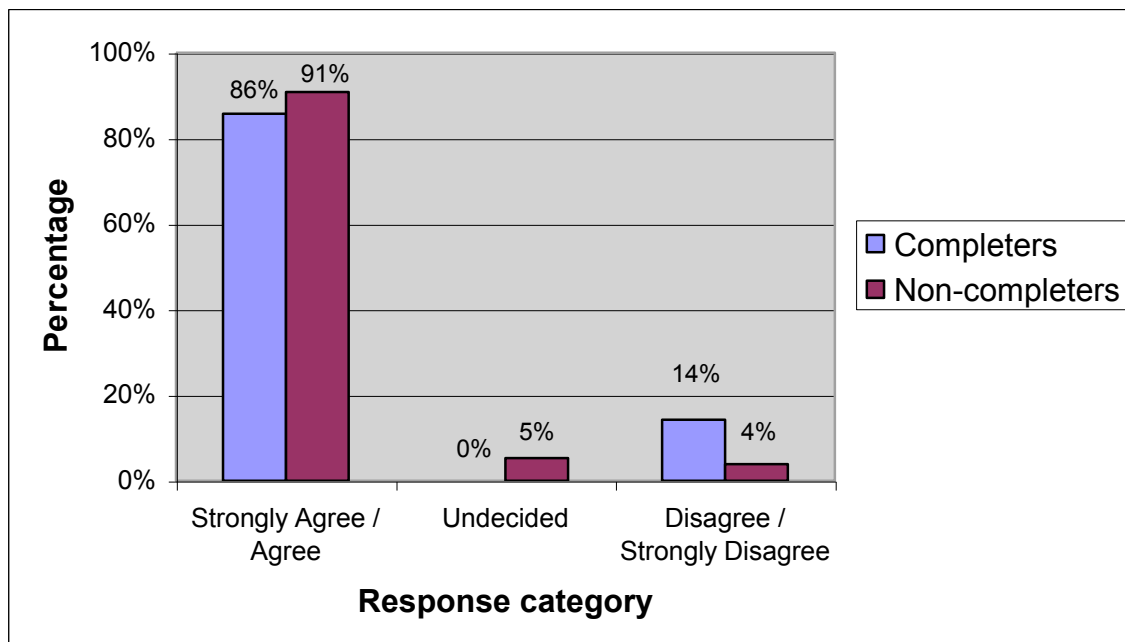
"Sometimes I felt pressured, but in the end, after thinking about it, I felt it is a good thing; in that it prompts you to move on and do the assignments."

"The email messages were good because they prompted me to get on with the studies and were a good reminder in regards to the constraints. Overall, I was pleased to receive them. Sometimes they made me anxious but that was because of my own fear, however, they prompted me forward."

The final statement in this category was: *The email messages made me aware of my progress or lack of it.* This statement was included to ascertain if the email messages had prompted the students to consider their progress, or lack thereof, in the course over the period the messages were sent. As shown in Figure 4.2, overwhelmingly the respondents in both the completers (86%) and non-completers (91%) groups was that the email messages had made them consider

their progress in the course. Only a small proportion of respondents in the completers group (14%) and an even smaller proportion in the non-completers group (4%) indicated that the email messages had not made them consider their progress. The higher percentage in the completers group could possibly be attributed to those students who finished the modules quickly and hence the email messages in terms of progress may have been perceived to be less relevant for them.

Figure 4.2: Combined response category percentage data for completers and non-completers for the statement ‘ The email messages made me aware of my progress or lack of it’.



None of the respondents in the completers group and only 5% of those respondents in the non-completers group were 'undecided' in relation to this statement. Below are some typical comments made in relation to how the email messages had made the student consider his or her progress in the course:

“I found the emails a good way to stay on track.”

“Getting an email made me realise I had to try that little harder on getting the assignments done.”

“The emails were very good and it would be better if they were available for my other subjects I am doing so I know if I am up to date.”

“I feel that the email service provided was useful in that it made me feel more able to communicate and be updated as to where I should be in the course. But due to lack of time (due to another course I am studying) I was not able to take advantage of it.”

Category C statements

The following category of statements related to the content and format of the email messages. The statements included in this category specifically related to the design of the eight email messages constructed for this study, however, similar questions had been posed in questionnaires by Bohlin (1990) and Visser (1998) in relation to their respective interventional strategies. The results obtained here might, therefore, allow some broadly based comparison with their results in this area, even though different types of intervention strategies were used in the other studies.

There were six statements included within this category. The purpose of the statements was to identify the effectiveness of the email messages in terms of three of the components in Keller’s (1983) ARCS model of motivation. Those components covered being: Attention, Relevance and Confidence. Table 4.15 details the six statements included within this category and which statements covered which element in Keller’s ARCS model of motivation.

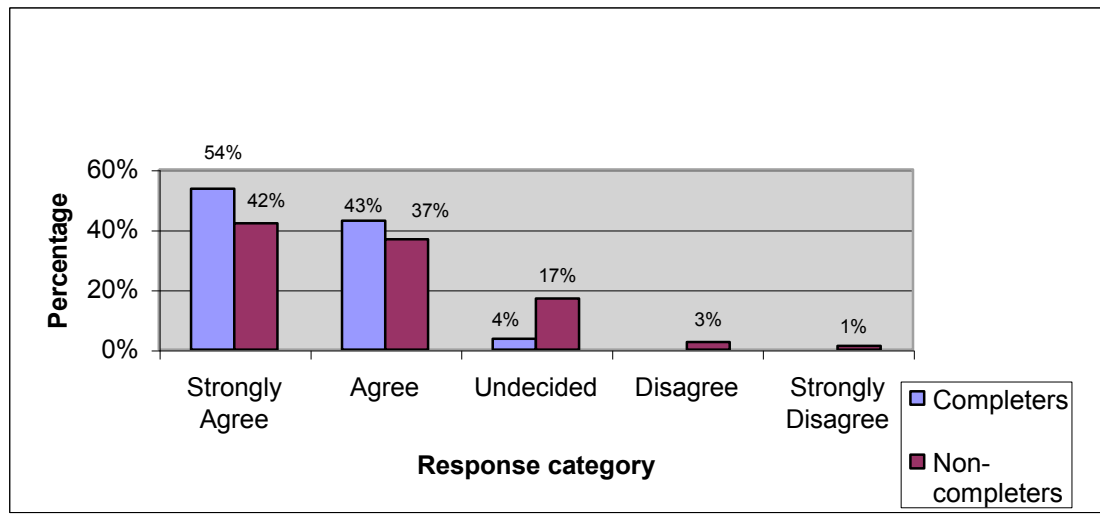
Table 4.15: Category C questionnaire statements and the ARCS component targeted in the questionnaire.

Statement reference code in the questionnaire	Statement	ARCS component targeted
C1	The email messages were easy to read.	Attention
C2	The email messages captured my attention.	Attention
C3	The email messages were non-threatening.	Confidence
C4	The email messages were relevant to my study.	Relevance
C5	The email messages were a friendly means of communication.	Confidence
C6	The email messages aroused my interest in the subjects	Attention

The fourth statement (C4) was: *The email messages were relevant to my study.*

This statement was considered to be the most important of these statements because it dealt with the perceived relevance of the email messages. As shown in Figure 4.3, for the completers group, 97% of respondents either 'strongly agreed' (54%) or 'agreed' (43%) that the email messages were relevant to their studies. None of the respondents in the completers group 'disagreed' with the statement and only small minority (4%) were 'undecided'. This contrasts with the non-completers group where 79% either 'agreed' (37%) or 'strongly agreed' (42%) with the statement. This was a difference of 18% between groups and was considered to be of practical significance. Seventeen percent of the respondents in the non-completers group were 'undecided' (4% of completers) in relation to the relevance of the email messages, whilst 4% found the messages irrelevant.

Figure 4.3: Response category percentage data for completers and non-completers for the statement ‘ The email messages were relevant to my study’.



The data from the remaining statements in this category were quantified to percentages and grouped according to the components in the ARCS model of motivation targeted.

The ‘Attention’ factor

Statements 1, 2 and 6 in category C targeted the component of ‘attention’ in the ARCS model of motivation. According to Keller (1983), the first condition for motivating instruction is to gain and maintain the attention of the learner.

Generally, as can be viewed in Table 4.16, both the completers and non-completers on the whole, found the email messages did capture their attention.

The majority of completers (97%) and non-completers (100%) found the email messages easy to read. Only 3% of completers found they were ‘undecided’ in their answer. Most respondents (89%) in both groups stated that the email messages did in fact capture their attention with only a very small proportion

(2%) in the non-completers group noting that the email messages did not grab their attention. Of the remaining respondents a similar percentage in each group were 'undecided' (e.g. completers, 11% and non-completers, 9%).

Table 4.16: The ARCS model data: Attention

Code	Statement	Student Group	Strongly Agree/ Agree	Undecided	Disagree/ Strongly Disagree
C1	The email messages were easy to read.	Completers	97%	3%	0
		Non-completers	100%	0	0
	Difference		3%	3%	0
C2	The email messages captured my attention.	Completers	89%	11%	0
		Non-completers	89%	9%	2%
	Difference		0	2%	2%
C6	The email messages aroused my interest in the subjects.	Completers	57%	39%	4%
		Non-completers	60%	32%	8%
	Difference		3%	7%	4%

In terms of arousing the student's interest in the modules, a fair proportion of both groups of respondents believed that the email messages had done so: completers (57%) and non-completers (60%). However, a large percentage of respondents in both groups (39% and 32%) were 'undecided' about whether the

email messages had in fact aroused their interest in the modules or not. Less than 10% of respondents in each group declared that the email messages had not aroused their interest in the modules.

The ‘Confidence’ factor

Statements 3 and 5 outlined the element of confidence in Keller’s ARCS model of motivation. It relates to the student’s attitude towards success or failure. In the email messages, the wording of the messages was used to encourage the student’s expectancy for success. Two statements were used to assess if the wording of the email messages had been perceived as non-threatening and, in general, a friendly means of communication. The results are presented in Table 4.17.

Table 4.17: The ARCS model data: Confidence

Code	Statement	Student Group	Strongly Agree/ Agree	Undecided	Disagree/ Strongly Disagree
C3	The email messages were non-threatening.	Completers	97%	3%	0
		Non-completers	94%	3%	3%
	Difference		3%	0	3%
C5	The email messages were a friendly means of communication.	Completers	100%	0	0
		Non-completers	97%	3%	0
	Difference		3%	3%	0

The majority of completers (97%) and non-completers (94%) found the email messages were non-threatening. All respondents in the completers (100%) group and most respondents in the non-completers group (97%) found the email messages were a friendly means of communication. Below are some typical comments made by students in relation to the content and wording of the email messages:

“I looked forward to receiving my emails. They were very well written and very helpful.”

“I think just receiving an email from OTEN was enough to remind me there was stuff to be done. The subject matter of the email was secondary.”

“Loved the “inspirational” quotes!!”

“I found the emails great as they made me feel connected to someone/something. They weren’t critical, even though I have done nothing as yet (my own fault). They make you feel part of a group; there is contact if you need it.”

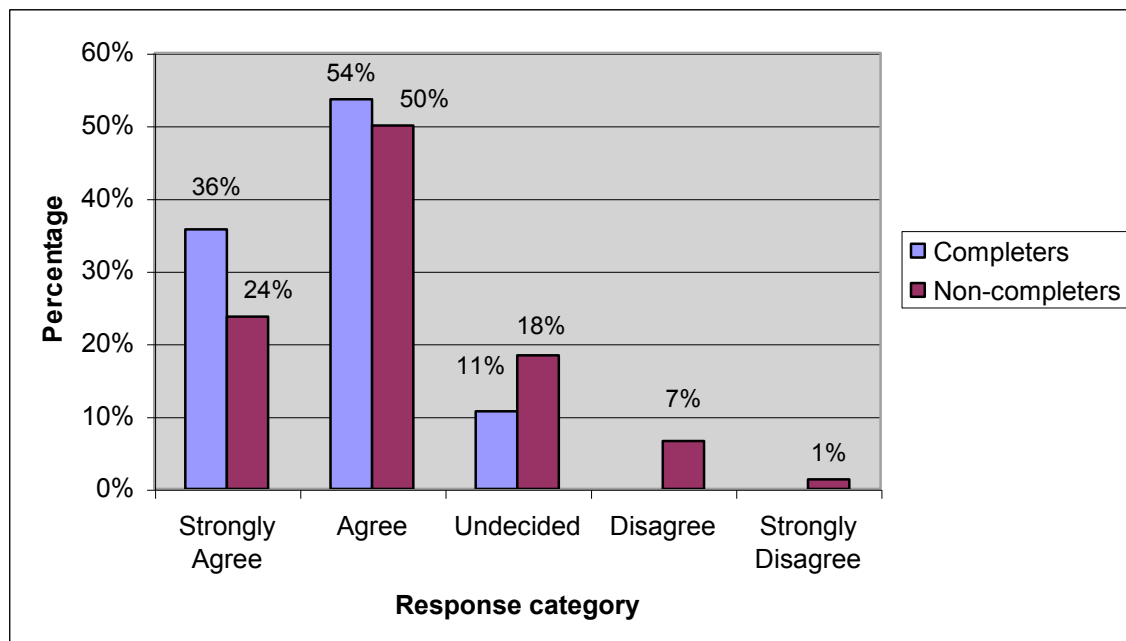
“I did appreciate the cheery tone of the emails!”

Category D statements

The next group of questionnaire statements was seen to be critical in this study because the statements investigated student perceptions of the influence of the email messages on them and, importantly, on their study behaviour. An overall statement was initially asked on the effect of the email messages on a student’s study experience; specific statements in terms of how their study progress was affected by the email messages then followed. A final statement in this category was included to elicit the students’ opinions on whether they would be in favour of the email messages being sent to new distance students in the future.

The first statement was: *Overall, the email messages had a positive effect on my study experience.* As illustrated in Figure 4.4, within the completers group, 90% of respondents either 'strongly agreed' (36%) or 'agreed' (54%) that, overall, the email messages had had a positive effect on their study experience at OTEN. None of the respondents in the completers group 'disagreed' or were 'undecided' with the statement. This contrasts with the non-completers group, where only 74% either mostly 'agreed' (50%) or 'strongly agreed' (24%) with the statement. This 16% difference between the completers and non-completers was considered significant.

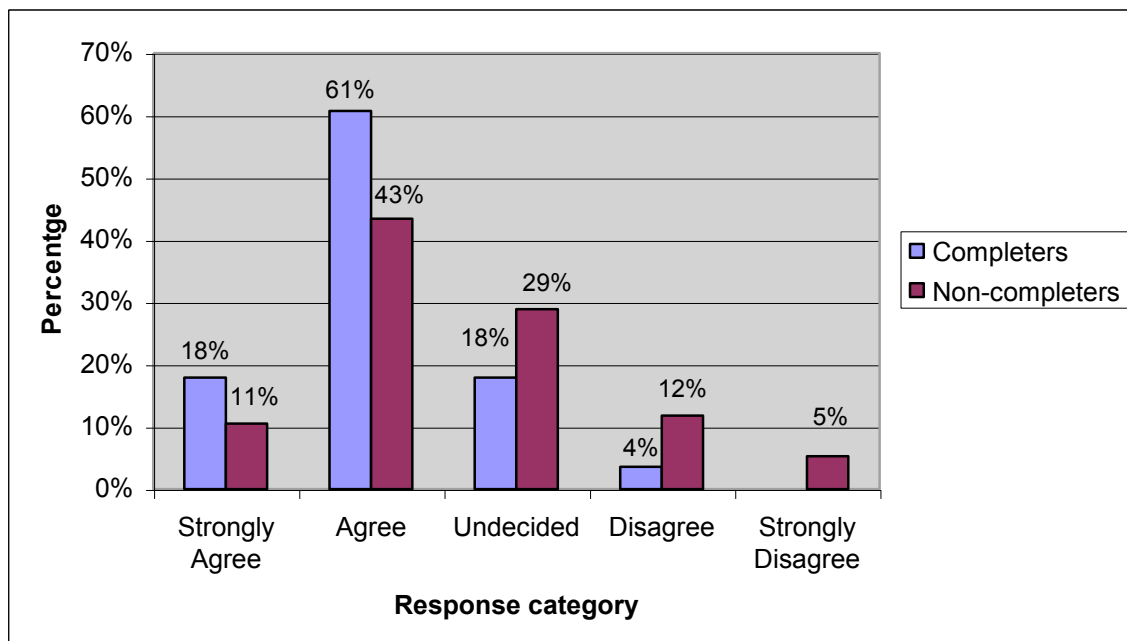
Figure 4.4: Response category percentage data for completers and non-completers for the statement 'Overall, the email messages had a positive effect on my study experience'.



