

A FRAMEWORK FOR SUPPORTING ESL LEARNERS STUDYING VIA TELEMATIC LEARNING SYSTEMS

Nwabisa J. Bangeni
M.A.

Thesis submitted for the degree Philosophiae Doctor in English at the Potchefstroomse
Universiteit vir Christelike Hoër Onderwys

Promoter: Prof. C. Dreyer

Potchefstroom
January 2003

ACKNOWLEDGEMENTS

I would like to thank the following people for their assistance during the research and preparation of this thesis:

- My promoter, Prof. C. Dreyer, for her expert guidance. Her support, patience and encouragement are valued.
- My parents, for their support, encouragement and for their endless prayers.
- My sister, Abongwe, for being present in so many ways from a distance.
- Shepherd, for taking care of the final details of submitting this thesis when I could not be present to do it.
- Mafisa, for being my family in Potchefstroom.
- Dr. H. G. van Wyk, for his much appreciated help with the Afrikaans translation.
- God, for His guidance.

SUMMARY

Key words: distance education, distance learners, support, attrition, drop out, failure, ESL learning, profiling, individual differences.

Success in ESL learning has been shown to be influenced by individual differences, and that based on those differences, students exhibit varying rates and levels of success. With learning shifting from being instruction-based to being learner-based, the profiling of students has become important in order to understand how the characteristics which students bring to the learning situation affect their performance. Knowing and understanding the learner in distance education settings is even more complex because of the physical and temporal separation which characterises distance education. However, it is important to profile students in order to address the high rates of attrition/drop out and/or failure that plague higher education, both distance and on-campus. The measures intended to effect successful learning in distance education can best be provided through a comprehensive support system, which is designed for a specific type of student population, based on their profiles.

The purpose of this study was to design a framework through which a distance learner support system could be provided, based on the factors that were found to affect the failure/drop out or success of ESL distance students, on students' indication of services they would like to be provided, and based on the capacity to which the PU for CHE distance learning unit, TLS, felt they could provide support services to distance learners.

The personal factors affecting attrition/drop out and/or failure were found to be the following:

- Demographic variables;
- Affective variables;
- Learning styles;
- Metacognitive variables; and
- Learning strategies.

The contextual variables affecting attrition/drop out and/or failure included:

- The microsystem;
- The macrosystem; and

- The mesosystem.

The results of this study indicated that students' support needs included:

- Administrative support;
- Academic support; and
- Relational support.

With regard to the support services offered by TLS, the following results were found:

- The implementation strategy needs better co-ordination among all university departments involved in distance education;
- Support provision needs to be conducted by specialised departments (i.e., administrative support mainly by TLS, academic support mainly by academic faculties and lecturers, and relational support mainly by specialised professionals); and that
- One of the most important factors in providing support is accountability.

A framework was designed for the provision of support services for distance learners based on the findings of the study. The framework outlines the types of support that need to be provided, the degree of support needed at each academic level, when support ought to be provided, the description of each type of support, who ought to provide that support, and how it will be delivered to distance learners. The study was conducted on ESL students, and the framework was designed based on the needs of ESL students. However, the use of the framework need not be confined to ESL distance learners, as it was the intention of this study that the framework be relevant for all distance learners.

OPSOMMING

Sleuteltermes: afstandsonderrig, afstandsleerders, ondersteuning/steun, afslyting/uitputting, uitsak, mislukking, Engels Tweedetaal, profilering, individuele verskille.

Dit is aangetoon dat sukses in die aanleer van Engels as tweede taal deur individuele verskille beïnvloed word, en dat, op grond van dié verskille, studente 'n varieërende mate van sukses vertoon. Met die verskuiwing van leer van onderriggebaseerd tot leerling-gebaseerd het die profilering van leerders belangrik geword ten einde te verstaan hoe die eienskappe wat leerders in die leersituasie inbring hul prestasie beïnvloed.

Om die leerder in die konteks van afstandsonderrig te ken en te verstaan is nog meer kompleks as gevolg van die fisiese en temporale skeiding wat kenmerkend is van afstandsonderrig. Dit is egter belangrik dat profilering van studente gedoen word ten einde die hoë voorkoms van uitputting en uitsakking en/of mislukking wat hoër onderwys so treiter, beide in afstand- en voltydse onderrig, aan te spreek. Die maatstawwe wat aangewend word met die hoop om suksesvolle leer in afstandsonderrig tot gevolg te hê, kan ten beste voorsien word deur 'n omvattende ondersteuningsstelsel wat ontwerp is vir 'n spesifieke tipe studentepopulasie, en wat gebaseer is op hulle profiele.

Die doel van hierdie studie was om 'n raamwerk te ontwerp waarvolgens 'n ondersteuningsstelsel vir afstandsonderrig voorsien kan word. Die stelsel is gegrond op die faktore wat volgens die bevindinge van hierdie studie 'n invloed het op die mislukking/uitsakking of sukses van die Engels Tweedetaal afstandstudente, asook op die studente se aanduiding van dienste wat hulle graag voorsien sou wou hê en ook op die kapasiteit wat die PU vir CHO se afstandsonderrigseenheid, TLS, gevoel het dat hulle as ondersteuningsdienste aan die studente kon lewer.

Die persoonlike faktore wat hierdie studie bevind het die uitputting/ uitsakking beïnvloed is die volgende:

- Demografiese veranderlikes;
- Affektiewe veranderlikes;
- Leerstyle;

- Meta-kognitiewe veranderlikes; en
- Leerstrategieë.

Die kontekstuele veranderlikes wat die uitputting/uitsakking en/of mislukking beïnvloed het sluit in:

- Die mikrosisteem;
- Die makrosisteem; en
- Die mesosisteem.

Die bevindinge van hierdie studie het aangedui dat die volgende by studente se ondersteuningsbehoeftes ingesluit behoort te wees:

- Administratiewe ondersteuning;
- Akademiese ondersteuning; en
- Verhoudingsondersteuning.

Met betrekking tot die ondersteuningsdienste wat deur TLS voorsien word is die volgende gevind:

- Die implementeringsstrategie noodsaak beter samewerking en koördinerings tussen al die universiteitsdepartemente wat betrokke is by afstandsonderig;
- Die voorsiening van ondersteuning moet deur gespesialiseerde departemente uitgevoer word (bv. Administratiewe ondersteuning hoofsaaklik deur TLS, akademiese ondersteuning hoofsaaklik deur akademiese fakulteite en dosente, en verhoudingsondersteuning deur gekwalifiseerde spesialiste); en dit is ook gevind dat
- Aanspreeklikheid een van die belangrikste faktore in die voorsiening van ondersteuning is.

'n Raamwerk is ontwerp vir die voorsiening van ondersteuning aan afstandstudente gebaseer op die bevindinge van die studie. Die raamwerk verskaf riglyne vir die tipes ondersteuning wat voorsien behoort te word, die mate van ondersteuning wat vir elke akademiese vlak noodsaaklik is, wanneer ondersteuning verskaf behoort te word, die beskrywing van elke tipe ondersteuning, wie die ondersteuning behoort te bied en hoe die ondersteuning aan afstandstudente voorsien word. Engels Tweedetaalstudente is vir die doeleindes van hierdie studie gebruik en die raamwerk is ontwerp vir die behoeftes van Engels Tweedetaalstudente. Die toepassing van die raamwerk is egter nie beperk tot Engels Tweedetaalstudente nie,

aangesien dit die bedoeling van hierdie studie is dat die raamwerk relevant moet wees vir alle afstandsonderrigstudente.

TABLE OF CONTENTS

Acknowledgements.....	i
Summary.....	ii
Opsomming.....	iv
List of diagrams.....	xii
List of tables.....	xiii

CHAPTER 1 INTRODUCTION

1.1 Problem statement.....	1
1.2 Purpose of this study.....	3
1.3 Central theoretical statement.....	4
1.4 Method of research.....	4
1.5 Chapter division.....	4

CHAPTER 2 THE FUNDAMENTALS OF DISTANCE EDUCATION

2.1 Introduction.....	6
2.2 A definition of distance education.....	6
2.3 Problems of terminology and concepts.....	9
2.3.1 Distance education.....	10
2.3.2 Open learning.....	11
2.3.3 Distributed learning.....	12
2.3.4 Telematic learning systems.....	15
2.3.5 Summary.....	17
2.4 A systems approach to distance education.....	18
2.4.1 Sources.....	19
2.4.2 Course design.....	20
2.4.3 Delivery.....	22
2.4.3.1 First generation distance education.....	23
2.4.3.2 Second generation distance education.....	24

2.4.3.3 Third generation distance education.....	25
2.4.3.4 Fourth generation distance education.....	26
2.4.4 Interaction.....	27
2.4.5 Learning environment.....	28
2.5 The theoretical basis for distance education.....	29
2.5.1 Conceptualisation of distance education.....	29
2.5.2 Theories contributing to a systems view of distance education.....	31
2.5.2.1 Theory of industrialisation of distance education.....	32
2.5.2.2 Theory of transactional distance.....	34
2.5.2.3 Theory of interaction and communication.....	36
2.5.2.4 Theory of autonomy and independence.....	38
2.6 Conclusion.....	39

CHAPTER 3

ATTRITION/ DROP OUT AND/OR FAILURE IN HIGHER DISTANCE EDUCATION

3.1 Introduction.....	41
3.2 Student attrition/drop out.....	41
3.2.1 Defining attrition/drop out.....	41
3.2.2 The problems of attrition/drop out and/or failure in distance education	43
3.3 Models of attrition/drop-out.....	46
3.3.1 Tinto's longitudinal model of drop out.....	46
3.3.2 Kennedy and Powell's two dimensional model.....	48
3.3.3 Billings' model for completion of correspondence courses.....	51
3.3.4 Kember's open learning model.....	54
3.3.5 Bean's causal model of student attrition.....	56
3.3.6 A synthesis and analysis of the models on attrition.....	61
3.4 Empirical studies on attrition/drop out.....	64
3.5 Conclusion.....	67

CHAPTER 4

PROFILING ESL DISTANCE LEARNERS

4.1 Introduction.....	69
-----------------------	----

4.2 Framework for profiling ESL distance learners.....	70
4.3 Personal factors.....	72
4.3.1 Demographics and distance learning.....	72
4.3.2 Demographics and ESL learning.....	78
4.3.3 Motivation and distance learning.....	81
4.3.4 Motivation and ESL learning.....	85
4.3.5 Affective variables.....	88
4.3.5.1 Affective variables and distance learning.....	88
4.3.5.2 Affective variables and ESL learning.....	92
4.3.6 Metacognitive variables.....	94
4.3.6.1 Metacognitive variables and distance learning.....	95
4.3.6.2 Metacognitive variables and ESL learning.....	97
4.3.7 Cognitive variables.....	98
4.3.7.1 Learning styles and distance learning.....	98
4.3.7.2 Learning styles and ESL learning.....	103
4.3.8 Learning strategies and distance learning.....	104
4.3.9 Learning strategies and ESL learning.....	107
4.4 Contextual factors.....	109
4.4.1 Microsystem.....	109
4.4.2 Mesosystem.....	110
4.4.3 Macrosystem.....	113
4.5 Conclusion.....	115

CHAPTER 5

PROVIDING SUPPORT FOR DISTANCE LEARNERS

5.1 Introduction.....	116
5.2 Defining support in distance education.....	117
5.3 International models of student support services.....	120
5.3.1 Lowe's SARSIDE model.....	121
5.3.2 Tait's model for planning and managing student services.....	124
5.3.3 Reid's model of student support services.....	127
5.4 A review of South African literature on support.....	129
5.5 Types and categories of support services.....	131

5.5.1 Academic support.....	131
5.5.1.1 Institutional support.....	131
5.5.1.1.1 Administration.....	131
5.5.1.1.2 Faculty/lecturers.....	134
5.5.1.1.3 Materials.....	136
5.5.1.1.4 Delivery technology.....	140
5.5.1.2 Instructional support.....	142
5.5.1.2.1 Instructional design.....	142
5.5.1.2.2 Interaction.....	143
5.5.1.2.3 Tutorials.....	145
5.5.1.2.4 Language support.....	147
5.5.2 Relational support.....	148
5.6 Conclusion.....	150

CHAPTER 6 METHOD OF RESEARCH

6.1 Introduction.....	151
6.2 Design.....	151
6.3 Participants.....	151
6.4 Instrumentation.....	152
6.4.1 Pencil and paper tests.....	152
6.4.2 Interviews.....	152
6.4.2.1 Telephonic and e-mail interviews.....	152
6.4.2.2 Interviews with TLS personnel.....	153
6.5 Data collection procedure.....	154
6.5.1 Pencil and paper surveys.....	154
6.5.2 Interviews with students	154
6.5.3 Interviews with TLS personnel.....	154
6.6 Analysis.....	155
6.7 Conclusion.....	155

CHAPTER 7 PRESENTATION AND DISCUSSION OF RESULTS

7.1 Introduction.....	156
7.2 Learner profiles.....	156
7.2.1 Personal variables.....	157
7.2.1.1 Demographic variables.....	157

7.2.1.2 Affective variables.....	158
7.2.1.3 Learning styles.....	160
7.2.1.4 Metacognitive variables.....	161
7.2.1.5 Learning strategies.....	162
7.2.2 Contextual factors.....	163
7.3 Support services required by ESL learners.....	165
7.3.1 Academic support.....	165
7.3.2 Relational support.....	170
7.4 Support services currently offered by TLS.....	171
7.4.1 Administration.....	171
7.4.1.1 Pre-registration.....	171
7.4.1.2 Registration.....	172
7.4.1.3 Post-registration.....	173
7.5 Conclusion.....	176

CHAPTER 8 CONCLUSION

8.1 Introduction.....	178
8.2 Findings of the study.....	178
8.2.1 Factors affecting attrition/drop out and/or failure.....	179
8.2.2 Support services required by ESL learners.....	180
8.2.3 Support services offered by TLS.....	180
8.3 Framework for supporting ESL distance learners.....	181
8.3.1 Administrative support.....	183
8.3.2 Academic support.....	186
8.3.3 Relational support.....	189
8.4 Recommendations for further research.....	191
8.5 Conclusion.....	192
BIBLIOGRAPHY.....	193

LIST OF DIAGRAMS

Diagram 1: A systems model for distance education.....	19
Diagram 2: Tinto's longitudinal model of drop out.....	46
Diagram 3: Kennedy and Powell's two dimensional model.....	49
Diagram 4: Billings' model for completion of correspondence courses.....	52
Diagram 5: Kember's open learning model.....	55
Diagram 6: Bean's causal model of student attrition.....	58
Diagram 7: Framework for profiling ESL distance learners.....	71
Diagram 8: Taxonomy of learning strategies.....	105
Diagram 9: Lowe's SARSIDE model.....	122
Diagram 10: Tait's model for planning and managing student services.....	125
Diagram 11: Reid's model of student support services.....	128
Diagram 12: A framework for supporting ESL distance learners.....	182

LIST OF TABLES

Table 1: Definition of variables in Bean's model.....	60
Table 2: Factors affecting students' motivation to learn a second language.....	87
Table 3: Vermunt's classification of learning styles and their components.....	99
Table 4: Demographic variables.....	157
Table 5: Affective variables.....	159
Table 6: Learning styles.....	160
Table 7: Self-regulatory abilities.....	161
Table 8: Learning strategies.....	162
Table 9: Contextual factors- Microsystem.....	164
Table 10: Contextual factors- Macrosystem.....	164
Table 11: Contextual factors- Mesosystem.....	163

CHAPTER 1

INTRODUCTION

1.1 Problem statement

Higher education institutions do not exist in a vacuum. Various social, economic, political, demographic, and technological forces are currently challenging higher education administrators to think very differently about how education and training are organised and delivered in order to meet the educational needs of an increasingly diverse student population and society at large in the 21st century (cf. Willis, 1994; Daniel, 1997; Department of Education, 1997; Owston, 1997).

