INTERACTION WITH PRINT-LEARNING MATERIALS AND ACADEMIC PERFORMANCE AND PERSISTENCE OF NEW STUDENTS OF UNIVERSITAS TERBUKA (THE INDONESIAN OPEN LEARNING UNIVERSITY)

by

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ABSTRACT

In a distance education setting, student individual interaction with print learning material (modules) comprises the largest part of student learning, and the interaction may be an essential ingredient in student academic performance and student persistence. To investigate this relationship, the reader-text relationship construct was used as a base for developing the construct of student interaction with modules. Ten factors constituted the interaction: Individual Activities, Time in Interaction, Study Motivation, Understanding of Directions, Difficulties in Interaction, Reading Speed, Study Load, Learning by Memorizing, Learning by Understanding, and Attitudes After Interaction. An instrument was developed to measure this interaction.

Universitas Terbuka (UT), the Indonesian Open Learning University, was chosen as the research site. UT has been characterized both by low student academic performance and by high non-persister rates of new students. As modules have been developed to maximize student academic performance, the low academic performance and high non-persister rates suggest either that students did not follow the prescribed methods of studying the modules or that they have had difficulties in studying the modules. It seemed, therefore, worthwhile to conduct a study on how students interact with modules at UT.

The main purpose of this study, therefore, was to examine the student individual interaction with modules and its relationship with academic performance and persistence. Reviews of related literature showed that many factors are related to academic performance and persistence. This study, in addition to 10 factors of interaction with modules, included two contextual

factors: previous academic performance and time that students spent at work and on their way to/from work. This study also focused on one population, namely first semester students who were taking EKON4110, the Introduction to Macro Economics.

The data gathering was conducted in two stages approximately 7 months apart and the instrument contained both quantitative and qualitative components. In the first data gathering, May, 1993, an instrument was sent to all 317 first semester students who were taking EKON4110. There were 156 students who returned the instrument. The second data gathering was conducted both to examine the stability of responses over a 7-month period and to gather data on why students registered and/or did not register in the second semester. In the second data gathering, the instrument was sent to 43 students who registered in the second semester and to 42 students who did not register. Eighteen students from the former and 10 students from the latter returned the instrument.

The study has 4 major conclusions. Firstly, Reading Speed (ρ = .24; α = .01) and Attitudes After Interaction (ρ = .24; α = .01) have a significant positive correlation with Academic Performance, whereas Difficulties in Interaction has the largest significant negative correlation with Academic Performance (ρ = -.27; α = .01). The qualitative data showed that students experienced difficulties in graphs, tables, formulas and difficult terms (foreign words and scientific terms). Unclear and wordy explanations, the absence of a glossary, and non-detailed elaboration of graphs, tables, formulas, exercises and examples of the correct answers were major sources of difficulties that students mentioned. Secondly, there were significant differences between persisters and non-persisters in terms of Understanding of Directions, Reading Speed, Previous Academic Performance, and Time that Student Spent at work and on the way to/from work. Thirdly, Time on Interaction and Attitudes After Interaction had to be removed

from the regression equation so that the combination of the remaining 10 factors could significantly explain the variation of Academic Performance ($F = 2.11$; $R^2 = .24$; R^2 sig.= .0427). Finally, the combination of the 12 factors could predict correctly up to 65.22% of 3 groups of academic performance (high, medium, and low) and could predict correctly up to 64.10% of persistence.

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DEDICATION

I dedicate this dissertation
with love
to my wife, Rita,
my daughter, Agatha, and my son, Dimas,
the Karsonos and the Ciptos.

CHAPTER I

INTRODUCTION TO THE PROBLEM

This chapter addresses the following topics: background ideas of several well-known educators in distance education, particularly, and education, generally, that ignited this study; a brief description of Universitas Terbuka, or the Indonesian Open Learning University, where this study was conducted; a description of the study including the purposes, delimitations, limitations; and an outline of this study.

Background

Bates (1990a) argued that the amount of time that students of both conventional and distance education spend alone in studying (interactivity - individual context) is far greater than the sum of the time they spend in interaction with their professors and peers (interactivity - social context) . Parallel with that line of thought, Holmberg (1983a, 1983b) asserted that "the real learning is primarily an individual activity and it is attained only through an internalizing process" (p.116). Borg and Gall (1990) suggested that the purpose of research in education is to obtain new knowledge about teaching, learning and administration that will finally lead to improvement of educational practice. In any effort, the accomplishment of what is being pursued is always important. But, how is this accomplishment to be judged? Paul (1990b) has identified four common measures of success, namely completion rates, graduation rates, persistence rates, and cost efficiency or effectiveness. These lines of thought brought the author to the conclusion that, if educational research is to be meaningful in supporting the success of student learning, more attention needs to be paid to the largest part of the student learning process that is done

individually. Such an individual learning atmosphere is prominent at Universitas Terbuka (UT). This study was conducted, therefore, in such a learning atmosphere to obtain knowledge about how students individually interact with print learning material and the interactions' relationships to their academic performance and persistence. Students who registered in the second semester were called persisters, otherwise, students were called non-persisters.

Universitas Terbuka

The government of Indonesia established Universitas Terbuka (UT), the Indonesian Open Learning University, in 1984 as a public university that delivers its programs through the use of distance teaching methods. It was the only choice to bridge the wide and long-standing gap between the demands for higher education and the total capacity of the existing higher education institutions. The 1986 statistics showed that there were approximately 900,000 high school graduates, 460,000 of whom competed for only approximately 82,000 available places (Setijadi, 1988). It was not surprising that UT, which planned to enroll 25,000 students in its first year, eventually enrolled more than 60,000 students out of approximately 270,000 applicants (Djalil et al., 1988).

Ironically, while the demand for places in higher education grows, the 1991 statistics of UT showed both that the number of new incoming students is decreasing and that the number of passive students (students who did not register in four consecutive semesters) is increasing (Universitas Terbuka, 1992). Appendix A.1 shows the number of new students and returning students from 1984 to 1991. Appendix A.2 presents the same statistical data in graph form for ease in interpretation. From the graph presentations, it can be seen that the number of students in every cohort who registered in the second semester was far below the number who registered in the first semester. This number

continues to decrease. This means that UT loses most of its students sometime between the middle and the end of the students' first semester. This phenomenon is similar to the drop-out trends in the beginning of programs in both distance education institutions (Roberts, 1985; Rekkedal, 1985; Fritsch and Strohlein, 1988; Roberts, Boyton, Buete, & Dawson., 1991) and conventional institutions (Pascarella and Terenzini, 1980). Given the drop-out trends at UT and the fact that the majority of new students at UT employ mainly print learning material in their studies, a study that attempts to reveal how UT's students interact with print learning material and the interactions relationships to students' performance and persistence is, indeed, needed and timely.

Statement of the Problem

This study investigated the academic performance and persistence of first semester students at Universitas Terbuka (from an interactivity point of view). Bates (1990a, 1990b) conceived student interactivity as involving two types of context: the individual activity and the social activity. The individual activity refers to the interaction between a learner and learning material. The social activity means the interaction about learning materials between two or more people. These two contexts of interaction are similar to the notions of independence and interaction of Daniel and Marquis (1983; the original document was published in 1979). They suggested that the right mixture of independence and interaction is important for the success of a distance education institution. This study examined the individual student's activities in their interactions with print learning materials and its relationships with performance and persistence of first semester students. By studying individual activities of UT's new students, the author hopes to obtain some explanations for the phenomenon of losing students in their first semester of study.

The Purposes of the Study

The study had the following purposes:

1. To develop an instrument that indicates 10 factors of student interaction with print learning material and 2 contextual factors. The 10 factors of student interaction with print learning material are students' individual activities with print learning material, their understanding of directions in print learning material, their attitudes after interacting with print learning materials, their learning orientations, their reading speeds, the difficulties that they faced in their interaction with print learning material, the amount of time that they spent on interaction with print learning material, their study motivation and their study loads. The 2 contextual factors are first, the amount of time that they spent on work and on their way to and from work, and, second, their previous academic performances;
2. To examine whether or not relationships exist between students' academic performance at UT and each of the 12 factors mentioned above;
3. To examine whether or not differences exist between students who persisted and those who did not persist in terms of 12 factors mentioned above;
4. To examine how a combination of the 12 factors mentioned above could explain the variation in students' academic performance;
5. To examine how a combination of the 12 factors mentioned above could predict whether or not a student would persist;
6. To examine rationales that students had in choosing Universitas Terbuka as a means to continue their higher education;
7. To examine rationales that brought students to education and kept them in education;
8. To examine the difficulties that students faced in their interaction with print learning material;

9. To examine what motivates students either to persist or not to persist;
10 To examine experiences of studying at Universitas Terbuka which the students either liked or disliked.

The Significance of the study

The significance of this study can be articulated as follows: first, many studies on students' interaction with print learning material (Clyde, 1983; Peruniak, 1983; Marland, Patching, Putt, & Store, 1984; Roberts, 1985; Marland, Patching, Putt, & Putt, 1990) have been conducted through the use of qualitative methods and small size samples. Roberts (1985), who managed to obtain responses from 130 students out of his 300 students sampled, and Peruniak (1983), who managed to engage 40 paid-subjects over a 40 week period, were exceptions. Since most distance education institutions deal with a large number of students and since print material is still and will probably continue to be the primary delivery medium regardless of the development in multimedia delivery system (Bates, 1990b; Holmberg, 1990; Marland, 1989; Timmins, 1989; Verduin & Clark, 1991), there is always a need to understand how most distance students individually interact with print learning material. This study represents the first attempt both to develop, based on the previous research, a construct of distance students' individual interaction with print learning material and to use this construct in a research with a larger sample of distance students.

Secondly, many drop-out studies have paid inadequate attention (Sweet, 1986; Roberts et al., 1991; Laube, 1992) or no attention at all (Rekkedal, 1985; Taylor et al., 1986; Eisenberg and Dowsett, 1990) to students' interaction with print learning materials. This interaction, according to Bates (1990a) and Juler (1990), is the largest part of student learning. Holmberg (1983a, 1983b) also argued that the real learning is primarily individual activity. This may be the

reason why drop-out research has only been able to explain a small part of drop-out behavior because such researches address small and, perhaps, non-primary parts of student learning. Research on how distance students interact with print learning materials may increase knowledge regarding drop-out behavior.

Finally, this study may produce information that is relevant to student support services, especially for new student advising. The findings of this research may, perhaps, be used to plan actions to prevent early drop-out.

Delimitation of the study

The author has delimited this study on two aspects. The first delimitation was that this study examined students' individual interaction with print learning materials only. This study, for example, did not address students' interaction with other forms of learning materials such as audio-cassettes, video-cassettes, and educational programs on television and radio nor with other agents such as professors, tutors, and peer students.

A second delimitation was that the study examined the individual interaction with print learning material of new students only. The rationale for this limitation is drawn from the fact, as presented in the literature review, that most non-persistence cases occur in the first phases of a program.

Limitations of the study

This proposed research will face several limitations due both to the impossibility of controlling all factors that may have an influence on academic performance and drop-out and to the selection of the sample. These limitations may pose some threats to the internal and external validities of this study. Detailed discussions of these threats to validity and the ways to overcome these threats are presented in the Research Design section of Chapter 3.

Outline of This Study

This chapter has introduced the problem of this study. Chapter II will review the literature related to this study including drop-out, persistence and interactivity. Chapter III will describe the methodology of this study. Chapter IV will present the results of analyses or findings. Chapter V will contain a discussion on the findings of this study and their comparisons to findings of other relevant studies. Conclusions, recommendations and implications for future research will be presented in Chapter VI. Due to their length, a number of tables of results of analyses will be presented in appendices instead of in the body of the text.

CHAPTER II

LITERATURE REVIEW

The purpose of this chapter is to discuss studies that provided this research with the basis for the development of the construct of students' interaction with print learning material and for the development of the design of this research. This literature review has seven sections. The first section will discuss two analyses that provide explanations for the possible causes of the failure of UT; the second section will review the drop-out facts, researches and models that guided the researches. The third section will discuss the notion of interactivity. The fourth section will discuss the individual context of interactivity, especially interaction and learning orientation, the time for interaction, and activities of interaction. The fifth section will discuss the interactivity of distance students in general and students of Universitas Terbuka in particular. The sixth section will discuss the structure of learning materials in distance education. Finally, the seventh section will summarize and highlight the significant contents of the literature review.

Analyses of failure of Universitas Terbuka

There are two analyses that provide explanations as to why UT has failed both in attracting new incoming students and in preventing the growing number of passive students. Smith and Curran (1989) stated that the causes of the UT's failure were that the philosophy of education and the organizational arrangement that the university has adopted did not work. Dunbar (1991) stated further that a possible cause is the importation of a Western philosophy of education that stresses autonomous and self-directed qualities of learners. This philosophy of education does not suit the Indonesian culture with its strong oral tradition and

heteronomy (submission of personal wills under the collective will). What Dunbar (1991) called Western philosophy of education, however, is not necessarily embraced by all Westerners. In fact, Paul (1990a, 1990b) suggested the development of independent learners as the criterion for success of distance education institutions. He further argued that autonomous and self-directed learners would succeed in any kind of institutions. Gaskell and Mills (1989) also emphasized the importance of distance education in providing an access route for students whose study skills and experience may be very limited.

These two analyses seem to indicate that there is no drop-out problem in Western distance education institutions. This is contrary to the reality of distance education in Western countries which will be revealed in the following section.

Drop-out: facts, researches and models

Facts of drop-out

Table 2.1 summarizes drop-out statistics from several distance education institutions. Several scholars have warned us about interpreting drop-out statistics since the term "drop-out" is not a notion that has a single definitive meaning. Bartle and Willen (1985) have stated that drop-out could mean different things for different people. Also, drop-out can mean different things for different institutions. For example, Tinto (1975) and Bean and Metzner (1985) suggested three different forms of disengagement from an educational program: transfer to other educational institutions, academic dismissal, and voluntary drop-out. The value of distinguishing these forms of disengagement is to focus the problem of investigation. This is necessary since each form of disengagement involves different groups of students who have different causes for their disengagement. Not to underestimate the importance of differential meanings of drop-out across institutions, such statistics are clear in showing that drop-out is a real problem for distance education institutions.

Table 2.1
Drop-out Statistics in Distance Education Institutions

No.	Institution	Drop-out rates (%)	Study
1.	Three-Year Adult Education, Great Britain	33.33	MacLennan (1948)[1]
2.	General Certificate of Education, in Great Britain	30.00 to 80.00	Boyce (1958)[1]
3.	Distance Education	75.00	Feasley (1982)[1]
4.	Distance Education, Algeria	38.00	Berka (1972)[1]
5.	Correspondence School New Zealand,	33.33	McVeagh (1976)[1]
6.	Private Correspondence School, USA	70.00	MacKenzie and Christensen (1971)[2]
7.	Private Correspondence School, Japan	90.00	MacKenzie and Christensen (1971)[2]
8.	Open University, Great Britain	21.00 45.00	Kennedy and Powell (1976) Keegan (1980)[2]
9.	NKI-School, Norway - Drop-out rate after 2.5 years - completion rate	 84.80 12.20	Rekkedal (1985)
10.	FernUniversitat, West Germany	50.00	Millard (1982)[2]
11.	Technical Correspondence Institute, New Zealand	34.30	Ostman and Wagner (1987)
12.	Athabasca University, Alberta - audio teleconference - correspondence - correspondence and seminars	 33.33 55.70 55.40	Powell (1985) in Garrison (1987)
13.	Open Learning Institute of British Columbia Canada	60.00	Sweet (1986)

Notes: - These are drop-out rates per course
1. Cited in Ostman (1988).
2. Cited in Persons & Catchpole (1987).

Rekkedal (1985) and Fritsch and Strohlein (1988) proposed other categorizations of drop-out that are based on the time when drop-outs occur. Rekkedal made a distinction between non-starters and early-withdrawals. Non-starters are students who, after they register, never submit any assignment.

Early withdrawals are students who, after they submit several assignments, quit their studies. He made this categorization based on the experience that most drop-outs occurred during the early phases of studies.

Fritsch and Strohlein (1988) extended Rekkedal's categorization by proposing this system: non-starters, drawbacks, drop-outs, and no-shows. They defined non-starters and drawbacks as Rekkedal defined non-starters and early withdrawals respectively. They defined drop-outs as students who have completed several assignments but have not qualified for taking the final examination. No-shows are students who have completed all requirements for the examination but never show for the examination. Based on this categorization, from the 1,990 students who enrolled in FernUniversitat, West Germany, there were 650 non-starters (34.21%), 420 draw-backs (22.10%), 314 drop-outs (16%), 248 no-shows (13%), 90 students failed and 179 students passed. In other words, 85.31% of students quit before the examination.

Researches on drop-out and models of drop-out

There are three types of research on drop-outs. The first type of research seeks to identify the **characteristics** of students who have dropped out. The second type of research addresses the students' **reasons** for dropping-out. Finally, the third type of research attempts to understand the **process** by which students come to drop-out **decisions**.

The study of Eisenberg and Dowsett (1990) exemplifies the first type of research. They investigated the relationship between attributes, previous achievement and drop-out behavior in the Open University of United Kingdom courses. They based their investigation on a sample of 445 students from 1982 to 1988. Their findings showed both that there are relationships between particular attributes, such as occupation and drop-out behavior, and that achievement in previous courses is a good predictor of the subsequent

achievement. They argued that the value of their research was the information that it produced to identify students at risk, students who needed different levels of support.

Rekkedal (1985) has summarized findings of researches that attempted to find out the reasons why students dropped out. In brief, the reasons for dropping out from "educational" distance education courses can be seen in Table 2.2. It is apparent from the list of reasons in Table 2.2 that there are reasons for dropping-out that are beyond the influence of the distance teaching institutions, such as personal reasons, illness, and domestic responsibility. There are also reasons about which the distance education institutions can do something to alleviate the problem to some extent, such as the instructor's late return of an assignment, students' difficulties in learning, and students' motivation to learn.

Based on previous data that showed that drop-out occurred in the early period of the program and a suspicion that drop-out was caused by student confusion in early stages of their programs, Rekkedal (1985) conducted an experimental research. He introduced personal tutors to students in his experimental group, whereas the control group received regular treatment. He followed students' progress during their first 3 to 11 courses. After eleven months of study, the findings showed that students in the experimental group showed greater completion rates than did students in the control group. The kind of treatment was similar to the academic support for students at the foundation level in the British Open University (BOU) (Keegan, 1984). Implementation of this type of support is expensive. For example, the BOU spent a quarter of its total budget in providing academic support (Keegan, 1984; Persons and Catchpole, 1987).

Table 2.2
Reasons for dropping-out for distance education courses
[Summarized from Rekkedal (1985)]

No	Reason for dropping out	Study(ies)
1.	Students accomplish goals before the end of the course	Houle (1964)
2.	Students have low academic aptitude	Houle (1964)
3.	Students encounter problems in their personal lives	Houle (1964)
4.	Students are dissatisfied with instruction	Houle (1964)
5.	Students are dissatisfied with the administrative policies and procedures	Houle (1964)
6	Adults do not know how to learn	Houle (1964)
	- Study difficulties	Holmberg (1971)
		James and Wedemeyer (1959)
		Veteran Administration (1972)
		Harter (1969)
7.	Courses are over advertised or misleadingly advertised	Zahn (1964)
	- wrong courses	James and Wedemeyer (1959)
	- courses were not what they expected them to be	Veteran Administration (1972)
8.	Changed to another school	Holmberg (1971)
	- Taking resident classes at the same time	Sloan (1975)
	- Rescheduled correspondence to resident work	Sloan (1975)
		James and Wedemeyer (1959)
9.	Changed plan for the future	Holmberg (1971)
	- new development and changes in enrollee's plans	Harter (1969)
		Harris (1972)
10.	Demanding employment responsibility and lack of time	Holmberg (1971)
		Sloan (1965)
		James and Wedemeyer (1959)
		Veteran Administration tration (1972)
		Harter (1969)

Table 2.2
Reasons for dropping-out for distance education courses (continued)
[Summarized from Rekkedal (1985)]

No	Reason for dropping out	Study(ies)
		Harris (1972)
11.	The studies are practically useless	Holmberg (1971)
12.	Illness	Holmberg (1971) Sloan (1965) James and Wedemeyer (1959) Harris (1972)
13.	Lost interest: Found correspondence work boring and uninspiring - Syllabus too dull and uninspiring	Sloan (1965) Harris (1972) Veteran Administration (1972)
14.	Instructor's late return of assignments	Harter (1969)
15.	Enrollee's motivation and learning orientation	Harter (1969)
16.	Domestic responsibility	Harris (1972)

Taylor et al. (1986) conducted a study of the relationship between persistence and three independent variables: average of turn-around time, feedback interval, and additional contacts. They took the sample from 5 distance education institutions: Allama Iqbal Open University (Pakistan), Darling Downs Institute of Advanced Education (Australia), The Open Learning Institute of British Columbia, Tasmanian State Institute of Technology, and University of South Pacific. The findings showed that only the case of Darling Downs Institute of Advanced Education supported Tinto's (1975) drop-out model and confirmed Rekkedal's (1985) finding that turn-around time, feedback interval, and additional contact have effects on drop-out.

Persons and Catchpole (1987) introduced teleconferencing as a means to reduce student feelings of isolation that they suspected to be the most influential factor in the student's decision to drop-out. None of the findings of two

experimental researches showed significant differences between the experimental and control groups. They stated that the reason for this insignificant difference was the small sample size.

The third type of research has attempted to identify the process by which students come to a decision to drop-out based on drop-out models. The most cited drop-out model is that of Tinto (1975). He developed his drop-out model for college students in a face-to-face teaching environment in which the length of the program is 3 or 4 years. The essence of his model is that the drop-out decision is the result of a prolonged interaction between background characteristics, commitment, academic system, academic integration, social system, and social integration.

In brief, his model, which was a synthesis of most previous researches, is as follows:

The higher the level of the following factors, the less the chance of drop-out (applicable to two points 1 and 2 only):

1. Background characteristics that include:
   - family economic status
   - parent's educational background
   - parental encouragement to the completion of the program
   - individual ability as it is measured by grade point average in the previous educational experience
   - the individual goal commitment to complete the program
   - gender (sex) is related to drop-out with more women than men tending to drop-out

2. Interaction with college environment that includes:
   - student interaction with college environment (peers, faculty and administration)
   - academic integration. It is measured by grade point average (extrinsic) and intellectual development (intrinsic)

3. The relationships between drop-outs and institutional characteristics are as follows:
   - public institutions tend to have higher drop-out rates

- the higher the quality of institutions the higher the graduation rates (the lower the drop-out rates); the quality of an institution is measured by the percentage of faculty with doctorates and the average income of its students.
- the size of the institution is also related to drop-out rates but the relationship is unclear due to conflicting results of previous researches

Tinto (1982) also stated some limitations to his model. First, he developed his drop-out model to explain certain specific aspects of drop-out behavior in a particular setting; this is opposed to a model that addresses all aspects of drop-out in all settings. Second, he focused his drop-out model on the factors that related directly to the conventional college environment.

Pascarella and Terenzini (1980), based on five previous researches that showed that most dropouts occurred at the end of the freshman year, examined the relationship between academic and social integration and drop-out of freshmen by using Tinto's (1975) drop-out model. Five factors, Peer-Group Interaction, Interaction with Faculty, Faculty Concern for Student Development and Teaching, Academic and Intellectual Development, and Institutional and Goal Commitment, were measured in this study. The findings showed that persisters from drop-outs were significantly different in terms of those five measures. This means that Tinto's (1975) drop-out model is applicable in a shorter period (such as one year).

Sweet (1986) attempted to validate Tinto's drop-out model in distance education. After considering some limitations that Tinto himself raised, Sweet used all the factors in Tinto's model, changing their operational definitions to suit the distance education environment. For example, Sweet used age and geographic location as student characteristics, course materials rating as an academic integration factor, and tutor rating as an social integration factor. By using discriminant and path analysis, he analyzed the data from 356 students from the Open Learning Institute, British Columbia. The results showed that the

total predictors explained 32% of the drop-out variation. Academic and social integration factors (academic performance, course material rating, and tutor rating) was the greatest factor (explaining 18% of drop-out variance) in differentiating the drop-outs and the persisters. The background characteristics (age, sex, geographic location, locus of control, and grade expectation) explained 11% of the drop-out variance. The most interesting part of this study is that, from its path analysis, course material rating has the highest correlation coefficient among factors that are related to goal satisfaction. In turn. goal satisfaction has the highest correlation coefficient among factors that are related to persistence. In other words, course material may make a great contribution to persistence or drop-out.

Laube (1992) used Tinto's academic and social integration variables in examining persistence in secondary distance education in British Columbia. Laube's study involved 181 secondary students in grades 8 to 12. His findings showed that:

1. the persister group was significantly more committed to higher educational goals than the drop-out group;
2. the persister group spent more hours in studying than the drop-out group;
3. there was no difference between the persister group and the drop-out group in the amount of assistance they received at home;
4. there was no difference between the persister group and the drop-out group in the number of contacts initiated by students;
5. the persister group had significantly better attitudes toward their markers/tutors than the drop-out group;
6. there was no difference between the persister group and drop-out group in terms of missing their peers.