The seventh statement was: *My study progress benefited from the email messages.* As illustrated in Figure 4.5, within the completers group, 79% of respondents either 'strongly agreed' (18%) or 'agreed' (61%) that, overall, the

progress they had made in the course had benefited from the email messages. It should be noted, however, that 18% of respondents were not able to distinguish the effect of the email messages on their study progress. Only a small minority (4%) believed that their study progress had not benefited from the email messages. For the non-completers group, in contrast, only 54% of respondents either 'strongly agreed' (11%) or 'agreed' (43%) with the statement. On the whole, they did not feel as strongly about the positive impact of the email messages on their studies. A sizeable proportion of respondents in the non-completers group were 'undecided' (29%) in their answer. Importantly, in this group 17% of the non-completer respondents either 'strongly disagreed' (5%) or 'disagreed' (12%) with the statement. In contrast, only 4% in total of completers 'disagreed' with the statement.

Figure 4.5: Response category percentage data for completers and non-completers for the statement 'My study progress benefited from the email messages'.



Perceived inclination of influence of messages on effort

The second and fifth statements in Section D were used to determine the students' inclination as to the perceived influence on effort in relation to subjects attempted and, specifically, in relation to submitting assignments. The data from these statements are presented in Table 4.18.

Table 4.18: Combined response category percentage data about the influence of the email messages for completers and non-completers.

Code	Statement	Student Group	Strongly Agree/ Agree	Undecided	Disagree/ Strongly Disagree
D2	The email messages motivated or prompted me to submit assignments.	Completers	61%	32%	7%
		Non-completers	75%	11%	14%
	Difference		14%	21%	7%
D5	The email messages influenced my effort in the subjects.	Completers	64%	25%	11%
		Non-completers	62%	25%	13%
	Difference		2%	0	2%

The second statement was: *The email messages motivated or prompted me to submit assignments.* A majority (61%) of the completers and an even greater percentage (75%) of non-completers indicated that the email messages had prompted them to submit assignments. The tendency for the non-completers to indicate that the email messages had had a greater influence on them in terms of submitting an assignment may be due to completers working faster than the pace set by the Email Support Program. Once the completers started with the early

submission of assignments, therefore, the submission of assignments became less dependent of the email messages. A larger percentage (32%) of completers than non-completers (11%) were 'undecided' about the influence of the email messages on their motivation to submit assignments.

The other statement to assess the perceived influence of the email messages on effort was: *The email messages influenced my effort in the subjects*. A similar and sizeable majority of completers (64%) and non-completers (62%) 'agreed' that the email messages had indeed influenced their effort in the subjects. The same percentage (25%) of respondents were 'undecided' in their answer and a similar percentage of completers (11%) and non-completers (13%) 'disagreed' with the statement.

So in terms of the influence of the email messages on effort, as targeted in Statement 2 and 5, the results would seem to show that the majority of completer and non-completer respondents 'agreed' that the email messages had indeed influenced their actual effort in the modules. Nonetheless, there was a minor proportion of completers and non-completers who were 'undecided' in relation to the actual influence of the messages on their study effort.

Some typical comments made by students in relation to the perceived influence of the email messages on their studies were:

"They motivated me to actually start completing the set topics/subjects."

“The last email motivated me sufficiently to get moving on the last 3 assignments, which I have now submitted.”

Developing affiliation and a ‘sense of belonging’

The fourth, sixth and eight statements in this category were included to assess if students had perceived that the email messages had contributed to the students developing a feeling of affiliation or ‘sense of belonging’ with OTEN, the distance provider. As described in Chapter 1, feelings of affiliation with a particular institution can influence drop-out rates. Affiliation between the student and the institution can occur through a sufficient level of positive communication between the two being achieved (Brindley, 2000; Castles, 2004; Kellogg, 2003; Kember, 1995).

The fourth statement was: *The email messages made me think the Property Services section was interested in my study progress.* The data is presented in Table 4.19. Overwhelmingly, the results show both the completers (96%) and non-completers (90%) group did believe that the email messages had fostered feelings about the faculty being interested in the student’s progress.

Table 4.19: Combined response category percentage data for completers and non-completers for the statement ‘The email messages made me think the Property Services section was interested in my study progress’.

Code	Statement	Student Group	Strongly Agree/ Agree	Undecided	Disagree/ Strongly Disagree
D4	The email messages made me think the Property Services section was interested in my study progress.	Completers	96%	4%	0
		Non-completers	90%	9%	1%
	Difference between groups		6%	5%	1%

Responses typically made by students in relation to the interest Property

Services had about their study progress were:

“I found the emails encouraging and helpful, it was reassuring to know that the Property Services team had an interest in my progress.”

“The email messages were positive in the way someone was looking for the assignments. It wasn’t being sent into a ‘black hole’.”

The sixth statement was: *The email messages made me feel I could actively interact with Property Services*. The data is presented in Table 4.20. The completers (93%) and non-completers (83%) groups on the whole perceived that the email messages had made them believe that they could actively interact with the faculty. Only a small proportion of the completers (7%) and a slightly larger proportion of the non-completers (16%) were unable to determine their opinion.

Table 4.20: Combined response category percentage data for completers and non-completers for the statement ‘The email messages made me feel I could actively interact with Property Services’.

Code	Statement	Student Group	Strongly Agree/ Agree	Undecided	Disagree/ Strongly Disagree
D6	The email messages made me feel I could actively interact with Property Services.	Completers	93%	7%	0
		Non-completers	83%	16%	1%
	Difference between groups		10%	9%	1%

Responses typically made by students in relation to the email messages encouraging students to feel as though they could interact with the teaching faculty were:

“The email messages made me feel that I had direct contact with OTEN.”

“They (the email messages) make you feel part of a group; there is contact if you need it.”

“I feel the email service provided was useful in that it made you feel more able to communicate...”

In order to determine the role of the motivational communication in alleviating feelings of isolation, an eighth statement in this category was included. The statement was: *The email messages reduced feelings of isolation*. The resulting data is presented in Table 4.21. A larger percentage of respondents from the completers group (89%) than from the non-completers (73%) group perceived that the email messages had reduced feelings of isolation while studying through distance education. This was a difference of 16% and indicated that substantially more frequently had the messages reduced feelings of isolation among the completers than the non-completers.

Table 4.21: Combined response category percentage data for completers and non-completers for the statement ‘The email messages reduced feelings of isolation’.

Code	Statement	Student Group	Strongly Agree/ Agree	Undecided	Disagree/ Strongly Disagree
D8	The email messages reduced feelings of isolation.	Completers	89%	7%	4%
		Non-completers	73%	22%	5%
	Difference between groups		16%	15%	1%

Typical comments made by students in relation to the impact of the email messages on possible feelings of isolation while studying were:

“ I was pleasantly surprise to receive the emails and was glad to get several. Made me feel less isolated!”

“Hope all the emails continue as I do believe they helped motivate me. Have attempted another course through uni and felt isolated with very little contact or follow up.”

“Emails of encouragement and updates should come weekly or fortnightly. This course can be isolating, as I have no feedback or contact from other students.”

“I felt that sending emails to students was fantastic; I didn’t feel isolated.”

Students appreciation of the messages

The third and ninth statements in category D were included to garner the student’s overall opinions on whether they appreciated the email messages or not and, hence, would be in favour of the messages being sent to future students in Property Services.

The data for these two statements are provided in Table 4.22. The results show that overwhelmingly the students, whether completers (100%) or non-completers (96%), appreciated the Email Support Program.

Regardless of the significant influence of the email messages on working and completion rates as discussed in the results for Hypothesis 1, from a customer service viewpoint alone, the overall perceived positive response to the email messages, in terms of appreciation by many of the students, would be justification for the continuation of the intervention strategy. Similar results for students in the completers and non-completers groups were obtained in relation to the students being in favour (approximately 92% in both groups) of the Email Support Program being continued for future students in the Property Services section of OTEN.

Table 4.22: Combined response category percentage data about the students' appreciation of the email messages for completers and non-completers.

Code	Statement	Student Group	Strongly Agree/ Agree	Undecided	Disagree/ Strongly Disagree
D3	The email messages were appreciated.	Completers	100%	0	0
		Non-completers	96%	3%	1%
	Difference between groups		4%	3%	1%
D9	I would be in favour of the email messages being sent to new Property Services' students.	Completers	93%	7%	0
		Non-completers	92%	7%	1%
	Difference between groups		1%	0	1%

Responses typically made by students in relation to their general feelings on receiving the email messages and continuation of the service to future students were:

"Thank you. From what I see you are doing a good job. Your emails and information are appreciated and have been timely. Please keep it up."

"I think the email correspondence is a positive step and will be appreciated by all students."

"Generally appreciated the contact in a lonely world of study!"

"I feel the email messages should continue for the new students, as it is a very helpful reminder and motivator without feeling any pressure."

"I encourage the continuation of the email messages as, although I have not completed the subjects, I found them very helpful and encouraging."

Category E statements: The 'Confidence' factor

The final brief category of questions provided four statements in relation to the link between the email messages and the students' feelings on module success, thus covering the 'Confidence' element of Keller's (1983) ARCS model of motivation.

In general for these four statements, compared to others asked within the questionnaire, the results showed that many of the respondents were 'undecided' about the link between the email messages and module success. This could be because some students could not recall the particulars of the email messages which made specific mention of the issues on how to achieve module success.

For example, in the first email message sent to students, they were told:

Many students tell us that the secret of success to studying by correspondence is getting that first ever assignment submitted. Don't agonise over it too much! In our experience, to get your course completed, it is better that you start submitting assignments as soon as possible after enrolment.

Or, in the fifth email sent, the students who had not started submitting assessment tasks or were falling behind are told to reaffirm their goal in undertaking the course. It was then recommended that they write the goal down and put it in on the fridge or somewhere else prominent to remind them. Finally, in the seventh email the students who were not on track to complete were given advice on what they could do to achieve success:

First of all, make a commitment to at least complete the modules 8806A, B, C & H. Secondly, make your own study 'plan of action' to finish the four assignments and one test by the 30th of November. Finally, when you do finish the last assignment email me and I will send you an email with hints on the test.

Or, it could be that some students did not perceive that feelings of success could be linked to the email messages. As one student poignantly stated:

“Unfortunately my own success is reliant entirely on my own motivation and application and I can at no time blame others for i.e. OTEN service for the level of success. Your support is more than adequate and appropriate but does not substitute for self application and discipline.”

Regardless of the fair proportion of respondents that were ‘undecided’ in their answer to these four statements, the majority of responses to all statements were positive in terms of students linking the email messages to feelings of module success. As shown in Table 4.23 for the first statement, ‘*The email messages helped me feel more confident about my ability to succeed*’, the 64% of completers and 61% of non-completers ‘agreed’ that the email messages had positively impacted on their confidence to succeed. Twenty-nine percent of completers and 33% of non-completers were similarly ‘undecided’ in their responses.

Table 4.23: Combined response category percentage data for completers and non-completers for the statement ‘The email messages helped me feel more confident about my ability to succeed’.

Code	Statement	Student Group	Strongly Agree/ Agree	Undecided	Disagree/ Strongly Disagree
E1	The email messages helped me feel more confident about my ability to succeed.	Completers	64%	29%	7%
		Non-completers	61%	33%	6%
	Difference between groups		3%	4%	1%

As shown in Table 4.24, the second statement, '*Some of the email messages helped me link success to my goals*', was the least understood statement or the statement which provoked the most 'undecided' response, with the 'undecided' response being chosen more than the alternative responses for both the completer (54%) and non-completer (55%) respondents. More students, however, 'agreed' (completers, 42%; non-completers, 34%) with the statement than 'disagreed' (completers, 4%; non-completers, 11%).

Table 4.24: Combined response category percentage data for completers and non-completers for the statement 'Some of the email messages helped me link success to my goals'.

Code	Statement	Student Group	Strongly Agree/ Agree	Undecided	Disagree/ Strongly Disagree
E2	Some of the email messages helped me link success to my goals.	Completers	42%	54%	4%
		Non-completers	34%	55%	11%
	Difference between groups		8%	1%	7%

The third statement in this category was: *The email messages made me feel that success isn't linked to luck*. As shown in Table 4.25, this statement still had a large 'undecided' response, but more so for the completers group (54%) than the non-completers (38%) group. Again, however, more students 'agreed' (completers, 42%; non-completers, 53%) that the email messages had made them feel that success isn't linked to luck than 'disagreed' (completers, 4%; non-completers, 9%).

Table 4.25: Combined response category percentage data for completers and non-completers for the statement ‘The email messages made me feel that success isn’t linked to luck’.

Code	Statement	Student Group	Strongly Agree/ Agree	Undecided	Disagree/ Strongly Disagree
E3	The email messages made me feel that success isn’t linked to luck.	Completers	42%	54%	4%
		Non-completers	53%	38%	9%
	Difference between groups		11%	16%	5%

The final statement in this category was: *The email messages made me feel I could succeed with some effort.* The results are presented in Table 4.26. The overall response by students was that the email messages had made them feel that they could succeed with some effort. Surprisingly, however, it was the non-completers (81%) who believed that the email messages made them feel that they could succeed with some effort compared to the completers (71%).

Although a sizeable minority of respondents (completers, 29%; non-completers, 18%) remained ‘undecided’.

Table 4.26: Combined response category percentage data for completers and non-completers for the statement ‘The email messages made me feel I could succeed with some effort’.

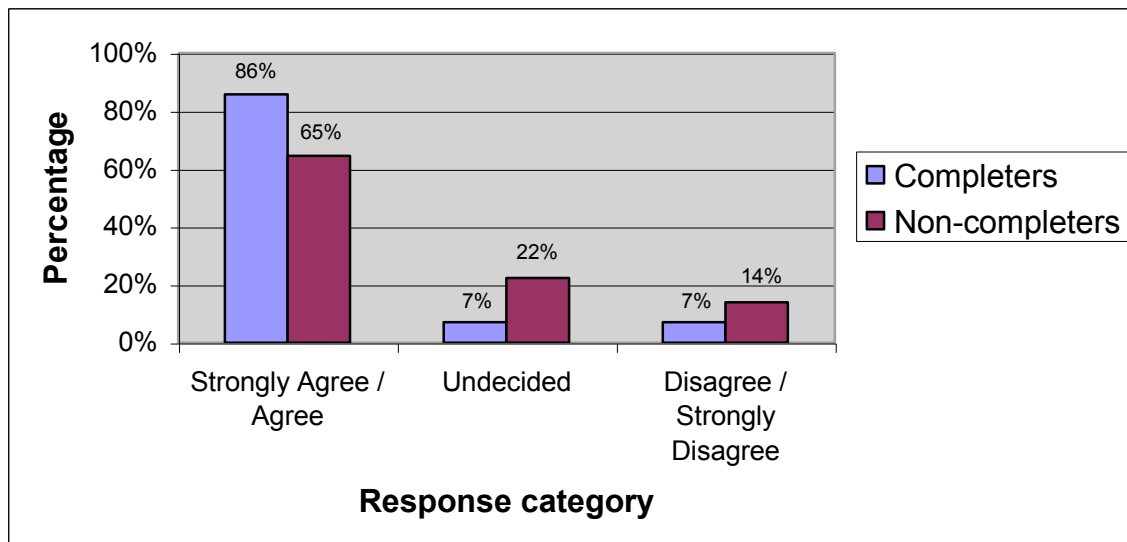
Code	Statement	Student Group	Strongly Agree/ Agree	Undecided	Disagree/ Strongly Disagree
E4	The email messages made me feel I could succeed with some effort.	Completers	71%	29%	0
		Non-completers	81%	18%	1%
	Difference between groups		10%	11%	1%

Part 2 of the Questionnaire

In the second part of the questionnaire, there were three statements also using a Likert scale and four questions asked in relation to student-faculty interaction and faculty support. One of the statements and all of the four questions asked in the questionnaires were included as a source of feedback for the Property Services section in relation to monitoring the quality of service provided by the section to students via telephone and electronic mail and to garner the students' preferences in terms of preferred medium for contact with the teaching faculty. This administrative type feedback was not pertinent to this study and hence will not be reported. These items helped to gain the support of management at OTEN to enable the study to be attempted.