The result is that many contact universities, both nationally and internationally, are taking up the challenge and embracing the idea of a distributed learning environment (cf. Bates, 1997; Dreyer, 2001; Jordaan, 2001). Bates (1999:2) states that: "In a distributed learning environment the vast majority of applications of new technologies are used to supplement or enhance regular classroom teaching."

A number of South African institutions (e.g., Potchefstroom University for CHE; Rand Afrikaans University; University of Pretoria; the University of South Africa) are for the first time using information and communication technologies (e.g., The Internet) as part of the teaching and learning process (cf. Dreyer, 2001; Grobler & Henning, 2001; Jordaan, 2001; Heydenrych, 2001). University administrators, Directors of Academic Support Services, Directors of Distance Education Units or Telematic Learning Systems, and lecturers themselves offer a number of different reasons to justify the use of technology as part of a mixed mode delivery system (i.e., contact and distance delivery). Some of the most frequent reasons given for using information and communication technologies include:

- to improve the effectiveness of education by raising the quality of teaching and learning;
- to increase enrolment and extend access to economically disadvantaged, and geographically or socially isolated learners;
- to improve cost-effectiveness of education; and

- to produce graduates with better adaptability to information-based technological environments, and capable of lifelong learning (cf. Dede, 1995; Bates, 2001; Butcher, 2001; Jordaan, 2001; Van Wyk, 2001).

This move towards the provision of distance learning programmes by means of a mixed mode delivery by many 'traditional' universities offering full-time on-campus programmes, represents a substantial departure from previous practice. As a result, these institutions have extended university access to unprecedented numbers of disadvantaged and non-traditional (age 25 and over) students who are often less academically prepared than their peers (cf. Gardiner, 1994; Phillippe, 1995). Institutions are suddenly confronted with learners that are more diverse in terms of their backgrounds, interests, and career paths.

However, tertiary institutions are also being confronted with unacceptably high drop out and/or failure rates among distance learners. According to a report in a South African newspaper, the Sunday Times (2000), at least 100 000 students drop out each year, and institutions have poor follow through rates (70% or below) and poor graduation rates (15% or below). Statistics within the English Department at Potchefstroom University indicate a drop out rate of 50% within the first-year English course offered via Telematic Learning Systems. Kember (1995) reports attrition data that range from 28 per cent to 99.5 per cent in distance education settings in the USA. Given the present realities it does not seem as if institutions presenting distance education programmes can take comfort in current attrition rates.

A report submitted by the South African task team for the Council on Higher Education (Department of Education, 2000) states that institutions have to become accountable to taxpayers for the large amount of money that the government has spent on higher education, and that they have to answer to parents who spend their hard-earned money on tuition fees only to see their children fail, drop out or leave unqualified for the jobs that the economy demands. The problem of attrition and failure in distance education cannot be solved by only addressing institutional responsibilities. However, the solution to the problem certainly ought to be initiated by the institution.

There is, therefore, a critical need for higher education institutions to be able to profile with some accuracy at risk as well as successful students. By pinpointing possible factors that lead to high rates of attrition, failure or success, programme/course developers, lecturers, administrators, and/or facilitators are given an opportunity to identify students who are at risk, and to provide the necessary administrative, academic and relational support. According to Moore and Kearsley (1996), knowledge of such factors as well as learners' likes/needs or expectations should dictate not only how the course or programme is designed and implemented, but also the nature of the teaching involved and the student support services provided.

According to researchers (e.g., Lowe, 1997; Moore & Kearsley, 1996), learner support in distance learning is a pivotal service in ensuring learner success and completion. Many studies have demonstrated a relationship between the provision of appropriate support and a decrease in attrition rates both in traditional and distance institutions (cf. Tinto, 1987; Gibson, 1996). According to Butcher (2001), the need for well-developed systems of student support, designed as an integral part of overall courses, is underestimated.

The following research questions need to be addressed:

- What factors can affect the failure/drop out or success of English Second Language (ESL) learners studying via TLS?
- What support services do ESL learners indicate they would like/need?
- What support services does the Potchefstroom University currently offer to ESL students studying via TLS?
- Can the most prominent factors affecting ESL learners' failure/drop out or success be addressed by means of the implementation of a comprehensive, well-structured and co-ordinated support system? If so, what support can be provided by the institution, and how can this be done?

1. 2 Purpose of this study

The purpose of this study is to:

- Identify factors that can affect the failure/drop out or success of ESL learners studying via TLS.

- Identify and categorise the support services that ESL students typically indicate they would like/need.
- Determine what support services the Potchefstroom University currently offers to ESL learners studying via TLS.
- Provide a framework, based on the ESL learner profile, their expressed likes/needs, and the support services currently provided, for effective support provision for ESL learners studying via TLS.

1.3 Central theoretical statement

Support services designed with the profiles and needs of ESL learners in mind will be instrumental in addressing learner failure/drop out or success within a Telematic Learning System.

1.4 Method of research

A detailed literature review on the importance of student support services in distance education was conducted, as well as literature on the related factors, namely, student drop out and profiling ESL students. A combination of a qualitative and quantitative research design was used in this study. The subjects participating in the study comprised a total of eight learners enrolled in Academic English courses at various levels of study (ENGL 111, ENF 211, and ENF 311). The data were analysed quantitatively (e.g., means and percentages), and qualitatively (e.g., a post-hoc analysis of the responses to the telephonic and e-mail interviews as well as personal face-to-face interviews with Heads of Divisions at Telematic Learning Systems).

1.5 Chapter division

Chapter 2 focuses on the fundamentals of distance education, with particular attention to a systemic view of distance education. Chapter 3 reviews the phenomenon of attrition/drop out in distance education, looking at some of the models that have been developed to describe, explain and predict attrition. Attention is also paid to the state of attrition in South African institutions of higher education. In chapter 4, the variables that make up ESL distance learner profiles are discussed with particular reference to personal and contextual variables. Chapter 5 focuses on providing student support systems, the type of services that students in a distance education institution are likely to need, and the role that the institution plays in the provision of the services.

Chapter 6 discusses the methodology used in this study, and chapter 7 presents the data collected, and discusses the findings. Chapter 8 contains the conclusion, presents a framework for the provision of support services within a Telematic Learning Systems model, as well as suggestions for further research.

CHAPTER 2

THE FUNDAMENTALS OF DISTANCE EDUCATION

2.1 Introduction

The practice of distance education is old, yet it is constantly changing; the manner in which it is perceived, the way it is defined, and the manner in which it is conceptualised are all factors which influence its practice (cf. Shale, 1990; King et al., 2001).

The practice of distance education differs amongst institutions between countries; domestic demand usually takes precedence in deciding the shape and size that distance education takes (cf. Eric Digests, 1984; Robinson, 1995). However, there are basic and fundamental principles and practices on which distance education is based, regardless of where it is practised, and regardless of unique characteristics that might be present in each institution.

This chapter discusses the concepts of 'distance education' and 'open learning', the descriptions and meanings attached to them. Also discussed are distributed learning and telematic learning systems, to draw attention, firstly, to how the changes in distance education influence the manner in which it is conceptualised, and secondly, to describe the type of learning system in which this study is placed, namely a telematic learning system. In addition, in order to present distance education as a field of study, the focus is on a systems approach to distance education. Finally, a general overview is given of the theoretical base of distance education.

2.2 A definition of distance education

"Distance education is beset with a remarkable paradox - it has asserted its existence, but it cannot define itself" (Shale, 1990:333). This is one of the contributing factors to a lack of a coherent and widely accepted theory (e.g., Verduin & Clark, 1991). These sentiments are echoed by the Indiana Commission for Higher Education et al. (1999:1) when they claim that the most difficult task faced by educators, librarians and other participants from 22 institutions who make up the commission, is the task of defining distance education. It is easy to identify the wide range of technologies employed in distance education, and all the members of the commission are in agreement over the

growing significance of distance education, and its vital importance for serving the fundamental needs of their students. Yet, finding an answer to the question "What is distance education?" is not easy.

The Indiana Commission for Higher Education et al. (1999:1) claim that the difficulty in defining distance education is related to the fact that "distance" is rapidly becoming irrelevant. They write that firstly, "distance" suggests only a temporal and geographical relationship and not a pedagogical approach or teaching model. Secondly, "distance" also illustrates only one mode of multiple modalities and blends of other tools and technology that support the work of educators. Thirdly, "distance" implies that the learning is occurring elsewhere and not that the learning or teaching should be different in focus or distinguished by the types of teaching materials used to enhance the educational experience.

Moore (1973:669) provides the following definition of distance education, "all those teaching methods in which, because of the physical separation of learners and teachers, the interactive (stimulation, explanation, questioning, guidance) as well as the preactive phase of teaching (selecting objectives, planning curriculum and instructional strategies), is conducted through print, mechanical or electronic devices". The physical separation of teacher and student seems to be the focal point of Moore's work (cf. Moore, 1993; Moore & Kearsley, 1996:2), and forms the basis of Moore and Kearsley's (1996) theory on distance education.

Holmberg (1989:3), with a similar focus on "distance", states that distance education refers to the various forms of study at all levels which are not under the continuous, immediate supervision of tutors present with their students in lecture rooms or on the same premises but which, nevertheless, benefit from the planning, guidance and teaching of a supporting organisation. Holmberg's (1989) concern is about the dialogue that takes place between student and teacher during distance education, which is referred to as the "guided pedagogic conversation". Interaction between a student and the supporting organisation, represented by the instructor/lecturer/tutor, ought to create a friendly atmosphere, inspire a feeling of a personal connection between teacher and student, and in this way increase pleasure and motivation amongst the students. Holmberg's

(1989) definition is a reflection of his theory of distance education, which focuses on the communication and relationship between students and an institution, and mostly, with the lecturer.

Peters (1973:206), cited in Keegan (1986:37), defines distance education as “a method of imparting knowledge, skills and attitudes which is rationalised by the application of division of labour and organisational principles as well as by the extensive use of technical media, especially for the purpose of reproducing high quality material which makes it possible to instruct great numbers of students at the same time wherever they live”. As with Holmberg (1989), this definition reflects Peters’ views and theory on the industrialisation of distance education.

The United States Distance Learning Association (USDLA) (no date:1/1) defines distance education as “the acquisition of knowledge and skill through mediated information and instruction, encompassing all technologies and other forms of learning at a distance”. King et al. (2001:2/9) object to this definition because it does not distinguish formal and informal learning or different types of distance, (i.e., temporal and physical). However, if an institution undertakes to provide distance education, the major pursuit of the institution would be formal learning, through a structured process of course planning and design, and a definite plan of instructional practices and techniques. Informal learning, if it takes place, is embraced, but all the efforts of instruction are towards formal learning. With regard to temporal and physical distance, it appears to be a widely accepted notion that the separation in distance education is both temporal and physical.

In defining distance education, Keegan (1986) describes its functions, that which it does, and writes about it in a comparative manner with regard to conventional education. Keegan (1986:5) claims that distance education purports to make available a parallel provision of education to that of conventional schools, colleges, and universities. Distance systems claim to provide a complete educational coverage, equal in quality and status to that of conventional provision, encompassing every stage of the educational process from application, enrolment, and counselling through to examination and graduation many years later.

Keegan (1980:10) makes the observation that it is easier to devise a definition than to accept someone else's, which might account for the abundance of definitions, which while not essentially different from each other, do emphasise different aspects of distance education.

Keegan (1986:38) provides a comprehensive list of characteristics which are to be viewed as essential in any definition of distance education:

- separation of teacher and student;
- influence of an educational organisation especially in the planning and preparation of learning materials;
- use of technical media, usually print, to unite teacher and learner and carry the educational content;
- provision of two-way communication so that the student may benefit from or even initiate dialogue;
- possibility of occasional seminars for both didactic and socialisation purposes; and
- participation in the most industrialised form of education.

It seems as if the points mentioned by Keegan (1986) are the essence of distance education; included are distance, an institution that bears the responsibility of organisation and practice of distance education programmes, delivery media, interaction between students and instructors, and mass production of the education.

Closely linked to the problems of definition are the problems regarding terminology and concepts. In section 2.3 the following terminology and concepts are discussed: distance learning, open learning, distributed learning, and telematic learning systems.

2.3 Problems of terminology and concepts

King et al. (2001:1/9) assert that it is commonplace in most academic and scientific fields to have a common yet distinct vocabulary, however, that this is not the case in distance education, is disturbing. They object to the practice of using the same term to refer to different meanings, and of using terms without defining them, in which the basic assumption is that they have a universal meaning. King et al. (2001:2/9) insist that terminology and concepts have to be semantically and operationally consistent within and across articles.

2.3.1 Distance learning

In addition to the problems associated with defining distance education is the problem of the correct use of the terms 'distance learning' and 'distance education'. While some researchers acknowledge that distance education and distance learning are commonly used interchangeably (e.g., USDLA, n.d.), other researchers are opposed to it (e.g., King et al., 2001; Steiner, 1995).

The USDLA (n.d.), however, does clarify the distinction between "education" and "learning" by stating that in defining distance education, distance learning is the intended outcome of the distance education process, and that it refers to the learner.

Steiner (1995) objects to the practice of using 'distance learning' and 'distance education' interchangeably. She claims that it is inaccurate because institutions control educational delivery, while the student is responsible for learning. And like the USDLA (n.d.), she states that distance learning is the result of distance education. It appears that distance education should be used to refer to activities that are carried out by the institution, including teaching processes, while distance learning ought to refer exclusively to learner activities.

King et al. (2001:3/9) believe that in order to understand what distance education is, distance learning has to be defined and understood. Distance learning is defined as "improved capabilities in knowledge and/or behaviours as a result of mediated experiences that are constrained by time and/or distance such that the learner does not share the same situation with what is being learned". From this understanding of distance learning, King et al. (2001:6/9) state that distance education is "formalised instructional learning where the time/geographic situation constrains learning by not affording in-person contact between student and instructor". Distance learning, therefore, refers only to students, and distance education refers to activities carried out by an institution, encompassing administrative and academic activities.

Open learning, discussed in the following section, is also sometimes used interchangeably with open education. However, the discussion does not address the differences between open 'learning' and 'education', but focuses on the distinction between open learning/education and distance learning/education.

2.3.2 Open learning

Foks (1987:76), quoted in Holmberg (1989:2), claims that open learning is a state of mind, an approach taken to the planning, design, preparation and presentation of courses by educators, and an approach taken to the selection and use of learning strategies and associated resources by students. This approach seeks to provide students with as much choice and control as possible over content and learning strategies. This approach, it can be argued, is clearly desired by educationists who purport to be working on distance education, not specifically open.

Rowntree (1992:13), after examining a number of explanations of open learning, comes to the conclusion that two things stand out, namely, that it is a philosophy, a set of beliefs about teaching and learning, and that it is a method, a set of techniques for teaching and learning. Rowntree (1992) is of the opinion that the confusion is a result of people not realising that the philosophy can be practised without using the method, and that the method can be applied without the philosophy. However, the ideal holistic approach would be if the philosophy influenced the choosing and use of the techniques. It seems as if it would be confusing if the philosophy is practised, but is not manifested practically through instructional techniques. It appears that it would be more desirable if the philosophy and the techniques could be used together, making open learning/education whole, in policy and in practice, which might also eliminate the confusion.

Rumble (1989:28), lamenting that 'open learning' and 'distance learning' have never been used precisely, states that open learning is a method of education, while distance learning describes the nature of education. Reviewing a number of definitions of open learning, Rumble (1989:29) lists criteria which apply to openness and categorises them into access-related criteria, criteria related to place and pace of study, criteria related to means, criteria related to the structure of the programme in respect of content and assessment, and criteria related to support services.