The significance of Laube's findings is that one of his findings (point 6) sanctions the emphasis of institutional social integration factor on examining the drop-out in distance education context. This might explain why the provision of teleconferencing to reduce distance education students' feeling of isolation in

Persons and Catchpole's (1987) experiment, discussed earlier, showed no difference between their experimental group and control group in the number of persisters and drop-outs. This was in contrast to Persons and Catchpole who stated that the non-significant difference was caused by the small sample size.

Kember (1989a), who proposed a drop-out model for distance education, criticized Sweet's (1986) study as making too few changes to suit Tinto's (1975) model to distance education. For example, student background should be broadened to include family, work, and social life aspects of distance students. Kember modified Tinto's drop-out model to suit the distance education setting in three different ways. First, he broadened the background characteristics of distance students. Second, he added a cost-benefit analysis factor in his model. As a result, there are seven factors that influence drop-out behavior in Kember's (1989a) model. These factors are: background characteristics, commitment (goal and institutional), academic environment, academic integration, social environment, social integration, and cost-benefit analysis. Finally, he described the longitudinal nature of the drop-out process in a feedback loop. Instead of putting commitment factors twice, both as an input to and an output of, academic and social systems as Tinto (1975) did, the result of cost-benefit analysis is fed back to the beginning of the drop-out process, so that the commitment factor appears only once in his model.

Kember (1989a) defined his seven factors in the following ways. Background characteristics include individual, family, and work facets. Goal commitment has two components, intrinsic and extrinsic motivation. Intrinsic motivation refers to student interest in subject matter, whereas extrinsic motivation refers to student commitment to obtaining a qualification. Academic environment includes study package, interaction via assignment, tutorials, and interaction between student and institution. Academic integration is the extent to

which a student is integrated in all aspects of academic environment. Social environment includes family and work aspects. Social integration is the extent to which each aspect in the social environment is integrated with the demands for study. For example, whether or not family members, the employer, peers at work, and friends are supportive on one's study, influences drop-out behavior of the person. Cost-benefit analysis is the students' opinions about the worth of their investment in study (financial and otherwise) compared to the perceived benefits they might realize upon the completion of their study. In brief, Kember's drop-out model can be stated as follows: student characteristics influence student goal commitments. Goal commitment influences the way in which the students interact within the academic and social environment and determines the extent of their integration to the academic environment. Finally, cost-benefit analysis is the final step in the student's decision making process to drop-out or to persist.

Little research has been done based on Kember's drop-out model. Only Roberts, Boyton, Buete, and Dawson (1991) have conducted a study of the drop-out phenomenon using Kember's model. Due to difficulties encountered in maintaining a division both between the academic environment and academic integration and between social and work environment and social and work integration, Roberts et al. (1991) simplified Kember's model by reducing its seven factors to five factors; namely, characteristics, goal commitment, academic environment and integration, social and work environment and integration, and cost-benefit analysis. They maintained Kember's definitions of these factors. The first drawback of their study was that they measured academic environment by using one question only; it assessed whether or not students read every section of the course material or only what they needed to

complete the assignment. This was an inadequate measure of academic environment.

Bernard and Amundsen (1989) argued that a course factor influences drop-outs. This factor has not been treated in either Tinto's (1975) or Kember's (1989) drop-out models. Bernard and Amundsen (1989) conducted their research in the business correspondence program of the Institute of Canadian Bankers using Tinto's model. Their sample consisted of 483 students from three courses: Communication, Business Administration, and Accounting. Though all factors in Tinto's model proved to be relevant in their study, when different courses were introduced, the rank of importance of Tinto's factors shuffled. This shuffling means that a course factor may influence drop-outs.

The Notion of Interactivity

Bates (1990a, 1990b) classified distance student interactivity into two categories: the individual (isolated) activity and the social activity. The individual activity refers to the interaction between a distance student and pre-produced learning materials. The social activity refers to the interaction between a distance education student and one or more people about learning materials. There could be, therefore, interactions between a distance student interaction and the writers of the learning materials (a rare case), or tutors who mediate between the writers and the student (the most common case), or peer students. The social interaction can occur in real-time, such as face-to-face tutorial, self-help study group, telephone tutorial, and teleconferencing, and in delayed modes such as postal correspondence, bulletin, electronic mail, electronic bulletin board, and taped conversation between students and tutors. In developing countries, the ability to provide different types of interaction is very low due to the cost and the limitations in the communication infrastructure

(Robinson, 1989). For example, this case is likely to be true within the UT setting.

Works of scholars such as Rekkedal (1985), Sweet (1986) and Persons and Catchpole (1987) that have been discussed earlier, and Keegan (1984) and Burge, Howard, and Ironside (1991) that will be discussed later, represent studies that have attempted to reveal the social activities of distance students. The work of scholars such as Marton and Saljo (1976a, 1976b), Clyde at al. (1983), Marland et al. (1984), Roberts (1985), Parer (1988b), and Marland et al. (1990) represent studies that attempted to reveal the individual (isolated) activities. Peruniak's (1983) study attempted to reveal both the students' individual (isolated) and social activities.

Bates' notion of interactivity shares much in common with Daniel & Marquis's (1983) notions of interaction and independence. Daniel and Marquis (1983) argued for a right mixture of interaction and independence, though they realized that a simple recipe for the mixture is impossible. This right mixture is crucial for the success of distance education institutions. They were concerned about how much a distance education institution should let its students progress on their own and the extent to which the institution should interfere through pacing and provision of support services, such as tutorials. This mixture, they argued, depends on the context in which a distance institution exists.

Daniel and Marquis's (1983) position was a middle road between two conflicting models of distance education. On one hand, there are scholars such as Wedemeyer, Delling, and Moore, who extolled autonomy and independence; and on the other hand, there are scholars such as Holmberg, Baath, and Sewart who argued for interaction and communication (Keegan, 1983b).

These two groups were heterogeneous. For example, in the former group, Moore's ideas can be distinguished from the rest because he admitted that the

learners' ability to exercise their autonomy varies. The consequence of this is that programs with high learner autonomy can be as damaging as programs with low learner autonomy. The next issue is to match program and learner so that learners can optimize their autonomy.

In the latter group, on one hand, Holmberg (1983b) argued for his "guided didactic conversation" as a model of distance teaching, in which print learning materials emulated teacher-learner interaction. There are seven postulates of this model:

1. that feelings of personal relation between the teaching and the learning parties promote study pleasure and motivation;
2. that such feelings can be fostered by well-developed self-instructional materials and two-way communication at a distance
3. that intellectual pleasure and study motivation are favourable to the attainment of study goals and the proper study processes and methods;
4. that the atmosphere, language and convention of friendly conversation favour feelings of personal relation according to postulate no 1;
5. that messages given and received in conversational forms are comparatively easily understood and remembered;
6. that the conversation concept can be successfully translated for use by the media available to distance education;
7. that planning and guiding the work, whether provided by the teaching organization or the students, are necessary for organized study, which is characterized by explicit or implicit goal conceptions

(Holmberg, 1983b:115-116)

Too much emphasis on this model led to the idea of teacher-proof learning materials or self-contained instruction (Holmberg, 1985).

On the other hand, Sewart (1983) argued that it is impossible for print materials to replace completely the functions of face-to-face teachers. If learning materials have to simulate all possible teacher-student interactions, it threatens the economic scale of print learning materials; and the volume might be unmanageable anyway. This limitation of print learning materials gives rationale for the establishment of support services. The discussion on this issue continues

between Holmberg (1990, 1991), who stresses the important of pre-produced learning materials and private learning, and Garrison (1989) and Garrison and Shale (1990), who stress group learning and the use of technology to support learning.

Bates (1990a, 1990b) supports Sewart's (1983) position, in which he argued that distance students will benefit from high quality learning materials. The high quality of print materials will increase the quality of student interaction with learning materials which occupies most of the student's time as it is expressed in the second quotation that opens the following sub-section. Juler's (1990) position supports the essence of Bates' ideas (1990a), when he argues that the amount of time that students spend in interaction with print learning materials is far more than the sum of the time they spend with lecturers and tutors. The role of print learning materials cannot be underestimated. Juler's (1990) experience in dual mode universities shows that on-campus students considered themselves to be disadvantaged when they compare themselves to off-campus students who receive print learning materials that are designed in certain ways to support independent studies.

The findings of Timmins' (1989) study on the effectiveness of various media also support Juler's opinion. Distance students (n=943) rated learning guides (learning materials prepared by lecturers) as the most important medium in their study. The next ranked positions were textbook, residential school, computer-based instruction, and telephone tutorial. In terms of performance, there was no significant difference between students who attended the residential school and those who did not; whereas, in computer-based instruction and telephone tutorials, there were significant differences between those who attended and those who did not. These findings support Turok's view, which was referred to in Daniel and Marquise (1983). Turok argued both that the

flexibility of print materials has often been underestimated and that there was no other form of learning materials that could be carried around as flexibly as print learning materials.

Interactivity: Individual Activity

> "A basic general assumption is that the real learning is primarily an individual activity and it is attained only through an internalizing process" (Holmberg, 1983b:116)
>
> "for both conventional and distance education, by far the largest part of their studying is done alone, interacting with text books or other learning media" (Bates, 1990a:5).

Though multimedia learning materials have long been recognized as having potential in distance education (Daniel, 1983; Garrison, 1989), most distance education institutions use print-based learning materials (Bates, 1990a, 1990b; Holmberg, 1990; Keegan, 1983a; Marland, 1989 Virduin & Clark, 1991). In fact, there is no distance education institution that uses non-print media to replace completely the print medium (Bates, 1990b). The non-print media are always supplementary to print materials. UT, the context of the proposed study, uses mostly print materials as well. Because of these issues, this section will review researches that examined students' interaction with print learning materials as opposed to other learning media.

The notion of distance education students' interaction with print learning material can be subsumed under a more general and widely used ERIC term, Reader-Text Relationship. From mid 1983 until January, 1984, there were 36 journal articles indexed with those terms (Koenke, 1984). Furthermore, Koenke (1984) proposed a definition of Reader-Text Relationship construct. The definition was:

> *reader-text relationship is the state, character, or quality, of the connection, association, or involvement between the person reading and the material being read (p.116)*

The above definition relates to the purpose of this study especially in giving the umbrella for making the operational definition of the notion of students interaction with print learning material. This will be done later in the section of Students Interaction with Print Learning Material in Chapter III.

Interaction and Learning Orientation

There have been several studies related to student interaction with print materials. The first study intended to examine the effect of type of questions on the level of student processing (Marton & Saljo, 1976b). In this experimental study, students in both groups received the same reading materials, and they were told that they would have to answer questions concerning the contents of the reading materials. After the first two readings, each group received a different set of questions; one group received a set that would stimulate **surface level** processing, and the other group received a set that would stimulate **deep level** processing. The researchers administered an immediate test and another test 45 days later. Results of their study show that, though students had the capability to process at deep levels, they operated on the surface level because they perceived that the assessment tests required them to recall factual information. These two levels of processing later are known as surface approaches and deep approaches (Kember & Harper, 1986, 1987; Marland, Patching, Putt & Store, 1984; Marton & Saljo, 1976a, 1976b; Morgan, Taylor & Gibbs, 1982; Morgan, 1991). In brief, a surface approach is associated with memorization of the details that stresses assimilating knowledge and information unchanged. The deep approach is associated with relating ideas, searching for the core ideas, and building meaning from learning materials.

Kember and Harper (1986, 1987) investigated the relationship between study approaches, academic performance, and persistence for both internal and external students. Their sample was 779 subjects out of 1095 who were invited to participate, and they used a modified version of the latest version of Ramsden's (1983) questionnaire. Their findings can be summarized as follows:

1. that there was no significant difference in the approaches to study between internal and external students;
2. that approaches to study are related to age with older students are likely to use deep approach;
3. that surface approach is associated with withdrawals or drop-outs; whereas success is likely associated with deep approach.

Clyde, Crowther, Patching, Putt, and Store (1983) investigated the ways which distance students at James Cook University used distance teaching materials. In brief, they were interested in finding out the following information:

1. the amount of time that students take to work on one module (one-fifth of each course) and on assignments;
2. the pattern of the times that students spend working on study materials;
3. the preferred study days;
4. the range of materials students use in working through a module;
5. the use of self-assessment activities;
6. the use of the telephone;
7. the type of study-related activities which student engaged in; and
8. the sequence in which students use the study materials.

They used an unstructured diary to collect their data and the study covered approximately a two to four weeks study period. The sample consisted of 25 students out of 45 who were invited to participate in the study. Four of those who did not return the diaries stated that they withdrew from the course due either to family problems (2 students) or to illness (2 students); the rest stated that keeping the diaries was a burden, and some even stated that completing the diaries took a longer time than completing the learning materials. Findings of their study showed that:

1. the time students needed to complete a module ranged from 25-30 hours over three weeks, and most of those who reported their study process in detail used more than 50% of their time on assessment activities;

2. the length of study session ranged from one-and-a-quarter to two hours;

3. mid-week days appeared to be the most popular times for study;

4. all students consulted module materials; most students used reading materials supplied with module and textbook; few students use materials from the Learning Resource Center, Study Center, other libraries, personal libraries, peer students, and from school/work;

5. only 12 students described the ways they used self-assessment activities (that were then categorized into five non-exclusive categories);

6. the uses of the telephone to contact lecturers, External Study Center, Regional Study Center, and other students were small, on the average student made one call;

7. the average of student engaged in study-related discussion is 1.5 times ;

8. students varied in their sequence in using different parts of the module, (the authors described the various paths that students took by using "pathways." display)

There are two important things that can be learned from Clyde at al.'s study. The first one is that, although the use of diaries as an instrument to collect data on how students use study material theoretically sounds good, it is practically cumbersome. The second important finding is that the use of unstructured diaries has produced a wide range of data. The assumption that "what was not written was not there" might be an untenable assumption because students simply do not know what they are expected to write. For example, how much and how detailed should they keep in their diaries? The difficulty in using diaries as a data gathering instrument is also obvious both in Roberts' (1985) study and in Parer's (1988) student diary project.

Time: needed for interaction to take place

It is clear that the notion of time is important as illustrated by the quotation from Bates(1990a) that opens this section. This idea is in line with Bloom (1974) who argued that learning requires time. Schwittmann (1982) proposed a model of learning for distance education students in which the notion of time is pervasive. In that model, it is argued that the degree of learning success is the ratio between the actual study time and the needed study time. The higher the ratio, the higher the degree of success. The model also differentiates between the possible study time and the actual study time. The possible study time is the amount of time that is left after the available time is reduced by time for family, time for job, and so on. Below is the diagram of the model.

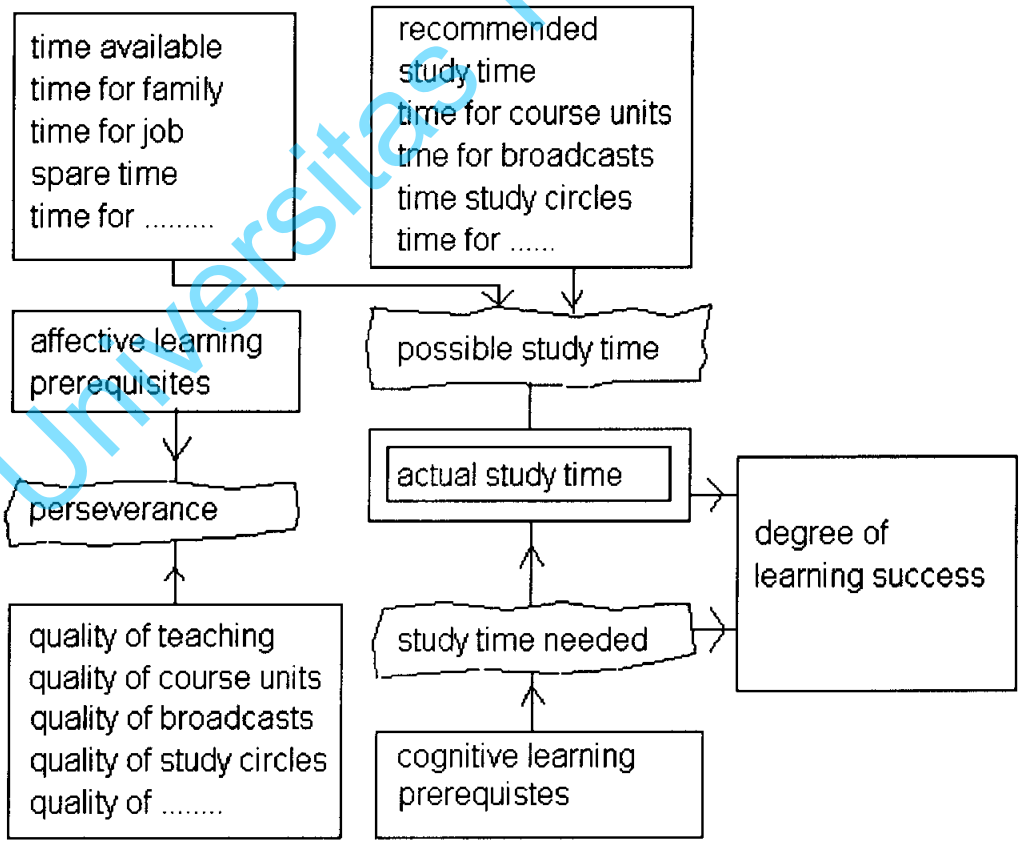

Figure 2.1
Schwittmann's model of learning

Roberts' (1985) study is more focused than Clyde et al.'s (1983) study. Roberts investigated the difference between institutional expectations, the amount of time and ways to approach the learning materials, of external student approaches to learning and the actual external student approaches to learning. Roberts conceived the learning approaches in terms of the average amount of time students spend studying in a week, their study timetables, and the work that they do. For example, the effects of reading different types of texts, completing self-assessment activities, attending compulsory schools, submitting assignments and sitting in the examination were assessed. Similar to Clyde et al.'s (1983) research, Roberts' (1985) study covered a two week period (week three and week four of the semester).

Roberts (1985) used both questionnaires and structured diaries to collect the data. The questionnaire had 18 items that used identical learning activity codes employed in the diaries. The questionnaire had the function of cross-checking data collected from the diaries. Roberts admitted that the response rates were disappointing (130 of 300 students responded or under 45%), although he took considerable care to make the whole process easy. He stated that, because of the disappointing response rates, the validity of his analysis and interpretation was somewhat questionable.

Roberts' (1985) findings showed that 80% of students in the sample spent time less than the recommended, 8.2% of students spent time as it was recommended, and 12.3 % spent more time than the recommended amount. In terms of the study timetable, there were three categories of students: consistent, intermediate, and pressure. The consistent students, who spent a set amount of time on most days at their studies, comprised 26.6% of the sample. The intermediate students, who tried to observe the timetable but to some extent responded to the pressures of assignment and examinations, comprised 47.3%

of the sample. Finally, the pressure students, who merely responded to the pressure of assignments and examinations, comprised 20.6 % of the sample. These differences in the study timetable did not result in significant achievement differences although the average of consistent and intermediate students was higher than was the average of pressure students. In terms of the work that students did with learning materials, the following summarizes the results:

1. most students spent most their time on the assignment activities;
2. most students used the core readings and most of them read a large portion of the readings ;
3. few students used supplementary readings;
4. most students work harder than usual in time near the examinations (56% of students in the sample started two weeks before the exam and 29.7% of students started one week before the exam).

There are several things that can be learned from Roberts' (1985) study. The first one is that the use of a combination of questionnaires and structured diaries has enabled him to compare what students thought they did and what they did. The second one is that the use of a structured diary has resulted in more uniform data and has allowed a comparison among different responses more meaningful than if the data had been collected by using an unstructured diary. The third and the final one is that, although it has been designed carefully and used for a two week period only, a diary is a difficult instrument to administer; it seems that students do not like a diary!

The most successful study that uses diaries (based on response rate) to collect data on student interactivity was conducted by Peruniak (1983). He managed to collect data on student interactivity over a period of 30 weeks. The response ranged from 13 to 30 diaries during that period, and the mean was 19.4 diaries. The difference between the study of Peruniak and the studies of Clyde at al. (1983), Roberts (1985), and Parer (1988a) was that the former used a paid sample of 40 students, whereas the latter studies used volunteers.

Individual Interaction: Its Activities

Marland et al. (1984) conducted a study that attempted to reveal the ways in which students approach learning materials, the factors that influence their approach, the features of learning materials that help or hinder students learning, and the mental processes that students use when processing learning materials. Marland et al. (1984) video-taped four students in their three study sessions and played these video tapes to help students recall what they did during the study sessions (stimulated-recall technique).

Their findings showed that:

1. there are two study orientations: X and Y.
   - The characteristics of **X orientation** are intrinsic motivation, optimizing study strategy, diverge student role, and deep information processing;
   - The characteristics of **Y orientation** are extrinsic motivation, "satisficing" study strategy, student role as assigned, and surface level information processing [Cf. deep and surface approaches of Marton & Saljo (1976)].

2. there were six features of text that stimulated students' thinking, namely:
   - material in supplementary reading,
   - in-text questions and activity,
   - words and key words in text,
   - material in text,
   - heading and sub-heading in text,
   - and problems with understanding, prose in textbook, study strategy, and large words.

3. there were four main mental processes i.e:
   - linking the learning materials with personal experience, other subject areas, and other text
   - metacognition that happens usually when students face difficulties
   - strategy planning or ways of processing text
   - evaluating learning materials

Marland, Patching, Putt, and Putt (1990) replicated the study of Marland et al. (1984). They examined the effectiveness of textual features, such as the statement of objectives, study guide, table of contents, heading and sub-heading, underlined words, word and phrases in text, cross referencing, in text-

activity, and non-verbal devices (maps, tables, graphs, photographs, diagrams, and cartoons), in stimulating student's thinking. They suggested reading speed as one indicator of level of processing. A high reading speed likely associates with a surface level of processing, and a slow reading speed likely associates with a deep level of processing.

Their findings reconfirmed the findings of previous studies; most students avoid in-text questions and activities, use surface level processing, and are "satisfying". I appears that textual features are not as effective as course designers thought.

There are several drawbacks to studies such as Marland et al. (1984), Marland et al. (1990), and Marton and Saljo (1976b). First, their studies involved only a limited number of students. Second, their studies involved students in a short time period only. The consequence of this is that it is difficult to make sure whether or not the knowledge that is measured, as in Marton and Saljo case, is a result of their learning during the experimental research or a result of their learning before the experimental study. In Marland et al.'s case, one explanation why students read rapidly might be that they are already familiar with the learning materials used in the research. Although these studies have drawbacks, their contribution to the research on student learning should not be underestimated. The value of their contribution will be articulated in the theoretical framework chapter that underpins this proposed study.

Several items in Parsons' (1986) in Inventory Study Behavior and in other standardized instruments, such as Muller's (1984) Study Behavior Inventory, Entwistle and Wilson' (1987) Inventory of Study Behavior, and Biggs' (1987) Study Process Questionnaire, are relevant to the proposed study. Parsons seeks to measure student behaviors in three stages (before, during and after) and four settings (lecture, reading, assignment, and examination). The most

relevant to the proposed study is the reading setting. Regarding reading, Parsons's concerns can be summarized as follows:

a. **before actual reading**, whether or not a student:
   - reads the syllabus or assignment requirements;
   - verbalizes the purposes;
   - skims headings, summaries, questions; and
   - pays attention to underlined key words;

b. **during the reading**, whether or not a student:
   - modifies reading speed to suit the types of material;
   - makes notes;
   - summarizes main ideas and meanings;
   - paraphrases main ideas and meaning in his own words; and
   - reflects what he has learned by relating it with what he knew;

c. **after the reading**, whether or not a student:
   - reviews and reorganizes his notes; and
   - summarizes and marks the completed sections.

Since these items describe the isolated (individual) student activities, they will be referenced in building the questionnaire for this study.

Interactivity: Social Activity

Several studies that addressed student social activities (Rekkedal, 1985, Sweet, 1986, Taylor et al., 1986; Persons & Catchpole, 1987) have been discussed earlier. Two studies that need further consideration are those of Keegan (1984) and of Burge, Howard, and Ironside (1991).

Keegan (1984) stated that there were 13 Regional Offices in the BOU in 1979. Each Regional Office was responsible for 20 Study Centers, making a total of 260 Study Centers in the BOU. There were about 300 full-time academic staff, 2,176 part-time student counselors, and 4,000 part-time tutors. Student support services accounted for up to 25 % of the BUO's annual grant from the Department of Education and Science. Keegan (1984) indicated that this amount

of funding was the biggest barrier to offering student services at the level offered by the BOU.