The first statement included in Part 2 of the questionnaire was: *The email messages encouraged me to contact the Property Services staff for assistance.* As student-teacher interaction has been identified as an important element in reducing drop-out in distance education, the influence of the email messages in encouraging the student to contact the faculty is deemed an important by-product of the Email Support Program. As can be seen in Figure 4.6, both groups believed that the email messages had encouraged them to contact the teaching faculty, however, the completer respondents (86%) felt more encouraged than the non-completers (65%).

Figure 4.6: Combined response category percentage data for completers and non-completers for the statement ‘ The email messages encouraged me to contact the Property Services staff for assistance’.



The final relevant statement reported related to the issue of possible isolation while studying through distance education. The statement was: *I felt isolated while doing these subjects.*

Figure 4.7: Response category percentage data for completers and non-completers for the statement ‘I felt isolated while doing these subjects’.

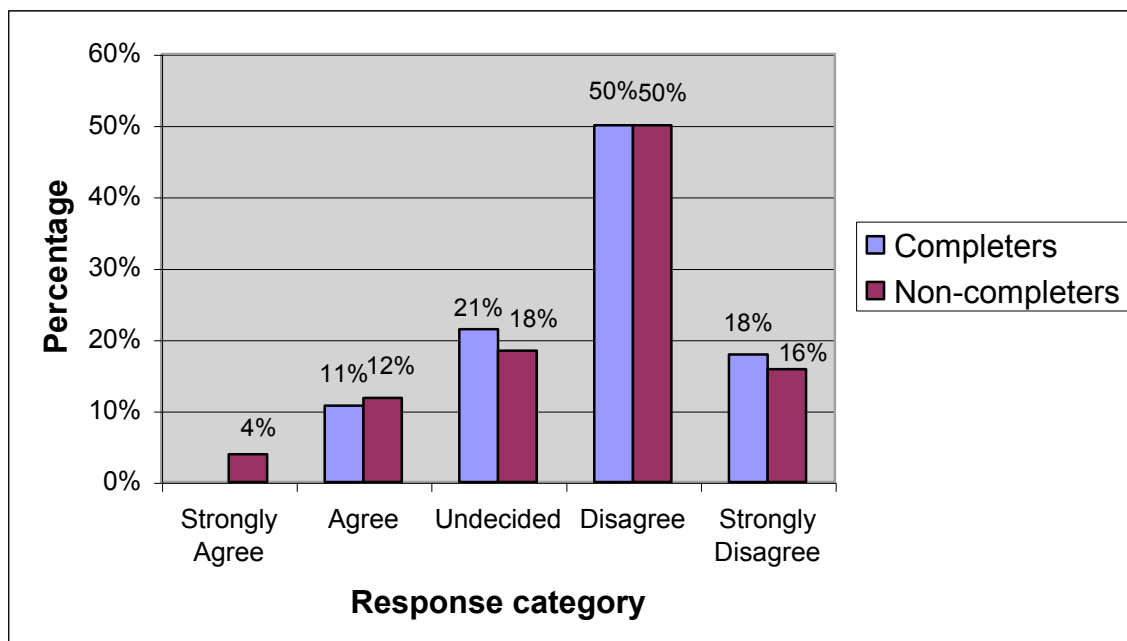


Figure 4.7 shows that the majority of students did not feel isolated while undertaking these subjects. It is interesting to note, that both the completers ('disagree', 50%; 'strongly disagree', 18%) and non-completers ('disagree', 50%; 'strongly disagree', 16%) groups thought similarly in terms of response rates and intensity of their response in relation to not feeling isolated. There was an 'undecided' response rate for both groups. Of those respondents, however, who did feel isolated while studying, the non-completers felt marginally more isolated in terms of the size and intensity of their response. Among the non-completers 12% 'agreed' and 4% 'strongly agreed' that they had, in fact, felt isolated while studying these subjects, while 11% of completers only 'agreed' that they had felt isolated.

5 Conclusions and Discussion

5.1 Conclusions

The major research theme tested in the quasi-experimental study was whether there was a cause-effect relationship between faculty-initiated email messages and learner persistence toward completion of distance modules. The measurable study progress results of the students exposed to the Email Support Program confirm the hypotheses generated from this issue. There were statistically significant between-group differences for the Email Support Program for both working and completion rates.

Overall, it was found that there was a significantly higher frequency of students in the Email Support Program who began their studies (14%) which ultimately led to a higher frequency of students who completed the modules (12%) when compared to those students in the Control group, who had not received the faculty-initiated email messages. The percentage differences between the groups were of both statistical and practical significance.

These results supported the likelihood that a retention strategy consisting of faculty-initiated email messages, designed in accordance with Keller's (1983) ARCS model of motivation, would be an effective motivational strategy to

increase participation and completion rates in distance education. The motivational email messages improved the motivational disposition of the students to begin and complete modules. It would appear, therefore, that the results of this study support the use of Keller's (1983) ARCS model of motivation as an effective theoretical model to utilise when designing retention strategies which aim to influence students' motivation in distance education.

Students' access to technology was also considered a relevant issue to explore, in order to examine its possible influence on the significance of the foregoing results. It was found that there were no significant between-group differences, in terms of working and completion rates, for the Control group with no computer access notified (CG1) and the Control group with identifiable computer access (CG2). In practical terms, computer knowledge and access did not appear to influence assignment submission rates or module completion.

The influence of the Email Support Program, however, to motivate students to submit assignments sooner, than those students not exposed to the email messages, was found to be minimal. The evidence pertinent to this issue revealed that the time taken from the date of enrolment to the submission of the first assignment and the completion of all assessment events for the four modules was only marginally quicker for the students who were exposed to the faculty-initiated email messages in the Experimental group when compared to

those in the Control groups. In any case, between-percentage difference here was not of practical or statistical significance.

It was concluded, therefore, that the influence of the Email Support Program was limited to the Experimental group students, on average, submitting more assignments and completing more of the modules, but any further difference did not appear to extend to these students submitting their assignments, on average, significantly earlier than those students in the Control groups.

It should be remembered, however, that the email messages, in particular the fourth to seventh email messages, indicated a suggested time frame for the completion of the four assignments and the test in a 16-week time period. The aim of the suggested time frame was to motivate the students to submit the assessment tasks in a time period commensurate with that usually taken to complete the four modules in a face-to-face learning environment in TAFENSW. It is, therefore, acknowledged that the assignment submission progress, suggested in the email messages, may have artificially inhibited some students in the Experimental group from undertaking the assessment tasks quicker than they would have done otherwise, that is, if they had not been exposed to the time intervals of the email messages.

It was also of specific interest in this study to explore the characteristics of the students who completed the modules in both the Experimental and Control

groups. The between-group differences in this area, if any, were expected to provide important information in terms of the influence of the Email Support Program on particular types of people. The students' employment status, financial support whilst studying and previous tertiary education experience were found to have a significant influence on students' completion of the modules.

Employment, whether part-time or full-time, had a significantly positive effect on completion of modules for adult learners in distance education. Those students in the Experimental group or Control groups who were employed, either part-time or full-time, were significantly more likely to complete the modules than those students who were unemployed. This would seem incongruous, given that those students who were unemployed should, theoretically, have more time to study and complete assignments than those whose time to study is impinged on by full or part-time employment.

Though it is unable to be determined if the students who were employed were employed in the real estate industry or not (this being a possible source of motivation given the modules selected for the study were compulsory to undertake if employed in certain positions in the industry), it is suggested that employment, of any type, has a motivational element in terms of students completing their modules. As the Experimental and Control groups were both significantly affected by the difference, it would seem the motivational stimulus

provided by being in some form of employment is of some importance, regardless of any presence of the Email Support Program.

Prior completion of a tertiary education course also had a significantly positive effect on completion of modules for adult learners in distance education. Those students in the Control group, who had already completed a tertiary education course (i.e. certificate, diploma or degree), were significantly more likely to complete the modules than those students who had not completed any tertiary courses since leaving secondary school. This probably indicates that the experience and confidence obtained from prior completed tertiary education, is likely to assist a student to start and complete their studies in distance education.

It is worthy of note, however, that this significant difference may indicate that the influence of prior successful tertiary studies on completion of the modules is only important when there is no additional support provided by the Email Support Program. That is, those students in the Experimental group, who completed the modules in this study but had not completed any tertiary education courses since high school, might obtain greater confidence from the Email Support Program to succeed, when working on the current modules. Those students in the Control group who completed the nominated modules, but did not experience the Email Support Program, appeared to have relied on their prior successful tertiary educational experience to provide the confidence to complete (a learning-to-learn phenomena). This finding confirmed the importance of a 'confidence' component

in the design of the email messages and this is a feature of Keller's (1983) ARCS model of motivation. It also appears to support the need for motivational support strategies to be especially provided to those students with no post-secondary education completed.

A final demographic variable that showed a significant between-group difference (completers vs. non-completers) but only for the Experimental group and not the Control group, was 'receiving government financial assistance' while studying. Those students not receiving financial support in the Experimental group were significantly more likely to complete. On examination, this finding would seem compatible with the significant results shown for the influence of employment status on completing modules. If a student has a job, they would be unlikely to receive government financial assistance. However, as the same finding was not found for the Control group, it would seem that the relationship between employment status and government financial support might be unrelated.

It was also of specific interest in this study to examine students' perception of the faculty-initiated, motivational communication sent via email. The results revealed that the students, completers and non-completers alike, overall, were in favour of and appreciative of this method of student support. The students were also clearly positive in their assessment of its effects in terms of influencing their effort and motivating them to submit assignments. The students' 'perceived' effects were in accord with the 'actual' effects shown in the results. These results also

showed that overall, there were very few differences in responses between the completers and non-completers, with most differences being of little practical significance (less than 5%).

On enrolment, most students were motivated to do the course and intended to complete the course, however on the whole, the non-completers were not quite as clear as the completers in relation to their goal in undertaking the course. Most students had enrolled in the modules for future job possibilities as opposed to current work requirements. Interestingly, it was the non-completers who indicated they were more likely to be enrolled for current work requirements (43%) than the completers (32%). This would appear to indicate that the motivation to complete the modules provided by current work requirements was not an influential source of motivation to complete.

Overwhelmingly, the students indicated that they had read all the email messages sent to them. What was interesting, however, was that 5% of non-completers had indicated that they had not, in fact, read all the email messages sent to them. Not reading all the messages could be a minor reason for non-completion for these students. Unfortunately, Visser (1998) did not ask in her questionnaire to students in the MMSS program if they had read all the notes that were sent, she only asked if they had received them. This oversight by Visser limits any comparison and further insight into this issue.

The number of email messages sent over the 16-week period was considered adequate by most respondents however, as would be expected, the timing of the email messages was more aligned to the study progress of the completers, when compared to the non-completers (a 27% difference). Most respondents indicated that the email messages had made them aware of their progress, or lack thereof. The non-completers however, indicated that the email messages, on the whole, had made them more anxious about their progress than the completers (18% difference).

Both completers and non-completers indicated that the email messages as designed were easy to read (97% and 100% respectively), captured their attention (both 89%) and, to a lesser extent, had aroused their interest in the subject (57% and 60%, respectively). These responses indicated that the email messages had been successful in capturing the student's 'attention', a feature of the ARCS model of motivation (Keller, 1983).

In terms of 'relevance' in the ARCS model of motivation (Keller, 1983), it would seem that most respondents in the completers and non-completers group (97% and 79% respectively) found the email messages were relevant to their study, however, there was an 18% difference between the groups and this was of practical significance. This difference is not unexpected as some of the email messages provided assistance with undertaking specific assessment events that

the non-completers, by nature of not completing the assessment tasks, would not find beneficial or relevant.

In relation to the 'confidence' component in the ACRS model of motivation (Keller, 1983), the respondents revealed that they were ambivalent about the link between the email messages and them developing the confidence to complete the modules. This ambivalence, however, was at odds with the significant results achieved for the first research question which clearly showed the Email Support Program did, in fact, influence students to begin and complete their studies. Though there was a high proportion of 'undecided' responses to the four questions on the link between the email messages and student's feelings on module success, more students 'agreed' than 'disagreed' that they believed that the email messages had:

- helped them feel more confident about the ability to succeed (completers, 64% vs. 7%; non-completers 61% vs. 6%);
- helped them link success to their goals (completers, 42% vs. 4%; non-completers, 34% vs. 7%);
- helped them feel that success isn't linked to luck (completers, 42% vs. 4%; non-completers, 53% vs. 9%) and
- made them feel they could succeed with some effort (completers, 71% vs. 0%; non-completers, 81% vs. 1%).

An integral element of the questionnaire was to determine student opinions and perceptions of the influence of the email messages on their study behaviour. Contrary to some students' ambivalence to the link between the messages and nurturing feelings of confidence, the majority of completers and non-completers (64% and 62% respectively) indicated that the email messages had actually influenced their effort in the subjects and motivated them to submit assignments. Interestingly though, more non-completers than completers believed that the email messages had prompted them to submit assignments (14% difference). This finding suggests, at least in these circumstances, that a student's perception may not always accord with the reality of their behaviour. These positive reflections by the respondents, in terms of their perception that the email messages had influenced their effort in the modules and motivated them to submit assignments, concur with the findings for Research Question 1, where actual effort was shown to be significantly affected by the Email Support Program.

Importantly, the completers and non-completers believed that, overall, the email messages had a positive effect on their study experience (79% and 54% respectively). However, there was a 16% between-group difference here: the non-completers not considering the effect as positively as the completers. This also was considered to be of practical significance. This difference would be expected. There was also a difference of opinion between the completers and non-completers, which was also considered to be of practical significance, about

whether their study progress had benefited from the email messages. While in both groups, more respondents believed that their study had benefited from the email messages, as would be expected, the completers believed that their study progress had benefited more from the email intervention than did the non-completers (25% difference).

The Email Support Program appeared to be an effective strategy to develop student feelings of affiliation with the distance education institution. Most respondents perceived that the email messages made them feel that they could actively interact with the teaching section because they had been encouraged by the email messages to contact the teaching section for assistance. The non-completers, on the whole, were less likely to feel encouraged by the email messages to contact the teaching section than the completers (21% difference). This difference in action between completers and non-completers possibly indicated a major causative factor leading to why more of the completers did actually complete the modules.

In addition, most respondents (completers, 96%; non-completers, 90%) also perceived that the Email Support Program had led them to believe that the teaching faculty was interested in their study progress and had reduced possible feelings of isolation while studying at a distance (completers, 89%; non-completers, 73%). The later finding showed a 16% between-group difference. This difference indicated that the non-completers were less convinced of the

Email Support Program's ability to reduce these feelings of isolation. This difference in perception, possibly indicating another causative factor as to why more of the completers did actually complete. When students were asked whether they felt isolated while undertaking these modules, however, irrespective of the influence of the Email Support Program, the completers and non-completers both responded similarly (only a 2% difference) that they had not felt isolated. This finding suggested that the contact and support provided by OTEN, in general, was sufficient to limit feelings of isolation. Students did not complete, because of reasons not related to confidence and motivation.

Overwhelmingly, most students in both the completers and non-completers groups (>96%) considered the email messages to be a friendly means of communication between the faculty and the students. Another positive outcome from a customer service point of view, was that nearly all the respondents (>95%) appreciated the email messages and indicated that they would be in favour of the Email Support Program continuing for new students to the Property Services faculty (>91%). These positive responses by students to the Email Support Program provided support for continuation of this type of faculty-initiated contact.

The final information provided by the questionnaire related to the perceived reasons for module non-completion by students in the Experimental group. The results here indicated that the two main reasons for non-completion for those

students who returned the questionnaire, were reasons related to the students' employment (35%) and family or personal reasons (32%). Therefore, even with the additional support provided by the Email Support Program, work and family commitments are still the most powerful perceived factors in determining whether students will complete their studies or not at OTEN. Unfortunately, it is largely beyond the control of the distance education institution to negate the influence of these two non-institutional factors.

5.1.1 Summary of experimental findings

In summary, overall the survey results showed:

- A retention strategy consisting of faculty-initiated email messages, designed in accordance with Keller's (1983) ARCS model of motivation, are an effective motivational strategy to increase participation and completion in some types of distance education. The motivational email messages significantly improved the motivational disposition of the students to start and complete the modules.
- The influence of the Email Support Program had the effect of the Experimental group students submitting more assignments and completing more of the modules than a Control group. This effect, however, did not mean that these students submitted their assignments, on average, significantly earlier than those students in the Control groups.
- In practical terms, computer knowledge and access did not appear to significantly influence module completion or assignment submission rates.