Somewhat similar to Rumble's (1989) criteria is Peters' (1998) description of open learning. In defining 'open learning', Peters (1998:98) writes of internal and external conditions that apply to open learning. External conditions encompass the equality principle, which means that the acquisition of knowledge, skills and attitudes are open to all, that nobody is excluded. An additional

external condition is the principle of equality of opportunity, referring to a need to remove traditional education barriers, including economic difficulties, gender-specific educational practices, unfavourable socio-cultural milieus, and membership of minority groups. The principle of lifelong and ubiquitous learning, also an external condition, claims that learning is not to be bound to defined life cycles, nor to defined locations and times. Open learning/education ought to be possible anytime and everywhere. The internal conditions of open learning include the principle of open curricula, which states that teaching programmes should not be completely developed and determined beforehand, but should be 'open' for unforeseen developments. The principle of learner-relatedness requires that the course of learning be shaped by students' individual value perspectives, interests and experiences. The principle of autonomous learning stipulates that students should be able to organise their learning. According to the principle of learning through communication and interaction, learning takes place through discussion and active management by students, not by means of a ritualised presentation and reception process. Finally, the principle of relatedness to everyday life refers to learning that is opened by keeping to the practices of everyday life, and that is not defined by bureaucratic organisation.

The demands made on students' learning in the 21st century have placed the nature of distance education under the spotlight once again. Changing student profiles and rapid advances in technology cause delivery methods to change just as fast. The following two sub-sections discuss how change in technology has led to a reconceptualisation of distance education.

2.3.3 Distributed learning

Distributed learning is described by some as a form of distance education (e.g., Silvan, 1999), while others see it as quite distinct, for example, Dede (no date), who regards distributed learning not only as a form of interaction enabled by advanced information technologies but also as a conceptual framework that could guide the evolution of higher learning. Some researchers (e.g., Steiner, 1995) feel that the term 'distributed learning' is used interchangeably with 'distance learning'. The definitions and descriptions of distributed learning are written in terms of distance education or learning, which demonstrates an irrefutable connection between the two (cf. Silván, 1999; Dede, n.d.). It is the nature of this connection that this section hopes to make clear. .

According to Silván (1999), a distributed learning environment is one that combines the benefits of distance education and collaborative learning. She defines distance learning, broadly, as any approach to education delivery that replaces the same-time, same-place, face-to-face environment of a traditional classroom. Collaborative learning refers to the active participation of both teacher and learner in the learning process, where knowledge is not 'delivered' but rather emerges from active dialogue among those who seek to understand and apply concepts and techniques. Interaction and dialogue, therefore, appear to be part of the components of distributed learning, the other part of the component being the means of carrying out the dialogue and interaction.

According to Silván (1999), distributed learning is a type of distance education, which is defined as technology-enabled learning-team focused education, facilitated by a content expert, and delivered anytime, anywhere. The distinction between distance and distributed learning requires a pedagogical shift from an instructional paradigm to a learning paradigm, and computers are not seen as a delivery tool, but as a communication tool.

Dede (n.d.) defines distributed learning as educational activities orchestrated via information technology across classrooms, workplaces, homes and community settings, and based on a mixture of presentational and "constructivist" (guided inquiry, collaborative learning, mentoring) pedagogies. Advances in "groupware" and experiential simulation enable guided collaborative inquiry-based learning even though students are in different locations and often are not online at the same time. The major components of distributed learning, therefore, appear to be information technology and the interaction that it facilitates.

The distributed learning approach is as applicable in a residential learning environment as it would be in a distant environment (Hawkins, 1999). In learning programmes, the distance or remoteness of the students is one reason for customisation, and equally important are differences in backgrounds and differences in basic academic preparation. Therefore, it is important for learning institutions to identify the organisational, business and cultural challenges that need to be considered in order to effectively implement distributed learning initiatives (cf. Hawkins, 1999).

Thomas and Carswell (2000) describe the use of the internet in collaborative learning in a distributed educational process, and report that it naturally supports collaborative learning environments in which students and tutors interact and provide essential support for students studying at a distance. They reiterate that the purpose of applying technology in courses is not to do the same old things faster, but to improve the overall service to students, tutors and administrators alike.

A distributed learning environment is a natural catalyst for collaborative learning and discourse-based learning. In a distributed learning environment, face-to-face tutorials have been introduced to encourage collaboration and overcome a number of other problems, namely to:

- overcome the isolation of the long-distance learner;
- encourage the exchange of ideas and learning experiences; and
- enhance the delivery and presentation of distance learning materials in a structured and supportive environment (Thomas & Carswell, 2000:375).

These features, however, do not appear to apply exclusively to distributed learning, as they are increasingly applied to all distance learning situations.

Wilson and Ryder (1998) describe distributed learning communities (DLCs) as decentralised learning groups that are focused and interact sufficiently to form a stable community. A community is formed when there is a high level of interaction and dependability on the accomplishment of certain ends. Learning communities share a goal, namely to support each other in learning. A DLC does not consist of isolated individuals with individual learning goals and pursuing those goals individually, but rather the group dictates the learning agenda, or engages members of the group concerning that agenda. DLCs, therefore, are not only tools for self-directed learning, but also provide support.

According to Wilson and Ryder (1998), the concept of 'distributed' suggests that learning, decision-making, agenda-setting, and maintaining group cohesion are responsibilities distributed to group members and not controlled by an outside authority or manager. The characteristics of distributed learning communities can be summed up in the following way:

- distributed control;

- commitment to the generation and sharing of new knowledge;
- flexible and negotiated learning activities;
- autonomous community members;
- high levels of dialogue, interaction and collaboration; and
- a shared goal, problem, or project that brings a common focus and incentive to work together (Wilson & Ryder, 1998:2/14).

The two characteristics of distributed learning that appear to be the most outstanding are that it fosters shared and collaborative learning, and that it is technology-based.

Telematic learning systems, which also use technology for instructional delivery, are discussed in the next section.

2.3.4 Telematic learning systems

Telematic learning systems appear to be aligned with distance education in that the emphasis is on flexible delivery. However, telematic learning systems bear characteristics similar to those of distributed learning, particularly where collaborative learning is a desired component.

The use of telematic learning systems in South Africa appears to be on the increase. The institutions of higher education that are looking to develop this system or are already implementing it include Potchefstroom University, the University of the Orange Free State, Technikon Pretoria, and the University of Pretoria. The University of the Witwatersrand (n.d.) claims to be looking into using telematics, with studies in broadcasting, to open up university courses to a much broader student base.

Students ought to be able to carry out various academic and administrative activities through telematic systems. These activities are likely to be similar to those carried out by a virtual campus, such as registration, receiving study material, communicating with other students and lecturers, accessing full text information and electronic assessment (cf. University of Pretoria, 2000).

The University of Pretoria describes its endeavours to develop a fully integrated virtual campus which students can access, particularly postgraduate programmes, from all over the world. Substantial funds have to be committed, and multi-media and interactive television are also some of the technology developed. Their document claims that in order to accommodate distant learners, contact education programmes were adapted for the purpose of distance education programmes. A similar process was followed at the Potchefstroom University where various contact programmes (e.g., BA with Law subjects) were adapted for telematic learning delivery (cf. Van Wyk, 2001). Telematic learning mixes various forms of delivery, such as electronic education (this includes web-based delivery, interactive television teaching, videoconferencing, and multi-media), contact education in different formats (e.g., after hours classes), as well as paper-based distance education (cf. University of Pretoria, 2000).

To facilitate telematic education development, the University of Pretoria (2000) reached agreements with various institutions that have a countrywide infrastructure. These institutions support marketing, delivery, administration, accessing of technology and distribution of study material. The material is compiled by the university, which also exercises quality control and monitors the maintenance of standards. The University of Pretoria (2000), in collaboration with other institutions, has established learning centres in various regions in the country.

The Telematic Learning System (TLS) of the Potchefstroom University was established in 1996 (cf. Potchefstroom University, n.d.), and is seen as a strategic initiative to apply appropriate technologies to learning. There are more than 50 centres in various regions across the country, and this learning model uses both telematic and contact learning systems, as well as print-based systems of instructional delivery. TLS at Potchefstroom University also collaborates with other national and international institutions in evaluating all aspects of their programmes (cf. Potchefstroom University, n.d.; Van Wyk, 2001).

Telematic learning systems, therefore, appear to apply to a mixed mode of delivery (technology, contact and print), which facilitates the fast and easy effecting of learning and administrative processes.

2.3.5 Summary

Escotet (1980:144) defines open education as characterised by the removal of restrictions, exclusions and privileges, by the accreditation of students' previous experiences, by the flexibility of the management of the time variable, and by substantial changes in the traditional relationship between professors and students. Thus, open education appears to be focused on access, and the removal of scheduled time frames regulating the teaching and learning process. Distance education, on the other hand, is a modality that permits the delivery of a group of didactic media without the necessity of regular class participation, where the individual is responsible for his/her own learning.

Distance education, therefore, refers mainly to the mode of delivery, while open education refers to structural changes. Open education refers to structural changes so as to make an institution open: open with regard to place, time, content of learning, mode of learning, etc. (cf. Dewal, 1986:8, quoted in Holmberg, 1989:2). A distance teaching institution, Dewal (1986) claims, could, therefore, be 'closed' or 'open'.

Dede (n.d.) is of the opinion that distance education may be an obsolete concept, as might the term face-to-face education. Instead, all instruction within college and university settings may be some balance between classroom-based and distance-based learning interactions, determined by the subject matter, student population, and educational objectives. Distance learning, therefore, will gradually become a form of distributed learning. Dede (n.d.) claims that central to the effective utilization of emerging educational technologies via distributed learning is developing a reflective understanding of how each interactive medium shapes the cognitive, affective and social interactions of participants.

Dede (1996) maintains that keeping a balance between virtual interaction and direct interchange is important; technology-mediated communication and experience supplement, but **do not replace**, immediate involvement in real settings. He concludes by stating that the most significant influence on the evolution of higher education will not be the technical development of more powerful devices, but the professional development of wise designers, educators and learners.

In the following section the components of distance education that are dependent on each other in order to make distance education function as an integrated unit are discussed in more detail.

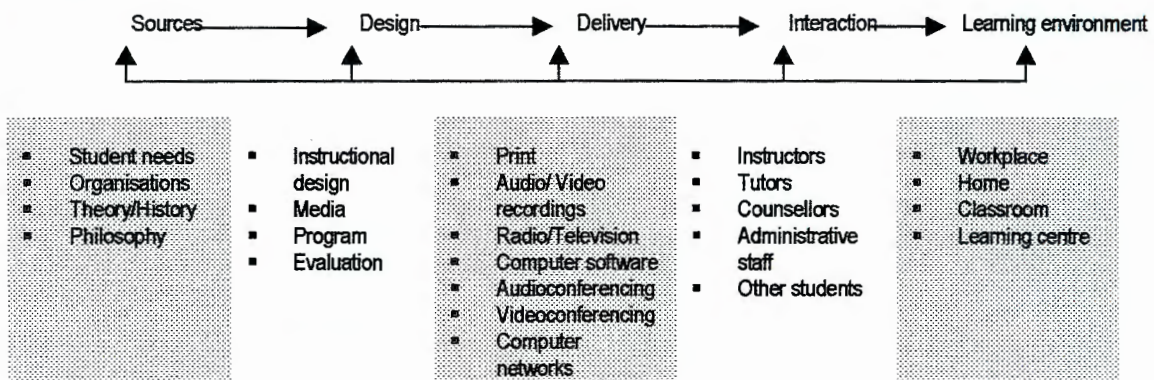
2.4 A systems approach to distance education

Moore and Kearsley (1996:4) advocate a systems view of distance education, as this type of approach is helpful in understanding distance education as a field of study and is also essential to its successful practice. The systems view is holistic; individual components of a system function together to make up a whole. The components of a system include characteristics such as integration, interdependence and wholeness (Banathy, 1991). The independence of components within a system would mean a lack of integration, and a change in a single component would not affect changes in other components. This would lead to progressive segregation and isolation, and eventually towards the dissolution and termination of the system.

In defining a system approach, Carr (1996) makes a distinction between 'systemic' and 'systematic', stating that systemic implies a global conception of a problem and an understanding of the interrelationships and interconnections, while systematic is often associated with images of a linear, generalisable model of how to do something.

A distance education system comprises of various component processes including learning, teaching, communication, design, and management, which are likely to have subsystems. Moore and Kearsley (1996:9) represent the main components of distance education in a systems model (cf. Diagram 1), and claim that these are components likely to be found at all levels and types of distance education.

Diagram 1: A systems model for distance education



(Moore & Kearsley, 1996:9).

2.4.1 Sources

The sources component refers to those that bear the responsibility of deciding what knowledge will be taught (Moore & Kearsley, 1996). The organisation and its faculties make decisions with regard to what will be taught as they are the experts in their field, its literature, theory, contemporary practice, and problems. Decisions ought to be based on the philosophy and educational mission of the institution, the institutions' history, and the history of the country in which the institution is located. Student needs also dictate the content of distance education programmes, and student needs might themselves be determined by more global factors, such as career concerns, which in turn might be shaped by the market economy.

Rowntree (1992), writing on student needs, states that historically, learners have had to take what the institutions had to offer, with learning outcomes that have been decided in advance, rather than providers marketing their materials on what learners want and need. In such instances, pre-designed courses ought to be relevant in terms of the demands of the market economy and career need. Designed in this way, it will be easier to attract students as the programmes will have relevance and will have anticipated their needs. Reid (1995:271) lists the type of information which institutions could use to determine the needs of the learners as:

- characteristics of learners as a group (e.g., full-time workers, aged between 25-50, goal-oriented, etc);

- why individuals are studying, with a view to promoting intrinsic benefits which learners can apply to their jobs and lives;
- assisting learners to identify their own unique learning beliefs (and possibly match these to others);
- assessing their learning styles, towards a view of incorporating them into the learning material or using them as part of the learning process; and
- assisting learners to assess their own skill-base in terms of strengths and weaknesses.

Thus, learner needs can be determined from learner profiles, from understanding goals and motivations for enrolling, as well as their preparedness, in terms of skills, for the distance learning mode. This is the information that is needed for sound course planning and design, which is discussed in the following section.

2.4.2 Course design

The design component reflects subsystems that require many skills, and thus need course teams in which many specialists work together (Moore & Kearsley, 1996:9). Content experts and instructional designers need to agree on issues such as the objectives of the course, tasks, the layout of textual materials, and the content of recorded audio- or videotapes. Graphic designers, producers and other media specialists have their role to play in design, and deciding on the type of instruction that works well when a particular medium is used.

Reigeluth (1995:29) claims that educational systems design helps, amongst others, with:

- offering guidance as to what a new educational system should be like for different kinds of needs and conditions;
- using systems-thinking to understand neutrally independent relationships; and
- is concerned with creating new paradigms as opposed to making piecemeal changes to old paradigms.

Therefore, course design takes cognisance of the learning environment, and this approach promotes a systemic integration of design components.

The Higher Education Program and Policy Council of the American Federation of Teachers (2001) stress that course design should be shaped to the potentials of the medium. The council warns that it might not be the best practice to transfer a live lecture and the accompanying course materials into another media, for example, electronic. Each medium of delivery has its own properties and powers, its limitations and potentials (cf. Bates, 1999).

Holmberg (1986) writes that in planning, the characteristics of the target groups, the general conditions under which the study is to be conducted, the study goals and the objectives to be catered for are important considerations to have before design commences. Usually, this is done through prescribing a certain standard for enrolment, and taking cognisance of the conditions under which study is to be conducted (e.g., knowing that work, family, and social conditions can affect students' prioritisation of their learning). This often requires flexibility and adaptability on the course providers' part. Goals and aims are best communicated by using verbal expression of actions, such as *demonstrate*, *do*, *report on*, rather than vague verbs of state such as *know*, *understand*, *grasp*, and *master*.

Sherron and Boettcher (1997:17) list the core questions that instructional designers need to ask as:

- *Who* are my students?
- *What* do I want my students to know, feel, or be able to do as a result of this course or experience?
- *What* types of experiences and interactions will facilitate achieving these goals?
- *Will* this plan help the students to achieve their learning goals?

The third question refers to the *how*, and the last one to the *why*.

Course design and planning, therefore, ought to look at maximising the potential of the chosen medium by matching content and learning goals with the appropriate method of delivery. In addition, the following variables should also receive attention, namely learner profiling, formulation of course aims and objectives, selection of the appropriate instructional methods and techniques, and the relevance and the quality of the course and its content (cf. Sherron & Boettcher, 1997).