Study centers, equipped with lecture-rooms, meeting rooms, and offices, were open at night and on weekends for activities such as tutorials, group discussions, and informal meetings. Directly related to student support services were the staff tutors, senior tutors, tutor counselors, and course tutors.

In each region, there were six staff tutors or one staff tutor for every faculty. These staff tutors reported to the Director of the Regional Office and the Dean of Faculty at the BOU headquarters. The staff tutors were responsible for [1] organizing day school, field trips, and other activities in his region and faculty; [2] organizing tutorials; [3] recruiting, interviewing, and appointing part-time staff; [4] assuring the accuracy and consistency of tutors' marks; [5] communicating the information related to new teaching strategies to the headquarters and formulating recommendations for the frequency of tutorials, and the style and frequency of assignments.

In each region, there were four to six senior counselors. Each of them was responsible for the academic progress of approximately 1300 students and for contacting and guiding about 35 local tutor-counselors. They were also responsible both for helping students who were potential drop-outs and for disabled students in such areas as choice of courses, vocational guidance, allowing extra time for assignments, and other exceptional problems.

Tutor counselors were responsible for correspondence, face-to-face teaching, and counseling. In the BOU, the study was divided into two categories: the foundation level and the post foundation level. The normal tutor-counselor/student ratio was 1:12 for the foundation level and 1:18 for the post-foundation level. All students were assigned a tutor-counselor during their studies at the BOU. At least two months before the tutor-counselors began to

work with students who were assigned to them, they received information about the students (copies of the students' application forms). These tutor-counselors taught students, communicated with students either by mail or telephone, marked student assignments, commented on students' work, kept records of student progress, and were accessible to students at study centers on a regular basis.

Course tutors were hired exclusively for the post-foundation level. The normal ratio was one course tutor for twenty students. These course tutors were responsible for correspondence and also face-to-face tuition, marking, and commenting on student assignments. In Bates' (1990a) interactivity model, the BOU provides strong support for interaction both between students and tutors and between peer students.

Burge et al. (1991) investigated the role of tutoring in four Ontario universities that have extensive distance education programs. What these scholars tried to do was to gather information concerning the extent of the interaction among tutors, students, and peers in the undergraduate program. They gathered data about frequency of contact, communication means, content of communication, and perceptions of benefits of interaction. Their findings showed that tutors initiated most of the tutor-student contacts, that tutor-student contacts were less than the expected level, that contact between students did not exist, and that tutors thought that they had bigger effects in all aspects than their students thought they had. Their findings were in line with the findings of Laube (1992), but they were contradictory to Rekkedal's (1985) findings.

From the above discussion, it appears that several distance education institutions, such as, the BOU, the NKI-Skolen, and the four universities in Ontario have taken an active role in encouraging contacts both between tutors and students and among students. The findings of Burge et al. (1991), which

examined students' responses to this active role, question the necessity of such an active role. Only a small portion of contacts was initiated by students, and contacts between students were almost non-existent. The following paragraphs will discuss the general interactivity pattern of UT's students.

Interactivity of Students at Universitas Terbuka

By using Bates' (1990a) interactivity framework, the following are descriptions of the general pattern of student interactivity at UT. Most students interact only with print learning materials in their individual activity (Setijadi 1988; Smith and Curran, 1991). UT uses audio-cassettes for courses such as language pronunciation, in which the role of audio presentation is vital (Setijadi 1988). UT also uses television broadcasts to deliver some of its programs but since the total broadcast time is only 25 minutes for every two weeks (Smith and Curran, 1991), this mode of program delivery is limited. Most of UT's students, therefore, interact primarily with print learning materials.

UT used to provide two tutorials a semester; one tutorial was prior to the submission of a home assignment, and the other tutorial occurred about two weeks prior to the final examination. At the beginning, the attendance of tutorials was 80 per cent, but later, this attendance dropped to 10 per cent. This led to the abandonment of tutorial services (Setijadi, 1988; Smith & Curran, 1991). There are also private institutions that offer tutorial services for a fee, but UT plays no part in this offering (Setijadi, 1988). UT also encouraged students to arrange study groups so that the students could help one another. At one time, there were more than 1000 study groups (Setijadi, 1988), but no data were collected on their effectiveness. It can be concluded, therefore, that now there is no formal on-going mechanism that enables students to interact with either tutors or peer students. Employing Bates' (1990a) interactivity model, it appears

that UT provides virtually no opportunity for its students to participate either in social activities or in tutorial activities.

The structure of distance education learning material

Bates (1990a) stated that there are several features that differentiate distance education print learning materials from other print materials. These features include explicit objectives, headings, self-assessment questions within the text, activities and model responses, summaries, examination or assessment questions, and model answers to exam questions. Holmberg (1985) also suggested the above features in deriving the implications of his "guided didactic conversation" on the development of learning materials for distance education students. He called distance education learning material as "self-contained instruction" (p. 16) that tries to simulate teacher-student interaction.

Rowntree (1990) suggested several features of tutorial-in-print or self-instructional materials or learning materials that are common in distance education. These features are as follows:

1. a "guidance" to help students to go around the subject;
2. an explanation of prerequisites;
3. clear objectives;
4. advice on how to tackle the subject (such as how much time should students spend on each section);
5. encouragement for students to make whatever effort is necessary to understand the learning material;
6. encouragement for students to do exercises and activities in the learning material;
7. feedback on exercises and activities so that students know their progress;
8. encouragement for students to sum up and reflect on their learning at the end of the learning material.

Mouli and Ramakrishna (1991) stated several distinctive features of distance education materials that are very similar to those features suggested by Holmberg (1983b), Bates (1990a), and Rowntree (1990). According to them, the distinctive features of distance education materials are: study objectives that

describe what students are expected to learn from the materials; self-assessment questions that enable students to check their progress in working with the course materials; a discussion of the answers to the questions so that students can compare these to their answers; study guidance; and an attempt to keep the student's interest. The following section describes the format of UT's learning materials.

The general structure of Universitas Terbuka's print learning materials

UT organizes its courses in terms of semester credit units in which courses vary from 1 semester credit unit to 5 semester credit units. One semester credit unit is equal to 40 hours of learning which are spread over 17 weeks (Mikdar & Karyani, 1988). Every semester credit unit of a course has 3 learning modules. Every module for exact (hard) science courses has approximately 35 pages, whereas every module for social science courses has approximately 50 pages. From the guidelines for their production (Universitas Terbuka, 1985), the structure of UT's print learning materials is as follow:

1. Learning Modules;
2. Workbooks;
3. Supplementary Materials;
4. Final Test Book;

Every learning module has the following sections:

1. Foreword that briefly describes the general content of the module, relates the content of the module to the knowledge that students have, and explains the benefits of mastering the module in daily life;
2. General Instructional Objectives;
3. Specific Instructional Objectives;
4. Several learning activities, each of which has the following parts:
   - 4.x.1. Articulations of main ideas, principles, theories, and related examples;
   - 4.x.2. Exercises and directions for doing the exercises;
   - 4.x.3. Overview;
   - 4.x.4. Formative tests;
   - 4.x.5. Feedback and Follow up;

5. Answer keys to formative tests;
6. Reference List.

The format of UT's learning material is, therefore, similar to the format that has been recommended commonly for independent study or tutorial-in-print by distance education experts (Holmberg, 1985; Rowntree, 1990; Bates, 1990a; Mouli & Ramakrishna, 1991). The features of this format appear to be relevant in the investigation of student interaction with print learning material (Clyde 1983; Marland et al., 1984, 1990; Parer, 1988b; Roberts, 1985).

Several of UT's expectations concerning the student interaction with learning materials can be suggested from the above descriptions. Students who are studying any exact science are expected to learn the materials at 105 pages/40 hours or approximately 3 pages an hour; social science students, however, are expected to learn the materials at 150 pages/40 hours or approximately 4 pages an hour for every credit.

Suppose a student takes two courses in exact science (each for 3 semester credit units) in one semester or a total of 6 semester credits. Here UT expects that this student will spend 6 x 40 hours / 17 weeks = 14.1 hours/week or more than 7 hours per week for every course taken. UT expects that the student will complete 7 hours x 3 pages/hour = 21 pages every week for every course. A student who is taking a 3 semester credit social science course will be expected to complete 7 hours x 4 pages/hour = 28 pages of learning material a week.

A study relevant to the purpose of this research was conducted to assess the readability of print learning material at UT. That study (Rumanta, 1991) used the criteria of readability:

1. the number of figures, graphs, and tables that are difficult to comprehend;
2. the number of explanations of graphs and figures that are unclear;
3. the number of excessively long and difficult sentences;

4. the number of difficult words and their explanations in the glossary;
5. the number of inconsistent use of terms;
6. the number of misspelled words;
7. the number of answer keys of the exercises that need to be revised;
8. the number of answer-key of the formative tests that need to be revised;
9. the clarity of the glossary;
10. the number of wrong concepts;
11. students' opinion of the difficulty level of comprehending the print learning materials.

Some of the above criteria will be referred to in the development of the research instrument.

Summary

First, this chapter has reviewed the literature about the definition of drop-out, facts of drop-out, research on drop-out and models of drop-out including identifying reasons for drop-out and factors that were related to drop-out. Second, it has examined the notion of interactivity, the individual and the social contexts, and factors that were important in the notion interactivity, such as time, learning orientations, researches that can be put under interactivity notion. Third and final, it has reviewed the general structure of learning materials in distance education institutions and in Universitas Terbuka. The essence of the literature review can be summarized as follows:

1. High drop-out rates are a general though undesirable characteristic of distance education institutions (Garrison, 1987; Roberts, 1984; Rekkedal, 1985).

2. Most of drop-outs occur in the early phases of the program such as first year and first semester (Pascarella and Terenzini, 1980; Rekkedal, 1985; Fritsch and Strohlein, 1988; Roberts et al., 1991, Universitas Terbuka, 1992).

3. Reasons for drop-outs, explored by Rekkedal (1985), vary. They range from "just" reasons to reasons which are beyond the power of the distance education institution to influence. The "just" reasons are those which distance education institutions cannot pay any attention to. There are reasons about which distance education institutions need to be seriously concerned, such as those related to learning materials and support services.

4. Findings of research on drop-out show that there are several contextual factors that may be related to drop-outs. These factors include occupation and previous achievement (Eissenberg & Dowsett, 1990), age, sex, and geographic location (Sweet, 1986), and course factors (Bernard & Amundsen, 1989).

5. Findings of research on drop-out show that there are several non-contextual factors that may be related to drop-out behavior. These factors, drawn from Tinto's (1975) drop-out model, are academic integration (academic performance and course material rating), social integration (interaction with tutors and peer students), and goal satisfaction (Sweet, 1986). Bernard and Amundsen (1989) reconfirmed the relevance of these factors in regarding the drop-out problem in distance education. The Clyde et al. (1983), Burge et al. (1991) and Laube (1992) findings question the importance of an interaction between distance education students.

6. There are three factors (course material rating, academic performance, and goal satisfaction) in Sweet's (1986) path analysis that have considerably larger correlation coefficients (direct or indirect link) to persistence. Kember and Harper's (1987) findings showed a relationship between deep approaches to study and high academic performances, and surface approach to study and drop-outs. These two findings show that course material plays a major role in persistence or drop-out.

7. A student can have both deep and surface approaches to study and the approach that he/she eventually uses can be influenced by types of in-text activities, exercises, and questions (Marton & Saljo, 1976b) that are given during the study process. An investigation of how students approach their study tasks, which is mainly done alone by interacting with learning materials (Bates, 1990a; Juler, 1990), might shed a light on the drop-out problems.

8. On one hand, researches on drop-out from distance education have paid inadequate or no attention to the students' interaction with print learning material; on the other hand, researches on student interaction with print learning material, which according to Holmberg (1983b), Bates (1990a) and Juler (1990) is the most important and biggest part of students' learning, has never linked such interaction to the drop-out phenomenon.

9. Print learning material for distance education is designed to maximize the outcome of students' learning. The principles for the development of print learning materials also prescribe the way students interact with the print learning material (Bates, 1990a)

10. Simulated-recall technique and diary have been used to investigate student interaction with print learning materials. The simulated recall technique was used with limited numbers of sample and time periods (Marland et al., 1984; Marland et al., 1990); whereas the diary has been used in a larger sample and for a longer period. Use of a diary as a technique to gather data, however, suffers from low response rates (Clyde, 1983; Roberts, 1985; Parer, 1988a);

11. The notion of time (Schwittmann, 1982), especially for distance education students, is very important in determining the success in learning.

12. The construct of reader-text relationship (Koenke, 1984) can be used as a base to develop the construct of distance education student interaction with print learning materials.

CHAPTER III

METHODOLOGY OF THE RESEARCH

This chapter addresses the following topics: research questions, research design, operational definitions, research instrument, research procedure, pilot testing, population and sample, data gathering, data management, data analysis, stability tests of responses, inter-rater consistency test and a brief description of EKON4110 print learning material.

Research Questions

This study sought answers to the following research questions:

1. What are the statistical descriptions of 10 factors of student interaction with print learning material and 2 contextual factors? The 10 factors of student interaction with print learning material are: students' Individual Activities with print learning material, their Understanding of Directions in print learning material, their Attitudes After Interacting with print learning materials, their Learning Orientations, their Reading Speeds, the Difficulties that they faced in their interaction with print learning material, the amount of Time that they spent on Interaction with print learning material, Study Motivation, and their Study Loads. The 2 contextual factors are the amount of Time that students spent on their way to and from work, and their Previous Academic Performances.
2. Are there statistical correlations between Students' Academic Performance at UT and each of the 12 factors mentioned above?
3. Are there statistical differences between students who persisted and those who did not persist in terms of 12 factors mentioned above?

4. Do combinations of the 12 factors mentioned above statistically explain the variation in students' academic performance?
5. How far does the combination of the 12 factors mentioned above statistically predict persisters and non-persisters?
6. Why did students choose Universitas Terbuka as a means to continue their education?
7. What were the rationales that brought students to education and kept them in?
8. What were the difficulties that students faced in their interaction with print learning material?
9. What motivated students to persist or not to persist.
10. Which experiences of studying at Universitas Terbuka did students like and which did they dislike?

Theoretical Framework and Research Design

Bates' (1990a) suggestion that the largest part of student learning is done alone by interacting with print learning material served as theoretical framework of this study. Support for the framework can be found in Holmberg (1983b), Juler (1990) and Timmins (1989), all of which have been discussed in the Literature Review chapter. Since this study dealt with persistence, the drop-out models of Tinto (1970) and of Kember (1989a) were also considered in the designing of this research.

The notion of *reader-text relationship* (Koenke, 1984) was adopted in this study to develop the construct of distance education student interaction with print learning material. Parallel to the definition of *reader-text relationship* discussed earlier in the Literature Review, the construct of distance education student interaction with print learning material was defined as the state, character, or quality of the connection, association, or involvement between the

distance education student and print learning material, the main delivery medium in distance education institutions.

The constitutive definition of the distance education student interaction with print learning material is that such interaction is comprised of the following factors: Individual Activities with print learning material and Time on Interaction (connection, association, or involvement), Understanding of Directions, Difficulties in Interaction, Reading Speed, Approaches to Learning, Study Motivation, Study Load and Attitude After Interaction (state, character, or quality). The operational definitions of factors that constitute the construct of distance education student interaction with print learning material will be presented in a later section.

Several variables that may be related to academic performance and drop-out or persistence have been discussed in the literature review. Table 2.2 in the Literature Review has summarized reasons for dropping out, whereas the following Table 3.1 below summarizes variables that are related either to drop-out or to persistence.

Controlling all the characteristic-related variables might result in a lack of subjects in the sample since increasing the number of criteria may produce too small number of students who meet the criteria. Including all variables in the research increases the number of information items that need to be collected from sample students. This action may "discourage" students in the sample from responding, and, it may put at risk the reliability of data that will be gathered. Due to the impossibility of controlling all variables or including all variables in the design, this research controlled some variables by holding them constant, included several variables in the design; it also left some variables out of this design.

Based on studies that have been elaborated in the literature review, variables that were included in this study were Individual Activity with print Learning Material (Bates, 1990a; Holmberg 1983b; Juler, 1990; Timmins, 1989) Attitudes After Interaction with Print Learning Material (Harris (1972) in Rekkedal (1985)), Understanding of Directions in Print Learning Material (Holmberg (1971) in Rekkedal (1985)), Difficulty of Working with Print Learning Material (Holmberg (1971) in Rekkedal (1985)), Study Motivation (Kember, 1989a), Time on Interaction with Print Learning Material (Harris (1972) and Holmberg (1971) in Rekkedal (1985); Laube, 1990; Schwittmann, 1982), Reading speeds (Marland et al, 1990), Learning by Understanding, and Learning by Memorizing (Marton & Saljo, 1976a, 1976b).

Table 3.1
Variables that are related to drop-out and persistence

Variables	Study(ies)
1. Characteristics	
a. Sex	Tinto (1975), Woodley & Parlett (1983), Kember (1972) in Kember (1989a), Sweet (1986)
b. Age	Woodley & Parlett (1983), Rekkedal (1972) in Kember (1989a), Kember (1972) in Kember (1989a) Sweet (1986)
c. Previous Educational Performance	Tinto (1975), Woodley & Parlett (1983), Rekkedal (1972) in Kember (1989a), Eisenberg & Dowsett (1990)
d. Occupation	Woodley & Parlett (1983), Eisenberg & Dowsett (1990),
e. Region of Residence	Woodley & Parlett (1983), Sweet (1986)
f. Years of School Experience	Rekkedal (1972) in Kember (1989a)

Table 3.1
Variables that are related to drop-outs (continued)

Variables	Study(ies)
g. Months of enrollment	Rekkedal (1972) in Kember (1989a) Pascarella & Terenzini (1980) Fritsch and Strohlein (1987)
h. Number of Children	Kember (1972) in Kember (1989a)
i. Sponsorship	Kember (1972) in Kember (1989a)
j. Housing conditions	Kember (1972) in Kember (1989a)
k. Course factor	Bernard and Amundsen (1989)
l. Family Social Economic Status	Tinto (1975)
m. Locus of control	Sweet (1986) Stone (1992)
2. Commitment	Tinto (1975), Sweet (1986), Kember (1989a), Roberts et al. (1991), Laube (1992)
3. Academic Environment	Tinto (1975), Sweet (1986) Kember (1989), Roberts et al. (1991)
4. Academic Integration	Tinto (1975), Sweet (1986), Kember (1989a), Roberts et al. (1991)
5. Social and Work Environment	Tinto (1975), Sweet (1986), Kember (1989), Roberts et al. (1991)
6. Social and Work Integration	Tinto (1975), Sweet (1986) Kember (1989a), Roberts et al. (1991)
7. Cost/Benefit Analysis	Kember (1989a), Roberts et al. (1991).

Contextual variables which were included in the design were Employment Status (Harris(1972) and Holmberg (1971) in Rekkedal (1985)) and

Previous Educational Achievement. Eisenberg and Dowsett's (1990) findings have shown that there is a relationship between these variables and academic performance and drop-outs.

The variables that were held constant are students' experience in a distance education program and the course variable. The rationale for holding the former variable constant was that most drop-outs occur in the early phases of an educational program (Pascarella and Terenzini, 1980; Rekkedal, 1985; Fritsch and Strohlein, 1988; Roberts et al., 1991, Universitas Terbuka, 1992). Bernard and Amundsen's (1989) findings have shown that courses, and the quality of their learning materials as well, may be related to academic performance and drop-out. Courses that will be used in this research, therefore, need to be held constant to omit differential influences between courses. Thus, only new students who took the EKON4110 course were included in the sample. In summary, this study dealt with four types of variables; namely dependent variables, independent variables, contextual variables and control variables. This research examined the relationship between two dependent variables and ten independent variables and two contextual variables by controlling two other variables that might have influenced this research if left uncontrolled. Figure 3.1 present the design of the research. Operational definitions of these variables will be presented in the next section.

Because of the limitations in both controlling and including into the research variables that may have relationships with academic performance and drop-outs, several threats to internal and external validity need to be addressed. There are three threats to the internal validity of this proposed research. The first threat is that this study will focus on individual student activities without considering whether students participate in self-help study groups or in tutorial activities. Participation in these activities might have effects on academic

performance and drop-out. The second threat is that, besides the course that is used in this study, students in the sample may take other courses. The individual load differences may have differential effects on factors that are being

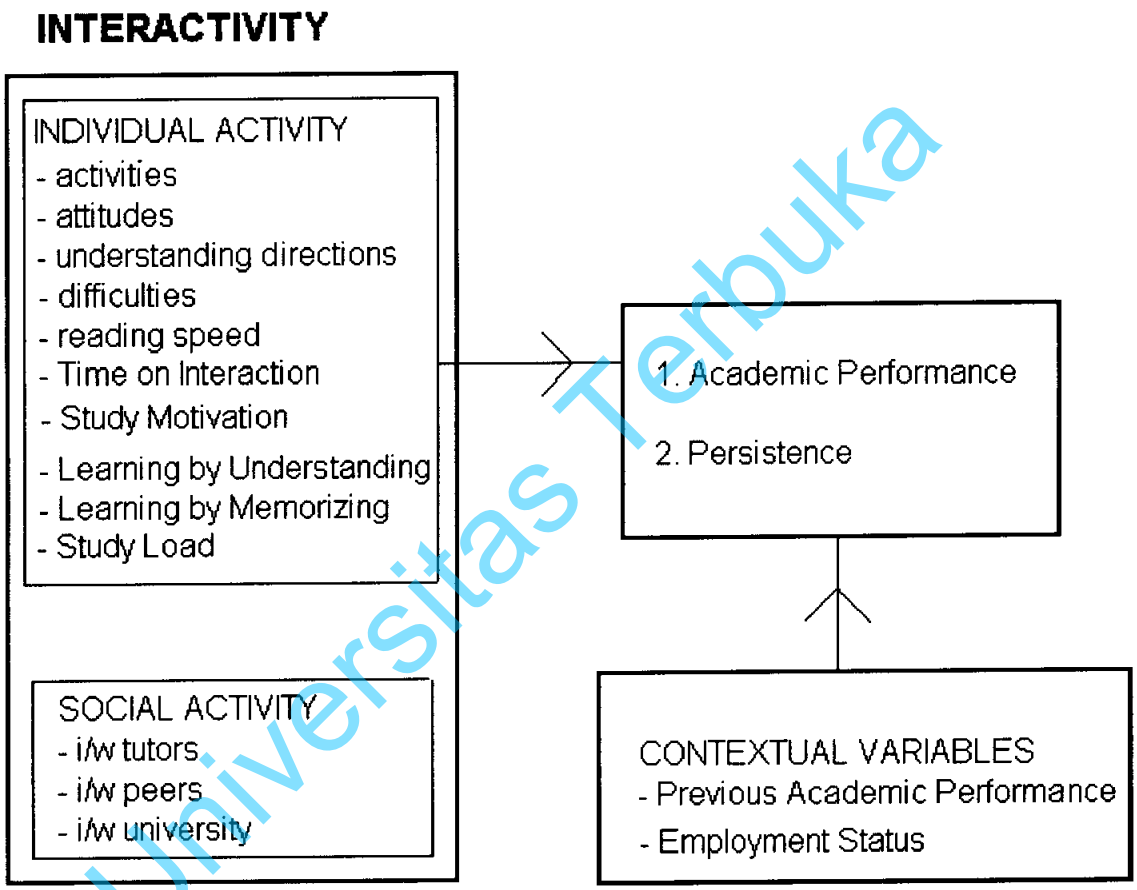

Figure 3.1
Research Design

examined in this research. The third threat is that the researcher is an employee of UT. This fact may undermine the objectivity of data that will be gathered

Not much can be done regarding the first and second threats other than selective sampling with the risk of obtaining a small sample size or asking respondents whether or not they participate in tutorial and study group activities, and asking respondents to name courses that they took. Regarding the third

threat, no attempt will be made to hide the researcher's identity. Sample students, however, were assured that their responses would be treated as confidential information and would have no effect on their relationship with UT in any way. By doing this, the researcher hoped to obtain data that was as objective as possible.

There were two threats to external validity that may inhibit the generalizability of the findings of this research. The first threat is the selection of the course material that was used in this research, since only one course was used in this research. The rationale for using only one course and its materials is to avoid the effects of the variance of the print materials on student interaction with print materials. The criteria that are used to choose the course materials are presented in Control Variables section in this chapter. The second threat to external validity is that the selection of subjects for the sample is limited to students who take a certain course and who choose to respond and complete the questionnaire. This limitation would undermine the representativeness of the sample of this study. Because of the above limitations, the sample of this study is not intended to be a representative sample. These threats to external validity, however, will limit the generalizations that can be made from this study.

Operational Definitions

The following four sub-sections will elaborate each of these types of variables respectively.

Dependent variables

The two independent variables were operationally defined as follows:

1. **Academic Performance** (**AP**) was the percentage of correct responses in the final exam of the EKON4110 course.