- Employment, whether part-time or full-time, had a significantly positive effect on completion of modules for adult learners in distance education.
- The Email Support Program appeared to be an especially effective system of support for students who have not previously completed any tertiary education courses. The support provided by the faculty-initiated email messages perhaps substituted for the confidence and experience gained by previous successful tertiary experience.
- The students, completers and non-completers alike, were in favour and appreciative of this method of student support. The students were also clearly positive in their perceived assessment of its effects, in terms of influencing their effort and motivating them to submit assignments.
- The email messages generally had been successful in capturing student 'attention', providing 'relevant' information, and improving student 'confidence' to begin and complete their studies. All these features being integral to the ARCS model of motivation (Keller, 1983).
- The two major reasons for non-completion for the students in the Email Support Program related to employment and family related issues. These barriers to completion are largely beyond the control of the institution.

5.2 Study Limitations

While every effort was made to ensure the quality of this research, including: extensive consultation with academic teaching peers and reference to Australian

literature in the design and undertaking of research into retention strategies, it is recognised that not all extraneous variables could be rigorously controlled and some might have constituted threats to the validity and quality of the research.

They could include:

1. A possible source of researcher bias

It perhaps could be argued that the researcher's expectations may have been a contaminating influence as the researcher and the Property Services administrative assistant were responsible for systematically sending out the motivation messages and allocating student questions sent via email for response by teachers. For example, the researcher may have had a biased attitude toward having expectations that the research would be successful and possibly 'working' towards a positive outcome in the study by ensuring the email messaging system operated according to the designated plan and that email questions from students were responded to in a timely manner. Nevertheless, to try and minimise this source of bias the researcher allocated various weeks within the Email Support Program's operation in which the Property Services administrative assistant who was not aware of the rationale of the study, solely undertook the sending out and allocating of email messages for response.

2. The researcher's dual role

While conducting the experiment within the teaching section the researcher also had an additional role as a teacher. This meant that the teacher/researcher might be suspected of having had additional communication with some students in the Experimental or Control groups when answering student-initiated queries. To limit any bias through feedback and allocated marks on assessment tasks however, the researcher/teacher ensured that she did not mark any of the assignments submitted by these students.

3. Hawthorne effect

As well as the possibility of a researcher introducing a possible source of bias into research, research subjects can also sometimes contaminate research outcomes by introducing bias. Commonly referred to as the Hawthorne effect, it threatens to contaminate experimental treatments in educational research when the subjects of the study realise they are part of a study (e.g. Cohen & Manion, 1994, p.171). This may result in the subjects providing answers to the researcher that they believe will please the researcher. To limit any possible Hawthorne effect in the current study, the terms 'motivation' or 'motivational communication/messages' were never used whilst talking to the students or in correspondence with the students. It was thought that if the students were informed that the intended nature of a strategy was motivational it might affect their actions and/or bias answers given in the questionnaires. Another approach used

to elicit the genuine thinking of the students about a retention strategy was the use of subject anonymity in the questionnaires.

4. Testing

Time limitations imposed at OTEN in which this study needed to be conducted and completed, meant that pilot testing of the specific email messages and questionnaires to students could not be undertaken.

Nevertheless, in the design and development of the motivational messages and questionnaires they were extensively reviewed through critical analysis from academic supervisors and consultation with distance education peers.

5. Generalisation and reliability

The sample used in the study was shown to be representative of the population of OTEN in a number of ways (see Method section for details).

The population of OTEN was also similar to that of a number of other distance education institutes. However, while every effort was made to maximise the external validity of the study to allow for generalisations to be made to other populations or settings in distance education, some caution should be used in generalising the results across institutions due to each institutes unique characteristics. In particular, major institutional differences in areas such as: student characteristics; entrance requirements; the requirement of due dates for assessment tasks; and the size of the institution should be considered.

While acknowledging that this study does possess certain limitations as just described, it is argued that the study's findings have been strengthened by the attempts made to limit or minimise the possible effects of the types of extraneous variables outlined.

5.3 Discussion

The research study detailed in this dissertation was undertaken to continue the on-going research work on the relationship between persistence and increased student-teacher interaction in distance education by such researchers as Rekkedal (1989), Twyford (1998) and Visser (1998). Unlike in some of the previous studies, however, the method of student-teacher interaction here was not teletutoring but the use of written motivational communication. The design of the experiment utilised Cleary and Nicholls' Improvement Model (1998) and guidelines developed by Keller (1983) but, in particular, the design of the experiment extended the work of Visser (1998) and used a similar research methodology. This allowed some relevant comparison of outcomes.

In addition, the current study researched reasons for student non-completion to examine the influence of the Email Support Program on student withdrawal and to allow comparisons with an exit survey undertaken by Kirkby (2000) at the same institution.

Comparisons with Visser (1998)

In the investigations undertaken in this study and in Visser's (1998) study, the conventional study materials were supplemented with a series of motivational communications from the teaching faculty. In the present study, however, the motivational communications were sent to students utilising electronic mail technology as opposed to the conventional postal mail. The aim of this process was to increase the interaction between students and the teaching faculty so as to facilitate greater student affiliation with the institution, reducing feelings of isolation and thereby, improving the study progress and experience of the students. The use of electronic mail to deliver motivational communication, compared to the postal mail used by Visser (1998), was a natural progression as this type of technology developed and became more widely adopted. Electronic mail also provided benefits, compared to the postal mail, of immediacy, time and cost efficiency and ease of interaction between student and teacher.

Visser's (1998) research had found that the use of motivational communication sent by postal mail was an effective strategy to increase the number of completing students. Certain methodological limitations of Visser's (1998) study, for example, the small number of participants and the possible external motivational forces on students, limited the strength and the validity of generalisation of the findings. Nevertheless, the results of the current study were compared to some of the results found by Visser (1998). In particular, Visser's findings in terms of the effectiveness of motivational communication in distance education, the students' perception of the motivational messages and the

importance of the 'confidence' component of the ARCS model (Keller, 1983) in the retention strategy were compared to outcomes from the current study.

Visser's (1998) study analysed the effectiveness of the motivational communication based on comparison of completion rates. Comparisons showed that the results achieved in this study (a statistically significant 12% improvement in completion rates), compared favourably with the results found by Visser (1998) in her MMSS study undertaken in England with distance education students based in various countries. Visser (1998, p.131) found overall, that the groups of students that had experienced the messages had a statistically significant higher completion rate than the groups that did not receive the stimulus. Of those students exposed to the MMSS in Courses B and C in 1996/7, the combined completion rate was 61% (n = 64) compared to a completion rate of only 34% (n = 62) for those students not exposed to the messages in 1995/6, a between-group difference of 27%. However, when the results for the two courses (B and C) were separated, only Course B provided a significant difference compared to Course C.

It should be noted, however, that this statistically significant result was based on a comparison of completion rates for Visser's (1998) experimental group with completion rates of similar courses in previous years and not with a control group in the same year the experiment was undertaken (as in the present study). This and other limitations of Visser's study were previously discussed in Section 1.5.2. Nevertheless, the results of the current study and Visser's (1998, p.159) study

indicated that the use of faculty-initiated motivational messages, designed in accordance with Keller's (1983) ARCS model of motivation, are an effective strategy to influence the motivational disposition of different students in different contexts in distance education, leading to more completing their studies.

Unfortunately, comparisons between the two studies cannot be made based on participation rates (as evidenced by the submission of one assignment), as Visser did not undertake this work. In addition, Visser (1998) did not present any demographic analysis of the completers and non-completers in her study of motivational communication in distance education and so further comparison with the present study is not possible.

To explore the students' perceptions on the influence of the messages on their motivation, Visser (1998) surveyed the students utilising a written questionnaire. On an 'agree'/'disagree' basis, most respondents found that the motivational messages: helped them with pacing the course (87%); encouraged them to continue (87%); found the presentation of notes stimulating (91%); contributed to the pleasure in undertaking the course (96%); and made them look forward to the next message (78%). Interestingly, though, students believed that the messages had not made finishing the course easier (56%). Visser (1998, p.151) stated that this finding would be expected as the design of the messages was mostly focused on the affective motivational needs of the learners rather than their academic needs.

Overall, it is clear from the responses to Visser's (1998) questionnaire that student perceptions of the MMSS were positive. Many respondents found that motivational messages had been helpful, encouraging and had made the course more pleasurable. Overall, the students in Visser's (1998) study indicated that they appreciated the motivational communication sent via the postal mail. Instead of a specific question in the final questionnaire, however, Visser (1998) had made this assessment based on some limited qualitative comments made by respondents.

Due to differences in the structuring of the questions between the current study and Visser's study (1998), only broad comparisons can be made. It is clear, however, that a similar positive view of the motivational messages was found in the current study. Nearly all of the respondents in the current study appreciated the email messages. The students in the current study were also clearly positive in their assessment of its effects in terms of influencing their effort and in motivating them to submit assignments. Importantly, most of the students believed that the email messages had reduced feelings of isolation. The positive qualitative accounts and reflections by students in both the current study and in Visser's (1998) indicated that the use of written motivational communication is an effective support strategy to reduce feelings of isolation, increase the students' 'sense of belonging' with the distance education institution and, thus, increase participation and completion rates.

Visser's study also investigated the importance of the 'confidence' component of the ARCS model of motivation (Keller, 1983) in the retention strategy. As detailed in Section 1.5.1, Keller's (1983; 1987) ARCS theory defines four major conditions or stages that have to be met or addressed for students to become and remain motivated. The initials of these four conditions –Attention, Relevance, Confidence and Satisfaction – gave Keller's model the acronym ARCS. According to Keller, the first condition for motivating instruction is to gain and maintain the 'attention' of the learner. Once attention has been gained, the student will assess the 'relevance' of the instruction in terms of significance of the content to present and future goals. Thirdly, the student's 'confidence' that they can succeed, needs to be cultivated and nurtured so as to influence the student's actual effort and performance. Finally, according to Keller's ARCS model, fostering the element of 'satisfaction', through reinforcing student accomplishment is important for sustaining motivation.

The structure of the motivational content in the written messages in Visser's (1998) study and in the email messages in the current study was based on the ARCS model of motivation. The statistically significant improvement in completion rates in both studies, therefore, lends support to the ARCS model of motivation as being an appropriate theoretical explanation of at least some aspects of the behaviour of students exposed to distance education.

Having identified the effectiveness of the motivational messages, based on Keller's ARCS model of motivation in distance education, Visser (1998) also explored, through an exploratory question, the relative significance of the 'confidence' component in the MMSS on student motivation. Visser (1998), among other questions in the questionnaire, asked the students to detail what they believed the purpose of the messages had been. Of the 25 responses, most students believed the purpose of the email messages was to assist their confidence (12) and motivation (11) to complete the course. A minor number of responses had believed the purpose of the messages to be issues related to: attention (6); relevance (2) and satisfaction (2). Based on these findings and the unsolicited comments by students, Visser (1998, p.152) purported that the 'confidence' component was the most important component in the motivational messages. This increase in 'confidence', Visser (1998, p. 173) believed, contributed to the student's increased pleasure in undertaking the course as evidenced by the responses to the questionnaire previously detailed.

To explore the importance of the ARCS model's 'confidence' component in the current study, several questions were included to elicit the students' perceptions of the importance of the email messages in increasing their confidence to succeed. Generally, the respondents' responses indicated that they were unsure of the link between the email messages and their development of the confidence needed to complete the modules. This ambivalence, however, was contrary to the significant improvement in module completions achieved in the first research

question in the current study. However, while there was a high proportion of 'undecided' responses to these statements, some students did respond positively that the email messages had made them feel more confident about their ability to succeed and reinforced the idea that, with some effort, they could succeed. Overall though, these results perhaps only provided limited support for Visser's (1998) conclusions on the significance of the 'confidence' component in the ARCS model of motivation in distance education.

Comparisons with Twyford's study (1998)

As detailed in Chapter 1, research on the potential effectiveness of increased teacher-student interaction via the telephone had been undertaken by Twyford (1998) and published later (Twyford & Pithers, 2000). Twyford's (1998) research was undertaken at OTEN, the same institution where the current study took place. The design of the experiment extended the work of Rekkedal (1989) in particular, by emulating certain research methods for comparison purposes. In the studies undertaken by Twyford (1998) and Rekkedal (1989) the conventional study materials were supplemented with teletutoring.

The results of the Twyford (1998) experimental study reflected in an Australian context, those of other major European studies in the area, where the intervention – student-teacher interaction via the telephone – had had a slightly positive effect on increasing student persistence. In reality, however, the differences between increased working and completion rates in an experimental

and control group were not statistically significant. These results contrasted with the statistically significant improvements in participation and completion rates achieved in Visser's (1998) study and in the current study. The results of the present study therefore, suggest that utilising motivational communication designed in accordance with Keller's ARCS model of motivation is a preferential retention strategy in distance education over teletutoring. In addition, the Email Support System implemented in the current study had the benefits for large distance education providers of being able to reach a greater number of students in a time and cost efficient manner.

In the current study similar statements and questions were also posed to those used in the questionnaire by Twyford (1998) to enable further comparisons with the results of that study. Most respondents (completers, 89%; non-completers, 73%) in the current study perceived that the Email Support Program had led them to believe that the teaching faculty was interested in their study progress. Students who experienced teletutoring in Twyford's (1998, p.84) study had similar opinions. The resounding opinion (94%) of those students, who experienced the teletutoring was that the telephone contact by teachers in the faculty in that earlier study had made them feel that the teachers were interested in their study progress. Rekkedal (1989, p.31) perhaps believed, though wrongly as it turns out, that a positive answer to this type of question would be justification alone for the continuation of the intervention strategy.

The respondents to the questionnaire in this study also showed that most completers (89%) and non-completers (73%) also believed that the email messages had reduced feelings of isolation whilst studying at a distance. A similar question on the link between teletutoring and feelings of isolation asked by Twyford (1998) obtained similar results. The students who experienced the telephone contact by teachers, in general 'agreed' (75%) that the telephone conversations had assisted them in feeling less isolated. The students who were 'working' (i.e. had submitted at least one assignment in a module) were more likely (83%) to feel less isolated by receiving the teletutoring, than students who were non-working (50%). Though the numbers of respondents to the questionnaire in Twyford's (1998) study was small, this similar difference in opinion between working and non-working students is suggestive of a possible causative link identified in the current study between feelings of isolation and lack of completion.

When students were asked in the current study whether they felt isolated while undertaking these modules, however, irrespective of the influence of the Email Support Program, the completers and non-completers both responded similarly (only 2% difference) that they had not felt isolated. Again, a similar question was asked by Twyford (1998) in her study on teletutoring at the same institution. Similar to the results found in this study, Twyford (1998) earlier had found that there was little difference between those students who were working, when compared to those who were not working, in relation to their feelings about whether they felt isolated while undertaking their course.

Comparisons with Kirkby (2000)

To explore the perceived reasons for module non-completion for those students who had received the faculty-initiated email messages in the Experimental group was the basis of Research Question 5 in the current study. The inclusion of this research question also allowed a comparison to be made with the results of an exit survey previously undertaken by Kirkby (2000) at the same institution. Any difference in results between both studies, possibly indicating the influence of the Email Support Program in alleviating certain barriers to completion, such as lack of confidence, motivation and student-teacher interaction.

The results (see Section 4.4.5) indicated that the two main reasons for non-completion for the student respondents in the Experimental group, were basically reasons related to student employment (35%) and family or personal reasons (32%). These findings concur with the earlier findings from Kirkby's (2000) study, except that their rank order was reversed in that study. That is, the main reason given in Kirkby's study for non-completion related to personal and family related reasons (56%), followed by issues related to employment (45%). Therefore, even with the additional support provided by the Email Support Program, work and family commitments are still most powerful factors in determining if a student will complete their studies or not at OTEN. Unfortunately, it is beyond the control of the distance education institution to negate the influence of these two possible non-institutional barriers to completion.

The third and fourth major barriers to completion, cited in Kirkby's study for non-completion (2000), related to issues involving the student's confidence/motivation (25%) and reasons related to studying by distance education (20%). Similarly, the third and fourth barriers to completion in the current study were also issues involving students' confidence/motivation and reasons related to studying by distance education. Therefore, even when the students received the email messages, which were designed to increase their motivation and confidence to complete, 12% of respondents in the Experimental group who did not complete their studies still cited motivation and confidence as a barrier to completion. Similarly, even with increased contact from the faculty by the email messages, 4% of students in the Experimental group still cited reasons related to studying by correspondence education, such as lack of teacher-student interaction, as their perceived reason for not completing the modules in the 16-week period.