2.4.3 Delivery

The delivery component lists the various technologies used to carry the messages of lecturers and students, rather than relying on face-to-face lectures, discussion, and the blackboard (cf. Moore & Kearsley, 1996:10). The method of delivery is changing the definition of distance education to accommodate various information technological innovations (cf. section 2.3.3).

By contrasting the definitions of distance education discussed previously in this chapter with that provided in the report by the Higher Education Program and Policy Council of the American Federation of Teachers (2001:1/14), the extent of the influence of modern technology on distance education becomes evident. The report states that “the term ‘distance education’ is usually used to describe courses in which nearly all the interaction between the teacher and student takes place electronically”. The intention of the writers is clearly not to provide a broad and inclusive definition, nor to contribute to the long-standing debate on the definitions of distance education, but their description is telling of the unavoidable synonymy between modern technology and distance education. While these days it is almost impossible to discuss distance education without mentioning modern technology, it is not necessarily the most commonly used and pervasive form of delivery, particularly within the South African distance education system.

According to Khan et al. (2000), the delivery medium in distance education has profound significance because it is the means to provide learning input that sustains student motivation and breaks isolated didactic interaction/dialogue, and also because it is a means of student support. Learner convenience, the requirements of the programme, costs to students, and the providing institution are some of the factors that have to be taken into account in choosing media for instructional delivery. A discussion of delivery media in distance education unavoidably becomes a discussion of the means of communication between student and instructor, as well as a discussion of patterns of interaction.

Sherron and Boettcher (1997:5) claim that distance learning programmes are likely to use a broad mix of techniques, methodologies and media; a new technology does not necessarily replace an old one, but rather takes its place among the range of technologies for meeting a particular set of needs. They distinguish between the four generations of distance education along the lines of

primary features, the timeframe, media, communication features, students' characteristics and goals, educational philosophy and curriculum and design, and infrastructure components (Sherron & Boettcher, 1997:6-7). Peters (1998:8) lists the techniques through which learning occurs as: reading printed material, guided self-teaching, independent scientific work (e.g., preparation for written exams and preparing papers), personal communication (e.g., consultation hours of university teaching staff), learning with the help of tapes and audiovisual media, and learning by participating in traditional academic teaching (e.g., lectures and seminars). The four generations of distance education and their features will now be discussed in turn.

2.4.3.1 First generation distance education

Sherron and Boettcher (1997) write that with this generation, whose time frame is from the 1850s to the 1960s, one type of technology dominates, namely that which does not incorporate any two-way interaction among students, and only minimal interaction between students and lecturers. The media used is primarily print, but later included radio and television. Student characteristics and goals include maturity, high levels of motivation and discipline, students could be working on core educational requirements, and occasionally, there would be meetings of isolated groups of students with a facilitator or mentor.

The infrastructural components of first generation distance education include: the postal service for delivery of printed materials, radio and television technology, instructional programme designers, course developers and producers, a significant up-front investment, and tutors/facilitators, depending on the model used by an institution.

Print, which comes in the form of textbooks, study guides, manuals and course notes, amongst others, is the most common media used in distance education (Moore & Kearsley, 1996:78). Print materials are relatively inexpensive to develop and can be distributed easily via mail delivery services.

The skills of writing and illustration, the production capabilities of printing and duplication are widely available. Both students and lecturers are very familiar with them and are likely to have a good

understanding of how to manipulate them and make the most of them (Moore & Kearsley, 1996:79).

With this type of medium the presentation of information as well as interaction is by text. Handwritten or typed texts are usually for the purpose of giving students feedback on written assignments. The major inconvenience of mail delivered materials is that it can be slow, which Moore and Kearsley (1996:79) feel might appeal to more reflective, less emotional, and more rational students. However, slow and late deliveries might make for frustrating learning where there are deadlines to consider.

Principles of design which are important in print materials, especially study guides, include: the reading level of students and the simplicity of writing style, the layout of the text (typography and page design), and modularisation (breaking text into distinct instructional components). All these contribute to a student's understanding of and interaction with a text.

2.4.3.2 Second generation distance education

Sherron and Boettcher (1997) write that the primary feature of second generation distance education is multiple technologies without computers, and give its time frame as the period from the 1960s to 1985. The media used include audio and videocassettes, fax and print. The communication features are listed as being primarily one-way, interaction is by phone, fax and mail, and it is occasionally supplemented by face-to-face meetings. Instructional systems design has to compensate for the lack of direct and immediate student-lecturer interaction where information dissemination is the primary goal of instruction. The infrastructural components of second generation distance education are televisions in homes and schools, audio and videocassette technology, and as with first generation distance education, instructional designers, developers and producers, upfront investment and tutors/facilitators.

Audiotapes and videotapes have also become a convenient and cost-effective way of delivering instructional materials. Audiotapes are portable and videomachines make home study feasible, and both are easy to deliver via mail services (Bates, 1999).

Audiotapes are mostly convenient for teaching material which is difficult to put in print, and Moore and Kearsley (1996:83) do not encourage whole lectures to be put on audiotape. In English Second Language (ESL) learning, audiotapes have come in handy for pronunciation, lexicon and grammar instruction, for both distance and on-campus instruction (as used by the Department of English at Potchefstroom University).

2.4.3.3 Third generation distance education

Sherron and Boettcher (1997) state that the primary feature of third generation distance education is the use of multiple technologies, including computers and computer networking, with the time frame from 1985 to 1995. The media used are electronic mail, computer programmes and resources packaged in disks, CDs, the internet, audioconferencing, videoconferencing via terrestrial, satellite, cable and phone technologies, fax and print (cf. Bates, 2001). There is two-way communication enabling synchronous and asynchronous communication between lecturers and students, and among students. The features of the internet include that it is good for text, graphics and for video snippets. Student characteristics and goals include an increased level of interaction with lecturers and other students, increased contact and collaboration between students in the same programme, with technology supporting the development of learning communities, and longer periods of face-to-face meetings. With regard to curriculum design, materials are highly structured, but interactive technologies can provide ad hoc direction and support for learners. The possibility in variety of materials exists, from 100% pre-packaged to about 30% percent pre-packaged. The student is viewed as an active learner, participant and contributor. The infrastructural components of third generation distance education include the widespread use of computers and multimedia, computer ownership, user-friendly technologies to ensure access, instructional designers, developers, producers, a significant up-front investment and tutors/facilitators (cf. Bates, 1999; 2001).

Moore and Kearsley (1996:90) describe teleconferencing as the interaction of students and instructors via some form of telecommunications technology. They list four types of teleconferencing, namely, audio, audiographics, video and computer.

With audioconferencing, all individual participants use their own phones, while groups could use a speakerphone on one phone. All their lines are connected by a "bridge" which links all the participants.

Audiographics transmit visual images through the use of computer or facsimile technology by transmitting physical copies of documents. Electronic blackboards can be used to transmit anything written or drawn on site to television monitors which are on other linked receiving sites. This method of instruction delivery, according to Moore and Kearsley (1996:92), is more popular in courses where there are plenty of illustrations and notational information, such as science and engineering.

Two-way conferencing, via satellite or cable, allows the student and instructor to interact face-to-face, and is the closest match for traditional instruction.

Computer conferencing allows interaction between student and instructor via a computer network. Florini (1990:278), discussing teleconferencing, claims that in addition to breaking the bonds of time and place, little computing skills are required, besides basic familiarity with the equipment, and while skilful typing is an asset, it is not a prerequisite.

2.4.3.4 Fourth generation distance education

Sherron and Boettcher (1997:7) give the time frame of the fourth generation of distance education as "1995-2005?" which carries a suggestion that it could progress further, or it might not be the end of the period for the dominance of the technologies used for distance education. Its primary feature is the use of multiple technologies. The media used are computers and high-bandwidth transmission for individualised, customised and live video interactive learning, audioconferencing, desktop videoconferencing, fax and print. The features of communication include two-way interactive real-time capabilities of radio and video, asynchronous and synchronous communication, digital video transmission with databases of content resources available via the internet and the world wide web. There is increased interaction between students and lecturers and among students themselves, in the same or different courses. Learning communities are supported by technologies, face-to-face interaction, possible also through desktop videoconferencing, and

less disciplined learners can be supported with regard to goals to develop knowledge, skills and attitudes. Curriculum design includes highly structured materials, with interactive technologies providing support, a mixed package of materials is possible, and students are viewed as active learners, participants and contributors. The infrastructural components include computer ownership, user-friendly, affordable multimedia internet technologies to ensure access, instructional designers, and improved development tools for complex media design.

According to Owen (2000), there is considerable benefit to be gained from computer-based collaborative work, but that attention needs to be paid to issues of engagement and structure of discourse in order to improve the situation for learners and their tutors.

Serdiukov (2001) questions whether learning ought to be technology-based or technology-supported, adding that as information technology advances, education is likely to be technology-based. Serdiukov (2001:7/12) claims that the way in which to test if a distance education institution will survive changes in society, business, industry and science, is through one criterion, namely, its self-sufficiency in its ability to meet all of a student's learning needs. This includes materials, tools and support for the student. Therefore, as has been mentioned, student needs are the paramount force in shaping an institution, and the programmes it provides. There would be little use to fit a distance institution with the latest technology when more than half of the students registered cannot use it. It is clear that computing and communication technologies cannot be adopted in a piecemeal manner; change at the systemic and institutional level is required.

2.4.4 Interaction

Interaction is deemed important for all kinds of learning (i.e., classroom-based, learning in residential institutions, and in distance institutions). Interaction between students and other students and instructors/tutors/facilitators is mostly for dealing with content and related academic matters. Counsellors play an advisory role, either for academic matters, such as how to study, or for personal matters such as how to deal with personal crises that affect learning, or a combination of both. An institution's administrators ensure that money, personnel and time are managed in order to produce courses on time, and that the system runs smoothly.

Sherron and Boettcher (1997:18-19) provide the guidelines that could be adopted for designing interactive distance learning courses:

- they will be based on the core instructional questions (cf. section 2.4.2) so that the learning is focused on outcomes appropriate to the student and societal needs;
- they will use a set of multiple communication media to enable and encourage active and collaborative learning; and
- they will be based on the principle that the core of education is dialogue and communication, and that balancing the use of the three dialogues – lecturer to student, student to student, and student to resources- promotes an effective learning experience.

2.4.5 Learning environment

The nature of the learning environment is important in that students could be reading their study guides and interacting with instructors while they are at work, at home, at a learning centre, or even while travelling. Settings such as submarines, lighthouses, and prisons have been mentioned (Moore & Kearsley, 1996:12).

When designing programmes and producing materials, it has to be taken into account that not all students might be part of a group, and those working alone might not be well equipped for individual studying. It is often the claim of distance institutions that they cater for students that are placed in any part of the country, and others cater for students outside the borders of their countries. Therefore, materials have to be suited to the conditions of the students that distance institutions initially set out to attract.

The aim of this discussion on a systemic approach to distance education was to demonstrate the interconnectedness of the components of the system. The design, delivery, and instruction of programmes have to be carried out in tandem with administrative tasks. On the surface it might seem as if these tasks have nothing to do with instruction and learning, but they are dependent on each other for maximum effectiveness.

The next section focuses on a general overview of the theories of distance education, which are important because they affect directly the practice of distance education. Theories explain and

predict occurrences (Holmberg, 1989:5), and they are an essential tool for educators to rethink how they will meet the needs of their institution and students when adopting distance education approaches (Garrison, 2000:3). In another words, the theoretical foundations of any field describe and inform the practice and provide the means to guide future developments.

2.5 The theoretical basis for distance education

Peters (1998) suggests that theories should be understood as a special way of looking at a phenomenon and of interpreting it, with the aim of detecting and revealing the very essence of it and to become aware of its characteristics and distinguishing features. A problematic aspect of theories, he claims, is that there are many of them, depending on the intention and the inherent interest of those who have developed them. Therefore, they end up not only being descriptive and explanatory, but also prescriptive as the authors would like to have the phenomenon under consideration changed, and have it adapted to the theory they have in mind.

2.5.1 Conceptualisation of distance education

The manner in which distance education is conceptualised forms the basis for the development of theories, which can be classified in various ways, for example, the theory of industrialisation (Peters, 1983), the theory of transactional distance (Moore & Kearsley, 1996), the theory of interaction and communication (Saba & Shearer, 1994), and the theory of autonomy and independence (e.g., Wedemeyer, 1981).

A difference of opinion exists among researchers with regard to how distance education ought to be viewed and conceptualised. There are those who view distance education as part of the general education system (e.g., Shale, 1990; Garrison 1989), and there are those who view it as its own distinct system of education, with outstanding characteristics and features (e.g., Peters, 1983; Moore, 1993; Holmberg, 1986).

Holmberg (1986) puts forth the reasons why he feels that distance education can be viewed as a separate discipline, firstly by classifying the research, and secondly, by outlining the structure of distance education. The areas in which research has been conducted include:

- General analyses of distance education, philosophy and theory;
- Studies of student bodies and students' motivation;
- Course planning and study objectives;
- Course development;
- Media;
- Non-contiguous tutorial two-way communication;
- Face-to-face sessions;
- Counselling;
- Institutional planning, organization, and administration;
- Economics of distance education;
- Evaluation;
- History of distance education;
- Distance education in developing countries;
- Guidelines for distance educators; and
- Research on research.

The structure of distance education can be outlined as follows:

- Philosophy and theory;
- Distant students, their milieu, conditions and study motivation;
- Subject-matter presentation;
- Communication and interaction between students and their supporting organization (tutors, counsellors, administrators, other students);
- Administration and organization;
- Economics;
- Systems (comparative distance education, typologies, evaluation, etc.); and
- History of distance education.

The researchers who believe that distance education is part of the general education system feel that plenty of time and resources are being channelled into the effort of distinguishing distance education from general education and trying to elevate it. Garrison (1989:8) would rather that distance education be located in the broader study of education; he claims that distance education is a species of education characterised by one structural characteristic, namely the non-contiguity of teacher and student.

Shale (1990:334) stresses that if we do not feel compelled to justify the uniqueness of distance education, there will be no need to dwell on points of difference, particularly to view 'distance' as the distinguishing factor. The means of distinguishing distance are incidental, and not the defining criterion. The task of distance education, as stated by Shale (1990:334), is to find the means to

introduce the conditions necessary for the educational process, conditions which are present but not necessarily actualised in face-to-face situations. Distance education is out to try and simulate these conditions as far as possible. For Shale (1990:341) all that is given up when distance education is viewed as education at a distance is the pretension that distance education is a discipline, and perhaps some feelings of loss of uniqueness or prestige.

This view is precisely what the other school of thought advocates against, namely that distance education is not an extension of traditional instruction, one which merely relies on delivery media for distribution of the same material given to on-campus students. Moore (1993:2) pronounces this view of distance as immature, that it reflects the field in its infancy. His view is that the other side places emphasis on linking teacher and student, but using existing infrastructure and material. The future of distance education, he claims, depends on new forms of organisation that are based on the application of principles of systems management, which is not about adding technology to old ways of teaching and learning, but of organising educational resources into a total delivery system.

2.5.2 Theories contributing to a systems view of distance education

A reading of distance education literature almost always refers to a dearth of a consistent and widely acceptable theory of distance education. Keegan (1986:5) states that most of the research in this field has been practical (e.g., comparative and descriptive studies) rather than theoretical. He claims that while research on the practice of distance education is important and fundamental, it is incidental and peripheral to a firmly based theory of distance education. Distance education, according to him, is described according to what we know, and is classified according to morphological features of the phenomenon, and on distinguishable physical features, which has led to the emphasis being placed on 'distance'.

A theory is something that eventually can be reduced to a phrase, a sentence or a paragraph and which, while subsuming all the practical research, gives the foundation on which structures of need, purpose and administration can be erected, one against which political, financial, education and social decisions can be taken with confidence (Keegan, 1986:5). He claims that a sound theoretical basis would replace the ad hoc way of responding to crisis situations that normally characterise this field of education.