2. **Persistence**. Students were called **persisters** if they registered in their second semester whereas **non-persisters** were students who did not register in their second semester.

Independent variables

The ten independent variables were operationally defined as follow:

1. **Individual Activities with Print Learning Material (IA)**.

   By referring to the work of Bates (1990a), Marland et al. (1984, 1990), Clyde (1983), and Roberts (1985), Student Individual Activity was defined as the degree of student interaction with print learning materials and was measured in terms of how often a student :

   a. reads the Foreword of each learning material;
   b. reads the Table of Contents of the learning materials;
   c. reads the general objectives of each unit of the learning materials;
   d. reads the specific objectives of each unit of the learning materials;
   e. reads the learning material unit;
   f. does the in-text exercises in a learning unit;
   g. does the formative test in a learning unit;
   h. compares his exercises with the model answers that have been provided in the learning unit;
   i. compares what he learned from the reading with the general instructional objectives;
   j. compares what he learned from the reading with the specific instructional objectives;
   k. stops reading when he finds the following textual stimuli: heading and sub-headings, italic words, underlined words, graphs, illustrations, maps, tables, reference to ideas;
   m. makes a note or a summary of the reading materials;
   s. rereads a learning material.

2. **Attitudes After Interaction with Print Learning Material (AAI)** was defined as how often a student perceives the usefulness of the Introduction, General Instructional Objectives, Specific Instructional Objectives, Examples, Exercises, Formative Test, Headings and Sub-headings, Italicized Words, Underlined Words, Graphs, Tables, Illustrations, Maps, Caricatures,

References, his/her interaction with print learning material and how much he/she enjoys during this interaction.

3. **Understanding of Directions in Print Learning Material(UD)** was defined as how often a student understands the Introduction, the General Instructional Objectives and the Specific Instructional Objectives.
4. **Difficulty in Working with Print Learning Material** (**DW**) was defined as how often a student experiences difficulty in general and especially difficulties dealing with illustrations, graphs, tables, and maps.
5. **Study Motivation** (**SM**) was defined as how a student values the importance of completing the study program, completion of the EKON4110 course, how rigorous he/she follows his/her own schedule, how disciplined he/she considers himself/herself to be, and how ambitious he/she considers himself/herself to be.
6. **Time on Interaction with Print Material** (**TI**) was defined as the amount of time that a student spends each week in their interaction with print learning material.
7. **Reading speeds** (**RS**) was defined as the number of pages that a student perceives he/she reads in an hour.
8. **Learning by Understanding** (LU) was defined as how often a student relates what he is reading to materials that he has read before, how often a student relates what he is reading to his/her real life experience and how often a student attempts to obtain a general understanding of a learning material by mastering the inter-relationships of its parts
9. **Learning by Memorizing** (**LM**) was defined as how often a student attempts to memorize all the details of learning material.
10. **Study Load (SL)** was defined as the sum of semester credit units that a student was taking during the first semester.

Contextual Variables

The two contextual variables were defined as followed:

1. **Previous Academic Performance** (**PAP**) was defined as the average of a student's scores in the high school certificate.
2. **Time - Off** (**TO**) was defined as the amount of time that a student spends at work and on the way to and from work.

Control Variables

There are two control variables in this study each of which was operationally defined as follows:

1. **Experience in Distance Education Program** is defined as the number of semesters that students have registered in at UT. This research included students who were in the first semester when this study was being conducted.
2. **Course Factor** was defined as the subject that a student learns at UT. To eliminate the differential effect of courses (Bernard & Amundsen, 1989), this study used the EKON4110 course only. The rationale for choosing this course was that this course has been used in a research examined students' thought processes when they were studying modules of UT (Andriani, Listyarini & Warlina, 1992). Comparisons between this study and the present study, therefore, can be done.

Research Instrument

The research instrument consisted of two parts. These two parts are presented in Appendices D.1 and D.2 respectively. The first part was the Introductory letter signed by the Head of the Center of Research and Community Services of Universitas Terbuka. In short, in that letter, the head of the Center introduced the research, emphasized the importance of the role that students could take in the research, suggested that students take a week or so to reflect

on what they did in interacting with print course material before they filled in the questionnaire so that their participation would be meaningful, assured that their responses would be kept confidential, and explained the willingness of the researcher to share souvenirs by holding a drawing for those who filled in and returned the questionnaires. An English version of this letter is attached in Appendix D.1.

The second part of the research instrument contained one of three questionnaires employed in this study. These three kinds of questionnaires will be referred to as Questionnaire-1, Questionnaire-2a, and Questionnaire-2b respectively. Questionnaire-2a and Questionnaire-2b were supersets of the Questionnaire-1.

Questionnaire-1 had two sections whereas Questionnaire-2a and Questionnaire-2b had three sections of which the first two sections were exactly the same as the three sections of Questionnaire-1. The overlapping sections between Questionnaire-1, on the one hand, and Questionnaire-2a and Questionnaire-2b, on the other hand, served as a means to examine the stability of student responses over an approximately six month period especially on aspects of their interaction with print learning material.

The first two sections of the questionnaires are student personal information and information concerning student interaction with print learning material. The third section of Questionnaire-2a addresses information about things that motivated students to register. The third section of Questionnaire-2b addresses information about things that motivated students not to register.

The first section of the three questionnaires addressed the following personal information: Student Identification Number, Gender, Program of Study, Regional Center, Employment Status, the number of working days a week, the number of working hours a day, the number of hours spent on the way to and

from work, grade point average in high-school, list of courses that were taken in the first semester and the total number of course-credits, previous experience in studying by distance education method and, if any, its explanation, rationales for choosing Universitas Terbuka, how a student rates his/her self-discipline, how a student rates his/her ambition, and how a student rates the importance of finishing the study program and his/her rationales for that importance. These three ratings were made on a five-point scale.

The second section addressed information related to the EKON4110 course and aspects of student interaction with its print learning material. The kinds of information that were collected were as follows:

- whether a student participated in the face-to-face tutorial of EKON4110;
- whether the course that the student was taking was really the course that he/she wanted to take;
- the status of the course (either compulsory, elective, or general);
- the position of the course in a student's long term plan;

and on a five-point scale (one means never and five means always):

- how the student rated the importance of finishing the EKON4110 course and his/her rationales for it;
- how often the student read the Introduction, Table of Contents, the General Instructional Objectives, and the Specific Instructional Objective;
- how often the student understood the Introduction, the General Instructional Objectives, and the Specific Instructional Objectives;
- how often the student thought that the Introduction, the General Instructional Objectives, and the Specific Instructional Objective were helpful in understanding the course;
- how often the student read the Learning Activities;
- how often the student experienced difficulties and what kind of difficulties;
- how often the student did Exercises and Formative Tests;
- how often the student read the Overview;
- how often the student compared his/her answers to the answer keys;
- how often the student compared what he/she has just read to the General Instructional Objectives, and the Specific Instructional Objectives;

- how often the student thought that Examples, Exercises and Formative Tests were useful;
- how often the student stopped to think when encountering headings and sub-headings, italicized words, underlined words, graphs, illustrations, references to other ideas, maps, caricatures, tables, and indentation;
- how often the student experienced difficulties in dealing with graphs, maps, tables, and illustrations and, if any, explanations of them;
- how often the student thought that headings and sub-headings, italicized words, underlined words, graphs, illustration, maps, tables, caricatures and reference to other ideas were helpful for understanding the course;
- how often the student related what he/she just read to what has been read before and to daily live experiences;
- how often the student re-read learning material;
- how often the student tried to memorize the details of the learning material;
- how often the student tried to master the learning material by understanding the relationship of concepts in it;
- how often the student made summaries of what was read;
- how often the student rated their interaction with print learning material to be useful;
- the number of hours a day the student read learning material, the number of days the student read the learning material, and the number of hours a week students read the learning material;
- whether or not the student has a study schedule and how often he/she observes the schedule;
- the student's reading speeds;
- how much the student enjoys studying the print learning material for the best results, and finally
- there is space for the student to mention things that related to interaction with print learning material that have not been addressed in the questionnaires.

The third section of Questionnaire-2a was employed to collect the following information: what led the student to register in the second semester, experiences from the first semester that the student liked and/or disliked, the possibility of the student quitting Universitas Terbuka in the future and possible

reasons for quitting. The third section of Questionnaire-2b was employed to collect the following information: confirmation of the registration status of a student, if indeed a student did not register in the second semester what caused him/her not to do so, the experiences in the first semester that the student liked and/or disliked. If a student claimed that he/she has registered, he/she was asked what caused him/her to do so and what experiences in the first semester that the student liked and/or disliked.

Research Procedure

The research was conducted in the following sequence:

1. The development of the research instrument and pilot testing;
2. Administration of the research instrument in two stages. Questionnaire-1 was administered in the first stage of data gathering that was conducted from the first week of May until the end of July, 1993. Questionnaire-2a and Quesstionnaire-2b were administered in the second stage of data gathering that was conducted from the first week of December, 1993 until the first week of February, 1994. Questionnaire-2a were sent to sample students who registered in their second semester whereas Questionnaire-2b were sent to sample students who did not register in their second semester. The purposes of the administration of the instrument in the second stage were to investigate the stability of student responses, the experiences of studying at Universitas Terbuka that students liked and/or disliked, rationales for their persistence or non-persistence, and the possible reasons for quitting in the future of those who persisted at the time of the study.
3. Key-entering quantitative data and translating of open-ended students' responses and typing the translation in to a computer file.

4. Analyzing quantitative data by using SPSS/PC+ and the qualitative data by using ETHNOGRAPH; a computer program for text analysis (Seidel, Kjolset & Seymour, 1988).
5. Conducting response stability analysis between the responses in the first stage and second stage. A correlation analysis method was used to assess the stability of quantitative responses and a comparison lists of responses was used to assess the stability of qualitative responses.
6. Conducting an inter-rater analysis of the qualitative data by distributing a sample of 50 pages of 40 column one-spaced pages to five raters in which a rater received 8 to 11 pages depending on where a student ended.
7. Reporting results of all the above steps.

Pilot Testing

Two colleagues from UT Headquarters reviewed the questionnaires to assure that the meanings of all items in the questionnaires were clear. The head of the Center of Research and Community Service at UT was also asked to review the questionnaires concerning the clarity of items. He suggested that an item that asked for the students' name be omitted from the questionnaire. Based on his experience, such an item discourages students from expressing what they want to express. That item was then deleted from the questionnaire. The questionnaire was pilot-tested on a group of 25 students who were participating in the face-to-face tutorial. The pilot test was conducted in a room where all the 25 students were working on the questionnaire at the same time, and the researcher made himself available for questions and encouraged participants both to comment and to ask questions. There were no students who asked questions, and no major revision was made based on the pilot test except those typographical errors which were reported by participants.

Population and Sample

The population of this study included all first semester students who took EKON4110 - Pengantar Ekonomi Makro (The Introduction to Macro Economics) when the study was conducted. Since there were only 317 first semester students who met that criterion, those 317 students were asked to participate in this study. In other words, population and sample are not an issue to be discussed further in this study.

Data gathering

The researcher employed two methods for gathering the data. The first method was accessing UT's data bases to collect data on scores on final exam of EKON4110 and its letter grades, grade point averages and registration status of students in the sample. The second method was distributing the research instrument (a questionnaire) to the sample students.

In the first stage of data collection, the researcher mailed the Questionnaire-1 to 317 sample students. There were 18 questionnaires returned due to incomplete addresses. There were 157 students who filled out and returned the questionnaires. This represented a 49.53% return rate. One student was dropped from the sample because she did not take EKON4110. There were another 18 students who were dropped from the sample due to incompleteness of their responses and the fact that the amount of time that they spent at work and on their way to and from work exceeded 70 hours a week. The meaning of interaction with print learning material of students who responded that they spend 70 hours or more at work is, perhaps, ambiguous. Spending that much time would seem implicitly to make other activities, such as studying, rather difficult; because of this, the data were excluded from quantitative analyses. The data, however, were included in the qualitative analysis, because, in fact, these students may have something important to say about their experience at UT. As

has been shown in Schwittman's (1982) model, there are still other activities (for distance education students) that take time, such as Time for Family. In Schwittman's model, these students had a limited possible study time. In other words, they had a limited time to interact with print learning material. It did not address whether or not they still had the energy to study after spending so much time either at work or on their way to/from work. As mentioned previously, the researcher eliminated this group from the quantitative analyses, but still included them in the qualitative analysis.

In the second stage, Questionnaire-2a was sent to **43 students who registered** in their second semester, and Questionnaire-2b was sent to **42 students who did not register** in their second semester. To maintain accuracy, the registration status of students was taken from UT's data bases at the end of November, 1993, approximately one month before their second semester examinations.

Twenty-seven students who registered in their second semester filled out and returned Questionnaire-2a, 12 students who did not register in their second semester completed and returned Questionnaire-2b. These numbers represented a 45.88 % return rate. One student failed to write down a student identification number and sent the completed questionnaire in the same envelop with a friend who happened to be a sample student. Since there was no way to associate the data of this student with data from the first stage data gathering, the completed questionnaire from this student was not included in the analysis.

Data Management

A computer database package, FoxPro version 2 LAN, has been used to manage the data of this study. This computer software has the capability of handling fixed-length data, such as, data that comes from multiple choice items, yes-no items or numeric information, and variable-length data such as

comments, suggestions or explanations. As well, this software has the capability to produce files that can be used as input for other computer applications for conducting analyses, in this case SPSS/PC+ and the ETHNOGRAPH (Seidel et al., 1988). The numeric data were analyzed by using SPSS/PC+ version 4 and qualitative data were analyzed by using a computer software package called ETHNOGRAPH. The ETHNOGRAPH software package has the capability both of keeping categories of parts of a text and of producing lists of frequencies of categories (ordered either alphabetically on categories or ascending on frequencies of categories) and search for texts that are related to a set of categories.

Data Analysis

The value of a variable of a student is the sum of the student's responses on items that refer to that variable. The Operational Definition section has presented the relationships between each variable and items that refer to that variable. Appendix C presents the associations between variables and their items in the questionnaire and internal consistency coefficient of each variable.

In order to answer the research questions stated earlier, the following analyses were conducted. Descriptive statistics were used to answer research question number 1 (the discription of 10 factors of student interaction with print learning material). Research question number 2 (correlation between Academic Performance and each of the 12 factors) was answered by using correlation analyses. T-tests were used to answer research question number 3 (the differences between persisters and non-persisters in terms of the 12 factors). Research question number 4 (how the combination of the 12 factors explains the variation of Academic Performance) was answered by using regression analyses. Discriminant analysis was conducted to answer research question number 5 (how the combination of the 12 factor predict the persistence cases).

Research questions number 6 through 10 (rationales for choosing Universitas Terbuka, study motivation, difficulties in interaction, things that motivated student to persist or not to persist, and experiences that students liked and/or disliked) were answered by using the following steps: thematic coding and frequency count.

Stability Test

Since this research used a non-standardized instrument, a test of stability of responses had to be made so that potential weaknesses in the instrument could be assessed. The stability test was conducted on both the quantitative and qualitative data. Correlation analysis and t-test were used to examine the stability of responses in the two stages. Correlation analysis was used to examine the association between responses of each item in the first stage and the second stage. The t-test was used to examine the mean difference between the responses of each item in the first and second stages. On one hand, the t-test was needed because the correlation analysis will not reveal the shift in responses. In an extreme case, for example, it is possible to obtain a correlation coefficient close to +1 although the responses in the second stage have shifted only one scale from the responses in the first stage. On the other hand, the correlation analysis was needed because a t-test will not indicate the changes in responses from the same respondent. In an extreme case, it is possible both to obtain "no shift" in the means of responses in two stages and to have the correlation coefficient at -1 (for example, if the responses in the two stages are as shown in the Table 3.2 below). The correlation analysis and t-test provide better information about the stability of responses. The ideal situation is when both the correlation coeffient between responses in two stages of each item is close to 1 and there is no difference in the means of responses to each item in the two stages.

Table 3.2
Dummy data of an extreme case

Respondent	Response (stage one)	Response (stage two)
A	5	1
B	4	2
C	3	3
D	2	4
E	1	5

The correlation analyses and t-tests were conducted on 62 items and based on 38 pairs of students' responses. Since it could be expected that there would be a positive correlation between responses, one-tail correlation analyses were used. The results showed that the responses on 50 items in two stages were correlated up to $\alpha = .05$ significance level. Appendix E1 presents the results of the stability examination of responses in which the entries were sorted based on their significance levels.

Appendix E.2 presents the results of t-tests of responses to all the 62 items in the two stages. The results of t-tests showed both that responses to 11 items in two stages of data gathering were significantly different up to $\alpha = .05$ and that the responses to the other 51 items in the two stages were not statistically different. All of the differences in the 11 items referred to above are characterized by the responses in the second stage being lower than the responses in the first stage. Four of these 11 items comprise the Individual Activities factor (Stop to think on Graphs, Read the General Instructional Objectives, Read the Specific Instructional Objectives, and Read the Overview; four of these 11 items comprise the Attitudes After Interaction factor (Usefulness of Maps, Usefulness of References, Usefullness of Illustrations and the Enjoyment of studying Modules for the Best Results); two of these 11 items comprise the Study Motivation factor (The Importance of Finishing Course

EKON4110 and Observance of Personal Study Schedule), and another item comprises Time in Interaction factor (Number of Hours Spent on Modules each Day). Combined with the results of analyses which will be reported later (Difficulties in Interaction is the factor that correlated most highly with Academic Performance), the decrease in the 11 items referred to above may be real. Another study is needed to confirm this statement. From the results of correlation analyses and t-tests reported above, it can be concluded that:

[1] there is no item in the questionnaire whose responses in both stages was negatively correlated. This suggests that there were no extreme changes in the way students responded to the instrument;

[2] there are item-by-item variations of responses of individual students but the majority (51 items) showed no significant difference between responses in the first and second stages. The differences between responses in the two stages to the remaining 11 items were, however, statistically significant.

Comparisons of lists of responses were used to examine the stability of qualitative responses. Table G.1, Table G.3, Table G.3, Table G.4, Table G.5, Table G.6, and Table G.7 in Appendix G present comparisons of responses from two stages to the following items: the rationales for choosing UT, the importance of completing a study program, the position of the course in students' long term plan, the importance of completing the course, general difficulties, specific difficulties, and final comments.

Since there was a significant difference in the number of participants between the two stages (n1 = 156, and n2 = 38), differences in terms of variety of responses and their frequencies could be expected. This is so, since every individual student might have different concerns and different experiences in interacting with modules. By reviewing the tables mentioned earlier, it appeared that the students' responses that had high frequencies in the first stage tended to appear in the second stage. This was true in every table mentioned above.

There were also responses in the second stages that were not in the first stages. These kinds of responses are presented at the end of every table in Appendix G (Table G.1 through Table G.7). This means, from the frequencies of responses from the whole samples, that the qualitative responses with high frequencies appeared to be sufficiently stable.

There is a need, however, to look at responses from individual students in both stages. For instance, the following are translations of responses of one student (Student # 253) to the question about the rationales for choosing Universitas Terbuka.

The response in the first stage was:

253: Since I think UT fits me where there is no time limitation. The cost is cheap and the status of the institution is public. I can work as well.

The response in the second stage was

253: By attending UT I am not prescribed of when I have to attend classes. I can study wherever I like. I can allocate time to work at another place. So, whenever I have time I can study without having to wait for a tutor.

It is clear that the student mentioned both the flexibility of studying at UT and the fact that he/she could maintain his/her employment. It is true that he/she did not mention both the public status of UT and cost in the second stage. However, it might be unreasonable to expect one hundred percent consistency between responses in the two stages.

A number of responses were based on students' experiences in their first semester. For example, one student (# 293) stated that the reality was different from what he expected and that individual study took more time and energy and was more difficult than he thought originally. The difference between responses of this kind in the first stage and second stage should not be regarded as

indicators of instability of responses. It reflects a change in a student's attitudes toward UT that UT needs to be concerned with. In conclusion, even though the qualitative responses with high frequencies appeared to be stable, there were differences on responses on individual bases in two stages.

Inter-rater consistency test

There were approximately 350 pages of variable-length data in this study. For the ETHNOGRAPH to work, a page of variable-length data is 40-columns and single spaced. These pages came from the 8 open-ended items that have been described in an earlier section. Since conducting inter-rater analysis on these 350 pages was not feasible, inter-rater analysis was conducted on a sample of the 350 pages. From the 8 open-ended items, the final comment item is the least structured. Students' final comments in the first data gathering have been used as a sample in the inter-rater analysis. The rationale for this was that if there is consistency among raters on the most unstructured items, higher consistency between researcher and raters can be expected on the more structured items. This item produced approximately 47 pages which were then divided among 5 raters (or 9 to 11 pages per rater).

The researcher employed two methods in comparing themes identified by the researcher and the five raters. The first method was a comparison of lists of themes from the whole set of text that was used in this inter-rater consistency test. The second method was partial comparisons in which lists of themes from a student's responses identified by researcher and a rater were compared. This comparison was done on responses from 10 students or 2 students for every rater.

Through the first method, 330 themes were identified by the researcher and 470 themes by the five raters. After theme reduction by building broader themes, there were 66 common themes leaving 6 non-common themes on the

researcher's list and 10 non-common themes in the raters' list. The cause of this discrepancy was made clear through the second method. The frequencies of appearance of these themes were generally close to one another. Table F.1 in Appendix F shows these themes and their frequencies of appearance.

In the second method, the results of comparison are as follows:

Table 3.3
Inter rater consistency test: partial comparisons

Rater	Sample	Rater's entries	Researcher's entries	Entries match	Consistency Rate (%)
# 1	# 1	13	9	9	69.23
	# 16	14	7	7	50.00
# 2	# 122	6	4	4	66.67
	# 125	4	4	4	100.00
# 3	# 190	4	7	4	57.00
	# 194	4	5	3	60.00
# 4	# 244	4	4	2	50.00
	# 247	4	5	3	60.00
# 5	# 301	4	4	4	100.00
	# 305	6	6	5	83.33
Average consistency rate; 73,64%					

Table F.2 in Appendix F presents the comparison in detail. From Table 3.3 it is clear that two raters tended to go into more detail than the researcher, and two raters tended to go into less detail than the researcher. In a way, this explained the discrepancy that appeared in the first method.

Since the raters worked with students' responses that had been translated from Bahasa Indonesia (the Indonesian language) into English, there was a need to have a measure of how much the researcher's bias affected the translation. For this purpose, one of the raters reviewed 10 pages of final comments from students' responses in the first stage. These 10 pages consisted of responses from 28 students or 2305 words.

The results of the review showed that [1] there were 4 suggestions for appropriate words such as "comment" for "suggestion", "detail" for "systematic", "ask" for "appeal", [2] there were two sentences left untranslated, [3] there was an item missing from a three-list item, and one case in which the researcher and the reviewer had different interpretations due to incorrect spelling in the original document. The word was "sudanya" (Indonesian) in the context of periodic saving and the use of the accumulated savings after the completion of the study program. The researcher thought that the word had come from the word "wisudanya." The whole sentence was interpreted to mean that the accumulated savings will be used for the graduation cost since graduation requires a large expenditure, especially for the students who are from outside Jakarta who usually come with their families. The reviewer thought that the word had come from "sudahnya" since the respondent often miss-spelled words in that way (that is, missed middle letters). The whole sentence then was interpreted to mean that the accumulated savings will be used as a capital in setting up a business since the student was studying economics.

Considering the small number of differences (8 differences) between the researcher and the reviewer in the 2305-word passage and the nature of that differences, it appears that the researcher's bias had very limited effect upon the translation process. It can be concluded that there was no systematic bias that would slant the results of this study in one direction or another.

EKON4110 - Introduction to Macro Economics

EKON4110 is a three-credit course and was written by Sulistyo, Widayat, Adenan and Ardani (1986). Its course material consists of 9 modules and a total of 456 pages. It is printed on A4 paper format, one and a half spaced that gives 44 lines per page and 66 characters per line that is approximately eight to ten words per line or approximately 390 words per page.

There were four authors of EKON4110 learning material namely

a. Dr. Soelistyo, M.B.A. who wrote the following modules:

Module #1 - Pengertian and Permasalahan Ekonomi ["Concepts and Problems in Economy"],
Module #2 - Pendapatan National ["National Product"],
Module #3 - Berbagai Pengertian dalam Ekonomi Makro - ["Several Concepts in Macro Economics"],
Module #4 - Kaitan berbagai Pengertian dalam Ekonomi Makro - ["Relationship among Concepts in Macro Economics"]
Module #6 - Uang dan Bank - ["Money and Bank"]
Module #9 - Trilogi Pembangunan - [Three Fundamental Ideas of the Development]

b. Drs. Wahyu Widayat, M. Ec. who wrote Module #5 - Pengantar Ilmu Ekonomi International - ["Introduction to International Economics"].

c. Drs. Djamasri Adenan M.A. who wrote module #7 - Ilmu Ekonomi Pembangunan - ["Developmental Economics"].

d. Drs. Amiruddin Ardani who wrote Module #8 - Perencanaan Ekonomi - ["Economic Planning"].