While it is disappointing that the Email Support Program was unable to lower the importance of these two reasons for non-completion, when compared to Kirkby's (2000) outcomes, the percentages of students who nominated these two reasons from the current study were relatively small. It is evident that it does not appear to be possible to engage and motivate all students with access to technology through the means of an Email Support Program. Such students require further investigation to identify other support strategies that might assist them to complete.

The Cleary and Nicholls' (1998) Improvement Model used to inform the research design for this study can be recommended to identify, develop, analyse, design, implement and evaluate any further retention and support strategies for students in distance education. In the present study the model provided an effective framework at an institute level to investigate retention strategies. In addition, the five guidelines (or at least some of them) developed by Keller (1983) for the formation of motivational strategies (details provided in Section 2.6) were also considered a useful theoretical model to consider when designing retention strategies in distance education.

General comments

The research undertaken in this study, hopefully has made a distinct contribution to the body of knowledge on strategies to address attrition in distance education and specifically, strategies utilising motivational communication. This study developed and investigated a programme of support for students based on motivational communication in a country where it had not been used before and used a medium, electronic mail, which had not previously been explored in Australian research literature. The study also investigated the 'actual' and 'perceived' effects of a motivational strategy on the interest and effort of adult learners as opposed to just the 'perceived' effects. This is an area of research that Bohlin (1990) suggested needed to be explored.

The results of this study indicated that the use of collective motivational communications, designed in accordance with Keller's (1983) ARCS model of motivation, is a significantly effective strategy to increase student participation and completion in distance education modules. In addition, the questionnaire revealed that students appreciated this form of student support and, importantly, generally identified the email messages as a technique that had influenced their effort in the modules. It was interesting to note that sometimes the students' perception of outcomes did not accord with their behaviour.

The results of this study validate the elementary findings of Visser's (1998) study. In contrast, however, to the findings of Visser's (1998) study which involved a very small number of students, the present study revealed that the sending of collective motivational communication via electronic mail technology is an effective way to positively influence the educational 'effort' of large numbers of students. This could prove to be a useful finding for distance education providers world wide, as large numbers of students typify most institutions.

5.4 Further Research

The results of this study have provided useful information in relation to increasing student participation and completion in distance education through on-line student support. There are a number of areas, however, that could be investigated to consolidate the findings that have already been found in this study and augment similar research in this area.

In accordance with the Cleary and Nicholls' (1998) Improvement Model (Section 2.6), which was used to guide the development of the strategy used for this study, it is suggested that the intervention strategy should be implemented again in other areas of OTEN to corroborate these results.

In addition, to eliminate a study limitation identified in Section 5.2, any replication of the study with other student groups might benefit from having teachers responsible for its undertaking do it as a normal part of their duties.

Another limitation of this study, identified in Section 5.2, was that the results might be institute specific. To authenticate and test the findings of this study more widely, research needs to be undertaken at a wide range of distance education institutions and environments to reflect the unique characteristics of various students and institutes (e.g. differences, such as: student characteristics; entrance requirements; the number and requirement of due dates for assessment tasks; and the size of the institution). This research, if undertaken, could provide further positive evidence about the application of this form of retention strategy.

As identified in the results, further research also could be conducted into the influence of motivational communication in distance education support and a student's prior tertiary education experience and current employment status. These two student characteristics had a significant influence on completion rates

in the current study. In particular, targeting students who are unemployed and/or have not successfully completed prior tertiary studies for on-line motivational support may be an area where the greatest influence of the support strategy may lie.

The research that has already been completed could be supplemented by a cost-benefit analysis of the Email Support Program being undertaken, although the researcher is reticent to recommend that approach in case it is used to justify discontinuing this method of support on purely economic grounds. Any investigation and assessment would need to consider not only the time taken to establish and implement the intervention strategy but also any extra work generated by the support program. For instance, the work generated by the students who are encouraged by the Email Support Program to contact the faculty by email, fax and telephone for assistance and the subsequent increase in marking from greater numbers of assignments being submitted and tests being undertaken.

5.5 Recommendations

The evidence reported here has shown that the Email Support Program as established in the Property Services section of OTEN was successful. These results, along with the students' general appreciation and satisfaction with the service, add support to a continuation of the Email Support Program in the

Property Services section and the cautious adoption in other teaching sections at OTEN. This method of support is especially suited to large and flexible distance education providers such as OTEN, because collective email messages are able to support numerous students in a time efficient manner. It also has the advantage of being able to cater to institutions with extended enrolment periods (such as OTEN's nine-month enrolment period) and, sometimes as a consequence, with no set due date policy for assessment events and tests.

As computer technology is developed further and institutional access to this technology widens, a more automated and streamlined approach to the sending out of email messages is envisaged. This would have the benefit of minimising the time taken for teachers and administrative staff to implement and deliver the support strategy and consequently, assist in the successful adoption of the support mechanism by staff.

In the interim, however, the implications for the teaching and administrative staff from the increase in workload by the implementation of the Email Support Program and the subsequent work generated by it, should be considered by the distance education provider and appropriate measures undertaken to address these important workplace issues. The Email Support Program would be an advantageous component of any student support system at OTEN, however its successful implementation does require the support of that Institute.

5.6 Concluding Remarks

In these times of increasing cost of educational service for students and more client-focused organisations, educational institutions need to consider and provide new ways to support students in the achievement of their educational goals. The financial impact on students (and distance providers) of subject and course withdrawal can be significant. To limit the number of students exposed to this burden, institutions ethically and economically need to deliver student support mechanisms that will increase the likelihood of students successfully completing subjects and courses. In addition, the changes to outcomes-based funding that educational organisations are increasingly facing, should also motivate institutions to investigate and provide support strategies that will promote student retention and completion.

In this study it has been shown that it is possible to motivate students to begin their studies and increase the number of students who successfully complete modules and hence, courses in distance education. This was achieved by increasing the interaction between the teaching section and the student through a series of email messages that had been specifically designed to motivate the student, reduce isolation and foster a sense of belonging to the institution. These email messages were also found to be appropriate in tone and cultural terms by the recipients.

The design of the messages in accordance with the Keller's (1983) ARCS model of motivation, has been shown to be a successful strategy to increase module participation and completion in distance education. As Visser (1998, p.174) succinctly stated when reflecting on the success of the motivational communications that she had designed in accordance with Keller's ARCS model of motivation:

The importance of communication in distance education is confirmed by many studies (for instance Wellens, 1986; Zvacek, 1991; Rowntree, 1994). What the messages did was initiate the communication in a structured way, while addressing the students' motivational needs. This approach goes further than "traditional" communication as, for instance....to draw the students' attention to making assignments... it is communication that touches upon the student's sense of belonging to a course. It expresses understanding of the student's difficulties and emphasises the student's being part of a group of people working together with someone (the tutor) who shows confidence and interest in them.

A student in the current study who experienced the Email Support Program confirmed this view:

I found the emails great, as they made me feel connected to someone/something. They weren't critical, even though I have done nothing as yet (all my fault). They make you feel part of a group; there is contact if you need it.

The findings of this study, hopefully, have led to a better understanding of student drop-out and strategies to improve student completion and retention in distance education in Australia. It is hoped that the support mechanism devised for this study is adopted more widely and research into this area continues to enable distance education institutions to better fulfil their charter and to facilitate a greater number of students achieving their educational goals.

Reference List

- Bááth, J.A. (1979). *Correspondence education in the light of a number of contemporary teaching models*. Malmo: LiberHermods.
- Bááth, J.A. & Wangdahl, A. (1976). *The tutor as an agent of motivation in correspondence education*. Pedagogical Reports No.8 Lund: University of Lund, Department of Education.
- Bandura, A. (1977). Self-efficacy: Towards a unifying theory of behavioural change. *Psychological Review*, 84, 191-215.
- Bates, A. (1991). Third generation distance education: The challenge of new technology. *Research in Distance Education*, 3(2), 10-15.
- Bean, J.P. (1982). Conceptual models of student attrition: How theory can help the institutional researcher. In E.T. Pascarella (Ed.), *Studying student attrition* (pp.17-33). San Francisco, CA: Jossey-Bass.
- Bean, J.P. (1985). Interaction effects based on class level in an explanatory model of college student dropout syndrome. *American Educational Research Journal*, 22, 35-64.
- Bean, J. & Metzner, B. (1985). A conceptual model of non-traditional undergraduate student attrition. *Review of Educational Research*, 55(4), 485-540.
- Bernard, R., Abrami, P., Lou, Y., Borokhovski, E., Wade, A., Wozney, L., Wallett, P., Fiset, M. & Huang, B. (2004). How does distance education compare with classroom instruction? A meta-analysis of the empirical literature. *Review of Educational Research*, 74 (3), Fall, 379-439.
- Billings, D. (1988). A conceptual model of correspondence course completion. *The American Journal of Distance Education*, 2(2), 23-35.
- Blaxter, L., Dodd, K. & Tight, M. (1996). Mature student markets: an institutional case study. *Higher Education*, 31, 187-203.
- Bohlin, R. & Others (1990). *A model for the motivational instruction of adults*. Proceedings of selected papers presented at the Convention of the Association for Educational Communication and Technology, February.
- Brindley, J. (1987). *Attrition and completion in distance education: The student's perspective*. University of British Columbia, Master's Thesis.

Brindley, J. (1988). A model of attrition for distance education. In D. Sewart. & J. Daniel (Eds.), *Developing Distance Education*, papers submitted to the 14th ICDE World Conference, August, Oslo.

Brindley, J. (2000). *The effects of a social support intervention on distance learner behaviour*. Ph.D. University of Ottawa (Canada).

Bryant, S., Kahle, J. & Schafer, B. (2005). Distance education: A review of the contemporary literature. *Issues in Accounting Education*, 20(3), August, 255-272.

Calvert, J. (2005) Distance education at the crosswords. *Distance Education*, 26(2) August, 227-238.

Campbell, D.T. & Stanley, J. C. (1963). Experimental and quasi-experimental designs for research. Chicago: Rand McNally.

Carr, S. (2000). As distance education comes of age, the challenge is keeping the students. *The Chronicle of Higher Education*, 46(23), 39-41.

Carr, R. & Ledwith, F. (1988). Helping disadvantaged students. *Teaching at a Distance*, 18, 77-85.

Case, P. & Elliot, B. (1997). Attrition and retention in distance learning programs: Problems, strategies and solutions. *Open Praxis*, 1, 30-33.

Castles, J. (2004) Persistence and the adult learner. Factors affecting persistence in Open University students. *Active Learning in Higher Education*, 5(2), 166-179.

Catchpole, M. (1992). Classroom, open and distance teaching: A faculty view. *The American Journal of Distance Education*, 6(3), 41-51.

Chyung, S. (2001). Systematic and systemic approaches to reducing attrition rates in online higher education. *The American Journal of Distance Education*, 15(3), 36-49.

Cleary, M. & Nicholls, R. (1998). *Understanding and Improving Module Completions*. Report for the Office of Training and Further Education, Victoria, Australia.

Cohen, L. & Manion, L. (1994). *Research methods in education*. London: Routledge.

Coutts, C. (1994). Utilising dropout research in the quest for quality: A case study at Wanganui Regional Community Polytechnic. *Quality assurance in education and training: Conference papers*, 3.

Cropley, A. & Kahl, T. (1983). Distance education and distance learning: Some psychological considerations. *Distance Education*, 4(1), 27-39.

Cumpston, A., Blakers, R., Evans, C., Maclachlan, M. & Others (2001). *Atlas of higher education: A community focus*. Occasional Paper Series, Department of Education, Training and Youth Affairs, Canberra, Australia.

Durkheim, E. (1961). *Suicide*. Glencoe: The Free Press.

Ferguson, G. & Takane, Y. (1989). *Statistical analysis in psychology and education*. New York: McGraw Hill.

Fibel, B. & Hale, W. (1978). The generalized expectancy for success scale: A new measure. *Journal of Consulting and Clinical Psychology*, 46, 924-931.

Flinck, R. (1976). The telephone used in an experiment of distance education at university level: A pilot study. Stockholm, Sweden: Lund University.

Flinck, R. (1978). *Correspondence education combined with systematic telephone tutoring*. Malmo: LiberHermods.

Fritsch, H. & Strohlein, G. (1989). Mentor support and academic achievement. *Open Learning*, 3(2), 27-32.

Garland, M. R. (1993a). Student perceptions of the situational, institutional, dispositional and epistemological barriers to persistence. *Distance Education*, 14(2), 181-98.

Garland, M. R. (1993b). Ethnography penetrates the "I didn't have time" rationale to elucidate higher order reasons for distance education withdrawal. *Research in Distance Education*, 5(2), 6-10.

Gibson, C. & Gaff, A. (1992). Impact of adults' preferred learning styles and perception of barriers on completion of external baccalaureate degree programs. *Journal of Distance Education*, 7(1), 39-51.

Grace, L. & Smith, P. (2001). Flexible delivery in the Australian vocational education and training sector: Barriers to success identified in case studies of four adult learners. *Distance Education: An International Journal*, 22(2), 196-211.

Grevatt, W. (1992). *Student success program*. Ontario, Canada: Mohawk College of Applied Arts and Technology, Hamilton.

Harrington, F. (1979). *The future of adult education*. London: Jossey-Bass.

Hawisher, G. & Moran, C. (1993). Electronic mail and the writing instructor. *College English*, 55, 627-643.

- Hezel, R. & Dirr, P. (1990). *Understanding distance education: Identifying barriers to college attendance*. Washington, D.C.: Annenber/CPB Project.
- Hipp, H. (1997). Women studying at a distance: What do they need to succeed? *Open Learning*, 12(2), 22-30.
- Hora, N. & Kling, R. (2001). Student distress in web-based distance education. *Educause Quarterly*, 3, 68-69.
- James, P. (1997). *Literature review regarding student withdrawal and completion*. Unpublished report, Open Training and Education Network – Distance Education, Sydney, Australia.
- Jegade, O. (1994). Distance education research priorities in Australia: A study of the opinions of distance educators and practitioners. *Distance Education*, 15(2), 234-253.
- Jones, P. (1977). *Self-fulfilling prophecies: Social, psychological and physiological effects of expectancies*. New York: Halsted Press.
- Keller, J. (1983). *Development and use of the ARCS model of motivational design*. Paper presented at the Technische Hogeschool Twente, Enschede, Netherlands.
- Keller, J. (1987). The systematic process of motivational design. *Journal of Performance & Instruction*, November/December.
- Kellogg, A. (2003). *Using computer-generated reminders as time management support to influence assignment completion rates and course completion in an online Masters program*. Ph.D., Virginia Polytechnic Institute and State University.
- Kember, D. (1990). The use of a model to derive interventions which might reduce drop-out from distance education courses. *Journal of Higher Education*, 20, 11-24.
- Kember, D. (1995). *Open learning courses for adults: a model of student progress*. New Jersey: Educational Technology Publications.
- Kirkby, K. (2000). *Student withdrawal survey*. Unpublished report, Open Training and Education Network – Distance Education, Sydney, Australia.
- Lake, D. (1999). Reducing isolation for distance students: An on-line initiative. *Open Learning*, November, 14-23.

Lentell, H. (1994). Why is it so hard to hear the tutor in distance education? *Open Learning*, November, 49-52.

Mahoney, M. & Morgan, C. (1991). *A sense of belonging: The unacknowledged dimension of quality in distance education*. Paper presented to the ASPESA biennial forum, July 15-19, Bathurst, Australia.

Martinez, M. (2003). High attrition rates in e-learning: challenges, predictors and solutions. *The e-Learning Developers' Journal*, July 14, 1-9.

McComb, M. (1994). Benefits of computer-mediated communication in college courses. *Communication Education*, 43, 157-170.

McCracken, H. (2004). Extending virtual access: Promoting engagement and retention through integrated support systems. *Online Journal of Distance Learning Administration*, 7 (1). Retrieved October 22, 2005, from <http://www.westga.edu/%7Edistance/ojdl/spring71/mccracken71.html>

McGivney, V. (2004). Understanding persistence in adult learning. *Open Learning*, 19(1), 33-46.

Moody, J. (2004). Why are the attrition rates so high? *Quarterly Review of Distance Education*, 5(3), Fall, 205-210.