Holmberg (1989:18) claims that there are theories that prescribe what teaching should be like, under what circumstances and how it should be provided. Holmberg (1989:18) quotes Popper (1972:49) who states that the task of scholarship is on the one hand theoretical, to bring about understanding and explanation, and on the other hand practical, to provide for application or technology. But Holmberg (1989:19) feels that it is not possible for a theory to give sufficiently detailed prescriptions to allow us to state that everything in education and distance education can be consistently guided by theory. He supplies as one of the reasons for this the cause-and-effect relationship in human behaviour; it is not always sensible to resort to a formulaic theory to deal with a problem.

Perraton (1995:13) states that concerns of a practical nature should be accounted for within a theoretical framework. Theories should be able to provide answers to the following questions:

- what guidance can be given to academic staff on the curricular content of their courses?
- what guidance can be given on the instructional design and presentation of courses?
- how can the legitimacy of distance education be demonstrated and a system that will enhance legitimacy be designed? and
- how can the use of resources on distance education be justified?

Moore and Kearsley (1996:197) state that a theory is “a representation of everything that we know about something”. It provides a common framework, a common perspective, and a common vocabulary that assists us in asking questions in a sensible way and making sense of problems. They continue to state that by summarising what is known, theory helps in the identification of that which is not known, and so becomes the starting point for deciding what needs to be researched. The following sub-sections focus on some of the theories that have contributed to the understanding of distance education, that have stimulated research in this area, and that have contributed to a systems view of distance education.

2.5.2.1 Theory of industrialisation of distance education

Peters' (1998) theory is an organisational theory which focuses mostly on the mechanics through which distance education operates. According to Peters (1998:110), distance education should not

be seen as a special form of traditional study, because the differences between the two are extensive. He states that distance education came into being mostly for commercial reasons, so that institutions could make a profit, and the methods of industrial production were applied to the teaching and learning process, contrasting sharply with the more commonly provided reasons for the existence of distance education, namely to broaden access to education.

Peters (1998:10) lists the division of labour, the mechanisation, and later automation of the production of courses as features of distance education. The planning, developing, the presentation of subject matter, and the correction of assignments are conducted by different people at different times and at different locations. In traditional education, this process of production happens in one place. To illustrate his industrialisation theory, Peters (1998) speaks of distance education providers using machines (the printing press) for mass production, transport mechanisms for the distribution of instruction, with the aim of reaching as many students as possible (paying customers). One of the more defining features of distance education is the fact that it is not only available locally, but that people anywhere in the world could have access to it, as is the case with manufactured goods.

Keegan (1980:17) queries the emphasis which Peters places on the process of course production because it is only the start of the learning process. He further laments the fact that no reference is made to tuition and learner/teacher exchanges.

Distance education might be the most industrialised form of learning, especially with regard to production. But there have been serious attempts on the part of distance education providers to make it as learner-centred and individualised as deemed necessary. Individual and group considerations are informing most of the processes of design and application.

There are those that feel that industrialisation, when applied properly, benefits students (e.g., Calvert, 1986). The use of experts and specialists for the development of courses that will be produced in large numbers, as well as specialists for counselling, tutoring, assessment, and the administration are what is needed to make distance education work. Peters (1983) also states that

the industrialisation of distance education will only work if industrialisation is also applied to the analysis of distance education.

Peters (1997) feels that he has been misunderstood; that by comparing distance education to the industrialisation process he is assumed to be in support of the industrialisation of distance education. In defending himself, he adopts a statement made by Jeavons (1986:165) that 'theories are like icebergs', pointing out that quite often only one part of the visible tip becomes known, whereas the submerged nine-tenths remain invisible. This statement explains that only one chapter of the book on the comparison between the teaching and the learning process in distance study and the industrial process had become visible, and was discussed, while four more chapters containing theoretical underpinnings remained in the dark.

Peters (1997) claims that the concept of industrialised teaching and learning is not only applicable to single mode distance teaching institutions, but also to residential ones. This kind of view gives rise to the single mode (industrialised) versus dual mode distinction, challenging the supremacy of the distance mode. He stresses that the differences in the application of the principles of industrialisation are only relative; dual mode institutions develop learning materials following similar steps as distance institutions; there is division of labour, collaboration of experts, long range planning, financial investment, they duplicate and despatch materials using machines and technical media (mechanisation), and keep track of their students using computers (automation).

Learning in general, as Peters (1997) claims, is industrialised as is distance education. The emerging concern, however, is to personalise the distance learning experience, particularly through the support services offered.

2.5.2.2 Theory of transactional distance

This theory is based on the view that 'distance' is a pedagogical phenomenon, rather than geographical. The distance, according to Moore and Kearsley (1996:200), is one of understandings and perceptions caused by the geographic distance. These perceptions have to be overcome by teachers, learners and education organisations through instructional design and interaction

procedures. Moore and Kearsley (1996:200) emphasise that distance is pedagogical, not geographic, and they term it “transactional distance”.

Distance education, on the one hand, is a transaction which is an interplay between people who are teachers and learners, in environments that have the distinguishing characteristic of being separate from one another, and a consequent set of special teaching and learning behaviours (Moore & Kearsley, 1996:200). Transactional distance, on the other hand, is the physical distance that leads to a communication gap, a psychological space of potential misunderstandings between the behaviours of instructors and those of the learners. For a transactional distance to exist, there has to be a teacher, a student, and a means of communication. If none of these are present, there is no transactional distance.

Closely linked to the concept of transactional distance is that of ‘dialog’ or ‘dialogue’, and ‘structure’, which refer to special organisation and teaching behaviours essential for distance education, and which are different from those in a face-to-face environment (Moore & Kearsley, 1996:200). Dialogue means direct and indirect interaction between teachers and students; it refers to an actual dialogue (Peters, 1998:33). The extent to which dialogue takes place, according to this tenet, determines how distant the education is; the lower the level of dialogue in an educational programme, the more distant it is than another programme with a higher level of dialogue. Structure, the measure of an educational programmes’ responsiveness to learners’ individual needs (Moore, 1993:153), when it is of a high level, is conceived to be as most distant and not very responsive to the needs of the individual learner. Structure is not open to spontaneous intervention but is closed because it is consistently planned on a targeted basis and is regimented and uniformly controlled and evaluated, mostly in the form of printed materials and multimedia packages.

Moore and Kearsley (1996:201) list factors that influence dialogue, factors that might have bearing particularly to the learning of ESL because of the need for dialogue in language learning, namely the size of the group, language, and the medium of communication. The chances that there will be more dialogue between an instructor and an individual student are more likely than in a large group. Moore and Kearsley (1996:201) claim that people who are working in a foreign language are likely to have less interaction with an instructor than those who have the same L1 as the instructor, or

those who are proficient in the language. The medium of communication also influences the level of dialogue, for example, written materials imply low levels of dialogue, while audioconferencing by telephone, on the other hand, implies high dialogue.

According to Moore and Kearsley (1996:205), the concept of learner autonomy relates to learners having different capacities for making decisions regarding their own learning. A great transactional distance means that students have more responsibility for their learning; student learning becomes self-directed.

Saba (1990), writing on communication media as one of the central issues in distance education, claims an interest in the manner in which the use of telecommunications enables us to vary the level of dialogue and structure, and to provide the correct balance between the two variables for the instructor and the autonomous distance learner. As transactional distance is a function of structure and dialogue, Saba (1990:348) proposes that to minimise distance in the absence of dialogue, structure is maximised. The materials and instruction programmes are developed with a high structure to compensate for the absence of dialogue, materials which learners would be able to access on their own initiative. By the same token, dialogue can be increased, for example, by telephone tutoring, and the need for structure would decrease accordingly.

2.5.2.3 Theory of interaction and communication

Holmberg (1983) describes learning in the distance education context as guided didactic conversation characterized by externalized (verbal) communication with the instructor. According to his theory, public and direct student-instructor conversations are essential characteristics of learning. Personal relations, study pleasure and empathy between students and those supporting them (instructors, tutors, counsellors, etc.) are central to learning in distance education.

There are seven postulates on which he bases his view of guided didactic conversation as the pervasive characteristic of distance education. These include:

- That feelings of personal relationships between the teaching and learning parties promote study pleasure and motivation;

- That such feelings can be fostered by well-developed self-instructional materials and two-way communication at a distance;
- That intellectual pleasure and study motivation are favourable to the attainment of study goals and the use of proper study processes and methods;
- That the atmosphere, language and conventions of friendly conversation favour feelings of personal relation according to postulate 1;
- That messages given and received in conversational forms are comparatively easily understood and remembered;
- That the conversation concept can be successfully translated, for use by the media available, to distance education; and
- That planning and guiding the work, whether provided by the teaching organisation or the student, are necessary for organised study, which is characterised by explicit or implicit goal conceptions.

Holmberg (1989) bases his theory on the conviction that the only important thing in education is learning by individual students. Administration, counselling, teaching, group work, enrolment, and evaluation are of importance only in so far as they support individual learning. A student benefits from interaction with his/her tutors and other representatives of a supporting organisation. It is this relationship between the student and the supporting organisation that Holmberg (1989) characterises as guided didactic conversation.

Holmberg (1989) states that guided didactic conversation promotes a personal relationship between the instructor and the student, thus creating greater motivation in the student and increased learning outcomes. Voice-tone, facial expression and body language provide important means of non-verbal interpersonal communication (Holmberg, 1989:440). In distance education, the lack thereof may make it difficult to provide the same nuance. Distance education students may be much more sensitive in how they perceive the communication with their distance instructor, than in how they would perceive communication with a traditional instructor. It is generally true that students do not only need effective communication, but they also need affective communication and empathic comprehension.

While Holmberg's (1989) theory appears to encourage fostering a theory of dependence between student and lecturer, there are theories that believe that a student ought to have a degree of independence. The following discussion focuses on Wedemeyer's (1981) theory, as well as his interpretation and views of learner independence.

2.5.2.4 Theory of autonomy and independence

The theory of independence and autonomy reflects the essential component of the independence of the learner in distance education.

The major points of Wedemeyer's (1981:36) theory are presented as follows:

- Instruction ought to be available any place where there are students, or even one student, whether or not there are teachers at the same place at the same time.
- Instruction should place greater responsibility for learning on the student.
- The instructional plan or system should free faculty members from custodial duties so that more of the teacher's and learner's time can be given to truly educational tasks.
- The instructional system should offer learners wider choices (more opportunities) in subjects, formats, methodologies.
- The instructional system should use, as appropriate, all the teaching media and methods that have been proven to be effective.
- The instructional system should mix and combine media and methods so that each subject or unit within a subject is taught in the most effective way.
- The media and technology employed should be 'articulated' in design and use; that is, the different media or technologies should reinforce each other and the structure of the subject matter and teaching plan.
- The instructional system should preserve and enhance opportunities for adaptation to differences among individual learners as well as among teachers.
- The instructional system should evaluate student achievement not by raising barriers concerning the place where the student studies, the rate at which he/she studies, the method by which he/she studies, but instead by evaluating as directly as possible the achievement of learning goals.

- The system should permit students to chart, stop, and learn at their own paces, consistent with learner short- and long-term goals, situations, and characteristics.

Holmberg (1989:6) claims that this scope is wider than distance education, but it applies entirely to what Wedemeyer (1981) refers to as independent learning. Keegan (1986:68) refers to this as a 'liberal vision' of distance education.

This theory focuses on the individual rather than the group. According to Garrison (2000:5) the focus on the pedagogical assumptions of independent study is a shift from the world of correspondence study dominated by organisational and administrative concerns, to a focus on educational issues concerning learning at a distance.

The theories discussed in this section deal with organisational, distance, transactional and educational issues. Current developments have to fit into a theoretical framework that exists. However, if this fails to happen, new theories and frameworks might have to be developed. For example, the development of information technology and its implementation in distance education is causing researchers concerned with theory to develop theories to include these changes (cf. Garrison, 2000). The ultimate theoretical challenge of any field is to achieve a synthesis of perspectives and theories (i.e., a global theory which reflects the complete continuum and is inclusive of a full range of practices).

2.6 Conclusion

This chapter discussed the basic concepts of distance education, and some of the problems experienced by practitioners and researchers with regard to its terminology use in the field. The discussion on the systemic approach to distance education makes it clear that practitioners, researchers, and theorists have to work as an integrated unit in order for the system to function efficiently. Lastly, the discussion on theories has demonstrated that while theory is taken as the bedrock of practice, it in turn is influenced by practice, and it should be able to interpret and explain that practice. Distance education, therefore, functions better when there is a connection that binds all the various components.

Chapter 3 discusses the problem of attrition/drop out and failure in distance education.

CHAPTER 3

ATTRITION/ DROP OUT AND/OR FAILURE IN DISTANCE EDUCATION

3.1 Introduction

Attrition/drop out is a major problem in distance education. This is attested to by the abundance of terms used in distance education literature such as 'failure', 'withdrawal', 'rejected undergraduate', 'student mortality', and 'student retirement'. The preoccupation with this particular problem spans quite a lengthy period (cf. Bayer, 1968; Childs, 1971; Anandam & Fleckman, 1978; Rouse & Lewis, 1984; Rekkedal, 1982; Kerka, 1995; Brawer, 1996; Frankola, 2001; Diaz, 2002; Flood, 2002). Attrition and/or failure is a serious problem for any institution of higher education because it impacts on its reputation, on the quality and standard of instruction it is perceived to provide, and it also impacts on an institution's ability to sustain itself and its livelihood.

The purpose of this chapter is to define attrition/drop out and to discuss the occurrence of this phenomenon in distance education. In addition, various models of attrition and/or failure are discussed in order to enhance understanding of student drop out, the causes thereof, and ways of dealing with the problem. Special mention is made of the South African system, although it is not possible to provide a precise account of the levels of drop out experienced by institutions, but an overall reference is possible, and the need for decisive action is palpable.

3.2 Student attrition/drop out

This section discusses the various definitions of attrition/drop out, and the different meanings attached to this concept by various researchers. The problem of attrition/drop out is specifically discussed in relation to distance education.

3.2.1 Defining attrition/drop out

The definitions of attrition/drop out vary, as do the ways of conceptualising attrition/drop out. The Eric Digests (1984) defines attrition as the outcome of the interaction between institutional provisions and student needs. Montecel (2000) recommends that in the confusion of what qualifies as attrition/drop out and what does not, the definition should be amended and simplified by defining

a drop out as a student whose re-enrolment or graduation has not been verified. Curry (2001) defines drop out as a move to another course of study or its discontinuation. Attrition/drop out, therefore, will have different meanings for different parties concerned. For a department/faculty that loses a student to another department/faculty, there will be an indication of loss on their records, but perhaps not for the institution. The student might view his/her 'attrition/drop out' in terms of career and academic goals, where it might make better sense to move to another department/faculty, or to leave the institution without necessarily receiving a qualification if certain needs are met.

Students who drop out should not be regarded as a homogenous group. According to Kerka (1995), several studies confirm that non-completion has complex causes, and non-completers are better understood as subgroups. Perin and Greenberg (1994) use the length of attendance to categorise the subgroups, and delineate students into completers, non-completers, leavers and non-attenders based on the hours they spent in attending lessons. Dirkx and Jha (1994) categorise learners as completers, continuers, and non-completers, and further divide non-completers into early and late non-continuers and drop outs. Brawer (1996) categorises students in terms of persistence, delineating between persisters and non-persisters. Sheldon (1982) identifies three categories of attrition based on a three-year analysis, namely positive attrition, negative attrition and neutral attrition. Students who dropped out after meeting their objectives or who transferred to another institution fall under the positive attrition category. Students who were unprepared for classwork or were not sufficiently motivated to complete their studies fall under the category of negative attrition. Neutral attrition included students who left because of a job conflict or another type of scheduling conflict, but whose reasons for leaving implied neither success nor failure.