Except for Module # 9, every module followed the general structure of UT's print learning material that has been described earlier in the Literature Review chapter. The structure of Module # 9 is as follow:

1. Introduction
   Overview
2. Economic Growth
3. Equal Distribution of Development and Its Results
4. Economic Stability
   Overview

The structure of Module # 9 is clearly far different from the prescribed one.

Overal, there are 49 tables, 39 graphs and 15 diagrams in EKON4110 print learning material.

CHAPTER IV

RESEARCH FINDINGS

This chapter presents findings of the research which, as stated, was conducted in two stages. Results of analyses that are related to examination of the research instrument and stability of responses in the two stages has been reported in Chapter III to avoid unnecessary repetition. First, this chapter describes the samples in both stages. Second, the sample in the first stage is presented in terms of dependent variables that were examined in this study. Third, the findings of the quantitative analyses (namely correlation analyses, t-test analyses, regression analyses and discriminant analyses) are presented. Fourth, the results of the qualitative analyses are presented. Finally, a summary of all the analyses is presented.

Description of the Samples

Returned questionnaires which were incomplete or which showed that the respondents spent more than 70 hours per week at work or work related activities were not included in the quantitative analysis. Based on these criteria, 18 returned questionnaires, from a total of 157 questionnaires, were not included in the quantitative analysis. These 18 returned questionnaires, however, were included in the qualitative analysis since these 18 students might have important things to which UT should pay attention. One student was dropped because the student did not take EKON4110. This left 138 questionnaires for the quantitative analysis and 156 questionnaires in the qualitative analysis, the results of which will be presented in the following paragraphs. For the second stage, one questionnaire from a total of 39 returned questionnaires was dropped because

the student did not include the student-ID making it impossible to find his registration status.

In the first stage, there were 138 sample students. There were 136 students (99.3%) who took the Economic and Development Study program and one student who took the Management program. There were 22 female students, 115 male students, and one student who failed to indicate gender. Six students already had previous academic experience before their enrollment in UT. The experience of these students will be presented in a later qualitative analysis section. There were 42 students (30.4%) who participated in tutorials and 96 students (96%) who did not participate in tutorials. Almost all students took the packaged courses, one of which was EKON4110 (the course with which student interaction with course material was investigated in this study). One-hundred, thirty students (94.20%) stated that EKON4110 was really the course that they wanted, and 7 students (5.72%) did not consider EKON4110 to be a course that they wanted; one student (0.72%) failed to indicate his/her view. There were 109 students (78.98%) who considered EKON4110 to be a compulsory course, 10 (7.24%) students who considered it to be an elective course, and 15 students (10.87%) who considered it to be a general interest course; one student (0.72%) failed to indicate his/her view. There were 95 students (68.84%) who stated that they have study schedules, and 43 students (31.2%) stated that they did not have study schedules.

The group of students who participated in the second stage data gathering can be described as follows. The 38 sample students were from nine regional centers. Most of them, 33 students, live on Java Island. There were 36 students who took the Economic and Development Study Program whereas two students took the Management Program. There were 7 female participants and 30 male participants; one student failed to identify his/her gender. Only three

students had previous experience in studying by the distance method, 35 students had not had such experience. There were 26 students who considered EKON4110 to be a compulsory course, 6 students who considered it to be an elective course, 1 student who considered it to be a general course, and 5 students who did not respond on this aspect. There were 25 students who stated that they have study schedules, and 13 students stated that they do not have study schedules.

Academic Performance and Persistence

Data for the two dependent variables, Academic Performance and Registration Status, were not gathered by using the questionnaire. They were obtained by accessing UT's data bases instead.

Academic Performance

The Academic Performance that this study is mainly concerned with is the score on the final exam of the course, Introduction to Macro Economic (EKON4110). Letter grades that students obtained on EKON4110 and the Grade Point Average (GPA), however, will be presented as well to provide a more complete picture of the nature of subject that was used in this study. Table 4.1 present the distribution of the students' scores on the final exam of EKON4110. Expressed in letter grades, there were two students who obtained B's, 35 students who obtained C's, 63 students who obtained D's and 17 students who obtained E's.

Based on the valuation as A= 4, B=3, C=2 or the passing grade, D=1, and E=0, the distribution of grade point averages of the sample students is presented in Table 4.2. There were only four students whose GPAs were equal to or higher than 2.0. To graduate or to take the comprehensive examination, students need to gain a GPA of at least 2.0. Despite this requirement, there were only 16 students whose GPAs were equal to or greater than 1.6. This means that

the majority of sample students have to work very hard to satisfy the requirements for comprehensive examination and graduation.

Table 4.1
Distribution of scores of sample students on final exam of EKON4110(S4110)

Range	Number of Students	Percentage
20 =< S4110 < 25	3	2.1
25 =< S4110 < 30	11	8.0
30 =< S4110 < 35	16	11.6
35 =< S4110 < 40	22	15.9
40 =< S4110 < 45	23	16.6
45 =< S4110 < 50	21	15.2
50 =< S4110 < 55	19	13.8
55 =< S4110 < 60	6	4.3
60 =< S4110 < 65	1	.7
65 =< S4110 < 70	1	.7
S4110 >= 70	0	0

Mean	40.82	Std.dev.	9.18
Minimum	20.0	Maximum	66.67
Valid cases	125	Missing	13

Table 4.2
Distribution of Samples' GPAs at Universitas Terbuka

Range	Number of students	Percentage
GPA < .2	16	11.6
.2 =< GPA < .4	6	4.3
.4 =< GPA < .6	15	10.9
.6 =< GPA < .8	9	6.5
.8 =< GPA < 1.0	25	18.1
1.0 =< GPA < 1.2	14	10.1
1.2 =< GPA < 1.4	17	12.3
1.4 =< GPA < 1.6	20	14.5
1.6 =< GPA < 1.8	11	8.0
1.8 =< GPA < 2.0	1	.7
2.0 =< GPA < 2.2	2	1.4
2.2 =< GPA < 2.4	2	1.4
GPA => 2.4	0	0

Mean	.98	Std.dev	.54
Minimum	0	Maximum	2.25
Valid cases	138	Missing	0

The above GPAs were calculated on the total number of course credits taken by each individual student. The total course credits taken by students will be discussed later in the Study Load section. The mean of the distribution of GPAs is 0.98, and its standard deviation is .54.

Registration Status

From 138 students who were included in the quantitative analysis, 67 students (48.6%) were not registered by the end of November 1993, and 71 students (51.4%) were registered. These figures are strikingly similar to the statistics of the previous periods.

QUANTITATIVE ANALYSIS

Results of Correlation Analysis and T-test Analysis

Interaction with printed course material, Academic Performance and Persistence

Appendix D.2 presents tables that describe thoroughly how the subjects of this study interact with modules. This section will highlight some selected findings. There were 24 items that referred to student interaction with the learning material. The mean of score was 90.99, which means that the average score of each item was 3.79 on a five-point scale. Since all of these items have the same direction, it appears that most of the sample students did what they were expected to do in their interaction with the learning material (such as reading the Introduction, the General and the Specific Instructional Objectives, doing in-text exercises and formative tests and the other activities as asked by the 24 items).

Looking further at the responses to these 24 items, however, there were responses to certain items that were either divergent or convergent; for instance, items that asked how often students compare what they have read with the general instructional objective, how often students stop to think when they find headings, subheadings, illustrations, references to other people's ideas, maps,

caricatures, indentation and in making summaries and notes of what they have read. The following are items with responses which were convergent: items that ask how often students stop to think whenever they encounter italicized words, underlined words, tables and graphs, items that ask how often they read the foreword, table of contents, general instructional objective, specific instructional objectives, learning activities, overview and re-read material, items that ask how often they do exercises, formative tests, and how often they compare their answers to answer keys. Students tend to answer "often" or "always" to these items. Please refer to Appendix D.2 for reference on this matter. Table 4.3 presents the distribution of scores on individual activities with print learning material. Results of a correlation analysis showed that there is no significant correlation between student's scores on their interaction with learning material and their performance scores (r = .15).

Table 4.3.
Distribution of sample students' scores on Individual Activities (IA)

Range (hour)	Number of Students	Percentage
26 =< IA < 45	0	0
45 =< IA < 50	2	1.4
65 =< IA < 70	4	2.9
70 =< IA < 75	4	2.9
75 =< IA < 80	12	8.7
80 =< IA < 85	19	13.8
85 =< IA < 90	19	13.8
90 =< IA < 95	26	18.8
95 =< IA < 100	14	10.1
100 =< IA < 105	18	13.0
105 =< IA < 110	8	5.8
110 =< IA < 115	9	6.5
115 =< IA < 120	1	.7
120 =< IA < 125	2	1.4
IA >= 125	0	0

Mean	90.993	Std. dev	12.735
Minimum	48.000	Maximum	120.000
Valid cases	138	Missing cases	0

On the average, persisters scored higher on their interaction with learning material (m_1 = 92.60) than did non-persisters (m_2 = 89.28) Results of t-test analysis, however, showed that there was so significant difference on the score of student interaction with learning material between persisters and non-persisters (t = -1.54, 2-tail probability = .126).

Attitude After Interaction with Print Learning Material, Academic Performance and Persistence

Table 4.4 below presents the distribution of students' scores on Attitude After Interaction with Print Learning Material. Given that the Attitude After Interaction variable is comprised of 17 items, it can be concluded that the majority of sample students were positive about their interaction with print learning material. Seventy students (50.7%) scored 70 or more on Attitude After Interaction from a maximum score of 85. In other words, in general, these students scored 4 in any items that comprise the Attitude After Interaction. Results of correlation analysis showed that there is a significant correlation between Attitude After Interaction with Print Learning Material and Academic Performance (r = .2352, α = .01).

The mean of scores on Attitude After Interaction with Print Learning Material of persisters (m_1= 70.48) was slightly greater than non-persisters (m_2 = 67.98). Results of t-test analysis showed that there is no significant difference between persisters and non-persisters (t = -1.35, 2-tail prob. = .178).

Understanding of Directions, Academic Performance and Persistence

The majority of students (78 students or 56.5%) appeared to understand directions in the print learning material. In fact, 29 students reached the maximum score of 15 (3 items) of the Understanding of Directions variable. There were only fifteen students who seemed to be uncertain about the directions in the print learning materials. Table 4.5 below presents the detailed

distribution of students' scores on Understanding of Directions in the Print Learning Material. Results of a correlation analysis showed that there was no significant correlation between Understanding of Directions and Academic Performance (r = .0329).

Table 4.4.
Distribution of sample students' scores on Attitude After Interaction (AAI)

Range	Number of Students	Percentage
AAI < 10	0	0
10 =< AAI < 15	1	.7
15 =< AAI < 20	0	0
20 =< AAI < 25	0	0
25 =< AAI < 30	0	0
31 =< AAI < 35	0	0
35 =< AAI < 40	1	.7
40 =< AAI < 45	0	0
45 =< AAI < 50	3	2.1
50 =< AAI < 55	4	2.9
55 =< AAI < 60	10	7.2
60 =< AAI < 65	22	15.9
65 =< AAI < 70	27	19.6
70 =< AAI < 75	27	19.6
75 =< AAI < 80	18	13.0
80 =< AAI < 85	25	18.1
Mean 69.27	Std. dev.	10.86
Minimum 10.00	Maximum	85.00
Valid cases 138	Missing	0

The mean of scores on Understanding of Directions of seventy persisters (m_1 = 12.08) was higher than of sixty-five non-persisters (m_2= 11.18). Results of a t-test analysis showed that there was a significant difference between persisters and non persisters in terms of their understanding of directions in the print learning material (t = -2.00, 2-tail prob.= .048).

Difficulties in Interaction with Print Material, Academic Performance and Persistence

There were five items that comprise the Difficulties in Interaction. From their scores on Difficulties that were 19 or more, there were 25 students (18.1%) who seemed to experience difficulties in working with print learning material. In contrast, there were only 22 students, whose scores on Difficulties were 11 or less, who seemed to find no significant difficulties in their interaction with print learning material. Looking further at items that comprise the Difficulties variable, 50 students had difficulties working with graphs, 36 students had difficulties working with tables, and 31 students had difficulties working with illustrations.

Table 4.5.
Distribution of sample students' scores on Understanding of Directions (UD)

Range		Number of Students	Percentage
0 =< UD < 3		0	2.2
3 =< UD < 6		4	2.9
6 =< UD < 9		8	5.8
9 =< UD < 12		45	32.6
12 =< UD < 15		49	35.5
15 = UD		29	21.0
Mean	11.65	Std.dev	2.65
Minimum	3	Maximum	15.00
Valid cases	135	Missing	3

Table 4.6 presents the distribution of sample students' scores on difficulties they faced in working with the modules. Correlation analysis showed that there is a significant negative correlation between scores on Difficulties and Academic Performance ($r = -.27$, $\alpha = .01$).

Persisters had slightly lower scores on Difficulties ($m_1 = 14.19$) than did non-persisters ($m_2 = 14.84$). Results of a t-test analysis showed that there was

no significant difference between persisters and non-persisters (t = .94, 2-tail Prob. = .348).

Table 4.6.
Distribution of sample students' scores on Difficulties (Dif)

Range	Number of Students	Percentage
0 =< Dif < 3	2	1.4
3 =< Dif < 6	3	2.1
6 =< Dif < 9	7	5.1
9 =< Dif < 12	10	7.2
12 =< Dif < 15	36	26.1
15 =< Dif < 18	55	39.9
19 =< Dif < 21	17	12.3
21 =< Dif < 24	7	5.1
24 = Dif	1	.7
Mean 14.51	Std.dev.	3.97
Minimum 2.0	Maximum	24.00
Valid cases 138	Missing	0

Study Motivation, Academic Performance and Persistence

Five items in the instrument comprise the Study Motivation variable. It seemed that only a few students (6 students or 4.3%) were not motivated in their study. Their scores on Study Motivation were 14 or less. In contrast, 98 students scored 18 or more on Study Motivation which means that these students were strongly motivated in their study. Table 4.7 below presents the complete distribution of sample students' Study Motivation. Results of a correlation analysis showed that there is no significant correlation between students' motivation and their performance (r = .027).

On the average, persisters had slightly higher Motivation scores(m_1 = 19.44) than those who did not (m_2= 18.79). Results of a t-test analysis showed that there was no significant difference between persisters and non-persisters in terms of difficulties that they faced in their interaction with print learning material.

Table 4.7.
Distribution of student's cores on Study Motivation (SM)

Range	Number of Students	Percentage
SM < 9	0	0
9 =< SM < 12	1	.7
12 =< SM < 15	5	3.6
15 =< SM < 18	34	24.6
18 =< SM < 21	50	36.2
21 =< SM < 24	42	30.4
24 =< SM < 27	6	4.3
SM >= 27	0	0

Mean	19.12	Std.dev.	2.76
Minimum	10.00	Maximum	25.00
Valid cases	138	Missing	0

Time Spent in Interaction with modules, Academic Performance and Persistence

Students vary widely in terms of time that they spent in interaction with print learning material. It ranges from 5 to 50 hours a week. There were two extreme cases, one student who averaged 63 hours a week and another one who averaged 162.5 hours a week; these two cases appeared suspiciously extreme. Table 4.8 below presents the distribution of number of hours a week that students spent on their interaction with print learning material (T-IN). Correlation analysis showed that there is no significant correlation between Time on Interaction with modules and Academic Performance (r = .058).

On the average, sixty-nine persisters spent slightly more time in their interaction with learning material (m_1 = 15.913 hours a week) than sixty-one non-persisters (m_2 = 15.436 hours a week). Results of a t-test analysis showed that there was no significant difference between persisters and non-persisters (t = -.16, 2-tail Prob. = .873)

Table 4.8.
Distribution of time spent on interaction with print learning material

Range (hour)	Number of Students	Percentage
T-IN < 5	10	13.0
5 =< T-IN < 10	30	21.7
10 =< T-IN < 15	45	32.6
15 =< T-IN < 20	12	8.7
20 =< T-IN < 25	15	10.9
25 =< T-IN < 30	9	6.5
30 =< T-IN < 35	1	.7
35 =< T-IN < 40	2	1.4
40 =< T-IN < 45	2	1.4
45 =< T-IN < 50	2	1.4
.....		
60 = < T-IN < 65	1	.7
.....		
165 < T-IN < 170	1	.7
Mean 15.69	Std.dev	16.81
Minimum 1.5	Maximum	168
Valid cases 130	Missing	8

Reading Speed, Academic Performance and Persistence

There was one student whose Reading Speed varies depending upon the difficulty of the subject (the more difficult the subject the slower the Reading Speed). The majority of students (55 students or 39.9%) read at 6 to 10 pages an hour. There were 14 students who read at five pages or fewer, and, in contrast, seven students read at 21 pages or more an hour. The complete distribution of students by Reading Speed is presented in Table 4.9 below.

The classification below then was transformed as followed. Reading Speed up to 5 pages an hour was valued as 1, from 6 to 10 pages an hour as 2, from 11 to 15 pages an hour as 3, 16 to 20 pages as 4, and more than 20 pages an hour as 5. Correlation analysis, based on that valuation, showed that there is

significant correlation between Reading Speed and Academic Performance (r = .24, α = .01).

Table 4.9
Distribution of sample students' Reading Speed

Reading Speed (pages/hour)	Number of Students	Percentage
Missing	2	1.4
a. 5 pages or less	14	10.1
b. 6 to 10 pages	55	39.9
c. 11 to 15 pages	37	26.8
d. 16 to 20 pages	22	15.9
e. 21 pages or more	7	5.1
Two Speeds	1	.7

In the new Reading Speed classification, the persisters' scores on Reading Speed ($\underline{m}_1$ = 2.88) was higher than non-persisters' ($\underline{m}_2$ = 2.45). Results of a t-test analysis showed that there was a significant Reading Speed difference (t = -2.38, d.f.= 134, 2-tail-Prob.= .019) between persisters and non-persisters..

Learning by Understanding, Academic Performance and Persistence

Twenty four students reached the maximum score of Learning by Understanding, which means that they scored the highest scores in all three items that comprise the Leaning by Understanding variable. This suggests that these students always relate what they read to their daily life experience and what they have learned before and always try to relate ideas from what they read. In contrast, there were only 8 students who scored eight or less on Learning by Understanding. This suggests that these students rarely did what students, in the previously mentioned group, did. Table 4.10 below presents the distribution of sample students' scores on Learning by Understanding.

Correlation analysis showed that there is no significant correlation between Learning by Understanding and Academic Performance (r = .18).

Table 4.10
Distribution of scores on Learning by Understanding (LU)

Range		Number of Students	Percentage
LU < 3		0	.7
3 =< LU < 6		0	0
6 =< LU < 9		4	2.9
9 =< LU < 12		38	27.5
12 =< LU < 15		71	51.4
15 = LU		24	17.4
Mean	12.36	Std.dev	1.95
Minimum	6	Maximum	15.00
Valid cases	137	Missing	1

On Learning by Understanding, 71 persisters had higher scores (m_1 = 12.55) than 66 non-persisters (m_2 = 12.15). Results of a t-test analysis showed that there was no significant difference between persisters and non-persisters in terms of Learning by Understanding (t = -1.19, 2-tail-prob. = .234).

Learning by Memorizing, Academic Performance and Persistence

The majority of sample students (64 students or 46.4%) stated that they often or always tried to memorize the details of course material and only 22 students who stated that they rarely or never tried to memorize, whereas the remaining 51 students sometimes tried to memorize. Table 4.11 presents the distribution of scores on Learning by Memorizing. Results of a correlation analysis showed that there was no significant correlation between Learning by Memorizing and Academic Performance (r = -.16).

Persisters seemed to have less tendency to memorize (m_1 = 3.37) than non-persisters (m_2 = 3.67). Results of a t-test analysis showed that there was

no significant difference between persisters and non-persisters in terms of Learning by Memorizing (t = 1.46, 2-tail Prob. = .146).

Table 4.11.
Distribution of scores on Learning by Memorizing

Category		Number of Students	Percentage
Never		5	3.6
Rare		17	12.3
Sometimes		51	37.0
Often		33	23.9
Always		31	22.5
Valid cases	137	Missing	1

Study Load, Academic Performance and Persistence

The majority of sample students, 112 students (81.2%) were taking 12 semester credit units of courses during the time in which the research was conducted. The next largest group consisted of 12 students who were taking between 13 and 18 semester credit units. There were only five students who were taking courses between 19 and 21 semester credit units, and 22 and 24 semester credit units respectively. Table 4.12 below presents the distribution of numbers of course credits taken by sample students. Correlation analysis showed that there is no significant correlation between Study Load and Academic Performance (r = .09).

Persisters took slightly fewer course-credits (m_1 = 12.90 course credits) than non-peristers (m_2 = 13.18). Results of a t-test analysis showed that there was no significant difference between persisters and non-persisters.

Table 4.12
Distribution of numbers of courses-credits taken by sample students

Number of Course-credits		Number of Students	Percentage
9		1	.7
12		112	81.2
14		1	.7
15		8	5.8
18		3	2.2
20		2	1.4
21		3	2.2
22		1	.7
23		2	1.4
24		2	1.4
Mean	12.03	Std.dev	2.73
Minimum	9.00	Maximum	24.00
Valid cases	135	Missing	3

Previous Academic Performance, Academic Performance and Persistence

There were 13 students (9.42%) whose Previous Academic Performances were low since their high school grade point averages were below 5.0; 5.5 is the highest score of failing scores. There were 20 students (14.5%) who had marginal Previous Academic Performances since their high school grade point average ranged from 5.0 to 6.0; 5.5 is the usual cut-off point between pass and fail. The majority of sample students, 78 students (56.5%), however, had high school grade point averages which ranged from 6.0 to 8.0. There was only 1 student (0.7%) whose high school grade point average was higher than 8.0. Table 4.13 below presents the distribution of sample students' Previous Academic Performance. Correlation analysis showed that there is no significant correlation between Pervious Academic Performance and the Academic Performance at UT(r = .18).

By excluding the missing cases, 56 persisters have slightly higher Previous Academic Performance (m_1 = 6.44, on a 10-point scale) than 56 non-

persisters ($\underline{m}_2$ = 5,98). Results from a t-test analysis showed that there was significant difference between persisters and non-persisters in terms of their Previous Academic Performance (t = -2.20, 2-tail Prob.= .024).

Table 4.13
Distribution of sample students' Previous Academic Performance (PAP)

Range	Number of Students	Percentage
PAP < 1	0	0
1 =< PAP < 2	1	0.7
2 =< PAP < 3	0	0
3 =< PAP < 4	4	2.9
4 =< PAP < 5	8	5.8
5 =< PAP < 6	20	14.5
6 =< PAP < 7	48	34.8
7 =< PAP < 8	30	21.7
8 =< PAP < 9	1	0.7
9 =< PAP < 10	0	0
Mean 6.21	Std.dev	1.085
Minimum 1.77	Maximum	8.6
Valid cases 112	Missing	26

Time Spent: at work and in traveling to/from work place, Academic Performance and Persistence

In the sample, 78 students (56.52%) have full-time jobs, 32 students (23.19%) have part time jobs, 5 students have both full and part-time jobs, 22 students have no job, 1 student was retired and the remaining 8 students' employment information is unknown.

There were only 7 students (5.1%) who spent less than 40 hours a week at work and on their way to/from work. The majority, 71 students (51.4%) spent between 40 and 55 hours a week. A considerable number of students, 32 students (23.2%), spent between 55 and 70 hours a week. The amount of time

that the students spent at work and on their way to/from work is presented in Table 4.14 below.

Table 4.14
Distribution of time that is spent at work and on the way to/from work (T-off)

Range	Number of Students	Percentage
10 =< T-Off < 15	1	.7
15 =< T-Off < 20	0	0
20 =< T-Off < 25	0	0
25 =< T-Off < 30	1	.7
30 =< T-Off < 35	2	1.4
35 =< T-Off < 40	3	2.1
40 =< T-Off < 45	24	17.4
45 =< T-Off < 50	25	18.1
50 =< T-Off < 55	22	15.9
55 =< T-Off < 60	12	8.7
60 =< T-Off < 65	17	12.3
65 =< T-Off < 70	3	2.1
Mean 49.927	Std.dev.	8.93
Minimum 10.5	Maximum	69.00
Valid cases 110	Missing	28

Correlation analysis showed that there is no significant correlation between time spent on work and Academic Performance (r = -.05).

Students who registered in their second semester spent less time on work or work-related activities (m_1 = 48.377 hours a week) than those who did not register (m_2 = 51.721 hours a week). T-test analysis showed that there is a significant difference between students who registered in the second semester and students who did not register in terms of time they spent on work or work-related activities (t= 1.98, 2-tail prob. = .05)

Results of Regression Analysis

Regression analysis was used to examine how far the variation on Academic Performance can be explained by the variation of ten independent

variables and two contextual variables. Three methods of regression analysis (forward, backward and stepwise) were applied.