Moore, M. (1981). Educational telephone networks. *Teaching at Distance*, 19, 24-31.

Moore, M. & Kearsley, G. (1996). *Distance education – A systems view*. Belmont, CA: Wadsworth Publishing Company.

Morgan, C. & Tam, M. (1999). Unravelling the complexities of distance education student attrition. *Distance Education*, 20(1), 96-108.

Muilenburga, L. Y. & Bergeb, Z. L. (2005). Student barriers to online learning: A factor analytic study. *Distance Education*, 26(1), 29-48.

Neuman, W. (1997). *Social research methods: qualitative and quantitative approaches*. Boston: Allyn & Bacon.

Nitsch, W. (2003). Examination of factors leading to student retention in online graduate education. A paper presented in partial fulfilment of the requirements of ED 7212 Administration and Leadership of Distance Education Programs, December.

Okun, M., Benin, M. & Brandt-Williams, A. (1996). Staying in college: moderators of the relation between intention and institutional departure. *Journal of Higher Education*, 67, 577-596.

Ortiz-Rodriguez, M., Telg, R., Irani, T., Grady Roberts, T. & Rhoades, E. (2005). College students' perceptions of quality in distance education: The importance of communication. *Quarterly Review of Distance Education*, 6 (2), Summer, 97-105.

Pascarella, E. & Terenzini, P. (1978). Studies of college attrition: 1950-1975. *Review of Educational Research*, 48, 49-101.

Pascarella, E. & Terenzini, P. (1979a). Interaction effects in Spady's and Tinto's conceptual models of college drop-out. *Sociology of Education*, 52, 197-210.

Pascarella, E. & Terenzini, P. (1979b). Student-faculty informal contact and college persistence: A further investigation. *Journal of Educational Research*, 72, 214-218.

Pascarella, E. & Terenzini, P. (1980). Predicting freshman persistence and voluntary dropout decisions from a theoretical model. *Journal of Higher Education*, 51, 60-75.

Peters, O. (1992). Some observations on dropping out in distance education. *Distance Education*, 13, 234-269.

Pfeiffer, J. & Sabers, D. (1970). *Attrition and achievement in correspondence study*. Washington DC: National Home Study Council.

Porter, L. & Lawler, E. (1968). *Managerial attitudes and performance*. Homewood, Illinois: Richard D. Irwin Inc.

Potter, G. (1983). The potential use of the telephone as an institutional device in external studies. *Distance Education*, 4(1), 95-107.

Powell, R. (1991). *Success and persistence at two open universities*. Centre for Distance Education, Athabasca University.

Reid, J. (1994). *The potential of open learning*. Address given to the New Zealand Qualifications Authority conferences. 'New Ways to Learn', March, Auckland and Christchurch.

Rekkedal, T. (1981). *Introducing the personal tutor/counsellor in the system of distance education*. Paper presented at the annual conference of the European Home Study Council, Madrid, Spain.

Rekkedal, T. (1982). The dropout problem and what to do about it. In J. Daniel, M. Stroud & J. Thompson (Eds.), *Learning at a distance: A world perspective* (pp.118-121). Edmorton: Athabasca University.

- Rekkedal, T. (1983). Enhancing student progress in Norway. *Teaching at a Distance*, 23, 19-24.
- Rekkedal, T. (1985). Introducing the personal tutor/counsellor in the system of distance education. *The Journal of Correspondence Education*, 2, 61-80.
- Rekkedal, T. (1989). *The telephone as a medium for instruction and guidance in distance education*. Report from an experiment at NKI, Norway.
- Rekkedal, T. & Qvist-Eriksen, S. (2004) Support Services in E-learning – an Evaluation (sic) study of students' needs and satisfaction. *European Journal of Open, Distance and E-Learning*, No. 1, 1-11.
- Richardson, J. (1994). Mature students in higher education: A literature survey on approaches to studying. *Studies in Higher Education*, 19, 309-325.
- Robinson, B. (1995). Research and pragmatism in learner support. In F. Lockwood (Ed.), *Open and distance learning today* (pp.221-232). London: Routledge.
- Rogers, P.H. (1990). Student retention and attrition in college. In R. Hashway (Ed.), *Handbook of Developmental Education* (pp.305-327). New York: Praeger.
- Rohrmann, B. (2002). *Verbal qualifiers for rating scales: Sociolinguistic considerations and psychometric data*. Project Report, University of Melbourne.
- Scales, K. (1984). A study of the relationship between telephone contact and Persistence. *Journal of Distance Education*, 5(2), 267-76.
- Scalese, E. (2001). What can a college distance education program do to increase persistence and decrease attrition? *Journal of Instruction Delivery Systems*, 15(3), 16-20.
- Schuemmer, R. (1993). *Some psychological aspects of distance education*. Project Report, Institute for Research into Distance Education. Hagan, Germany: FernUniversitat.
- Sewart, K. (1993). Student Support Systems in distance education. *Open Learning*, 8(3), 3-12.
- Shale, D. (1992). Attrition: A case study. In J. Daniel, M. Stroud & J. Thompson (Eds.), *Learning at a distance: A world perspective*. Edmorton: Athabasca University.
- Sheets, G. (1992). Characteristics of adult education students and factors which determine course completion: A review. *Horizons in Adult Education*, 6(1), 3-19.

Simpson, O. (2004). The impact on retention of interventions to support distance learning students. *Open Learning*, 19(1), 79-95.

Spady, W. (1971). Dropouts from higher education: Toward an empirical model. *Interchange*, 2, 38-62.

Spencer, R. (1980). *Investigating the use of the personalized system of the instruction in distance education*. REDEAL Research Report No.1 Edmonton: Athabasca University.

Sweet, R. (1986). Student dropout in distance education: An application of Tinto's model. *International Journal of Distance Education*, 7(2), 201-213.

Tao, L. (1995). *What do we know about email -- An existing and emerging Literacy vehicle?* Paper presented at the Annual Meeting of the National Reading Conference, November, New Orleans.

Taylor, J. (2001). *Fifth Generation Distance Education*. Keynote address presented at the 20th ICDE World Conference, Dusseldorf, Germany, 1-5 April.

Temple, H. (1991). *Open learning in industry*. Harlow: Longman.

Terry, N. (2001). Assessing enrolment and attrition rates for the online MBA. *THE Journal*, 28(7), 64-68.

Threlkeld, R. & Brzoska, K. (1994). Research in distance education. In B. Willis (Ed.), *Distance education: Strategies and tools* (pp. 41-62). Englewood Cliffs, NJ: Educational Technology Publications.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research*, 45(1), 89-125.

Towles, D., Ellis, J. & Spencer, J. (1993). *Student persistence in a distance education program: The effect of faculty-initiated contact*. Paper presented at the 33rd Annual Forum of the Association for Institutional Research.

Tresman, S. (2002). Towards a strategy for improved student retention in programmes of open, distance education: A case study from the Open University UK. *International Review of Research in Open and Distance Learning*, 3(1), 1-11.
Twyford, K. (1998). *Faculty-initiated telephone contact as a method to improve student progress in distance education*. B.Ed Honours Thesis, University of Technology, Sydney, Australia (unpublished).

Twyford, K. & Pithers, R. (2000). The effect of telephone contact as a means of student support in distance education. *Australian and New Zealand Journal of Vocational Education Research*, 8(2), 91-109.

Van Gannep, A. (1960). *The rites of passage*. (M.Vizedom & G. Coffee, Trans.). Chicago: University of Chicago Press.

Visser, J. (1990). *The usefulness of case study research in the study of a motivational intervention*. Paper presented at the Annual Meeting of the American Educational Research Association.

Visser, J. & Keller, J. (1990). The clinical use of motivational messages: An inquiry into the validity of the ARCS model of motivational design. *Instructional Science*, 19, 467-500.

Visser, L. (1998). *The Development of Motivational Communication in Distance Education Support*. Doctoral Thesis, University of Twente, Enschede, Netherlands (unpublished).

Visser, L., Plomp, T. & Kuiper, W. (1999). *Development research applied to improve motivation in distance education*. Proceedings of selected research and development papers presented at the 21st National Convention of the Association for Educational Communications and Technology.

Wilkinson, T. & Sherman, T. (1991). Procrastination in distance education: A review of what we know and need to learn. *Open Learning*, 6(3), 32-38.

Wojciechowski, A. & Palmer, L. (2005). Individual student characteristics: Can any be predictors of success in online classes? *Online Journal of Distance Learning Administration*, 8(2). Retrieved November 22, 2005, from <http://www.westga.edu/%7Edistance/ojdl/summer82/wojciechowski82.htm>

Woodley, A. & Parlett, M. (1983). Student drop-out. *Teaching at a distance*, 24, 2-23.

Wong, A. & Wong, S. (1978-79). The relationship between assignment completion and the attrition and achievement in correspondence courses. *Journal of Educational Research*, 72, 165-68.

Zajkowski, M. (1997). Price and persistence in distance education. *Open Learning*, 12 (1), 12-23.

Zvacek, S. (1991). Effective affective design for distance education. *Tech Trends*, 36(1), 40-43.

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Appendix 1 Completed student's questionnaire

Email Messages Summary

Since your enrolment in the subjects 8806A, B, C, & H you could have been sent up to eight (8) email messages from Property Services. A brief summary of the content of the emails follows, to assist you in your response to the questionnaire.

Number	When sent	Content of email message
1	The week your enrolment was completed.	Title: <u>Welcome to Property Services email</u> Content: Where to start advice; how to contact Property Services staff; importance of submitting assignments early, and motivational quote.
2	Week 2	Title: <u>Websites of Interest</u> Content: Various websites given for government and professional bodies, awards, and other property related sites.
3	Week 3	Title: <u>Assignment 1 Help</u> Content: Answer given for part of Question 2 in Assignment 1.
4	Week 5	Title: <u>Course Progress 1</u> Content: Prompt to submit assignment 1 for 8806A; where to get assistance; and motivational quote.
5	Week 8	Title: <u>Course Progress 2</u> Content: Prompt to submit assignment 2 for 8806B; reaffirm your goal in undertaking course; where to get assistance; and motivational quote.
6	Week 11	Title: <u>Course Progress 3</u> Content: Prompt to submit assignment 3 for 8806C; where to get assistance; benefits of completing 8806ABCH; and motivational quote.
7	Week 14	Title: <u>Course Progress 4</u> Content: Prompt to submit assignment 4 for 8806H; where to get assistance; study plan of action; and motivational quote.
8	Only when all assignments submitted.	Title: <u>Test Hints</u> Content: To students who have completed the four assignments for 8806A, B, C & H, test layout, length and test preparation advice.

You can contact me with any queries by telephone on (02) 9715 8417 or by mail to:

Kylie Twyford
Property Services
Open Training & Education Network – Distance Education
51 Wentworth Road
STRATHFIELD, NSW, 2135

Property Services Questionnaire

Please read the following statements about when you first enrolled in your course and the email messages you received during your enrolment in the subjects 8806A, B, C, & H. CIRCLE THE APPROPRIATE NUMBER for each statement according to the scale provided.

A. On Enrolment	Strongly Agree 5	Agree 4	Undecided 3	Disagree 2	Strongly Disagree 1
1. When I enrolled I was very motivated to do the course.	5	4	3	2	1
2. When I enrolled I intended to complete the course.	5	4	3	2	1
3. When I enrolled I had a clear goal in undertaking the course.	5	4	3	2	1
4. I enrolled in the course for current work requirements.	5	4	3	2	1
5. I enrolled in the course for future job possibilities.	5	4	3	2	1
B. Emails: Frequency and Pacing	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. I read all of the emails sent to me from Property Services.	5	4	3	2	1
2. The number of email messages was about right.	5	4	3	2	1
3. The timing of the email messages matched my study progress.	5	4	3	2	1
4. The email messages made me feel anxious about my progress in the course.	5	4	3	2	1
5. The email messages made me aware of my progress or lack of it.	5	4	3	2	1
C. Emails: Content and format	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. The email messages were easy to read.	5	4	3	2	1
2. The email messages captured my attention.	5	4	3	2	1
3. The email messages were non-threatening.	5	4	3	2	1
4. The email messages were relevant to my study.	5	4	3	2	1
5. The email messages were a friendly means of communication.	5	4	3	2	1
6. The email messages aroused my interest in the subjects.	5	4	3	2	1
D. Emails: Influence	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. Overall, the email messages had a positive effect on my study experience.	5	4	3	2	1
2. The email messages motivated or prompted me to submit assignments.	5	4	3	2	1
3. The email messages were appreciated.	5	4	3	2	1
4. The email messages made me think the Property Services section was interested in my study progress.	5	4	3	2	1
5. The email messages influenced my effort in the subjects.	5	4	3	2	1
6. The email messages made me feel I could actively interact with Property Services.	5	4	3	2	1
7. My study progress benefited from the email messages.	5	4	3	2	1
8. The email messages reduced feelings of isolation.	5	4	3	2	1
9. I would be in favour of the email messages being sent to new Property Services' students.	5	4	3	2	1
E. Emails: Subject Success	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. The email messages helped me feel more confident about my ability to succeed.	5	4	3	2	1
2. Some of the email messages helped me to link success to my goals.	5	4	3	2	1
3. The email messages made me feel that success isn't linked to luck.	5	4	3	2	1
4. The email messages made me feel I could succeed with some effort.	5	4	3	2	1

Contact with Property Services

Please read the following statements and CIRCLE THE APPROPRIATE NUMBER, according to the scale provided, for each statement.

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. The email messages encouraged me to contact the Property Services staff for assistance.	5	4	3	2	1
2. The level of support from Property Services has exceeded my expectations.	5	4	3	2	1
3. I felt isolated while doing these subjects.	5	4	3	2	1

If you have contacted Property Services, how would you rate your experience generally when dealing with staff in the section:

	Very Satisfied	Satisfied	Not applicable	Dissatisfied	Very Dissatisfied
By Telephone	1	2	3	4	5
By email	1	2	3	4	5

Which of the following ways would YOU PREFER TO CONTACT Property Services? *You may tick more than one.*

Fax ... ☐
 Email ... ☐
 Letter/Query Form ... ☐
 Telephone ... ☐

Which of the following ways would you prefer PROPERTY SERVICES CONTACTED YOU? *You may tick more than one.*

Fax ... ☐
 Email ... ☐
 Letter ... ☐
 Telephone ... ☐

Course Progress

What is the main reason you have not completed the subjects 8806A, B, C, & H so far? *Tick the appropriate box.*

1. Job related e.g. Started or changed jobs, or job too demanding on time, etc. ... ☐
2. Personal/family related e.g. Family commitments, illness or lack of support, etc. ... ☐
3. OTEN-DE related e.g. Administrative problems, learning materials late, etc. ... ☐
4. Lack of motivation/confidence e.g. No motivation, fear of failure, embarrassed to ask questions, etc. ... ☐
5. Correspondence education related e.g. Lack of teacher contact, insufficient or late feedback, etc. ... ☐
6. Subject content related e.g. learning material content too hard or poorly designed, etc. ... ☐
7. Other: Please specify ... ☐

Have your say!

Have you any further comments to make on the effect of the Property Services section's email messages that you were sent? (For example, how did they affect your progress or satisfaction?) Positive or negative comments welcomed.

Thank you very much for completing the questionnaire.

Please now send the questionnaire in the enclosed reply paid envelope as soon as possible.

Appendix 2 Non-completed student's questionnaire

Email Messages Summary

Since your enrolment in the subjects 8806A, B, C, & H you could have been sent up to eight (8) email messages from Property Services. A brief summary of the content of the emails follows, to assist you in your response to the questionnaire.

Number	When sent	Content of email message
1	The week your enrolment was completed.	Title: <u>Welcome to Property Services email</u> Content: Where to start advice; how to contact Property Services staff; importance of submitting assignments early, and motivational quote.
2	Week 2	Title: <u>Websites of Interest</u> Content: Various websites given for government and professional bodies, awards, and other property related sites.
3	Week 3	Title: <u>Assignment 1 Help</u> Content: Answer given for part of Question 2 in Assignment 1.
4	Week 5	Title: <u>Course Progress 1</u> Content: Prompt to submit assignment 1 for 8806A; where to get assistance; and motivational quote.
5	Week 8	Title: <u>Course Progress 2</u> Content: Prompt to submit assignment 2 for 8806B; reaffirm your goal in undertaking course; where to get assistance; and motivational quote.
6	Week 11	Title: <u>Course Progress 3</u> Content: Prompt to submit assignment 3 for 8806C; where to get assistance; benefits of completing 8806ABCH; and motivational quote.
7	Week 14	Title: <u>Course Progress 4</u> Content: Prompt to submit assignment 4 for 8806H; where to get assistance; study plan of action; and motivational quote.
8	Only when all assignments submitted.	Title: <u>Test Hints</u> Content: To students who have completed the four assignments for 8806A, B, C & H, test layout, length and test preparation advice.