Despite these varying categories of attrition, non-completion unavoidably carries negative connotations, and tends to reflect on the institutions more than it does on the students themselves, however "acceptable" their reasons for dropping out are. For the students failure to complete can be costly financially, but it can also be a significant blow to their self-esteem and their motivation (Tresman, 2002).

As far as it is apparent, the South African government and higher education institutions in South Africa do not distinguish between different types of drop out and attrition. Attrition is viewed as undesirable, as a problem that ought to be given urgent attention, because it has serious implications for the providing institutions and the labour market and economy. Institutions that lose out to other institutions cannot consider attrition to be positive, because it is a loss for them, and could even be taken as a reflection of the quality of the services they provide (Brawer, 1996). Thus, while it is acknowledged that students who leave do so for various reasons, the aim is still to lower drop out as much as possible.

3.2.2 The problems of attrition/drop out and/or failure in distance education

The South African government, through the Department of Education (DoE, 2002) requires that the efficiency of the higher education system be improved by increasing the current graduation rate per annum, and it has also established target rates. This is to be done through, amongst other steps, recruiting workers, mature students and the disabled. Restructuring in rural areas will also be done to facilitate access to institutions of higher education. The new education policies also include the recognition of prior learning. However, its manner of implementation, what it means for tertiary institutions and their practice, and its practical implementation in facilitating easy access to education has not yet been fully explored (cf. Kistan, 2002).

The Human Sciences Research Council (1999b) and the DoE (2002) claim that currently the drop out and failure rate for black students is significantly higher than that for white students, and at the same time, the government is looking to increase the enrolment of black students in higher education. Thus, institutions of higher education and particularly those offering distance education, look set to grow, but should also expect a variety of students from diverse backgrounds and situations. This has immense implications for student support; universities should be able to deal with students of varying skills and varying levels of academic preparation (cf. Dreyer & Bangeni, 2002).

The funding scheme proposed by the South African government provides institutions with an incentive to reduce high attrition rates (DoE, 2001). Government policy states that two of the major incentives for individual institutions to improve their graduation rates is, firstly, the inclusion of

graduate outputs as an integral component in the new funding framework (i.e., funding will be linked to the number of graduates produced), and secondly, institutional performance in the production of graduates will determine the programmes that institutions will be allowed to offer (Department of Education, 2001). Therefore, the pressure on institutions to curb the failure and attrition rates, and to improve the graduation rates, is becoming considerable. Funding and the number and type of courses offered impact on an institution's credibility profile.

The DoE (2001) requires that higher education institutions should indicate in their planned measures for improving efficiency and increasing enrolment, amongst other factors, strategies, including time frames, for reducing drop out rates, especially of students who drop out in good academic standing and for reasons other than those of the financial kind. This requirement is likely to persuade institutions of higher education to keep a stringent focus on their rates of attrition, and probably even to increase the research activity in this area.

The DoE (2001) states that a significant feature of enrolments in higher education has been a rapid growth in the provision of distance education programmes in contact institutions which grew by 492% between 1993 and 1999, and there are no indications that it is on the wane. However, the DoE (2001) concedes that there has been a decrease in enrolments in higher education generally, and there are at least two possible identified reasons. Firstly, there has been a sharp decline in the number of school-leavers with matriculation exemption, which is a precondition for entry into universities and to a lesser extent, into technikons. This results in decreasing higher education systems' annual intake of first-time entering undergraduates. Secondly, there has been a significant fall in the retention rate in higher education.

The DoE (2001) claims that the reasons for the decline in retention rates are not clear and require investigation. It does, however, put forth some possible factors, including: the increased cost of higher education, the perception that the value of higher education for employment purposes is declining, and an increasing demand for short courses linked to technical qualifications that are employment-oriented. These perceptions are different from those expressed by research findings, namely that graduates have the competitive advantage in the labour market (e.g., HSRC, 1999a). Public perception, however, is informed by factors other than research. Nonetheless, the

government plans to recruit students; their drives might have to be vigorous, and in the same token, so should the marketing by higher education institutions, which is why credibility and profile are important.

According to the DoE (2001), there is no evidence to suggest that the decline in retention rates will be reversed or that the annual intake of new undergraduates will increase in the short to medium-term. The DoE is adamant that the poor graduation rates and retention rates and high drop out rates are unacceptable and represent a huge waste of resources, both financial and human.

Some researchers are of the opinion that drop out is not completely undesirable (cf. Tresman, 2002). Tresman (2002), while recognising the importance of curtailing student attrition, notes that it can be argued that some level of non-completion can be viewed as positive (cf. Bean, 1980:157), namely within a context of flexible and transferable course offerings designed to widen access, participation and movement across and between institutions. Tresman (2002) also claims that in terms of personal development, learning objectives can be met without formally completing the course; students might find employment or regard non-completion as a brief interruption in their educational journey. This would be more reflective of personal circumstances than of their long-term goals.

Woodley et al. (2001:113) claim that the perception that attrition rates are higher in distance education than in traditional education is a generalisation that is debatable. They put forward reasons that withdrawal rates vary between institutions, and between courses within institutions. They emphasise that withdrawal rates on some distance courses can be lower than on full-time courses. Also depending on the entry requirements set by institutions, which might tend towards open entry policies, it could be that the comparison of progress of groups of students is not based on similar entry profiles. They suggest that comparisons should be made on similar courses rather than on the figures for full-time courses (Woodley et al., 2001:114). Therefore, the suggestion seems to be that dropping out should not always imply failure on the student's part or that of the institution.

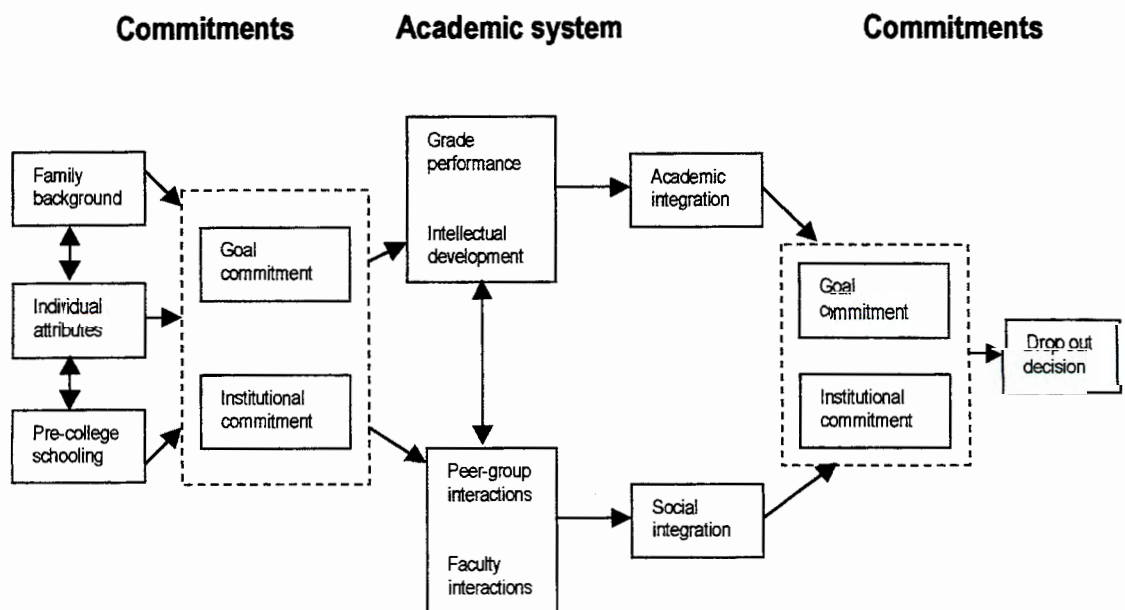
3.3 Models of attrition/drop out and/or failure

In this section the focus is on the descriptive models of Tinto (1975) and Kennedy and Powell (1976), as well as on the causal models of Billings (1988), Kember (1989) and Bean (1980). These models indicate the various ways of describing student attrition, they attempt to enhance the understanding of the types of students likely to fail or to drop out, the causes thereof, and they also suggest ways of dealing with the anticipated problems.

3.3.1 Tinto's longitudinal model of drop out

Tinto (1975) attempts to formulate a theoretical model (cf. Diagram 2) that explains the processes of interaction between the student and the institution which lead to dropping out, and distinguishes between processes that result in different forms of drop out behaviour. Tinto (1975:92) claims that his model is descriptive, and that it specifies the conditions under which varying types of drop out occur, and not why individuals come to adopt various forms of drop out behaviour. His model explains the longitudinal process of interactions between the individual and the social and academic systems of the institution, which leads different learners to different forms of persistence and/or drop out behaviour.

Diagram 2: Tinto's longitudinal model of drop out



(Tinto, 1975:95).

Tinto (1975:94) claims that a student enters college with a variety of attributes that have a direct and indirect impact on his/her performance. Three of these attributes are mentioned in his model, namely family background, individual attributes, and pre-college schooling. Family background includes social status attributes, value climates, and expectational climates. Individual attributes include gender, race, and ability. Pre-college schooling refers to school performance grading (for example, an exemption), and academic and social attainments. These traits influence the development of educational expectations and commitment that a student brings on entering the institution, and these goals and institutional commitments are both significant predictors of and reflections of the student's experiences, disappointments and satisfactions in the institutional environment.

Tinto (1975:96) claims that a student's normative and structural integration into the academic and social systems lead to new levels of commitment. These new levels of commitment either strengthen or weaken the initial level of commitment that a student had on entering an institution. The higher the degree of integration, the greater the student's commitment to the institution and to the goal of completion.

A low goal commitment or a low institutional commitment might lead to drop out. Even though a student might have a high commitment to the goal of completion, he/she might still drop out if his/her commitment to the institution is low, and he/she may perhaps transfer to another institution. A high commitment to the goal of completion, even with low levels of academic and social integration, and therefore low institutional commitment, might not lead to drop out, unless the student is compelled to leave because of poor performance. If a student becomes socially integrated into an institution it does not mean that the student will not drop out; experience in the academic realm might lead a student to re-evaluate educational expectations and to withdraw voluntarily from the institution.

Acknowledging that causes external to the institution might lead to drop out, Tinto (1975:97) suggests that the impact of the external forces might best be observed through the student's changing evaluations of his/her commitments to the goal of completion and to the institution.

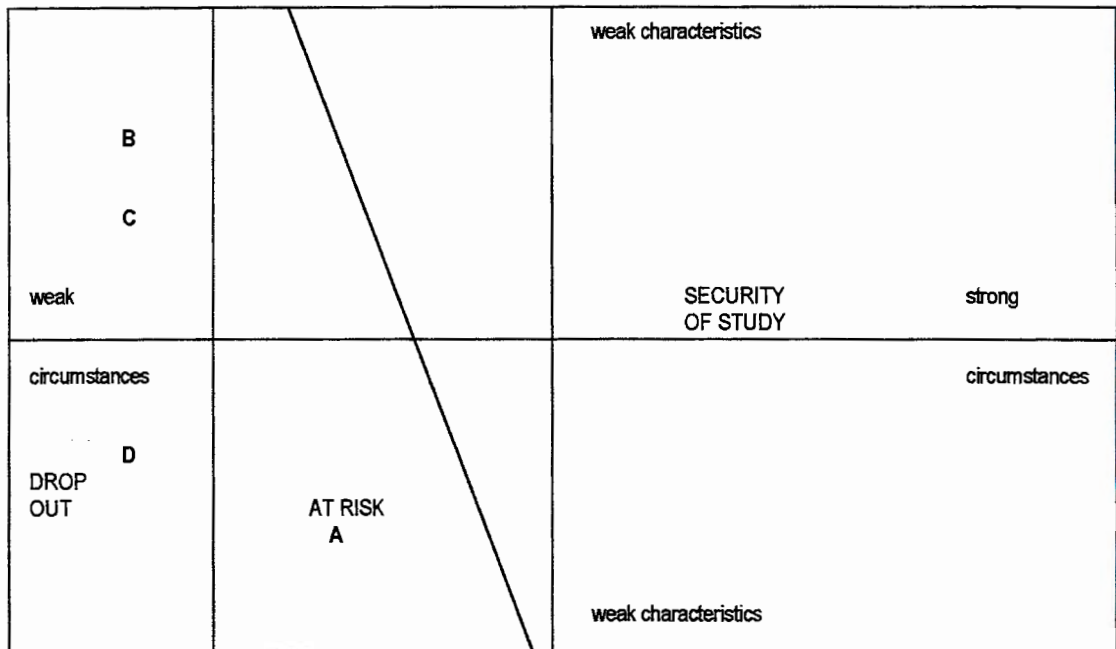
Tinto (1975:98) claims that central to his model is the notion that perceptions of reality affect the observer in a profound manner, such that people with varying characteristics might hold different perceptions of similar situations. The perceptions of the student, therefore, affect integration into the academic and social systems of the institution, and in turn, perceptions are influenced by the characteristics of the individual and those of the college environment.

For Tinto (1975), attrition is an outcome of the interactions that occur between students and the learning environment of the university. Student persistence is a function of the match between motivation and academic ability, and the academic and social characteristics of universities. Academic integration is a result of students' perceptions of their academic experiences and activities that stimulate intellectual development, while social integration happens as a result of students' social involvement with their peers and the lecturers. Tinto's model is also referred to as a model of student-institution integration (cf. Andres & Carpenter, 1997), referring to the probability of persistence being directly related to the degrees of both goal commitment and institutional commitment.

3.3.2 Kennedy and Powell's two dimensional model

In their attempt to link several elements of student attrition and failure, Kennedy and Powell (1976:62) conceptualise drop out as a phenomenon caused primarily by the combination of student characteristics and life circumstances. Student characteristics are constant or subject to slow change, and life circumstances are subject to rapid and almost overnight change. Student characteristics include motivation, educational background, personality, aptitude, the stage of adult development and educational self-concept. Life circumstances include occupational changes, relationship with family and peer group, health, finance, and support from the distance education institution. Kennedy and Powell (1976) use a two-dimensional model (cf. Diagram 3) to illustrate the drop out phenomenon.

Diagram 3: Kennedy and Powell's two dimensional model



(Kennedy & Powell, 1976:70).

The model, which represents the two dimensions of the 'at risk' situation, shows that students with weaker characteristics are more vulnerable, while those with stronger characteristics stand less chance of their equilibrium being upset by an increase in pressure. Kennedy and Powell (1976:70) explain this by stating that "the movement of a student from a position of relative security in his studies to an 'at risk' situation is likely to be horizontal and from right to left on the diagram as characteristics (vertical movement) tend to be fairly constant." This model emphasises the interplay of student characteristics, and was designed based on student responses to a study conducted by the researchers. Kennedy and Powell (1976) feel that their surveys and descriptions leave unresolved questions about who the drop out is and why drop out occurs.

This model uses four case studies to illustrate students' position relative to being at risk, and describes how the interplay between characteristics and circumstances places them in this model. The case studies, also indicated on the model, possessed the following characteristics:

□ Case study A

Strong characteristics include motivation to find a job that offers satisfaction and reasonable working conditions; the student is of an age where his objectives are clear, with mental and physical energy to achieve them, and is willing to establish a meaningful relationship with a counsellor and to expose his problems and weaknesses. Weak characteristics include the lack of previous formal training, and an uncertainty of himself in the university situation. Strong circumstances include a sympathetic counsellor with a positive approach, and tutors who are motivated by the student's motivation. Weak circumstances include irregular working hours, isolation, a lack of intellectual support from a peer group, and financial constraints.

□ Case study B

This student's characteristics include the possession of a degree, taking a part-time management course concurrently with Open University studies, leading to weak circumstances with regard to a heavy work load, and work situations (promotion and staff shortages) interfering with studies. The student was initially under the impression that only 12 hours of work would be required of him, which proved to be an underestimation. The course was his third choice. So he withdrew.

□ Case study C

Strong characteristics include the fact that this student wanted to obtain a degree to improve his teaching qualifications. Weak circumstances are that the work situation was too demanding, and he had little time available for studies. The student also had problems with getting to the study centre, but was not willing to investigate options of making his studying easier, which is a weak characteristic on the student's part.