Entering a total of thirteen variables into regression analysis reduced the number of cases down from 138 to 69 cases (50%) due to missing value in any of the thirteen variables. As a consequence, the correlation matrix changed. The Difficulties variable no longer had the highest value of the absolute value of correlation with Academic Performance. The Reading Speed variable now had the highest correlation value. When forward regression analysis reached the limit PIN=0.05, only the Reading Speed variable remained in the equation with R^2 = .166.

In the backward regression analysis, when all the twelve predictor variables entered the equation, the R^2 = .245. At the end of backward elimination, only the Reading Speed variable remained in the equation with R^2 =.166, as was the case in forward regression analysis. Table 4.15 below summarizes step by step factor elimination so that the contribution of each factor on the variation in Academic Performance can be seen.

Table 4.15
Summary of Steps in Regression by Using Backward Elimination Method

Step	Eliminated factor	R^2	ΔR^2	F	Sig. of R^2
0	All factors were entered	0.24457			
1	Time on Interaction	0.24444	0.00013	1.67640	0.10250
2	Attitudes After Interaction	0.24403	0.00041	1.87230	0.06800
3	Individual Activities	0.24357	0.00046	2.11088	0.04270
4	Learning by Understanding	0.24327	0.00030	2.41105	0.02500
5	Time-Off	0.24151	0.00176	2.77476	0.01430
6	Previous Academic Performance	0.23671	0.00480	3.20452	0.00830
7	Understanding of Directions	0.22747	0.00924	3.70999	0.00520
8	Study Motivation	0.21918	0.00829	4.49139	0.00290
9	Difficulties in Interaction	0.20717	0.01201	5.66150	0.00170
10	Study Load	0.18815	0.01902	7.64808	0.00100
11	Learning by Memorizing	0.16584	0.02231	13.32675	0.00050

Notes: ΔR^2 is the factor's contribution in explaining the variation of Academic Performance.

In Table 4.15 above, after Time on Interaction and Attitudes After Interaction were removed from the regression equation, the combination of the remaining 10 variables could explain the variation in Academic Performance up to 24% and it is significant up to .042. The stepwise regression analysis performed in exactly the same manner as did the forward and backward regression analysis.

Another regression analysis was conducted including only variables proven to have a significant correlation with Academic Performance in the previous correlation analysis. These variables were Difficulties, Reading Speed and Attitude After Interaction. Entering only four variables in the regression analysis reduced the number of cases that were dropped due to missing values. There were 123 cases in the analysis. The pattern of correlation between Academic Performance and the three predictors was similar to the results of the previous correlation analysis.

Again the forward, backward and stepwise methods were applied. The results were far different from the first application. In the forward method, the Difficulties variable entered first since the absolute value of its correlation with Academic Performance was the highest. At this step, the R^2 was .077. Attitude variable entered next and it increased the value of R^2 to .136 and the PIN = .05 limit was reached. In the backward regression analysis, the three predictors variables were all entered in the equation and none of them needed to be removed from the equation. These three predictors raised the value of R^2 to .159. This means that the contribution of Reading Speed was to increase R^2 by .023. in this circumstances. The stepwise method performed similarly to the forward method with the same two variables in the equation, Difficulties and Attitudes After Interaction variables, and the same R^2 value that is .136.

Even though results of the two regression analyses above seem to be contradictory, what can be concluded here is that a portion of variation of Academic Performance can be explained by the variation of the three predictors, the Reading Speed, Attitude After Interaction, and Difficulties.

Results of Discriminant Analysis

Discriminant Analysis was used to examine the relationship between the twelve predictors and the 2 criteria (Academic Performance and Registration Status). Due to incompleteness in any one of the discriminating variables, 69 students were dropped and 69 students remained in the discriminant analysis.

Discriminant Analysis on Academic Performance

In terms of Academic Performance, students were categorized into three groups. Students whose exam scores on EKON4110 were greater than or equal to 55 were included in the High group, those whose scores were less than 55 and greater than 40 were included in the Middle group, and those whose scores were below 40 were included in the Low group. After the 69 students were dropped, this grouping resulted in 5 students in the High group, 27 students in the Middle group, and 37 students in the Low group.

There were 23 students out of 41 (62.20%) who were correctly predicted as belonging to the Low group, whereas 8 (21.60%) and 6 (16.20%) students were incorrectly predicted as belonging to the Middle group and High group respectively. There were 18 students out of 27 (66.70%) who were correctly predicted as belonging to the Medium group, whereas 7 (25.90%) and 2 (7.40%) students were incorrectly predicted as belonging to the Low group and High group respectively. There were 4 out of 5 students (80.0%) who were correctly predicted as belonging to the High group, whereas 1 student (20.00%) was incorrectly predicted as belonging to the Medium group. The results of the

discriminant analysis showed that the combination of predictors correctly predicted the above grouping up to 65.22 percent.

In relation to Academic Performance, there were 2 discriminant functions. The first discriminant function was associated with Reading Speed, Difficulties, Time on Interaction, and Previous Academic Performance. while the second discriminant function was associated with Study Load, Time Spent at Work and on the way to/from work, Individual Activities with print Learning Material, Attitude After Interaction, Learning for Understanding, and Understanding of Directions in print learning material. Table 4.16 below presents correlation between predictors and performance discriminant functions.

Table 4.16
Correlation of 2 discriminant functions with 12 predictors

Code	Predictor	FUNC 1	FUNC 2
RSPEED	Reading Speed	-.66642*	.23732
SCRDIFFI	Difficulties in Interaction	.44650*	-.28619
TIMEONIN	Time on Interaction	.31515*	.24890
I6_NEM	Previous Academic Performance	-.27105*	.21978
I7TOTALK	Study Load	-.04375	-.45953*
TIMEONWO	Time-Off	.28383	.34580*
SCRINTER	Individual Activities	.01310	.27983*
MOTIVASI	Study Motivation	-.01690	.17010*
MEMOLRN	Learning by Memorizing	.01938	-.16246*
ATTITUD	Attitude After Interaction	-.03790	.14189*
L_UNDSTN	Learning by Understanding	-.09184	-.10621*
SCRUDIRE	Understanding of Directions	-.01878	.03062*

Diagram 4.1 presents the territory shared by these two discriminant functions.

Discriminant Analysis on Persistence

In relation to Registration status, the combination of the 12 predictors correctly predicted 24 out of 34 non-persisters (70.60%) and 26 out of 44 persisters (59.10%); whereas 10 of 34 persisters (29.40%) and 18 out of 44 persisters were incorrectly predicted. Overall, the results of the discriminant

analysis showed that the combination of predictors can predict whether students register or not up to 64.10%.

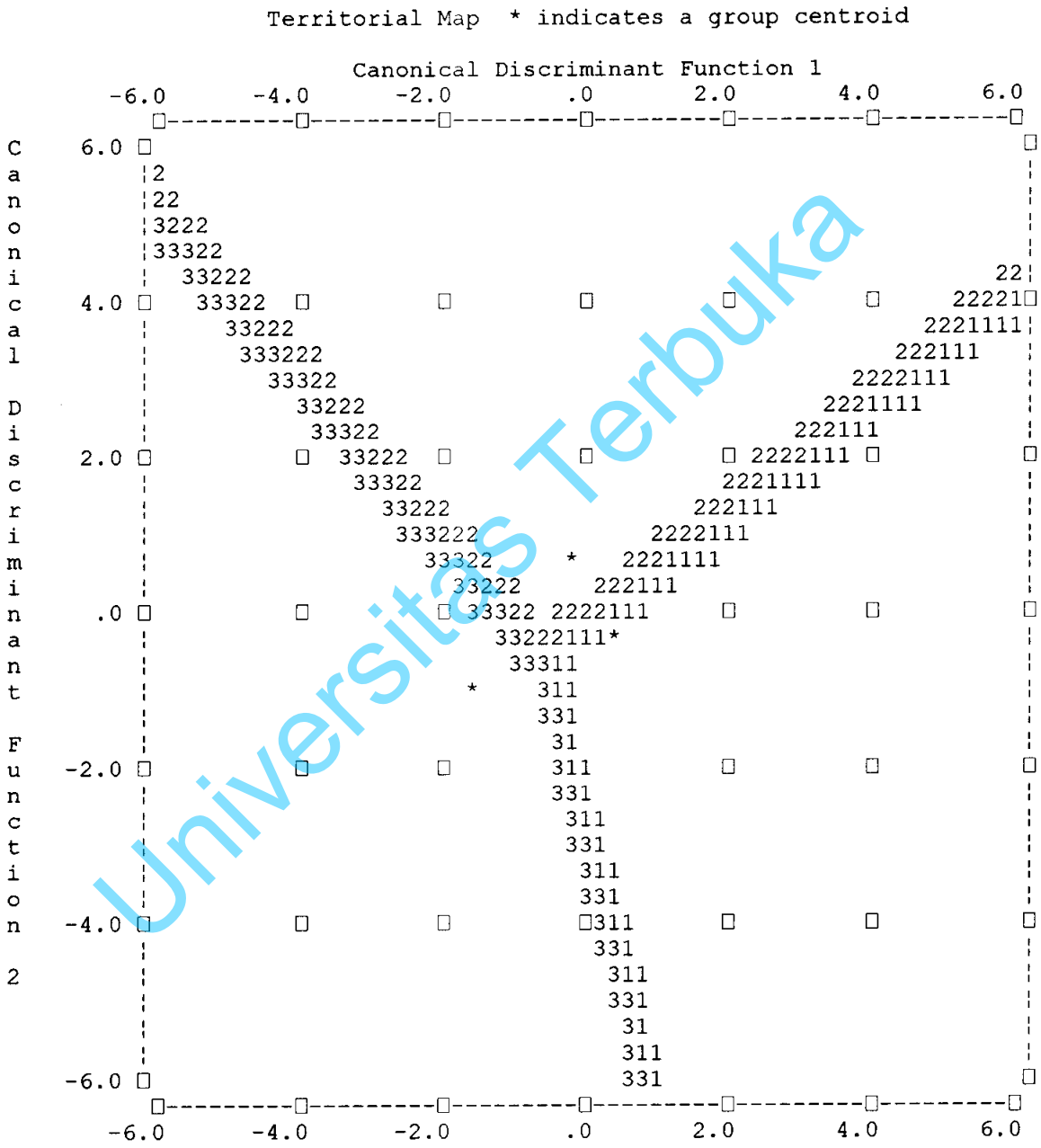

Diagram 4.1
Territorial map of two discriminant functions on Academic Performances

Table 4.17 shows the contribution of the twelve predictors to the discriminant function on Persistence. From this table, it is clear that, on one

hand, Learning by Memorizing is the most discriminating factor on Persistence and, on the other hand, Study Motivation is the least discriminating factor. In the analysis, non-persisters were coded as "1" and persisters as "2". The interpretation of the correlation between Learning by Memorizing and Persistence is that the more the reliance upon memorization the greater the chance to be a non-persister. This relationship is also true for both the cases of the Time that students spend at work and on their way to/from work (Time-Off), and of the Difficulties in Interaction with print learning material. In contrast, the higher the Previous Academic Performance, the faster the Reading Speed, the better the Understanding of Directions, the longer the time spent on working with module (Time-In), the stronger the tendency to Learning by Understanding, the more the student Individual Activities, and the stronger the Study Motivation, the better the chance to be a persister. One variable, Attitude After Interaction, has a correlation coefficient that was not as expected. Ideally it should be a positive coefficient.

Table 4.17
Correlation between predictors and the persistence discriminant function

Code	Predictors	FUNC 1
MEMOLRN	Learning by Memorizing	-.54650
I6_NEM	Previous Academic Performance	.42348
RSPEED	Reading Speed	.42208
SCRUDIRE	Understanding	.29199
TIMEONWO	Time-Off	-.29118
TIMEONIN	Time on Interaction	.25900
L_UNDSTN	Learning by Understanding	.21273
I7TOTALK	Study Load	.14721
ATTITUD	Attitude After Interaction	-.10495
SCRDIFFI	Difficulties in Interaction	-.10230
SCRINTER	Individual Activities	.06329
MOTIVASI	Study Motivation	.03996

So far, the following quantitative analyse: descriptive, correlation, t-test, regression and discriminant, have been conducted. Results of these quantitative analyses can be summarized in the following tables (4.18 - 4.21).

Table 4.18
Summary of correlation analysis and t-test analysis.

		DEPENDENT VARIABLES			
N	VARIABLES	Academic Performance (Correlation)	Persistence (T-test)		
	INDEPENDENT VARIABLES		t	2-tail Prob	
1	Individual Activities	0.15	-1.54	0.126	
2	Attitudes After Interaction	0.24*	-1.35	0.178	
3	Understanding Directions	0.03	-2.00	0.048	*
4	Difficulties in Interaction	-0.27*	0.94	0.348	
5	Study Motivation	0.03	-1.36	0.170	
6	Time on Interaction	0.06	-0.16	0.873	
7	Reading Speed	0.24*	-2.38	0.019	*
8	Learning by Understanding	0.18	-1.19	0.234	
9	Learning by Memorizing	-0.16	1.46	0.146	
#	Study Load	-0.09	0.59	0.558	
	CONTEXTUAL VARIABLES				
#	Previous Academic Performanc	0.18	-2.30	0.024	*
#	Time-Off	-0.05	1.98	0.050	*

Table 4.19
Summary of Regression Analysis

Entered Variables	Number of cases	Method Stop at	Variables in Equation	R^2
Individual Activities				
Attitude After Interaction		Forward	Reading Speed	0.166
Understanding Directions		PIN=.05		
Difficulties in Interaction				
Study Motivation			All entered	0.245
Time on Interaction	69	Backward		
Reading Speed		POUT=.1	Reading Speed	0.166
Learning by Understanding				
Learning by Memorizing				
Study Load		Stepwise	Reading Speed	0.166
Previous Academic Performance		PIN=.05		
Time-Off				
Difficulties in Interaction		Forward	Difficulties in Interaction	0.136
Attitude After Interaction	123	PIN=.05	Attitude After Interaction	
Reading Speed				
			Difficulties in Interaction	
		Backward	Attitude After Interaction	0.159
			Reading Speed	
		Stepwise	Difficulties in Interaction	0.136
		PIN=.05	Attitude After Interaction	

Summary of Discriminant Analysis

Table 4.20
Prediction upon Academic Performance

Membership	Actual Group	No. of Cases	Predicted Group 1	2	3
Low	1	37	23.00 62.20%	8.00 21.60%	6.00 16.20%
Medium	2	27	7.00 25.90%	18.00 66.70%	2.00 7.40%
High	3	5	0.00 0.00%	1.00 20.00%	4.00 80.00%
Ungrouped Cases		9	4.00 44.40%	4.00 44.40%	1.00 11.10%
Percent of grouped cases correctly classified: 65.22%					

Table 4.21
Prediction upon persistence

Membership	Actual Group	No. of Cases	Predicted Group 1	2
Non-persisters	1	34	24.00 70.60%	10.00 29.40%
Persisters	2	44	18.00 40.90%	26.00 59.10%
Percent of grouped cases correctly classified: 64.10%				

QUALITATIVE ANALYSIS

There were 8 open-ended items in the Questionnaire-1. Responses to these 8 items were translated from Bahasa Indonesia to English. Except for the item that asked about previous experience of study in distance education institution, themes in the other 7 items were coded and frequencies of themes were counted. In addition to these 8 open-ended items, Questionnaire-2a has 2 other open-ended items. The first item asked what motivated the student to register in the second semester and experiences in the first semester that the student liked and/or disliked. The second item asked the possible reasons for a student to quit UT. In addition to 8 open-ended items in Questionnaire-1, Questionnaire-2b also has 2 other open-ended items. The first item asked what motivated the student to not register in the second semester. The second item was used in case the student did register but due to one reason or another his registration status was incorrect. The second item asked what motivated the student to register in the second semester. The following paragraphs present summaries of students' answers on open-ended items in Questionnaire-1 (stage 1) and in Questionnaire-2a and Questionnaire-2b (stage 2).

Previous Experience of Study in Distance Education Institution

There were 7 respondents who claimed to have experience in studying through distance institutions. One of them referred to his/her previous experience of study in UT in 1986. All of these respondents studied from Indonesian institutions. Three institutions that they referred to are non-public institutions, one in Bandung, one in Yogyakarta and there is no information on the location of the third one. The first two institutions offer English programs and the third one offers Management programs. Three public universities, namely UT, Lambung Mangkurat University (LMU) and Pajajaran University (PU) were referred to by students. PU offered Business Administration through distance education in 1963 and LMU offered a three-credit course titled "Research Methods in Education" by distance education. The other institution that the respondent referred to offered an inservice training for staff members in the Ministry of Environment which was nation-wide. The number who have previous experience in study through distance institution was so small that any statistical analysis, except for descriptive statistics, would not be appropriate.

The average final scores of these 7 respondents on EKON4110 was 41.67 compared to 40.85 for the sample. The grade point average of these 7 respondents was 1.29 compared to .98 for the sample. From these figures, it seems that those who have had experience of study by distance prior to their enrollment at UT perform slightly better than those who have not had such experience.

Reasons for Choosing Universitas Terbuka

There were many reasons for choosing Universitas Terbuka. Sorted by their frequencies, Table 4.22 presents these reasons from both stages of data gathering. The list is not an exhaustive list of the reasons mentioned by respondents. Table G.1 in Appendix G presents all reasons that students

mentioned in both stages of data gathering. The reasons with high frequencies in the first stage also appeared in the second stage.

Table 4.22
Reasons for Choosing Universitas Terbuka

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Non-Persisters [N=10] n	All [N=38] n
1.	Flexible study time	48	11	3	14
2.	Job	39			
3.	Public status	29	2	2	4
4.	Job - Time concern	25			
5.	The study cost is cheap	23	8	3	11
6.	The study cost is affordable	19	3		3
7.	No negative effect on job	19	6	2	8
8.	The study method	19	1		1
9.	Flexible place to study	15	5	2	7
10.	Cost concern	14	1		1
11.	Resident is far from the nearest university	12			
12.	To support career advancement	9	2	1	3
13.	Limited time	9			
14.	Want to be independent	9			
15.	To acquire knowledge	8	5	2	7
16.	Flexible study method	7			
17.	The study cost is inexpensive	6			
18.	The availability of the needed study program	5			
19.	Easy entrance at UT	5	1	1	2
20.	High motivation	5	1		1
21.	Proud of individual independent effort	5		1	1
22.	UT is available through out Indonesia	4			
23.	To broaden vision	4	2	1	3
24.	Flexible study load	4	3		3
25.	The location of working place	4			
26.	Rejected by other universities	4			

The Importance of finishing the Study Program

Rationales for the completion of study program vary. Students' responses to this open-ended question enriched the quantitative data concerning motivation. The quantitative data showed the strength of the motivation. The qualitative data also showed the kinds of motivation, namely to support career advancement, to support job search, to pursue a degree, to broaden vision, and

to acquire knowledge. Table G.2 in Appendix G presents the complete list of rationales mentioned by students. Table 4.23 presents the rationales that were mentioned by 4 or more respondents in the first stage of data gathering and the number of respondents who mentioned the respective rationale in the second stage of data gathering:

Table 4.23
The rationales for finishing the study program

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Non-Persisters [N=10] n	/ /	All [N=38] n
1.	To acquire knowledge	49	11	1	/	12
2.	To advance career	34	9	1	/	10
3.	To pursue a degree	33	2	2	/	4
4.	To broaden vision	28	3	2	/	5
5.	To devote knowledge to the state	16	7	1	/	8
6.	To support job	15	10	1	/	11
7.	To implement knowledge	14			/	
8.	To prepare for the future	10	2	2	/	4
9.	To look for a job	10	1	1	/	2
10.	To keep up with progress	10	1		/	
11.	To be qualified human resources	5			/	
12.	To improve income	5	1		/	
13.	To avoid waste of time and money	5		3	/	
14.	To meet academic requirements	4			/	
15.	Important: no explanation	4			/	
16.	To develop knowledge	4			/	
17.	Knowledge is asset	4	2		/	
18.	To meet the human resource demand of the era	4	2	1	/	3
19.	To open opportunity	4			/	
20.	UT is the only alternative	4			/	
21.	To get value-added	4			/	
22.	To acquire experience	4			/	

The Position of the Course in the long term plan

Responses to the question about the position of EKON4110 in the students' long term plans reinforced why most of the students have a strong motivation in their studies. Even though the greatest number of responses is academic in a sense, this does not necessarily mean that students see education as an end in itself, since a large portion also see that education is a

means to an end (for example, either to support their current job and/or to support the search for a job). Table 4.24 presents responses whose frequencies are equal to or greater than 4 in the first stage of data gathering and the number of students who stated the respective response in the second stage of data gathering. Table G.3 in Appendix G presents the complete list of students' responses on the position of EKON4110 in their long term plans.

Table 4.24
The position of EKON4110 in students' long term plans

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Stage 2 Non-Persisters [N=10] n	All [N=38] n
1.	Academic	36	5	3	8
2.	To support Job	24	4	2	6
3.	To acquire knowledge	21	1	3	4
4.	To broaden vision	17			
5.	To implement knowledge	16	5	1	6
6.	For career advancement	13			
7.	Supportive (no explanation)	12	3	1	4
8.	As an asset in real life	7	1		1
9.	Personal development	7			
10.	To support future job	7			
11.	To pursue a degree	6			
12.	As an asset in serving society	5	2		2
13.	To be independent	5	1		1
14.	Irrelevant	4			
15.	To search for a job	4	1		1

The importance of the completion of the course

Students' responses to this open-ended question also confirmed the reason that they have such strong motivation in their studies, namely, that they have to complete a course because it is academically required in order to obtain a degree. A degree, or knowledge that is associated with it, is important in supporting job performance. Concern about not wasting resources, time, money and energy also appeared in responses to this question. Below is a list of

responses which appeared 4 or more times. Table G.4 in Appendix G presents the complete list of responses to this question.

Table 4.25
The rationales for completing the EKON4110 course

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Stage 2 Non-Persisters [N=10] n	Stage 2 All [N=38] n
1.	Academic requirement	50	7	6	13
2.	Time concern	36	6	1	7
3.	To acquire knowledge	25	3	1	4
4.	To support job performance	21	1	1	2
5.	To pursue a degree	14	5		5
6.	To implement knowledge	12	1	1	2
7.	To acquire vision	7	3		1
8.	Not to waste time and money	6		1	1
9.	To devote to the state	5	3	1	4
10.	To achieve the plan	4	1	1	2
11.	Asset for entrepreneurship	4			
12.	To make good achievement	4	1		1
13.	To increase self confident	4			

General Difficulties

Considering the number of responses that refer to EKON4110, responses to this open-ended item indicated that students have difficulty dealing with mathematics-related subjects. EKON4113 is Mathematics Economics. It is not surprising if, in the EKON4110 course on which this study has been focused, students have difficulty in working with graphs, formulas, tables. Responses reported in the list below confirm the kind of difficulties found in the quantitative data. For example, difficulties working with illustrations (quantitative data) was supported by qualitative data: 15 students had difficulties in understanding the course; and 10 students had difficulties with difficult words such as foreign words and scientific terms, too wordy explanations or unclear explanation or language style. Some difficulties were also caused by the non-elaborated answer keys in which students could not follow a step by step method for solving a problem.

Students indicated also they need help from someone to overcome their difficulties. In the list below, only responses with a frequency of appearance of 4 or more are presented. Table G.5 in Appendix G presents the complete list of the responses.

Table 4.26
Difficulties in general that students' experience

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Stage 2 Non-Persisters [N=10] n	/ /	Stage 2 All [N=38] n
1.	Difficulties with EKON4113	20	3		/	3
2.	To understand	15	5		/	5
3.	Misprints	13	1	1	/	2
4.	Graphs	12	3	2	/	5
5.	Difficult words	10	1	1	/	2
6.	Difficult words - foreign words	9	4	1	/	5
7.	Too wordy explanations	8	1		/	1
8.	Formulas	8	5		/	5
9.	Need some one to ask	8	1		/	1
10.	Ask peers to solve problem	7			/	
11.	Non-elaborated answer keys	7			/	
12.	Things that cannot be overcome	6			/	
13.	Unclear explanations	6	2	1	/	3
14.	No difficulties	6			/	
15.	Emphasis on student self	6	1		/	1
16.	Calculations	5	1	2	/	3
17.	Difficulties with EKON4110	5	2		/	2
18.	Examples are not detailed	5			/	
19.	Not enough examples	5	2		/	2
20.	Language	5			/	
21.	Memorizing	5			/	
22.	Need a professor	5			/	
23.	Tables	5	1	1	/	2
24.	Answers do not match the questions	5	2		/	2
25.	Symbols	4			/	
26.	Limited time	4			/	

Specific Difficulties

Responses to the open-ended question about what difficulties, in particular, the student was experiencing also confirmed the difficulties that were found in the quantitative data. Again graphs, tables, illustrations are the major themes in this discourse. Difficulties with graphs and tables were reportedly due

to unclear explanation of graphs and tables such as explanation of terms that were used, and the formulas that are involved in graphs and tables. The list below presents responses with frequencies of appearance of 4 or more. Table G.6 in Appendix G presents the exhaustive list of responses to this question.