You can contact me with any queries by telephone on (02) 9715 8417 or by mail to:

Kylie Twyford
Property Services
Open Training & Education Network – Distance Education
51 Wentworth Road
STRATHFIELD, NSW, 2135

Property Services Questionnaire

Please read the following statements about when you first enrolled in your course and the email messages you received during your enrolment in the subject's 8806A, B, C, & H. CIRCLE THE APPROPRIATE NUMBER for each statement according to the scale provided.

A. On Enrolment	Strongly Agree 5	Agree 4	Undecided 3	Disagree 2	Strongly Disagree 1
1. When I enrolled I was very motivated to do the course.	5	4	3	2	1
2. When I enrolled I intended to complete the course.	5	4	3	2	1
3. When I enrolled I had a clear goal in undertaking the course.	5	4	3	2	1
4. I enrolled in the course for current work requirements.	5	4	3	2	1
5. I enrolled in the course for future job possibilities.	5	4	3	2	1
B. Emails: Frequency and Pacing	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. I read all of the emails sent to me from Property Services.	5	4	3	2	1
2. The number of email messages was about right.	5	4	3	2	1
3. The timing of the email messages matched my study progress.	5	4	3	2	1
4. The email messages made me feel anxious about my progress in the course.	5	4	3	2	1
5. The email messages made me aware of my progress or lack of it.	5	4	3	2	1
C. Emails: Content and format	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. The email messages were easy to read.	5	4	3	2	1
2. The email messages captured my attention.	5	4	3	2	1
3. The email messages were non-threatening.	5	4	3	2	1
4. The email messages were relevant to my study.	5	4	3	2	1
5. The email messages were a friendly means of communication.	5	4	3	2	1
6. The email messages aroused my interest in the subjects.	5	4	3	2	1
D. Emails: Influence	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. Overall, the email messages had a positive effect on my study experience.	5	4	3	2	1
2. The email messages motivated or prompted me to submit assignments.	5	4	3	2	1
3. The email messages were appreciated.	5	4	3	2	1
4. The email messages made me think the Property Services section was interested in my study progress.	5	4	3	2	1
5. The email messages influenced my effort in the subjects.	5	4	3	2	1
6. The email messages made me feel I could actively interact with Property Services.	5	4	3	2	1
7. My study progress benefited from the email messages.	5	4	3	2	1
8. The email messages reduced feelings of isolation.	5	4	3	2	1
9. I would be in favour of the email messages being sent to new Property Services' students.	5	4	3	2	1
E. Emails: Subject Success	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. The email messages helped me feel more confident about my ability to succeed.	5	4	3	2	1
2. Some of the email messages helped me to link success to my goals.	5	4	3	2	1
3. The email messages made me feel that success isn't linked to luck.	5	4	3	2	1
4. The email messages made me feel I could succeed with some effort.	5	4	3	2	1

Please read the following statements and CIRCLE THE APPROPRIATE NUMBER, according to the scale provided, for each statement.

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. The email messages encouraged me to contact the Property Services staff for assistance.	5	4	3	2	1
2. The level of support from Property Services has exceeded my expectations.	5	4	3	2	1
3. I felt isolated while doing these subjects.	5	4	3	2	1

If you have contacted Property Services, how would you rate your experience generally when dealing with staff in the section?

	Very Satisfied	Satisfied	Not applicable	Dissatisfied	Very Dissatisfied
By Telephone	1	2	3	4	5
By email	1	2	3	4	5

Which of the following ways would YOU PREFER TO CONTACT Property Services? *You may tick more than one.*

- Fax ... ☐
- Email ... ☐
- Letter/Query Form ... ☐
- Telephone ... ☐

Which of the following ways would you prefer PROPERTY SERVICES CONTACTED YOU? *You may tick more than one.*

- Fax ... ☐
- Email ... ☐
- Letter ... ☐
- Telephone ... ☐

Course Progress

If relevant, what is the main reason you have not completed the subjects 8806A, B, C, & H so far? Tick the appropriate box.

1. Job related e.g. Started or changed jobs, or job too demanding on time, etc. ... ☐
2. Personal/family related e.g. Family commitments, illness or lack of support, etc. ... ☐
3. OTEN-DE related e.g. Administrative problems, learning materials late, etc. ... ☐
4. Lack of motivation/confidence e.g. No motivation, fear of failure, embarrassed to ask questions, etc. ... ☐
5. Correspondence education related e.g. Lack of teacher contact, insufficient or late feedback, etc. ... ☐
6. Subject content related e.g. learning material content too hard or poorly designed, etc. ... ☐
7. Other: Please specify ... ☐

Have your say!

Have you any further comments to make on the effect of the Property Services section's email messages that you were sent? (For example, how did they affect your progress or satisfaction?) Positive or negative comments welcomed.

Thank you very much for completing the questionnaire.

Please now send the questionnaire in the enclosed reply paid envelope as soon as possible.

Appendix 3 Covering letter sent with questionnaires

Dear Student,

Property Services - Survey

[Completers] Congratulations on completing the subjects Real Estate Industry Overview (8806A), Introduction to Sales (8806B), Introduction to Property Management (8806C), and Real Estate Consumer Protection (8806H). During your study of these subjects I sent you a number of email messages. This was a new initiative in the Property Services section to assist your progress. Summaries of the email messages sent are printed on the reverse of this letter.

OR

[Non-completers] During your enrolment over the last four months I have sent you a number of email messages. This was a new initiative in the Property Services section to assist your progress in the subjects 8806A, B, C & H. Summaries of the email messages sent are printed on the reverse of this letter.

To assess the value of these email messages on your study experience, I would appreciate it if you could complete this survey.

The survey is completely anonymous and you should not write your name on it and it should take no longer than 5 minutes to complete. Go on, **have your say!**

The data obtained will be analysed and used as part of Doctoral research I am undertaking within the Faculty of Education at the University of Technology, Sydney, under the supervision of Dr Robert Pithers. Any concerns or issues can be directed to him by telephone on (02) 9514 3819 or fax on (02) 9514 3939.

I value your comments on the email communication program and your experiences with the Property Services section. As always, if you have any comments, complaints or complements that you wish to have addressed please ring me on 1300 366 175 or 9715 8417 or by email to oten.property@tafensw.edu.au.

All the very best with future studies.

Yours in Property,

Kylie Twyford AAPI
B.Ed (Hons) (UTS) B.Bus (Newc)
Reg. Valuer No.3288

Appendix 4 Email No. 1: Welcome to Property Services

From: PROPERTY, OTEN

Sent:

Subject: Welcome to Property Services

Welcome to the Property Services section of OTEN. Whether your goal in doing this course is to start working in the property industry, to widen your skills & knowledge for career advancement, or to know more about the subject for personal use, we are very glad to have you with us.

Enrolling in this course is the first step to achieving your goal. Your next step is to start submitting assignments.

Where do I start?

When you receive your learning materials read your Learners Guide then start with Assignment 1 in the module package 8806 A, B, C, & H.

Many students tell us that the secret of success to studying by correspondence is getting that first ever assignment submitted. Don't agonise over it too much! In our experience, to get your course completed, it is better that you start submitting assignments as soon as possible after enrolment.

The Property Services' staff are available to help you with any subject questions, study advice, or general queries by telephone on (02) 9715 8057 or 1300 366 175 between 7.30am to 5.00pm Monday through to Friday, or simply send us an email on oten.property@tafensw.edu.au.

If you want to get somewhere you have to know where you want to go and how to get there. Then never, never, never give up. Norman Vincent Peale

Yours in Property,
Kylie

Appendix 5 Email No. 2: Web sites of Interest

From: PROPERTY, OTEN

Sent:

Subject: Property Services, OTEN: Web sites of Interest

Hi,

If you have ever conducted a search on the terms 'property' or 'real estate' when on the Internet, you would know there is a mountain of information out there. Some useful, some not useful, and some just down right bizarre! To help you navigate through this mass of information, I have provided links to some of the more relevant and interesting websites.

Enjoy!

Yours in Property
Kylie

Government

Australian Government Directory <http://www.agd.com.au/> (AGD) -Government contact information: Commonwealth, State and Local

NSW Office of State Revenue <http://www.osr.nsw.gov.au> (OSR)- for issues concerning stamp duty, land tax, etc. within NSW.

NSW Department of Fair Trading <http://www.fairtrading.nsw.gov.au>- provides information in licensing and registration of real estate operation within NSW.

NSW Department of Urban Affairs & Planning <http://www.duap.nsw.gov.au> - deals with planning, policy and regulation of the natural and built environment, rural and urban management and the development of housing policies.

Professional Bodies

Australian Financial Services Directory <http://www.afsd.com.au> interesting financial based site that provides an overview of markets, trends, economic forecasts and projections. In addition provides guidance and advice in respect to financial advice.

FIABCI <http://www.fiabci.com/> - the International Real Estate Federation. Worldwide network for all professionals involved with the property industry. Provides contacts, information and knowledge about real estate.

Etc.

Appendix 6 Email No. 3: Assignment 1 Help

From: PROPERTY, OTEN

Sent:

Subject: Property Services, OTEN: Assignment 1 help

Hi!

A common question we receive at Property Services is in relation to Assignment 1 Question 2 in the modules 8806ABCH. We have found that the wording of the middle part of the assignment question can be confusing. The essence of the middle part of the question is to name the parties to the award and where it was registered.

As a special one-time offer, we are going to give you the answer! :-)
Drum roll.....

The REA & REEF are two parties to the award and it was registered in the Industrial Commission of NSW.

Remember you still need to answer the first and last part of Question 2 which are to explain the main purpose of the Real Estate Industry State Award, and four areas which are covered by the award, respectively.

I hope this helps your understanding of the issue covered by this question and importantly assists you in submitting the first assignment.

Yours in Property
Kylie

Appendix 7 Email No. 4: Course progress 1

From: PROPERTY, OTEN

Sent:

Subject: Property Services, OTEN: Course Progress 1

Hi,

I hope you enjoyed the property related web sites. I also hope, you didn't spend too much time surfing the web at the expense of getting an assignment completed!

By now, hopefully, you have submitted the first assignment for the set of modules 8806 A, B,C & H or maybe you have submitted an assignment in another module. If you have, congratulations. The first assignment is often the hardest one to submit. If you have submitted more than one assignment, good for you!

If you have not submitted an assignment yet, is there anything we can do to help? Sometimes students think that they should be able to do everything and might be concerned or even embarrassed if they ask for help.

Be assured that we get many calls for help. So if you need some help you can ring us on 1300 366 175 or (02) 9715 8057. We are able to take telephone calls between 7.30am and 5pm weekdays. Otherwise, send us an email at oten.property@tafensw.edu.au.

"The great thing in this world is not so much where we are, but in what direction we are moving." Oliver Wendell Holmes

Yours in Property
Kylie

PS. There are no due dates for assignments in this course. However, you are only enrolled and financial for this course until the 30th of November, 2001. Therefore, you have until then to get the required assignments or tests finished for your modules for the results to be processed for 2001. You can continue to study with us after this date (within course and subject time limits detailed on pages 158-159 of your Student Diary), but you will need to re-enrol and thus pay, or gain an exemption from, the annual administration fee and the post and handling charge again.

Appendix 8 Email No. 5: Course progress 2

From: PROPERTY, OTEN

Sent:

Subject: Property Services, OTEN: Course Progress 2

Hi,

Just an email to say I am thinking about you. By now, hopefully, you have at least submitted the second assignment for the set of modules 8806 A, B, C & H. If you have, congratulations :-). If you have submitted more than one assignment, you're going really well!

The reward for such effort?

Well, apart from working towards your goal, the real reward is not having to read any more of this email! Go on then, back to the books!!

What if you haven't submitted an assignment at all, or only one?

Don't worry. Life can be very busy and many things can happen to slow your progress. I totally understand, as I am also studying via distance education. The key I've found though, through teaching and studying at a distance, is to start submitting assignments early so your motivation and commitment to your goal are not lost.

Why not use this email to reaffirm your goal in undertaking this course?

Write down your goal and put it in on the fridge or somewhere prominent to remind you. Then, of course, start on an assignment.

But I thought this course was self-paced...

Unless you're on a traineeship or receiving government financial assistance, of course you can progress with the course at your own pace. Our experience has taught us though, that time can slip away very quickly for students studying at a distance. So the emails are sent as friendly reminders that time is marching on. We have structured the email program on the generous basis of the student completing the assignments for 8806ABCH in a four-month period. That's only one assignment per month.

As always, if you have any concerns please ring us on 1300 366 175 or (02) 9715 8057, otherwise, send us an email at oten.property@tafensw.edu.au.

"Wherever we go, wherever we remain, the results of our actions follow us."

Yours in Property,
Kylie

Appendix 9 Email No. 6: Course progress 3

From: PROPERTY, OTEN

Sent:

Subject: Property Services, OTEN: Course Progress 3

Hi,

Once again it is time to consider your progress. By now, hopefully, you have submitted at least the third assignment for the set of modules 8806 A, B, C & H. If you have, congratulations :-). If you have submitted more than three assignments, in any of the subjects, you are well on your way to achieving your goal!

What are the benefits of completing the modules 8806A, B, C, & H?

These modules are important because completion of them will enable you to start work in the real estate industry in a number of positions, including as a real estate salesperson or property manager, and to apply for your Certificate of Registration from the NSW Department of Fair Trading.

So if you want a career in real estate...

Whatever course you are enrolled in, as a priority try and complete the modules 8806A, B, C, & H as this will be your ticket to enter the real estate industry. Even if you have not started any assignments, don't worry you still have plenty of time to finish the four assignments and one test for these modules before the 30th of November 2001.

As always, if you have any concerns or questions please ring us on 1300 366 175 or (02) 9715 8057 or send us an email. Alternatively, you can contact a Counsellor on 1300 655 993 or (02) 9715 8446.

"If you think you can, you can. And if you think you can't, you're right."

Mary Kay Ash

Yours in Property,
Kylie

PS. If you would like to be taken off the email list, simply reply to this email and I will do it immediately.

Appendix 10 Email No. 7: Course progress 4

From: PROPERTY, OTEN

Sent:

Subject: Property Services, OTEN: Course Progress 4

Hi,

This is the final email where I will ask you to consider your progress. By now, hopefully, you have submitted at least the fourth assignment for the set of modules 8806 A, B, C & H. If you have, congratulations :-). You now only have the test to go to complete the four modules.

Worried about the test?

Fear not, you will be sent an email with information and importantly hints on the test. Lucky you!

Working slower than this pace?

Don't panic. You still have plenty of time to finish the four assignments and one test for these modules before the 30th of November 2001. However, as this is the last progress email I will send you, you won't have me reminding you any more that the time is ticking by.

What should you do?

First of all, make a commitment to at least complete the modules 8806A, B, C & H. Secondly, make your own study 'plan of action' to finish the four assignments and one test by the 30th of November. Finally, when you do finish the last assignment email me and I will send you an email with hints on the test.

What's that? You'll miss me? ;-)

No need to, I am always as close as the telephone or computer keyboard. So if you have any questions please ring on 1300 366 175 or (02) 9715 8057 or email to oten.property@tafensw.edu.au.

"Change your thoughts and you change your world." Norman Vincent Peale

Yours in Property,
Kylie

PS. Don't forget you can contact a counsellor for study skills advice, Centrelink information, or just for a chat on 1300 655 993 or (02) 9715 8446.

Appendix 11 Email No. 8: Test hints

From: PROPERTY, OTEN

Sent:

Subject: Property Services, OTEN: Test Hints

Dear x,

Congratulations on completing the assignments for the modules 8806ABCH!
Now it is time to sit the test that will cover all four modules.

You may be thinking (or perhaps worrying) about what the test will be like. Fear not, following is an outline of the test format and some study suggestions.

As students can sit end-of-subject tests at any time, the Property Services section has a number of different tests covering these modules. However, while the questions will differ in the various tests, the format is similar.