□ Case study D

This student's characteristics all appear to be weak: poor educational background, left school at the age of 14 years (student is 48 years old at the time of the study), but claimed to be widely read, saw everything in terms of himself, could not stop talking, and was extremely convinced of his knowledge and ability, despite poor work. His circumstances are also weak: an illness prevented him from submitting his work and attending summer school, a change of job hindered study centre

attendance, offers of a special session were turned down because of the belief that things would turn around the next time. This student dropped out.

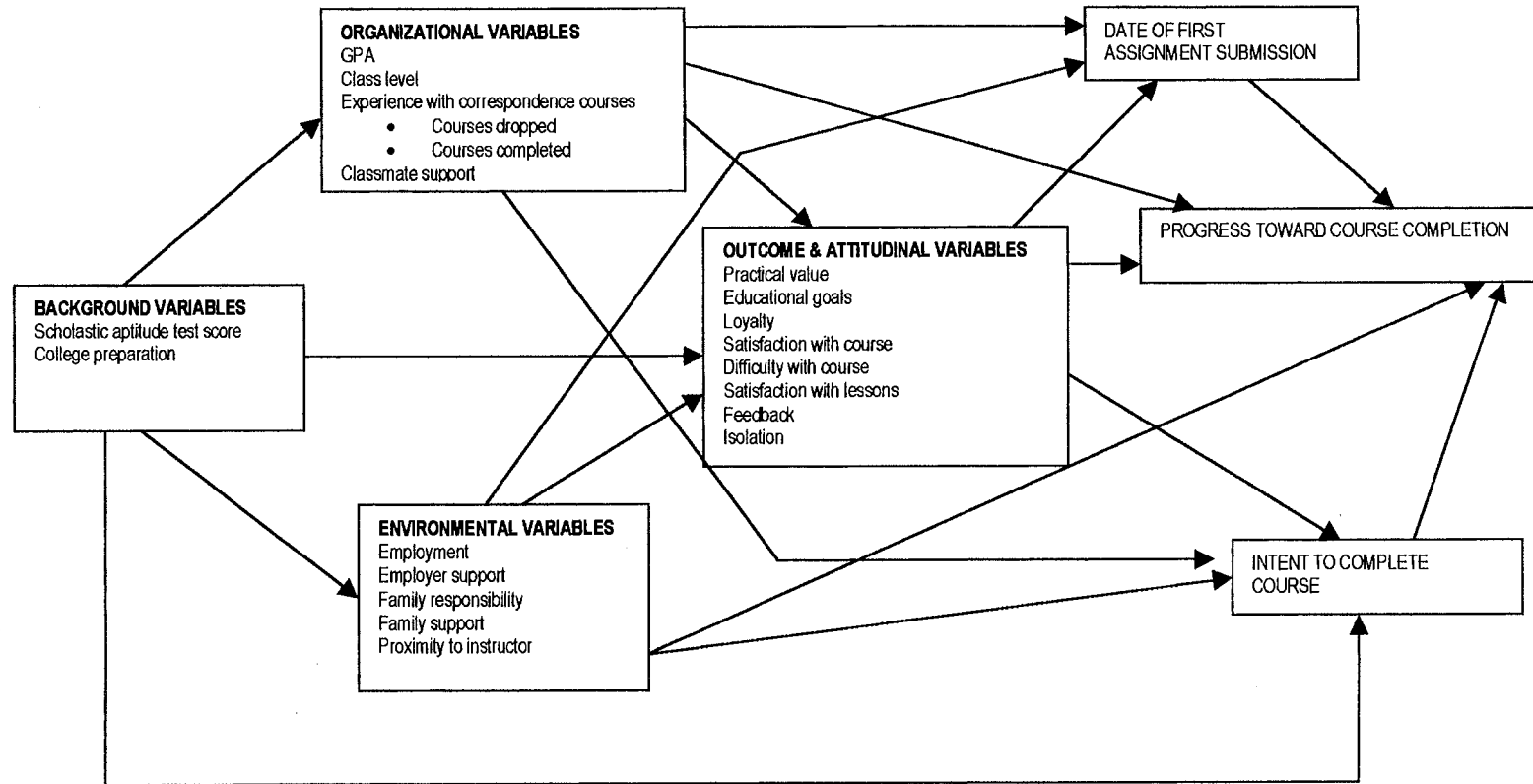
The case studies discussed in this model indicate that what could normally be deemed to be a good characteristic or circumstance might not necessarily be so; case study B had good prior learning experience, but that makes it easy to drop out since the student is qualified. Having prior learning experience in this instance does not offer sufficient motivation to continue with the course. The student in case study D had a positive view of his abilities, but the level to which they are distorted make it impossible for him to acknowledge that he needs help. The implication of the results of this study is that it is not sufficient to list positive characteristics and strong circumstances, and to assume that if students possess them, they are likely to perform well, and not be in danger of dropping out. It is better to consider the interplay of circumstances and characteristics in each student, and to note the result of that interplay, which will designate a student to be at risk or safe from risk of dropping out.

3.3.3 Billings' model for completion of correspondence courses

Billings (1988) states that the enquiry into the causes of non-completion of distance students has been hindered by limited perspectives of completion behaviour and a lack of a theoretical framework to guide the study of the problem.

According to Billings (1988:24), attrition is a causal relationship of the student's background, the organisation in which the courses are offered, the distance education environment, the student's attitude toward the course, and the student's intention to complete the course. Billings' model for completion of correspondence courses (cf. Diagram 4) shows relationships of variables that are linear, additive, and causal, as well as linkages which can be calculated for both indirect and direct effects. The variables in the model are discussed briefly to outline their influence on the outcome, as well as their relationships with each other (cf. Billings, 1988:25-31).

Diagram 4: Billings' model for completion of correspondence courses



(Billings, 1988:25).

Background variables measure academic aptitude and achievement, and have an indirect influence on the progress towards the completion of a distance course. Organisational variables reflect the student's involvement with the organisation/institution. Grade point average (GPA) is an American concept referring to a numerical academic standing usually given every semester, and the South African equivalent at the Potchefstroom University would be the semester mark (i.e., participation mark) given before semester exams. This mark is typically correlated with programme completion, it is also a manifestation of goals, and it has an indirect effect on outcome and attitudinal variables. Class level refers to the level of education a student reaches; the higher it is, the less the likelihood of the student dropping out. A student's experience with other correspondence courses bears significance on a student's knowledge of how to study, how to use the course materials, and to use feedback or to maintain the motivation necessary to complete the course. Prior correspondence study also promotes independence in a student. Students who have prior experience are likely to find coping easier. The presence or lack of classroom support may predict outcome and attitudinal variables (e.g., isolation).

With regard to environmental variables, employment is positive insofar as making the course relevant to the job situation, and the employer can be supportive by being flexible with times, and giving advice and feedback about the course. Studying by correspondence or through distance is especially attractive for those with family responsibilities. Family support is necessary for course progress, and for the student to value and complete the course. Distance from the course instructor and the institution might impact on access to facilities such as the library, or on the opportunity for face-to-face dialogue with the instructor/lecturer.

Outcome and attitudinal variables refer to the practical value of a course (the value for a subsequent end such as employment), educational goals (e.g., completing the course), loyalty to the institution (loyalty might influence course completion behaviour), satisfaction with the course (design and implementation aspects such as stimulation and interest might positively affect completion), course difficulty (progress is largely self-directed), satisfaction with lesson component (lessons ought to be in manageable units, and should be interesting and motivating), feedback (timely feedback on student progress affects persistence and course completion), and isolation

(isolation from faculty, peers and the resources of the university may adversely affect course completion).

Intent to complete the course refers to intentions as predictors of drop out. The date of first assignment submission is thought to be a behavioural manifestation of the intent to complete the course, and the students who delay are most likely to drop out. Progress toward course completion is shown by maintaining discipline and motivation to submit all the assignments, which signify the student's commitment and involvement in the course.

Billings (1988:31) claims that this conceptual model of correspondence course completion is useful for understanding and explaining progress towards course completion, by linking the different variables and showing their relationship to each other and the effect on completion. Billings (1988:32) adds that variables can be added or deleted, depending on the population of students, the organisational setting, and the design elements of the course.

3.3.4 Kember's open learning model

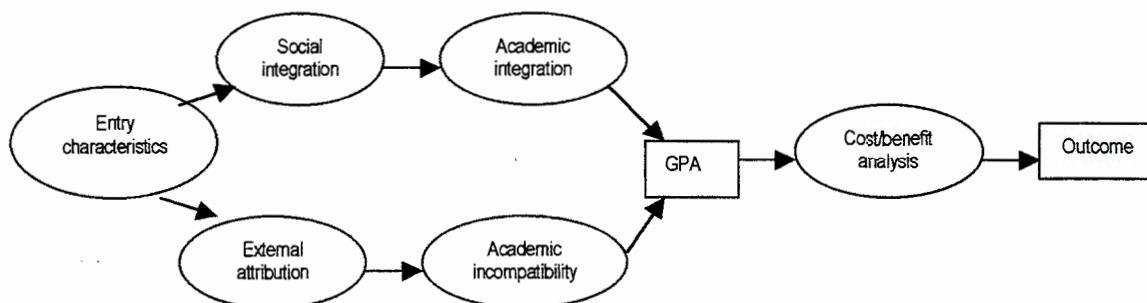
Kember's (1995) open learning model focuses on the factors that affect a student's successful completion of a distance education programme. Kember's (1995) focus falls on the extent to which students are able to integrate academic study with employment, family, and social commitments, which vie for time with studying.

Kember's (1995) open learning model (cf. Diagram 5) is based on Tinto's (1975) model, which is meant specifically for on-campus students registered for full-time learning, and, like Tinto's (1975) model, it has been applied extensively in attrition and student support research (e.g., Welman, 2001).

Kember's (1995) model is two-dimensional and consists of the following variables: entry characteristics, social integration, external attribution, academic integration, academic incompatibility, grade point average, cost/benefit analysis, and outcomes. According to Kember's theory, a student's entry characteristics direct them towards one of two paths in a distance education course, either a positive track where they are able to integrate socially and academically,

or a negative track where students have difficulties integrating. Each component of the model is discussed briefly.

Diagram 5: Kember's open learning model



(Kember, 1995:55).

The entry characteristics component of the model include individual, family and home, work and educational facets. Kember (1995) claims that entry characteristics are important for their indirect effect on goal commitment, academic and work integration. Home and family facets are included as they are primarily the settings where learning occurs, and work is included because the majority of distance learners are employed. Educational background takes into account the academic and non-academic experience a student might have acquired before enrolling for a distance education programme.

The goal commitment facet comprises extrinsic and intrinsic motivation. Kember (1989:202) claims that extrinsic motivation is related to the rewards for obtaining the degree which could be career-oriented, and will be influenced by the student's characteristics. Intrinsic motivation is concerned with a student's interest in the subject matter.

The academic environment encompasses all the facets of the provision of the distance education course, including study materials, academic assistance offered through support systems, interactions through assignments, as well as any other academic or administrative contact between the student and the institution (Kember, 1995). With regard to integration, Kember (1995) speaks of

collective affiliation, of which the quality and quantity of contact between the student and the organisation form the essence. Direct personal contact, telephone and mail communication are regarded as essential in building collective affiliation, as well as academic and administrative support. Integration also includes the aspects of normative integration and structural integration (Kember, 1989:206), where normative integration refers to an individual's identification with the norms of the social and academic system in the institution. Structural integration refers to how well an individual meets certain explicit standards of the system. Congruence between the curriculum and student interest and career need, and congruence between the media package (materials) and students' learning styles are some of the facets that determine academic integration.

Kember (1995) claims that the cost/benefit analysis is when students question which activities will benefit them more, studying, or any other social activities which impinge on the time for studying. Students with higher levels of goal commitment will confront the cost/benefit analysis less frequently than those with lower levels of goal commitment.

According to Kember (1995), the model does allow for the changing nature of variables by including a recycling loop, showing how each component affects the preceding one, allowing for the dynamic nature of the model. In addition to the model showing progress towards drop out, the model can also be regarded as a model of progress, represented by course completion in the model.

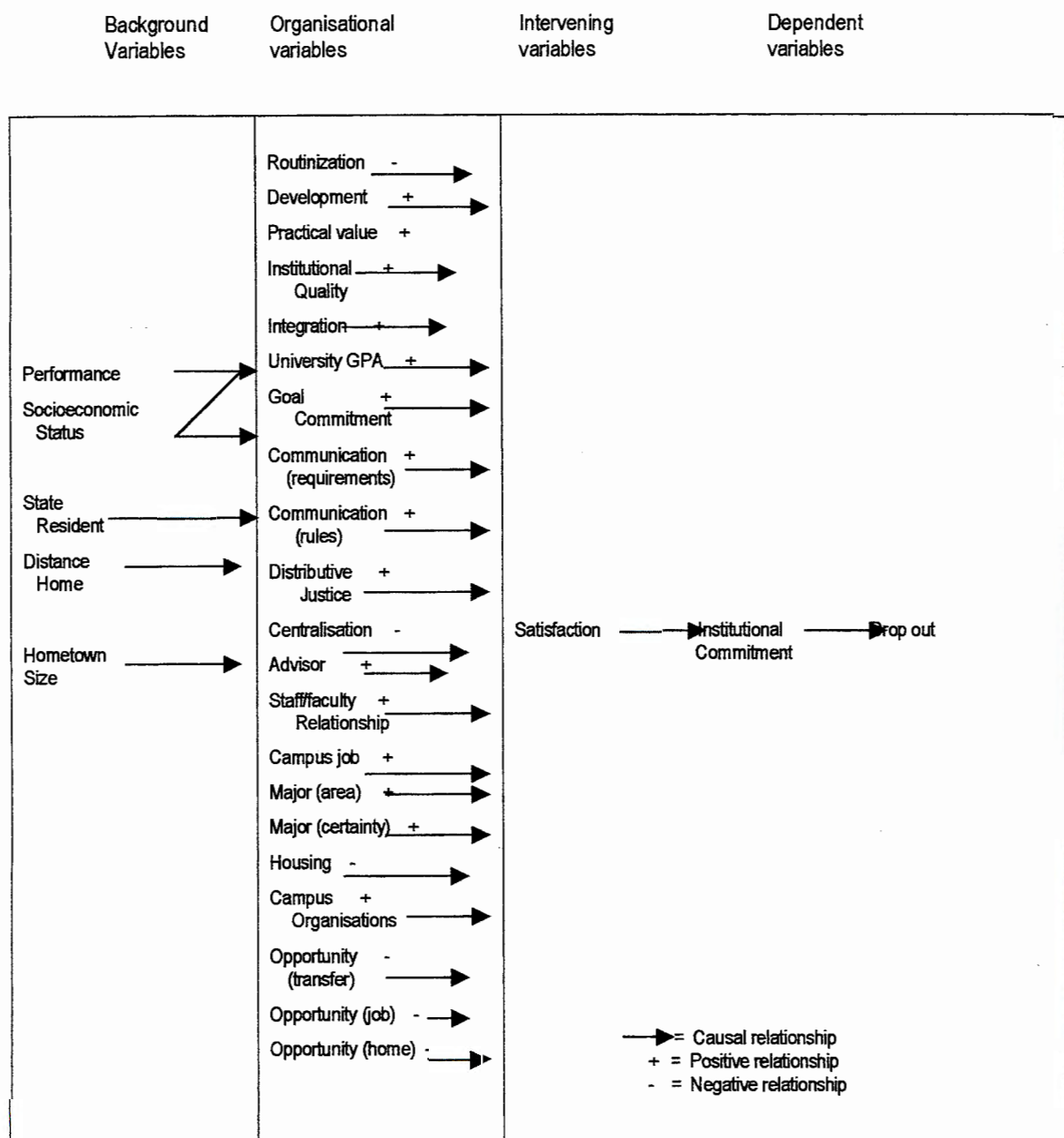
This model allows for changes to be made based on the knowledge of a student's situation in a course, beginning with the experiences brought to a distance education environment by the learner. Kember (1995) focuses on the processes that a learner can cycle through several times for a single learning programme.