Table 4.27
Difficulties in particular that students experienced

No.	Students' Responses	Stage 1 [N=156]	Stage 2 Persisters [N=28]	Non-Persisters [N=10]	/	All [N=38]
		n	n	n	/	n
1.	GRAPHS	44	8	4	/	12
2.	Tables	20		3	/	3
3.	Maps	11	2	1	/	3
4.	No difficulties	10	2		/	2
5.	Difficult to understand	7	2		/	2
6.	Illustrations	6			/	
7.	Need someone to ask	6	2	2	/	4
8.	Unclearly-explained graphs	5		1	/	1
9.	Inadequate elaboration of tables	5	2		/	2
10.	Caricatures	4	1		/	1
11.	diagrams	4			/	
12.	Difficult words - italicized words	4	1	1	/	2
13.	Unclear explanation	4			/	
14.	How to make a graph	4			/	
15.	Graphs in EKON4113	4			/	
16.	Emphasis on students' role	4			/	

Final Comments

The final comment space was intended to identify issues related to students' interaction with print learning material which have not been addressed or were inadequately addressed in the questionnaire from the respondents' perspectives. It is not surprising that this comment space contains a very diverse list of responses, from an apology for improper words to suggestions on how to improve print learning material, since each student has his/her own concern. Although 27 students expressed the view that the modules are good enough, suggestions for improving print learning material, such as the provision of a glossary; more elaboration of examples, exercises and answer keys, and the use

of a simple language style which students believe would resolve the difficulties which were reported earlier, appeared in these responses. The list below presents responses with frequencies of appearance of 3 or more. Table G.7 in Appendix G presents the complete list of responses to this aspect.

Table 4.28
Final comments on interaction with modules from students' perspective

No.	Students' Responses	Stage 1 [N=156]	Stage 2		
			Persisters [N=28]	Non-Persisters [N=10]	All [N=38]
		n	n	n	n
1.	C: Modules are good	27	3		3
2.	S: Provide Glossaries	11	1		1
3.	S: More Examples	9	2		2
4.	P: Apology	7	1		1
5.	S: Reduce Material	7	2	1	3
6.	S: More Exercises	6			
7.	S: Increase broadcasting program	5			
8.	S: Use Simple Language Style	5	1	1	2
9.	C: Answer keys are not in detail	4			
10.	P: Hope a.a. and Thankfulness	4			
11.	S: Clear Examples	4			
12.	S: Prompt Information Distribution	4	1	1	2
13.	S: Avoid Misprints	4			
14.	P: Hope the best for UT	3			
15.	P: Thankfulness	3	3		3
16.	S: Elaborate examples	3	1		1
17.	S: Real cases for examples	3			
18.	S: Varied Examples	3	1		1
19.	S: Errata	3			
20.	S: Improve modules	3			
21.	S: Reduce Module's Price	3	1		1
22.	S: Keep modules up to date	3			
23.	S: Provide comprehensive overview	3	2		2
24.	S: Provide referred material	3			
25.	S: Maintain module stock	3		1	1
26.	S: UT initiates tutorial	3			
27.	S: Provide tutorial	3			

Note: C stands for Comment, P for Personal, and S for Suggestion

Reasons for re-registering

The following responses, as well as all reponses that will be reported from this point on, were from the second stage of the data gathering. Responses reported here were from 18 students who registered in their second semester. The list below presents students' reasons for registering in the second semester.

Table 4.29
Reasons for registering in second semester

Response	Respondents
a. To finish the program quickly	3
b. To acquire knowledge	3
c. Strong motivation	3
d. Benefit from the first exams	2
e. Time flexibility	2
f. To prepare for doing business	1
g. To prepare for participating in political life	1
h. Easy to study	1
i. Support from family	1
j. To finish course	1
k. No negative effect on job	1
l. Modules are easy to read	1
m. No significant difficulty	1
n. Open opportunity	1
o. Proud of re-registering	1
p. Support from peers	1
q. Personal desire	1
r. Registration is delightful	1
s. Registration help students	1
t. Suggest: Establish study groups	1
u. S. Improve student services	1
v. Self reinforcement	1
w. To take opportunity to study	1
x. Time concern	1
y. Lack of time	1

Possible reasons for quitting

Students who registered in second semester were asked about the possibility for quitting in the future, and if there was a possibility, the possible

cause for quitting. There were 11 students who stated that they may quit UT in the future and the following list presents the possible reasons for quitting.

Table 4.30
Possible reasons for quitting UT in future

Response	Respondents
a. Cost	6
b. If the completion of the study would take a long time	2
c. If the application for credit transfer is rejected	2*
d. Familial problems	2
e. Job related	2
f. Difficulties in finishing the program	1
g. Personal ability	1
h. Dissatisfying exam results	1
i. Tough scoring at UT	1
j. Unavailability of references	1
k. Anxiety to finish the program quick	1

* one student mentioned that the application form is not available at a regional center and another student reported that he did not obtain any response on his request to transfer credit.

Reasons for not re-registering

The following reasons for not re-registering in the second semester were based on responses from 10 students. Several students mentioned more than one reason. The following list is an exhaustive list of the reasons.

Table 4.31
Reasons for not registering in the second semester

Response	Respondents
a. Cost	3
b. Time, because students have job to do	2
c. Competing needs	1
d. Health	1
e. Difficulties in anticipating what will appear in exam	1
f. To make up the previous exam results	1

There were 2 students who stated that they have not yet quit though they did not register in their second semester.

Experiences that students liked

The list below presents experiences that students liked. It was based on the responses of 28 students who returned the questionnaire in the second stage of data gathering.

Table 3.32
Experiences in the first semester that students liked

Response	Respondents
a. Extra time	3
b. To Exchange ideas	2
c: Choice of courses	1
d. Exams are held on Sundays	1
e. Flexibility	1
f. Place of study flexibility	1
g. Freedom	1
h. Improvement of learning quality	1
i. No face-to-face meetings	1
j. When registration forms available	1
k. Socialization during examination	1

Experiences that students disliked

The list below presents experiences that students disliked . It was based on the 28 students who returned the questionnaire in the second stage of data gathering.

Table 4.33
Experiences in the first semester that students disliked

Response	Respondents
a. In difficulty but there is no one to ask	3
b. Slow information distribution	2
c. No registration forms available	2
d. Slow service	2
e. Campus is too far	1
f. Headquarters is very slow	1
g. Tough scoring	1
h. Take Home Exam (THE) booklets are not available	1
i. It is time consuming to go back and forth to regional center	1

CHAPTER V

DISCUSSION

The previous chapter has presented findings of the present study. There are three points that will be raised in this chapter. The first point is the comparison of findings of the present study to findings of other relevant studies. The comparisons will be conducted either factor by factor or by a combination of factors dependent upon which strategy is more appropriate. The second point is an examination of how the Grade Point Average (or grade alone) explained the persistence phenomenon. Finally, a threat to the findings and the conclusion of the present study will be discussed.

Comparison to other researches' findings

Individual Activity

Regarding Individual Activity, there were five relevant studies to which comparisons with the study that is being reported here will be meaningful since they share certain common grounds for making comparisons. The first two studies were very much related to one another, and they were conducted by a number of the same researchers. The first study (Clyde, Crowther, Patching, Putt, & Store, 1983) was an institutional study in the Institute of Advanced Education at James Cook University, North Queensland. The study examined how students use distance teaching material. The second study (Marland, Patching, Putt, & Store, 1984) based on the first study, examined students' mental processes when they were learning from distance-teaching material. The third study was a replication of the second study after a five-year period (Marland, Patching, Putt & Putt, 1990). The fourth study, a replication of the second study, was conducted in Universitas Terbuka (Andriani, Listyarini, &

Warlina, 1992). The fifth study was conducted at the Dutch Open University, and it examined the actual use of embedded support devices in self-study materials by distance education students. The following paragraphs present comparisons between the present study and these five studies.

There were two aspects of the study of Clyde et al. (1983) that can be compared to the present study. The first aspect concerns the time that students spent on studying, but the comparison on this aspect will be conducted later in the Time on Interaction section. The second aspect involved the material that students consulted in their study. Clyde et al. (1983) found both that most students studied mainly from the course material provided and from the recommended text book and that some read additional material. The present study found that 44.9% of the sample students stop to think when they encountered references to other material. Some who actually did seek out the referenced material found difficulties in accessing them (Table G.6, entries 85, 100, 101, and 114, Table G.7, entries 24, 57, 186, 187, 270, and 296).

The second study (Marland et al., 1984) has more aspects to compare with the present study than did the first study, especially the study strategy and textual features that triggered students' thoughts. Unfortunately, the study of Marland et al. (1984) involved only four students which reduces the value of the comparison. The similarity with the students in the present study was that most of the students in Marland et al. study used access structures, such as table of contents, study guide, objectives, in-text activities and questions to direct their reading. The present study found that the following access structures were used by most of the students: Foreword, General Instructional Objectives (GIOs), Specific Instructional Objectives (SIOs), in-text exercise, and formative tests. Students' thoughts in the Marland et al. (1984) study were triggered by material in supplementary reading, in-text questions, words and key words, material in

text, and headings and sub headings. Students in the present study stopped to think when they encountered referred material, underlined words, italicized words, illustration of idea, heading and sub-heading, graphs and maps. Details of numbers and percentages of students on these aspects can be found in Appendix D.2, The Questionnaire and The Response. It appeared that students in both studies acted similarly in using distance teaching material.

The third study was a replication of the second study (Marland et al., 1990) involving a larger sample of 17 students. This study reconfirmed that the factors which triggered students' thoughts were related to study materials. The personal and contextual stimuli were accountable for only 3% to 4% of the overall stimuli. Study guide, objectives, table of contents, terms, words or phrases, introduction, headings and underlinings, graphs, tables, photos, cartoons, and reference to other material were all found to be stimuli. Another aspect of this study that is relevant to the present study was the rate that students used in learning from the print material. Comparison on this aspect will be made in the section Reading Speed.

The fourth study was conducted to identify the mental processes of students when they were studying EKON4110 modules from Universitas Terbuka (Andriani et al., 1992). These researchers used what Marland et al. (1984) called "stimulated recall", that is "a self-reporting technique in which (audio and/or video) records of subjects' overt behaviors in the task environment are used to stimulate recall or simultaneously occurring thought processes" (p.219). This study had ten sample students.

The present study was, in one way, a replication of the study conducted by Andriani et al. (1992). However, the present study further investigated difficulties that students experienced in their interaction with EKON4110 modules, and their relationship with students' academic performance and

persistence. The method used in the present study was different. It used a questionnaire that was built based both upon *the construct of reader-text relationship* and/or the general guidelines for development of self-instructional material (Rowntree, 1990) and study habits or study behaviors (Biggs, 1987; Clyde et al.,1983; Marland et al., 1984; Marland et al., 1990; Parsons, 1986; Robert, 1985), and learning approach theory (Marton & Saljo, 1976a, 1976b) that were discussed in the literature review.

Several of the findings of these two studies, especially on features of EKON4110 modules that stimulated students' thought processes, were, therefore, comparable. Since the questionnaire that was used in the present study was developed mainly based on the reader-text relationship construct and principles of development of self-instructional material, study habit and learning theory (without paying much attention to the actual structures of the EKON4110 modules), several items in the questionnaire either received diverse and indecisive responses or were not present in Andriani's et al. (1992) study. These items have been identified earlier in the Findings chapter. Table 5.1 below summarizes the comparison between the present study and the study conducted by Andriani et al. (1992).

From Table 5.1, it is clear that the two studies found many similar structures in the EKON4110 modules that stimulated students' thinking. Only three features (word, notes, and problems in learning activities) that were in Andriani's et al. study were not addressed in the present study. There were structures in which the percentages of students who were stimulated by those structures were almost the same, such as the general and specific instructional objective, the foreword, the underlined words, the diagram and the formative tests. For the rest of the structures such as graphs, tables, table of contents,

exercises, and overview, however, the percentages of students who were stimulated by these structures were considerably different.

Table 5.1.
Comparisons with the study of Andriani et al. (1992)

Andriani, Listyarini, and Warlina (1992)													The study reported here	
						STUDENT /								
						FREQUENCY								
no	Stimulator	A	B	C	D	E	F	G	H	I	J	n	Ques	% of res>3
1	Graphs	1	1							1		3	II.B.17.e	74%
2	Diagram	1		1	1				1	1		5	II.B.17.f*1	58.70%
3	Tables							2	1		6	3	II.B.17.j	69.60%
4	Tipography													
	a. Underlined	14	2		11	11			1	8		6	II.B.17.d	71.90%
	b. Indent				2	1						2	II.B.17.k	48.50%
	c. Bold	3			1			5		2		4		
	d. pointer		4	1		1			3			4		
	e. type of letter									2	1	2	II.B.17.c*2	74.70%
	f. Color of paper												Open-ended	
	g. w ord					1					1	2		
	h. Notes						1					1		
5	Table of contents					2						1	II.B.2	71.80%
6	Forew ord			1		2				1	7	4	II.B.1	58.70%
7	GIOs/SIOs		1	2		2					1	4	II.B.14 & II.B.15	36.2% & 42.8%
8	Headings	5		1	1	2			1	4	2	7	II.B.17.a&b	33.4% & 35.5%
9	Material under discussion	7	3	1	11	2	6	5	4	10	4	10	II.B.7	80.10%
10	Problem in Learning Activities			1		1			1		3	4		
11	Examples	1						1				2	Open-ended	
12	Exercises		3			1						2	II.B.10	72.10%
13	Overview		2		3		1		1		1	5	II.B.12	89.20%
14	Formative tests	1	2	1	3			1		11	3	7	II.B.11	82.60%
15	Answ er keys		1						1		1	3	II.B.13	80.20%
16	English							1		3		2	Open-ended	

Notes: 1. diagram vs. illustration
2. type of letter vs. italic

A possible explanation of such differences is that the researchers in the study by Andriani et al. (1992) studied students' overt study behavior three times in a 30-minute learning process for a total of 90 minutes. Considering the total number of hours that students are supposed to engage with print learning material (that is 120 hours (Mikdar and Karyani, 1988)), the 90 minutes, which would cover only approximately five pages out of 456 pages, did not give much chance for students to be stimulated by all the structures that were in the

EKON4110 modules. Some students might have been stimulated by certain structures but not by certain other structures, while other students might have been stimulated by different sorts of structures (not to mention if the observation on students who were working on different parts of EKON4110 modules).

A second possible explanation is that students in the present study were stimulated by the names of structures that were printed in the questionnaire. Had they not been printed, they might not have known that there were such structures. They were simply unaware of such structures, and their opinions on such structures did not show up in the frequency counting in the study of Andriani et al. (1992).

The fifth study by Valcke, Martens, Poelmans, and Daal (1993), which examined the use of embedded support devices (ESDs), is quite relevant to the present study. Clyde et al. (1983) argued that not much is known about how distance education students actually use print learning material. Winne (1983) also suggests that whether or not learners use learning stimuli in a way prescribed by education theorists is rarely examined. Given the fact that putting ESDs in print learning material is expensive, Valcke et al. (1993) conducted a study to examine the effectiveness of ESDs. In their study, Valcke et al.(1993) investigated both how students used ESDs and the relationship with students' performances on examinations. The results of that study will be compared to the results of the present study.

Valcke et al.(1993) identified 40 ESDs. Appendix H.1 presents these 40 ESDs which have been classified into six categories: Starting Conditions, Learning Objectives, Learning Content, Learning Activities, Media, and Evaluation. They examined the way in which 27 students of the Dutch Open University used ESDs in the Learning Unit 20 of the Introduction to Law course and its relationship to students' performance on the final examination of that

course. They did not examine all the 40 ESDs, focussing only on the ESDs that were in the Learning Unit 20 of that course. Appendix H.2 presents the 22 ESDs that were in the course, the percentage of students who used them, and the percentages of those who use them at the surface level and at the deep level, respectively. The dichotomy of surface-deep levels is similar to the classification of Marton and Saljo (1976a, 1976b).

Findings of the study by Valcke et al. (1993) can be summarized as follows. Except for the Facultative Activity which was used by only 28 percent of the sample, the other 21 ESDs were used by at least 60 percent of the sample. The Study Guideline and Example were used by all members of the sample. By comparing the content of Appendix H.2 and related items in Appendix D.2, it can be concluded that the students' use of textual structures or ESDs by students in both studies were similar to one another in terms of both the structures that were being examined and the percentage of use by students. Table 5.2 summarizes the comparisons.

Table 5.2
Comparisons with the study of Valcke et al. (1993)

	Present Study N= 138 students		Study of Valcke et al. (1993) N = 25 students	
No.	Entity	% used by students	ESD	% used by students
1	Foreword	58.7	Introduction	92
2	a. General Instructional Objectives	71.8	Learning Objectives	80
	b. Specific Instructional Objectives	76.1		
3	a. Headings	33.4	Title	84
	b. Sub-headings	35.5		
4	Learning Activities	81.1	Content page	60
5	Formative tests	82.6	Question(1)	80
			Question(2)	96
6	Answer keys (feedback)	80.2	Example of correct answers(feedback)	84
7	Exercises	74.6	Tasks	84
8	References to other material	44.9	Reference to other learning units	88
9	a. italicized words	74.7	Font type (italics)	80
	b. underlined words	71.9		
10	Overview	89.2	Summary	84

From the Appendix H.2, interestingly, it can be seen both that the percentage of students who operated at the deep level in using any ESD far exceeded the percentage of students who operated at the surface level and that the sum of the percentages of students who used ESDs at the surface level and the percentages of students who used ESDs at the deep level exceeded 100 percent in 11 ESDs. This is by no means the result of rounding in calculation, since in 8 ESDs the sum exceeded 105. The two largest sums were 139 and 135. This means that students operated at two levels in using ESDs. This finding is similar to the finding of the present study that will be discussed in a later section, Learning by Understanding and Learning by Memorizing.

Attitudes After Interaction

It is rather difficult to compare findings of this study to findings of other studies on this aspect since the specificity of this factor, Attitudes After Interaction, in the present study was closely related to interaction with EKON4110. Though it is possible to compare the finding with Attitudes After Interaction with other courses, such a comparison is too general to be meaningful and valuable. A study that examined students' interaction with EKON4110 learning material (Andriani, et al.) did not address this issue; the researchers addressed students' satisfaction with the course material, but this was done in relationship to student learning approach characteristics. Students whose purpose of study was not merely to pass the exam (type X) were not satisfied merely by interaction with the course material. They looked for other material from other sources. In contrast, students whose purpose of study was solely to pass the exam and to meet the requirement to obtain a degree (type Y) were satisfied with their interaction with the course material.

Even though it is difficult to make meaningful comparisons of findings on this aspect, there is still one aspect that is interesting for discussion. Even

though most of the students scored high on this factor, more than 129 students who marked "often" or "always" think that the 17 structures in EKON4110 learning material were helpful in the study; in fact, the variation of scores on Attitudes After Interaction is significantly correlated with the scores on the final exam of EKON4110.

The findings mentioned above are comparable to the findings of Kin (1994), who conducted a study of student attitudes to text design and face-to-face contact at the Open Learning Institute of Hong Kong. Most of the students in that institute also considered the objectives of each leaning unit, in-text questions, self-assessment questions and summaries of each session to be useful in their learning. The findings led Kin (1994) to conclude that the effort and resources spent in instructional design were well-directed. Considering the large number of students who thought structures in modules were useful, the similar conclusion could apply in Universitas Terbuka; that is, producing the highest quality module is a useful exercise.

Understanding Directions

In this study, Understanding Directions in print learning material refers to the understanding of both the Foreword and of the General and Specific Instructional Objectives. These three structures of print learning material are components of what Valcke et al. (1993) called embedded support devices (ESDs).

In the present study, even though the number of students who use Introduction, GIOs, and SIOs was relatively high, there were only 77 students (55.8%) who either "often" or "always" understood the Foreword, only 88 (63.77%) students who either "often" or "always" understood the GIOs, and 95 students (68.8%) who similarly understood the SIOs. These numbers suggest that there were students who even have difficulties in understanding the

directions for use of the module. Furthermore, there were only 50 students (36.2%) who compared what they had read with the GIOs and 59 students (42.8%) who compared what they had read with the SIOs. Valcke et al.'s (1993) findings, which will be discussed in the following paragraphs, produced scores which were considerably higher than the above numbers.

Three items that comprise Understanding Direction variables in the present study were all also examined by Valcke et al. (1993). The Introduction was used by 92% percent of the students; 48 percent of the students used it at the surface level, and 91 percent of students used it at the deep level. The Learning Objective was used by 80 percent of the students; 24 percent of the students used it at the surface level, and 65 percent of the students used it at the deep level. Examination of the relationship between the use of ESDs and academic performance will be discussed in the following paragraph.

In terms of the relationship with academic performance, both the present study and the study of Valcke et al. (1993) used scores of the final exam of one course as indicators of academic performance. Both courses were first level introductory courses, Introduction to Macro Economics (present study) and Introduction to Governmental Law (Valcke et al.'s study). No significant correlation between Academic Performance and either Understanding of Directions or Individual Activities was found in the present study. In contrast, the findings of the Valcke et al.' study did show both that the use of ESDs at the deep level correlated with high academic performance and that fewer examination attempts were made. In the present study, Understanding Directions distinguished significantly between persisters and non-persisters, an important finding.

Difficulties in Interaction

Both the quantitative and qualitative data showed that students had difficulties in working with graphs, tables, illustrations, and difficult words. Following are translations of what some students have written concerning their difficulties. Concerning graphs, the followings are tranlations of students #95, #97, #99, #157, and #263 have written:

> #095: I do not quite understand graphics or others since most of them are without any explanations at all.
>
> #097: I often saw in modules that have graphs. It directly wrote the equation, without solving the equation and its points.
>
> # 99: 1. Graphs are difficult to understand since lack of explanations, especially their lines and points.
>
> #157: My difficulty is about reading graphs and diagrams especially in their explanations. For example, there is a lack of classification that is more detail concerning the terms in that graphs and diagrams.
>
> #263: It had better, in drawing graphs, to be clearer in determining the coordinates of its points. For example, in page 44 of EKON4110 - Introduction to Macro Economics.

A copy of page 44 of EKON4110 module that student #263 referred to is attached in Appendix I. The graph is about the rule of demand and supply. It is clear from that copy that the names of the vertical and horizontal axes are written as "H" and "K", respectively, without explanations of meanings. Although from the previous pages students should be able to grasp the "H" for "harga" (that is "price" in English), there is not much clue to grasp the meaning of "K". From the context, knowing that the "H" is for "harga" or "price", one would be able to grasp that the axis should be for the size of demand. A "P" for "Permintaan" or "demand" (English) would have been better than "K" which the researcher predicted it would stand for Kilogram since rice is generally

measured in kilograms. "Permintaan (kg)" or "Demand (kg)" which does not take much space, and it probably would work even better.

Concerning difficulties in working with tables, the following are translations of what students #183, #214, #230 have written:

> #183: [1] I sometimes had difficulties in mastering modules where test items are presented in diagrams and tables. [2] I cannot understand the solutions of test items that have diagrams and tables inside.
>
> #214: My difficulties in studying tables are where the number come from before entering the tables and from which formula. I often think and guess from the increments and differences between numbers in the tables.
>
> #230: These difficulties in studying graphs, tables, and maps are due to the lack of explanations of the module itself. Especially mathematics courses, to be honest, it is difficult for me to understand. For example, in demand and supply function, where the values of X and Y come from are not adequately explained.

From the three excerpts presented above (which represent 36 students (26%) who expressed that they often or always having difficulties in working with tables), it is clear that the students do need some more explanation about the tables that are presented in the modules.

There were 31 students who expressed that they either "often" or "always" have difficulties in understanding illustrations. These difficulties are related to not knowing the meanings of words or terms that were used in modules. Excerpts from the translations of responses from students #032, #184, #243, and #184 should make this matter clear.

> #032: There are many difficult terms the meanings of which are not explained, so the reading is just like flowing water. For example, in the course EKON4110, the meaning of the term "gelombang kongjungtur" is not explained. I found the meaning of that term in another book.
>
> #184: Terms are not accompanied by their meanings or their explanations that are not adequate (They had better be

accompanied with an index of foreign words or terms that is alphabetically sorted).

#229: The difficulties that I always have is when in the reading we face foreign words that I have not known their meanings. Sometimes I stop there, quite and think what is this actually and what is meant by that.

#243: My difficulties may be due to misprint or may be due to my limitations. For example: [a] In module 6, Work Activity 3, page 30, what is the meaning of the term "**monetisasi**". **Does it mean** "*creating money?*" [b] Does the term "**konsul**" has the same meaning with the term "obligasi" (page 31) (Valuable paper without time limit for payment).