The test is 2 hours in length, which gives you ample time to finish it. The majority of questions are definition/short answer style, with some 'What if ?' type questions. The latter type question particularly applies to the Rules of Conduct and how you would apply them in practise.

While obviously we recommend that you read over your learning materials in preparation for the test, particular attention should be given to the self-assessment questions in the body of the learning materials and also the material covered by the four compulsory assignments. And don't forget that information covered in the Renting Guide may also be tested on.

I hope this advice helps you in your preparation for the test. Good luck!!!

Yours in Property

Kylie

Appendix 12 Example of weekly spreadsheet

23 July 27																													
No	Oten No	Firstname	Lastname	E-mail	Home phone	Mobile/Work	Course	Trainee	Enrol Date	Phone	8806A	Mark	Time from enr.	8806B	Mark	Time from 1st.	8806C	Mark	Time from 2nd	8806H	Mark	Time from 3rd	Test	Mark	Days to compl.	No. of emails sent out	Comments		
													to 1st ass. (days)				to 2nd ass. (days)				to 3rd ass. (days)				to 4th ass. (days)			from enr.	before completion
1	N412745	Elena									8880	N	24/07/2001	Y															
2	N414724	Jenny									8880	N	24/07/2001	Y															
3	N413600	Kari									8880	N	26/07/2001		20-Aug	74		17-Oct	70			25-Oct							
4	N410500	Susan									8880	N	24/07/2001		20-Aug	90		31-Oct			31-Oct								
5	N413031	Veronica									8806	N	25/07/2001																
6	N222119	Kellie									8806	N	24/07/2001																
7	N413 873	Rouse									8880	N	16/07/2001			30-Aug	91		30-Aug	94									
8	N411516	Kelley									8806	N	25/07/2001																
9	N412675	John									8880	N	25/07/2001																
10	N414129	Ying									8806	N	25/07/2001		6-Sep	77		6-Sep	77		25-Oct								
11	N202523	Ashley									8880	N	25/07/2001		20-Aug	72													
12	N413782	Glenda									8880	N	27/07/2001																
13	N394228	Duane									8806	N	27/07/2001																
14	N414305	Karen									8806	N	27/07/2001		25-Sep	87													
15	N149725	Robyn									8806	N	27/07/2001																
16	N221149	Rebecca									8880	N	27/07/2001																
17	N415532	Michelle									8880	N	27/07/2001		12-Sep	96		25-Oct											
18	N411758	Peter									8806	N	27/02/2001																
Taken out as email not getting thru																													
	N411073	Chun-Ming Kenneth									8308	N	24/07/2001																
	N411585	Daniel									8880	N	24/07/2001																
Going to flexi 229																													
	N415551	Ingo									8880	N	27/07/2001	Y															
	N414507	Anne									8880	N	24/07/2001		20-Aug	91											only to 31/M01		
Not enrolled in 8806ABCH																													
	N148936	George									8308	N	26/07/2001																
	N385342	Grant									8807	N	25/07/2001																
Sent test hints and completed as																													
	N403220	Michelle									8806	N	20/07/2001		13-Aug	97		27-Aug	91		27-Aug	100		27/97			Test app in		
	N171828	Andrew									8880	N	24/07/2001		31-Oct		31-Oct		10-Oct		7-Sep	75		Test app in					

Email Project Gantt Chart

No.	Group	Students	Email1		Email2		Email3		Email4		Email5		Email6		Compl.Ques.7a	Noncompl. Ques.7b	
		[No. of]	Intro		Websites		1st Ass		2nd Ass		3rd Ass		4th Ass		Questionnaire	Questionnaire	
			On enr	Sent	1 week after	Sent	2 weeks later	Sent	2 weeks later	Sent	2 weeks later	Sent	2 weeks later	Sent	Upon submiss of Ass4	3 mths from enr date	Sent
1	22Jan31	20	09-Feb-2001	YES	23-Feb-2001	YES	02-Mar-2001		16-Mar-2001		30-Mar-2001		13-Apr-2001		Upon submiss of Ass4	27-Apr-2001	
2	1Feb9	33	16-Feb-2001	YES	23-Feb-2001	YES	09-Mar-2001		23-Mar-2001		06-Apr-2001		20-Apr-2001		Upon submiss of Ass4	04-May-2001	
3	12Feb16	21	16-Feb-2001	YES	23-Feb-2001	YES	09-Mar-2001		23-Mar-2001		06-Apr-2001		20-Apr-2001		Upon submiss of Ass4	04-May-2001	
4	19Feb23	39	23-Feb-2001	YES	02-Mar-2001		16-Mar-2001		30-Mar-2001		13-Apr-2001		27-Apr-2001		Upon submiss of Ass4	11-May-2001	
5	26Feb2Mar		02-Mar-2001		09-Mar-2001		23-Mar-2001		06-Apr-2001		20-Apr-2001		04-May-2001		Upon submiss of Ass4	18-May-2001	
6	5Mar9		09-Mar-2001		16-Mar-2001		30-Mar-2001		13-Apr-2001		27-Apr-2001		11-May-2001		Upon submiss of Ass4	25-May-2001	
7	12Mar16		16-Mar-2001		23-Mar-2001		06-Apr-2001		20-Apr-2001		04-May-2001		18-May-2001		Upon submiss of Ass4	01-Jun-2001	
8	19Mar23		23-Mar-2001		30-Mar-2001		13-Apr-2001		27-Apr-2001		11-May-2001		25-May-2001		Upon submiss of Ass4	08-Jun-2001	
9	26Mar30		30-Mar-2001		06-Apr-2001		20-Apr-2001		04-May-2001		18-May-2001		01-Jun-2001		Upon submiss of Ass4	15-Jun-2001	
10	2Apr6		06-Apr-2001		13-Apr-2001		27-Apr-2001		11-May-2001		25-May-2001		08-Jun-2001		Upon submiss of Ass4	22-Jun-2001	
11	9Apr13		12-Apr-2001		19-Apr-2001		03-May-2001		17-May-2001		31-May-2001		14-Jun-2001		Upon submiss of Ass4	28-Jun-2001	
12	16Apr20		20-Apr-2001		27-Apr-2001		11-May-2001		25-May-2001		08-Jun-2001		22-Jun-2001		Upon submiss of Ass4	06-Jul-2001	
13	23Apr27		27-Apr-2001		04-May-2001		18-May-2001		01-Jun-2001		15-Jun-2001		29-Jun-2001		Upon submiss of Ass4	13-Jul-2001	
14	30Apr4May		04-May-2001		11-May-2001		25-May-2001		08-Jun-2001		22-Jun-2001		06-Jul-2001		Upon submiss of Ass4	20-Jul-2001	
15	7May11		11-May-2001		18-May-2001		01-Jun-2001		15-Jun-2001		29-Jun-2001		13-Jul-2001		Upon submiss of Ass4	27-Jul-2001	
16	14May18		18-May-2001		25-May-2001		08-Jun-2001		22-Jun-2001		06-Jul-2001		20-Jul-2001		Upon submiss of Ass4	03-Aug-2001	
17	21May25		25-May-2001		01-Jun-2001		15-Jun-2001		29-Jun-2001		13-Jul-2001		27-Jul-2001		Upon submiss of Ass4	10-Aug-2001	

Appendix 14 Student consent form

Email Introductory telephone calls

Name: _____ OTEN Id: _____ DOB: _____

Date enrolled: _____ Date of call: _____ Course: _____

Inform the student that their enrolment has been processed this week. Welcome to the course and obtain the following information.

You have included a:

- ☐ home
- ☐ work
- ☐ home and work

email address(s) with your enrolment form. I would just like to confirm the email address(s).

How often at present do you access your email account

(i) at home and/or

- ☐ at least daily
- ☐ at least weekly
- ☐ monthly
- ☐ hardly ever

(ii) at work?

- ☐ at least daily
- ☐ at least weekly
- ☐ monthly
- ☐ hardly ever

Property Services has an email support program for interested students. It would involve no more than 8 emails from the Property Services teachers over a four-month period.

Would you be interested in receiving email contact and support from the faculty?

- ☐ yes
- ☐ no

If yes, would that be to the

- ☐ home or
- ☐ work (if applicable) email address?

The Property Services section is also in the process of establishing a web site for enrolled students to assist with academic and administrative issues at OTEN, and information on the Property Industry.

Do you have access to the Internet at present?

- ☐ yes
- ☐ no

Motivation or reason for enrolling in the course:

- ☐ Currently working in real estate and need to do for work
- ☐ To get a job in the industry
- ☐ To change career
- ☐ To further career options in the property industry
- ☐ Started a traineeship
- ☐ General interest in real estate and wanted to learn more get a job in the industry
- ☐ Needed to learn more about real estate for personal investing/development of property
- ☐ Other, please specify below:

Further comments students give which would give a good profile on them:

Wish them well for the course and remind them that the Property Services section is here to help.

Appendix 15 Email No. 9: Have your say!

From: PROPERTY, OTEN

Sent:

Subject: Property Services, OTEN: Have your say!

Hi,

During your enrolment in the subjects 8806A, B, C, & H, I sent you a number of e-mails. They contained information such as web sites, assignment help, and a number of e-mails to gauge your progress in 8806 A, B, C, & H.

This e-mail program was a new initiative in the Property Services section and I would be thrilled to know what you thought of it. In the next few days you will receive in the 'snail' mail a short survey to obtain your feedback. It will only take 5 minutes to complete and is totally anonymous. I really value your comments so please 'Have Your Say'.

Best of luck with your studies. As always, if you need any assistance please contact Property Services on 1300 366 175 or (02) 9715 8057 or by email to oten.property@tafensw.edu.au.

Thank you,
Kylie

Appendix 16 Email No. 10: Please send in the survey

From: PROPERTY, OTEN

Sent:

Subject: Property Services, OTEN: Please send in the survey

HELP !

If you haven't returned the survey that was sent to you last week in the post, please do so as soon as possible. It only takes 5 minutes to complete. I am eagerly awaiting everyone's thoughts on the e-mail contact program. The information from the survey will be used to develop our future on-line services.

A big THANK YOU to the students who have already sent in the survey. Be assured the information will be highly valued.

If you did not receive the survey or have misplaced or perhaps recycled it, please e-mail me and I will send the survey to you, or if you need assistance on how to complete the survey please telephone me on 9715 8417 or 1300 366 175.

Yours in Property
Kylie

Appendix 17 Summary of all demographics

Gender	Total sample	Exp. Group	Control Group 1	Email Control Group	OTEN	Business Faculty	Property Services
Female	498 (60%)	180 (61%)	241 (59%)	77 (63%)	18288 (57%)	9285 (67%)	1354 (56%)
Male	330 (40%)	117 (39%)	167 (41%)	46 (37%)	13778 (43%)	4502 (33%)	1085 (44%)
Totals	828	297	408	123	32066	13787	2439

Age	Exp Group	Control Group 1	Email Control Group	Total sample	OTEN	Business Faculty	Property Services
<19 years	16 (5%)	36 (9%)	10 (8%)	62 (7.5%)	4508 (14%)	1149	201
20-29 years	121 (41%)	148 (36%)	36 (29%)	305 (37%)	10742 (34%)	5287	829
30-39 years	86 (29%)	101 (25%)	44 (36%)	231 (28%)	8544 (27%)	4145	640
40-49 years	49 (16.5%)	74 (18%)	22 (18%)	145 (17.5%)	5346 (17%)	2318	500
50> years	25 (8.5%)	49 (12%)	11(9%)	85 (10%)	2649 (8%)	829	249
Totals	297	408	123	828	31789	13787	2439
No answer	0	0	0	0	277 (0.86 %)	59	20

Location	Exp Group	Control Group 1	Email Control Group	Total sample	OTEN	Business Faculty	Property Services
Sydney	127 (42.8%)	130 (32%)	49 (40%)	306 (37%)	14274 (45.6%)	6680 (50.08%)	1126 (46.4%)
Other (Australia)	169 (56.9%)	278 (68%)	73 (59%)	520 (62.8%)	17049 (54.4%)	6667 (49.9%)	1301 (53.6%)
International	1 (0.3%)	0	1 (1%)	2 (0.2%)	7 (0.02%)	3 (0.02%)	2 (0.08%)
Totals	297	408	123	828	32066	13787	2439
Unknown LGA	0	0	0	0	736 (2.3%)	437	10

Highest School Level	Total sample	Experimental Group	Control Group 1	Email Control Group
< Year 9	23 (5%)	10 (3.5%)	10 (8%)	3 (3%)
Year 10	150 (30%)	75 (26.5%)	47 (40%)	28 (30%)
Year 11	41 (8%)	19 (7%)	13 (11%)	9 (10%)
Year 12	279 (57%)	178 (63%)	48 (41%)	53 (57%)
Totals	493	282	118	93
Didn't Answer	335	15 (5%)	290 (71%)	30 (24%)

Country of Birth	Total sample	Experimental Group	Control Group 1	Email Control Group
Australia	407 (82%)	231 (82%)	103 (87%)	73 (78%)
Overseas	89 (18%)	53 (18%)	15 (13%)	21 (22%)
Totals	496	284	118	94
Didn't Answer	332	13 (4%)	290 (71%)	29 (24%)

Non-English speaking background	Exp Group	Control Group 1	Email Control Group	Total sample	OTEN	Business Faculty	Property Services
No	270 (95%)	113 (97%)	87 (93%)	470 (95%)	26811 (91%)	11666 (91%)	2183 (95%)
Yes	13 (5%)	4 (3%)	7 (7%)	24 (5%)	2604 (9%)	1203 (9%)	119 (5%)
Totals	283	117	94	494	29415	13787	2439
Didn't Answer	14 (5%)	291 (71%)	29 (24%)	334	2651 (8.27%)	918 (6.6%)	137 (5.6%)

Highest Completed Tertiary Qualification	Total sample	Experimental Group	Control Group 1	Email Control Group
Nothing	189 (38%)	100 (36%)	59 (50%)	30 (32%)
Certificate	192 (39%)	104 (37%)	47 (40%)	41 (44%)
Diploma	61 (12%)	46 (16%)	6 (5%)	9 (10%)
Degree	52 (11%)	32 (11%)	6 (5%)	14 (15%)
Totals	494	282	118	94
Didn't Answer	334	15 (5%)	290 (71%)	29 (24%)

Disability	Exp Group	Control Group 1	Email Control Group	Total sample	OTEN	Business Faculty	Property Services
Yes	9 (3%)	14 (3.5%)	6 (5%)	29 (3.5%)	2736 (9%)	883 (6%)	123 (5%)
No	275 (97%)	387 (96.5%)	116 (95%)	778 (96.5%)	29330 (91%)	12904 (94%)	2316 (95%)
Totals	284	401	122	807	32066	13787	2439
Didn't Answer	13 (4%)	7 (2%)	1 (1%)	21	0	0	0

Employment Status	Exp Group	Control Group 1	Email Control Group	Total sample	OTEN	Business Faculty	Property Services
Unemployed	64 (23%)	54 (47%)	30 (33%)	148 (30.5%)	9643 (36%)	3573	588 (27%)
Full time	170 (61%)	42 (36%)	52 (57%)	264 (54.5%)	13156 (49%)	6377	1257 (58%)
Part time	45 (16%)	20 (17%)	9 (10%)	74 (15%)	4138 (15%)	1966	311 (15%)
Totals	279	116	91	486	26937	13787	2439
Didn't Answer	18 (6%)	292 (72%)	32 (26%)	342	5129 (16%)	1871	283

ATSI	Exp Group	Control Group 1	Email Control Group	Total sample	OTEN	Business Faculty	Property Services
Yes	2 (1%)	7 (2%)	0	9 (1%)	1102 (4%)	271	32(1%)
No	276 (99%)	387 (98%)	93 (100%)	756 (99%)	28252 (96%)	12569	2259 (99%)
Totals	278	394	93	765	29354	13787	2439
Didn't Answer	19 (6%)	14 (3%)	30 (24%)	63	2712 (8.45%)	947	148

Government Financial Assistance	Exp Group	Control Group 1	Email Control Group	Total sample	OTEN	Business Faculty	Property Services
Yes	49 (17%)	164 (40%)	26 (21%)	239 (29%)	8772 (34%)	3956	596 (28%)
No	238 (83%)	244 (60%)	97 (79%)	579 (71%)	17019 (66%)	8822	1540 (72%)
Totals	287	408	123	818	25791	13787	2439
Courses with no admin fee	0	0	0	0	6275 (19.57%)	1009	303
Didn't Answer	10 (3%)	0	0	10	0	0	0