3.3.5 Bean's causal model of student attrition

Bean's (1980) causal model of student attrition (cf. Diagram 6) highlights variables that explain variations in student attrition. His model contains the dependent variable which is drop out, the intervening variables, namely satisfaction and institutional commitment, the organisational determinants, and the background variables. Organisational determinants are expected to affect satisfaction, which affects drop out. Background variables ought to be taken into account in order to

understand students' interactions within the environment of the institution. The explanations and description of the variables in the model are provided in Table 1.

Diagram 6: Bean's causal model of student attrition



(Bean ,1980:158).

Background variables include academic performance, social economic status, state resident, distance from home, and hometown size. Organisational determinants comprise routinization, developments, practical value, institutional quality, integration, university GPA (semester mark), goal commitment, communication, distributive justice, centralisation, advisor, staff/faculty relationships, campus job, major, housing, campus organisations, and opportunity. Intervening variables comprise satisfaction and institutional commitment.

Bean's (1980) model emphasises attitudes about the intent to persist, and recognises the role of external factors on student attrition. Student intentions also seem to be important in the model, and they are shaped by prior experiences and attitudes, and can thus affect persistence.

Table 1: Definition of variables in Bean's model

Variable	Definition
Background variables	
Performance	The degree to which a student has demonstrated past academic achievement.
Socio-economic status	The degree to which a student's parents have achieved status through occupational level.
State resident	Being a resident of the state where the IHE is located.
Distance home	Distance to a student's parents' home.
Hometown size	Size of the community where a student spent the most time while growing up.
Organizational determinants	
Routinization	The degree to which the role of being a student is viewed as repetitive.
Development	The degree to which a student believes that he/she is developing as a result of attending the IHE.
Practical value	The degree to which the student perceives that his/her education will lead to employment.
Institutional quality	The degree to which the IHE is perceived as providing a good education.
Integration	The degree to which a student participates in primary or quasi-primary relationships (has close friends).
University GPA	The degree to which a student has demonstrated a capability to perform at the IHE.
Goal commitment	The degree to which obtaining the bachelor's degree is perceived as being important.
Communication	The degree to which information about being a student is viewed as being received.
(Requirements) (Rules)	The degree to which a student believes that he/she is being treated fairly by the institution; i.e., receives rewards and punishments proportional to the effort expended in the student role.
Distributive justice	The degree to which a student believes that he/she participates in the decision making process.
Centralization	The degree to which a student believes that his/her advisor is helpful.
Advisor	The amount of informal contacts with faculty members.
Staff/faculty relationship	The necessity of having a campus job to stay in the school.
Campus job	The area of one's field of study.
Major (area)	The degree to which a student is certain of what he/she is majoring in.
Major (certainty)	Where a person lives while attending the IHE.
Housing	The number of memberships in campus organizations.
Campus organizations	The degree to which alternative roles (as a student, employee, or dependent) exist in the external environment.
Opportunity (Transfer) (Job) (Home)	
Intervening variables	
Satisfaction	The degree to which being a student is viewed positively.
Institutional commitment	The degree of loyalty toward membership in an organization.

(Bean, 1980:159-160).

3.3.6 An analysis of the models on attrition

The models discussed in this section have been chosen because they give different views of how attrition can be approached, but at the same time, there is a similarity that runs through all of them. The purpose of this section is to highlight the positive aspects of the models and to emphasise the limitations of each model. This discussion limits itself to the perceived application and use of the models in dealing with attrition.

Tinto's (1975) model emphasises a constant and concurrent interaction between the individual and the institution, and depending on the varying levels of commitment to the goal, to the institution, and the levels of social and academic integration, the student might withdraw. The types of withdrawal may also vary; it might be forced by the institution or by circumstances, or it might be voluntary, based on the student's perception of the interaction of academic and social integration.

Tinto's (1975) model is derived from studying full-time residential students that had recently graduated from high school, which might cause practitioners to question its role in guiding retention policy in distance and adult education (Towles & Spencer, 1993). However, Tinto's (1975) model was instrumental in the development of models that were researched specifically with and for distance adult learners (e.g., Kember, 1989). An aspect of Tinto's (1975) model that indicates an orientation towards the residential setting is the emphasis on factors internal to the institution as primary determinants of retention. It is also felt that Tinto (1975) places a disproportionate amount of emphasis on social integration (cf. Thomas, 1990; Pascarella et al., 1983). Witte et al. (2002) criticise Tinto's (1975) model for its exclusion of the student's identity development. Webb (1988) found the model inadequate for the identification of potential drop outs at the onset of their academic careers.

Taking into consideration that Tinto's (1975) model was developed at a time when the idea of a distance/correspondence/open learning student was of one removed from campus activities, it is understandable that its relevance for distance programmes and for adult students might be questionable. However, now that the social integration of distance students is seen as desirable, particularly to lessen the feeling of isolation and distance, and to make students feel part of the

institution with which they have registered, Tinto's (1975) model might be instrumental in setting up retention policies. Studies that have extended Tinto's (1975) theory include additional indicators such as financial issues (e.g., Cabrera et al., 1990; Thomas, 2002), the integration of the psychosocial theory of development hypothesised to provide early identification of at risk students (Witte et al., 2002), and the addition of ethnicity as an element in the integration process (Murguia et al., 1991). Tinto's (1975) model might not unanimously be accepted with regard to theoretical expositions (cf. Yorke, 1999; Stage & Hossler, 2000; Braxton & Lien, 2000; Tierney, 2000), but it does continue to be one of the most dominant models of attrition in higher education.

Kember (1989:196) criticises Kennedy and Powell's (1976) model because of its descriptive nature, and cites this as the probable reason for the scarcity of this model in literature citations. He claims that this model, since it explains drop out in terms of predestined characteristics and chance happenings, is of no help in predicting drop out, and cannot serve as a theoretical base for deriving interventions that might reduce drop out. While the model's contribution to a theoretical base might be questionable, the information provided by the model in recognising at risk students is helpful. Kember's (1989:196) tone appears to be disapproving, but chance happenings do contribute to the decision to drop out (e.g., sudden illness), as do predestined characteristics. Kennedy and Powell's (1976) model, however, does not categorically determine specific factors that are strong or weak, but depending on an individual's particular case, those factors could be strong or weak. Furthermore, an analysis of the models of Billings (1988), Kember (1995), and Bean (1980) reveals similar variables, which suggests that it is not only Kennedy and Powell (1976) who confine themselves to predestined characteristics and chance happenings.

Kennedy and Powell (1976) feel that their studies and descriptions leave unresolved the questions about who the drop out is, and why drop out occurs. However, their model could be of use in an institution that places premium value on responding to students on an individual and maybe personal level, for example, through tutor-counselling, as demonstrated by the case studies the model is based on. It seems as if the strength of this model lies in that it can identify an individual student's position relative to the at risk situation. It is, however, not able to deal with an entire population of students by the same means, as interpretations vary from student to student.

Billings' (1988) model is very comprehensive with regard to the number of variables covered. While some aspects are not covered explicitly, they are included by implication. For example, under outcome and attitudinal variables, the factors listed include satisfaction with the course, which could be influenced by any number of other factors, such as interaction with peers, facilitators/instructors, etc. (cf. Sherry et al., 1998). Where Kennedy and Powell's (1976) model almost leaves it up to the counsellor to determine a student's strong and weak characteristics and circumstances, Billings (1988) lists a number of specific variables as guidance in determining the at risk profile, and the effect of each variable on other variables is also clear.

Moore and Kearsley (1996:209) claim that Kember's (1995) open learning model is the best illustration of how theory should affect practice and vice versa. Kember's (1995) model is also compatible with the systems approach advocated by Moore and Kearsley (1996:210), with the major variables of the model fitting onto the primary subsystems which Moore and Kearsley (1996) discuss in the systems approach (cf. chapter 2).

The major difference between Tinto's (1975) model and Kember's (1995) model is that Kember makes provision for an adult student that enters a distance education institution with a job background, while Tinto's research was conducted on students who recently graduated from high school, and whose concerns were likely to be different from those of part-time students. Kember's model emphasises the ability of students to integrate the academic environment into their other commitments. The suggestion inherent in the model is that if a student's personal situation is compatible with academic circumstances, the likelihood of persistence is higher.

Background variables feature prominently in all the models discussed in this chapter, and there seems to be consensus that background variables are not good predictors of attrition. However, background variables provide information on student performance, and, according to Kember (1995), demographic information is regarded as being more useful in identifying at risk students than implying some cause-and-effect relationship with outcomes. Students with adverse demographic characteristics are likely to have more difficulty integrating the demands of being a distance learner with their existing lifestyle.

None of these models is accepted without question, but their contribution to understanding, explaining and predicting attrition/drop out and/or failure is unquestionable. The models cannot be used in their entirety by every institution to deal with attrition and problems concerning student failure. An institution that wants a simpler way of dealing with attrition might be disposed towards Kennedy and Powell's (1976) model, while an institution intent on conducting an in-depth study of attrition might use one of the models that have more variables. Similarly, an institution that wants to focus on students might use a different model from an institution that wants to focus on the institutional role in attrition. The models are, therefore, instrumental in deciding how to deal with attrition/drop out.

3.4 Empirical studies on attrition/drop out

There is general consensus that attrition and drop out are more prevalent in distance institutions than in contact institutions, and that attrition is much higher at the beginning than towards the end of a course (Kambouri & Francis, 1994; Malicky & Norman, 1994; Kember, 1995; Quigley, 1995). A review of the literature reveals descriptive analyses, as well as causal studies and the interactions between causal factors. There are a number of studies that attempt to identify factors that might predict drop out in distance education settings. Barriers to success are also included in the review, with the emphasis falling on gender.

It is accepted that reasons for dropping out will not always be attributable to the learning situation, but can be personal and beyond the control of the institution. Job and domestic pressures have been cited in many studies (Pythian & Clements, 1980; Rekkedal, 1983; Thompson, 1997). Change in career plans or a change in study direction, economic and personal reasons have been responsible for many students' leaving mid-course. These are factors that are at a personal level, and over which a student might have little or no control, factors that can change overnight.

Other factors have more to do with the institution, and it is possible for an institution to change them for the students' good. Pythian and Clements (1980) report that mismatches between course difficulty and students' academic preparation have been the cause for drop out, as well as the course being perceived as difficult and too long. The organizational setting (DiSilvestro & Markowitz, 1982) has also been cited, while the lack of counselling has also been found to be a

contributing factor (Carr & Ledwith, 1980). Some studies have focused on understanding the student with the aim of developing better quality learning materials and administrative support (e.g., Garrison, 1987; Bernard & Amundsen, 1989).

Contextual factors are largely beyond the control of the student, and community attitudes and values play a big role in influencing the course of students' learning. Studies which focus on barriers to distance education contribute to the understanding of what might cause students difficulties, and ultimately cause them to withdraw from their studies. Several studies have looked at gender as a possible barrier to success (cf. Furst-Bowe, 2001; Taplin & Jegede, 2001; Bhalalusesa, 2001). Taplin and Jegede (2001:133) state that they do not claim that women are being disadvantaged with respect to men, but that the experiences they bring to their studies and the ways in which they learn may make them different. Their study focused on investigating gender differences in factors that contribute to successful achievement in distance education. Their results show gender differences with regard to marital and employment status, help-seeking patterns, approaches to studying, and the style of organising and using materials. Bhalalusesa (2001) focuses on the kind of support women need to pursue distance education. Her study was carried out in the context of a developing country, namely, Tanzania. Her particular focus is on the learner's immediate social environment and its role in the student's success. She cites institutional support as being important, but equally important is the support from the immediate social environment. Bhalalusesa (2001:157) makes particular mention of the fact that in order to pursue distance learning a woman has to get the blessing of her husband (if married), and the support of parents, family members, and friends, because of the effect it may have on self-esteem and self-confidence. Subjects in her study report that they were asked to choose between employment and continuing their studies by their employers, and having to contend with employers claiming that they were studying because they want to usurp their positions. The lack of support from the workplace creates a hostile environment for those who are studying, which might influence decisions to drop out.

Studies conducted by Parker (1999) and Welman (2001) focus on predictive factors of drop out. Parker (1999) examined how far locus of control, gender, number of courses completed, age, financial assistance, and the number of hours employed studying predict drop out from distance

education courses. This study concludes that students' locus of control and the source of financial assistance are more reliable predictors of drop out than the other factors. Welman's (2001) study, carried out in a South African context, focused on identifying first-time students who might not be ready for distance education enrolment. An institution can, therefore, possibly avoid a potentially high attrition rate by predicting which students could benefit from support programmes. His study reports that study group formation, work status, value of senior certification, age group, marital status, previous activities, value of last school examination symbols and cultural group formation all assist in identifying 'distance education readiness'. He also reports that black unemployed female students are academically least successful. Welman (2001) does, however, state that his study could not identify with certainty students who could be designated as those who would indisputably benefit from support programmes.

It is important to keep in mind that the data received from the students themselves might not be a complete reflection of their status. Draper (2002) writes that a 100% sample of drop outs is needed, as a self-selection is likely to distort the study by losing those who are in some way ashamed, or it might leave those with the most distorted rationalisations.

Cooper (2002) advocates scrutinising the manner in which attrition data is used. She claims that while acknowledging the complex nature of the multiple factors that influence attrition, there ought to be caution regarding the use of student attrition data as quality indicators for higher education. She provides two propositions which are often posited to explain the relationship between quality and student retention. Firstly, that good quality courses retain students better than poor quality courses, as the quality of teaching is superior. Secondly, that high retention rates are indicative of low standards because high quality courses exclude or encourage the departure of a greater proportion of poor performers than low quality courses that make comparatively limited academic demands on students.

Not all institutions keep attrition data, but the interpretation of the data might vary, based on an institution's approach and view to attrition/drop out and/or failure. Regardless of the interpretation, having the information will be helpful as it will inform the institution of its practices, and maybe even

suggest the type of action to be taken to improve student success and the institution's graduate output.

3.5 Conclusion

It appears reasonable to claim that the reasons for and causes of dropping out and/or for failure in distance education have been discussed extensively. It is accepted that, when asked, students might not provide a complete picture of the complex process that leads them to withdraw from their studies. It is also acknowledged that students might leave an institution voluntarily or involuntarily for various personal and institutionally-related factors. Another contention is that not all students who leave an institution represent an attrition statistic, and that attrition figures do not reflect the different attrition rates between various courses and departments, which is likely to be misleading as to the extent of the problem. Yet, it is agreed that attrition rates in distance learning in South Africa, as well as internationally, are a big problem, that these rates constitute a possible threat to the academic and financial welfare of an institution, as well as its reputation.

It is apparent that institutional approaches have to be adopted, where each institutions focuses on its particular attrition profile, and deals with it accordingly, while basing their endeavours on widely researched and accepted theories of attrition/drop out and/or failure.

The models of attrition/drop out and/or failure discussed in this chapter provide different approaches and foci to the problem of attrition, and it has been argued that each serves a specific context well. While the nature of the models differ (i.e., descriptive and predictive), there appears to be more similarities than is acknowledged in attrition literature.

Woodley and Parlett (1983:23) claim that student drop out is a systematic problem relating to the institution's functioning as a whole. Student drop out cannot be corrected by fixing a single component, but rather interventions are needed at various points throughout the system. Suggestions on how to deal with attrition and/or failure focus on systemic and systematic approaches, which are all-encompassing (cf. Chyung, 2001). The systematic approach requires institutions to design and carry out interventions step by step, from the beginning to the end, and

the systemic approach requires the consideration that any changes in the system will have an impact on other components or larger parts of the system as a chain in events (Chyung, 2001:37).

Chapter 4 focuses on the profiling of ESL distance learners. Knowledge of learner characteristics contributes to an understanding of students' social and academic make-up, and the part a distance education institution can take in supporting students in their learning.