From the excerpts above, it is clear that certain words such as scientific terms, foreign terms or "Indonesianized" terms (such as "monetisasi") have created difficulties in students' learning.

In Bloom's taxonomy (cited in Verduin & Clark, 1991), knowledge of terminology, about which many students at UT are not well served through print learning material, is the lowest level on his six levels of cognitive growth. Knowledge at this level is a prerequisite for growth in the higher cognitive levels, such as comprehension, application, analysis, synthesis and evaluation. This factor or perspective, then, offers a possible explanation regarding why many students did not obtain acceptable academic performance. To put it simply, these students are not equipped with the basic knowledge of terminology in their field, and that alone may be an explanation for their low academic performance. If print learning material is to be "self-instructional material", as it is often described, explanations of terms that most students would not be familiar with is, indeed, necessary! Expecting students either to go back and forth to the library or to contact experts to find the meaning of such terms is expecting students to do too much after their activities at work and home. Such an expectation is unreasonable from many points of view, such as the students' time frame, the

availability of experts, the location of libraries, time, cost and energy to go to libraries.

Also related to students' difficulties is what Schwittmann (1982) calls "cognitive learning prerequisites". There are two types of cognitive learning prerequisites; those non-related to contents and those content-related. Students' difficulties that are related to contents also appeared in this research. Excerpts of translations of responses from students #61, #108, #156, and #270 illustrate the existence of such a cause of difficulties:

> #061: - The language is too scientific for me who have been long time not studying. Time will make me more familiar with this module.
> - A new knowledge for me.
> - Nothing more than that since I am new and in the first semester in UT, I cannot make solution or opinion.
>
> #108: Difficulties are in mathematics especially since I graduated from SPG (Teacher Education, 3 years above elementary level - Hardhono). However, I can overcome these difficulties by asking peers at work who graduated from S1-Mathematic.
>
> #156: The explanations are too short, not detailed enough, especially for knowledge that include calculations that related to mathematics. It is worse for me since when I was in high school, 21 years ago, there has not been such a lesson. If there was, I might have forgotten that.
>
> #270: Since I graduated from school of mechanical engineering, I do not understand the tables in the EKON4110.

It is clear from the above excerpts that students #61 and #156 felt that they were disadvantaged because they had graduated from high school a long time ago; either they have forgotten what they were taught or they were not taught those subjects (as was stated by student #156). Students #108 and #270 felt that they were disadvantaged because they had different content backgrounds.

There was one student in this research who was aware of the problem that Garland (1993) found in a study of the persistence of 47 students who were taking five introductory courses in natural resource sciences at the University of

British Columbia, Canada. Garland called the problem an "epistemological barrier". Both persisters and non-persisters faced the epistemological barrier; the persisters managed to overcome the barrier, whereas the non-persisters did not. The epistemological barrier is "a lack of congruence between the student's cognitive and affective characteristics and perceptions of knowledge, and the nature of the knowledge presented in the subject matter" (p.192).

In the research reported here, student number #161 wrote as follows:

> # 161: 1. The **difficulty** is when the **rightness of the answer is relative** that means **it has to** be **discussed** (bold added)
> 2. The limited references for making comparisons.

The essence of the first statement above is similar to what Garland (1993) found; that is

> One might anticipate that some students would have difficulty with the scientific, technical nature of courses and, indeed, some did. They were apparently comfortable with generalities, abstract concepts and broad context, but not with scientific, technical and mathematical specifics. However, other students, comfortable with the general emphasis on 'facts' and principles, **were uncomfortable** with the broader theoretical concepts, abstraction and interpretation, particularly **if there was ambiguity**. Today the sciences, certainly these applied natural sciences at this tertiary level, are more than immutable laws, inexorable fact, and a quest for "truth." Students with this exclusively positivist epistemological stance **found themselves at variance** with the diverse knowledge content and expectations of these courses, their epistemological diversity. (p. 193, bold added)

From what student #161 has written, it is clear that the student belongs to a group that is comfortable with facts and principles, but is not comfortable with ambiguity in theories, concepts and interpretation. This is especially true with the mixed nature of economics. A part of economics is mathematically approachable (such as calculation of interest, profit, and general national product), and the other part (such as why economic factors act as they do), is not a totally mathematical matter. The border of these two parts may not be clear cut. Even though only one student stated that he/she faces this epistemological

barrier, this does not necessarily mean that he/she is the only one who faces such a barrier. Many others could be simply unaware that they have this problem. Further research is necessary, however, to investigate this claim.

There were 14 students who stated that they did not have difficulties in working with modules. It is interesting to examine their academic performance. Four of them did perform well on the EKON4110 course, but only one managed to obtain a GPA above 2.00, the cut-off point. Table 5.3 present scores, course grades and grade point averages of those 14 students.

Table 5.3
Academic Performance of students who claimed having no difficulties in their interaction with print learning material

SAMPLE #	S4110	G4110	GPA
24	66.67	3(B)	1.67 *
305*	55.00	2(C)	1.42
315	51.67	2	2.21 *
179	50.00	2	1.42
286	41.67	1(D)	1.44
249*	41.67	1	.75
154	40.00	1	1.33
300	35.00	1	.42
165	35.00	1	.92
219	35.00	1	1.17
133	33.33	1	.77
106	31.67	1	.83
51	28.33	0(E)	1.17
244	26.67	0	1.56

It is rather unfortunate for the above 10 students seemed to be unaware of their own problems. It could be worse, of course, since they may not be aware of their problem, and they may not know where to start solving that problem.

Study Motivation

One of the findings sections has shown, quantitatively, that most of UT's students have high Study Motivation. Upon further analysis, however, there was

no significant correlation between Study Motivation and Academic Performance. Kember (1991) proposed two types of motivation: intrinsic motivation and extrinsic motivation. Intrinsic motivation is related to a student's interest in the subject matter, whereas extrinsic motivation is related to the benefits a student might receive from studying. Based on empirical data from Deci (1985), Kember (1989a, 1989b,1990) argued for the primacy of the influence of intrinsic motivation upon a student's chance of success. The next paragraphs will look at the types of motivation of students in this research based on their rationales for completing their study program and course EKON4110, on the types of motivation that high-achievers and low achievers have and on the differences, if any, between persisters and non-persisters in terms of types of motivation.

Presented below are the translations of rationales for the importance for completing the study program; the translation express the study motivation of the students who scored 55 or more on final exam of EKON4110, and they are accompanied by grade (3 = B; 2 = C; 1 = D; 0 = E) and Grade Point Average (GPA). The researcher italicized, bolded, or underlined to show the existence of different types of motivation in a student whose study motivation is being examined.

#272: Score: 61.67 Grade: 3 GPA: 2.25

- To increase and deepen my knowledge (especially economic) in facing the development era.
- A wish to implement the knowledge in my daily life according to my beliefs.

#024: Score: 66.67 Grade: 3 GPA: 1.67

1. I attended courses from the University of Indonesia in 1974 to 1978 and obtained a Bachelor Degree.
2. **The company where I work (BNI Bank) priorizes promotion for employees who have obtained a full degree.**
3. **To increase knowledge to keep up with the growth in working condition at work which is ever-changing.**

4. To give a good example to my children to always make efforts to increase knowledge even though they are old.

Two students above have obviously different sets of motivations. Student #272 (GPA = 2.25) performed better than did #024 (GPA = 1.67) even though Student #024 did better on the final exam in EKON4110; this might be due to the fact that this student has studied at University of Indonesia (UI) and works in a bank that provides a better chance to understand economics. Student #272 did not indicate any sort of extrinsic motivation. The two entries that this student wrote indicate the presence of intrinsic motivation. In contrast, response numbers 2 and 3 of Student #024 did indicate that there is some sort of extrinsic motivation; response number 4, however, falls outside the intrinsic-extrinsic categorization. Up to this point, the assertion that students with intrinsic motivation tend to perform better than those with extrinsic motivation has not been disconfirmed. These findings, however, are statistically inadequate to confirm such an assertion. Please consider the translations of responses of several more students on this aspect:

#209: Score: 56.67 Grade: 2 GPA: 1.67

My actual interest is in biology, however there is no biology department at UT that is not for teacher training (or without requirements set by the Faculty of Teacher Training). **I chose the Faculty of Economics since, maybe, by using this knowledge I will be able to implement it in daily life easily and to sharpen my thinking ability**. Therefore I do not expect much. The important thing is that I understand and be able to apply the concepts that I have learned.

#045: Score: 58.33 Grade: 2 GPA: 1.20

For me, finishing this study program is important not to mention if it is accompanied with good grades. So, I have to study really hard.

#297: Score: 56.67 Grade: 2 GPA: 1.42

This study program is very important to be finished since by quickly finishing this study program means saving time and cost of studying. By finishing this program quick, we can **make use of the knowledge** that we learned and be able to focus back on another job.

#305: Score: 55.00 Grade: 2 GPA: 1.42

I think it is important to finish the program **because I hope to advance my career very much. Without finishing this program, my career would be hindered**.

#201: Score: 55.00 Grade: 2 GPA: 1.52

1. **As a personal internal satisfaction if I can finish the S1-degree**.
2. **It increases my confidence at work**.

#242: Score: 55.00 Grade: 2 GPA: 1.25

By finishing the study program that I take I can obtain indirect experience of what I have learned in modules. And I hope that I can apply that experience in the society, nation and the state.

It is clear that Student #209 did not study his preferred subject, that is biology. This student emphasizes obtaining understanding and being able to implement what is learned, and sharpening thinking ability, all of which make the motivation amenable to the intrinsic category. This is also true of students #045, #297, and #242. In contrast, with their emphasis on the benefits of obtaining knowledge on work or career advancement and pursuing a degree, students # 305 and #201 have extrinsic motivation. These six students have lower scores on their exams in EKON4110 than do the first two students discussed. In the group of six students, two students indicated having strong extrinsic motivation. Motivation of low achievers will be discussed in the following paragraphs.

There were 71 students who scored below 41 on the EKON4110 final exam. Appendix J.1 presents their rationales for completing their study programs, and Appendix J.2. presents the frequencies of rationales. From the frequencies in Appendix J.2, it seems that acquiring knowledge and broadening vision have high frequencies, 48 and 27 respectively. Looking further into individuals on Appendix J.3, however, it can be seen that acquiring knowledge or broadening vision (either one of which can stand for an intrinsic motivation), rarely stand on their own. In most cases, some sort of extrinsic motivation co-exists with another sort of intrinsic motivation.

In brief, the students can be classified into 4 groups based on their motivation. The first group of 8 students stated that acquiring knowledge and/or broadening vision are solely their rationales for completing their study program. In other words, these students have intrinsic motivation. The second group of 26 students stated that supporting career advancement and/or pursuing a degree were their rationales for completing their study programs. In other words, these students have extrinsic motivation. The third group of 21 students stated a combination of acquiring knowledge, broadening vision, pursuing a degree, supporting career advancement, opening up opportunities, and future betterment as rationales for completing their study programs. In other words, these students have a mixture of extrinsic-intrinsic motivation. Finally, the last group of 14 students might be categorized in any of the first three groups, but they were specific in mentioning that they will devote what they have learned to the society and the state. Two students, #95 and 304 were ungrouped. Given the considerable number of students who have purely extrinsic motivation and mixed extrinsic and intrinsic motivation, on the one hand, and the small number of students who have intrinsic motivation, the assertion that students who have intrinsic motivation tend to perform better than those with extrinsic motivation, to a higher degree, can be supported by the findings of this study. Or, at least, it has not been disconfirmed so far. Upon further reflection, Hodgkinson's (1991) three purposes of education (the aesthetic, the economic and the ideological), were confirmed by the existence of the first, second and third, and the fourth group identified above. Appendix J.4 presents which students belong to which group.

Time on Interaction, Time-Off, and Study Load

Since Time on Interaction, Time-Off and Study Load are related by their substance, they will be discussed concurrently in this section instead of in three

individual sections. Except for one student who took 9 semester-credit-units of courses, the majority (112 students or 81.2%) took 12 semester-credit-units of courses; it is reasonable to expect, therefore, that students should spend approximately 28 hours a week in their interaction with modules. This is reasonable because, according to the generally accepted definition, one semester credit unit is equal to 40 hours of learning that is spread over 17 weeks (Mikdar & Karyani, 1988). Taking twelve credit-units of courses, therefore, means interacting with course material as much as 12 * 40 / 17 hours a week, that is 28.23 hours a week. Data from this study showed that most students spent far less than the recommended time. Eight-five students (61.6%) spent less than fifteen hours a week (approximately 50% of the recommended time), and 112 students (81%) spent less than twenty-five hours a week. In contrast, there were only nine students (6.5%) who spent approximately as much as the recommended time and nine students who spent more than the recommended time.

The above findings are similar to Roberts (1985) study in the Riverina-Murray Institute of Higher Education which found both that 80% of the students spent less than the recommended time and that only 8.2 % and 12.3% of students spent as much as or more than the recommended time respectively. Relevant to this discourse is the model of learning success of Schwittmann (1982) which has been discussed earlier in the Literature Review. Time is the heart of Schwitmann's model, but Schwitmann found that only 7 students from a total of 99 spent 23 hours or more per week on study. The majority (89 students) spent between 6 to 21 hours a week. Assuming that students take one day off a week (for no study or work), students spent about one hour to three hours and a half studying every day after working and family time.

Considering that the majority of UT students also have jobs, there should be a realistic calculation of the possible study time by both, the students and the institution. The students need to calculate their possible study time realistically before they register. As well, the institution should consider smaller credit-units of packaged courses and a pro-rated fee schedule. For the time being, the smallest packaged course is 12 semester credit units. This means that students who take 12 credit-unit of packaged courses are recommended to study 28 hours a week or four hours every day. Simply, this just may be too much.

The implicit requirement of taking 9 or 12 semester credit units of courses is either encouraged or indirectly forced by UT's fee schedule. Table 5.4 presents the current fee schedule at UT. By such a fee schedule, indirectly, students are forced to take courses of at least 9 credit units or more. In other words, no matter how busy students are in other activities or how tired they are, they are expected to spend at least 21 hours a week, or three hours every day, studying. Otherwise, they will be taking courses for less than 9 credit units for the price of 9 credit units. To reduce the burden on the students, both the fee schedule presented in Table 5.4 and the packaged courses need to be revised to fit the students' schedules and their ability to pay.

Table 5.4
UT's fee schedule

Category	Number of SCU	Fee
1	0*)	Rp. 15.000.00
2	2 - 9	Rp. 45,000.00
3	10 - 12	Rp. 60,000.00
4	13 - 15	Rp. 75,000.00
5	16 - 18	Rp. 90,000.00
6	19 - 21	Rp. 105,000.00
7	22 - 24	Rp. 120,000.00

Source: The 1993 Catalog, Universitas Terbuka

Even though the amount of time that students spend at work and on their way to/from work was not significantly correlated with academic performance (results of a correlation analysis), it is a significant factor that distinguishes persisters from non-persisters. The non-persisters might have felt that studying at UT has increased their burden considerably both in terms of cost and time, and with low academic performance, they might have seen no benefit from their enrollment in UT. This situation is clearly described in Kember's (1989a, 1989b) drop-out model in which cost/benefit analysis is the final and decisive consideration of students prior to their decision either to persist or to drop-out. If students in this study did quit because they saw no obvious benefits from their enrollment at UT after having spent so much money, time, and energy (Please refer to Table G.2 entry no. 13 and Table G.4 entries numbers 8, 44 and 45) , then what Paul (1990a, 1990b) stated, "the open door has become a revolving one", has occurred at Universitas Terbuka.

Reading Speed

Students in the present study read somewhat slower than did students reported in other studies; the majority (39.9%) read at about 6 to 10 pages an hour, and another group of students (26.8%) read at about 10 to 15 pages an hour. Marland et al. (1990) reported that their 17 subjects read course material at 22 pages an hour. The researchers considered that reading at such a rate was either much too rapid or was skim reading. Combined with data from thought process data, such a rate was associated with surface learning. In the study of Marland et al. (1990), the learning unit was a 45-page text, and it was supposed to be completed in 12 hours. In other words, the suggested reading rate was 3.67 pages an hour. In the present study, UT's EKON4110 is a 3 credit-unit course or equal to 120 hours of study (Mikdar & Karyani, 1988), and its course material is a 456-page text. The recommended reading speed can be

indirectly inferred from these numbers, that is 3.8 pages an hour. This means that the course material of two courses from two distance institutions is recommended to be read at approximately the same rate. This might be an explanation of why reading speed is a significant factor related to academic performance (results of the correlation and regression analyses). As well, it may be a factor which distinguishes the persisters and the non-persisters (results of t-test analysis).

Research in reading indicated both that reading speeds vary and that they depend on the goal of reading. Carver (1992) classified reading rates of college students into five categories. Table 5.5 below presents his classification. Carver used a computer to manipulate the speed of text appearance that students read, and, therefore, student reading rate was manipulated. The rate varied from 83 Wpm to 500 Wpm. Students were asked both to answer multiple choices questions that were based on sentences or words that were in the text and to judge their own comprehension. Results showed that, when the reading rate was less than 300 Wpm or more than 300 Wpm, students' comprehension was less efficient. Based on that, Carver firmly argued that reading rate at 300 Wpm is the most efficient rate for college students.

Table 5.5
Reading rate norm for college students (Carver, 1992)

Reading gear	Five basic reading process	Goal of model process	Culminating component of the model process	Typical college rates for the model process
5	Scanning	Find target word	Lexical access	600 Wpm
4	Skimming words	Find transposed	Semantic encoding	450 Wpm
3	Rauding complete thoughts in sentences	Comprehend	Setential integration	300 Wpm
2	Learning choice test	Pass multiple	Idea remembering	200 Wpm
1	Memorizing	Recall, orally or	Fact rehearsal	138 Wpm

Note: Wpm is Words per minutes

The researcher of the present study counted the number of words in three pages of the EKON4110 courses material. Page number 256 had three sub-headings and one line "contoh", or "example", that left six lines empty, so that each part could be physically identified by its borders. This page had 305 words. Page number 94 had only one sub-heading which left 2 lines empty. This page had 358 words. The third page was page number 120, and it had no headings or sub-heading so that none of its 44 lines was empty. This page had 401 words. The second page is a typical page; for the sake of calculation, therefore, the average number of words per page will be estimated as 350 words per page. Based on this estimation, the reading rate in Table 5.5 above can be converted into number of pages per hour for EKON4110 case by using the following formula:

$$\frac{\text{Words per minute}}{\text{Words per page}} * 60 \text{ minutes} = \text{Pages per hour.}$$

Table 5.6 below is the results of the conversion.

Table 5.6
Reading rate (Pph) norm for college students (Converted from Carver, 1992)

Reading gear	Five basic reading process	Goal of model process	Culminating component of the model process	Typical college rates for the model process
5	Scanning	Find target word	Lexical access	600 Wpm / 103 Pph
4	Skimming words	Find transposed	Semantic encoding	450 Wpm / 77 Pph
3	Rauding complete thoughts in sentences	Comprehend	Setential integration	300 Wpm / 51 Pph
2	Learning choice test	Pass multiple	Idea remembering	200 Wpm / 34 Pph
1	Memorizing	Recall, orally or	Fact rehearsal	138 Wpm / 24 Pph

Note : Pph is Pages per hour

The conversion results showed that reading speeds in the Table 5.6 were much too rapid both to be compared with what Marland et al. (1990) considered

to be reading rates for tertiary study (approximately 3.67 pages an hour) and to what UT recommended its students to read (at approximately 3.8 pages an hour), .

Learning by Understanding and Learning by Memorizing

These two factors resemble what Marton and Saljo (1976a, 1976b) called learning approaches: the deep approach and the surface approach. The deep approach is characterized both by an understanding of the logical pattern of the material and by relating the content of the material to previously acquired knowledge. The surface approach is characterized by attempts to memorize the material. Marton and Saljo (1976b) have shown that students can use both the deep and surface approaches. The approach that students eventually use is determined by their own perceptions of what is expected of them.

Findings of this study showed that 62 students (46.4%) stated that they either often or always tried to memorize the material. In other words, they operate at the surface approach level. By contrast, most of the students scored high on items that indicate the deep approach; 116 students (84.1%) marked that they either "often" or "always" tried to understand materials by mastering inter-relationships of their parts; 104 students (76.8%) marked that they "often" or "always" related what they read with what they have read before, and 90 students (65.3%) marked that they either "always" or "often" relate what they read with their real life experience. Table 5.7 is a crosstable of Learning by Understanding and Learning by Memorizing.

The data in Table 5.7 suggested that there was a large number of students who employed both the Learning by Memorizing and Learning by Understanding approaches. This is not surprising, since as Marton and Saljo (1976b) have shown, the deep and surface approaches are both at the students' disposal, and the one that they eventually use is determined by their perception

of what is expected from them. In distance education research, findings of Valcke et al.(1993), which were discussed earlier, supported the assertion that students may have two approaches. Harper and Kember (1986) suggested that assessment demand, study load, and prescriptive-level course can influence the learning approach that a student finally uses. Surface assessment demand, high study load and over-prescriptive courses could lead students to study at a surface learning approach level.

Table 5.7
Crosstable; Learning by Memorizing by Learning by Understanding

Count		UNDERSTAND rarely 4 - 6	sometimes 7 - 9	often 10 - 12	always 13 - 15	S Row	(%)
MEMORIZE							
never	1		1	2	2	5	3.6
rarely	2		1	8	8	17	12.4
sometimes	3		7	27	17	51	37.2
often	4		2	15	16	33	24.1
always	5	1		9	21	31	22.6
S Column		1	11	61	64	137	
(%)		.7	8.0	44.5	46.7		100.0

Number of Missing Observations: 1

Students in the present study were first semester students. Uncertainty as to both the assessment demand and their work load (both study and job) might have led them to employ both approaches. Considering the assessment demands at UT (in which the blueprint of examination is organized by using Bloom's taxonomy, ranging from C-1 Knowledge through C-6 Evaluation, and a multiple choice exam format), these two approaches might, indeed, be needed by the student to survive at Universitas Terbuka. These findings are similar to the findings of Valcke et al.(1993), but they are somewhat contradictory to those of Andriani et al. (1992), in which only two students out of ten could be classified

as deep learners. Two possible explanations could be offered for this difference. The first explanation is that, in the study by Andriani et al., the classification reflects the researchers' perceptions of the subjects, whereas in the present study, the classification is based upon how students think about themselves when they are studying; there was a possibility that what students thought they did was different from what actually they did. Kolb (1976) and Marland et al. (1984) argued that identifying a learning approach is not an easy task since this approach changes over time and situation. Marton and Saljo (1976b) have shown that learning approaches could be manipulated by questions that were given in the learning process. Kember and Harper (1986) argued that, when studying from print learning material, a student's learning approach can be influenced by in-text question; for example, students could easily move from the deep approach to the surface approach when they see that the deep approach is not efficacious.

Even though results of the correlation analysis show no significant correlation between either Learning by Memorizing or Learning by Understanding, and Academic Performance, the relationship between them did not deviate from the general pattern that Learning by Understanding (deep approach) has a positive correlation with Academic Performance; in contrast, Learning by Memorizing has negative correlation with Academic Performance (Kember & Harper, 1986; Marton & Saljo, 1976a; Valcke et al., 1993). Similar results were found in the relationships of these two factor to Persistence. Even though neither of these two factors significantly distinguished persisters and non-persisters, again the relationship between them did not deviate from the general patterns both that the persisters tended to use Learning by Understanding more than the non-persisters and that the non-persisters tended

to use Learning by Memorizing more than the persisters (Kember and Harper, 1986).

The results of the discriminant analysis upon persistence which was conducted in the present study were similar to results of a study conducted by Harper and Kember (1986). Results of both studies showed that the tendency of Learning by Memorizing has the highest correlation to the discriminating function, although these two studies have different other predictors of persistence. In addition to Surface Approach, Harper and Kember (1986) have Fear of Failure, Syllabus Boundedness, Negative Attitudes, Improvidence and Age as predictors in their discriminant analyses.

Previous Academic Performance

Even though previous academic performance was included in the drop out models of Tinto (1970) and Kember (1989a), rarely have researches on drop out treated previous academic performance adequately. In a conventional university setting, Pascarella and Terenzini (1980) controlled the previous academic performance in the sample selection so that its variation will not influence their findings. In a distance education setting, Sweet's (1986) study did not include previous academic performance in its research design. Bernard and Amundsen (1989) who acknowledged previous academic performance as a factor in background characteristics. However, in their section on results and discussions, they did not mention previous academic performance.

The research on drop-out which best treated previous academic performance was a study conducted by Eisenberg and Dowsett (1990). It involved 44 students of the United Kingdom Open University (UKOU) in the Faculty of Technology over a 6 year period from 1982 to1988. Eisenberg and Dowsett (1990) used a partial scalogram to examine the relationship among student attributes, previous academic performance and drop-out. They not only

examined the relationship between students' previous academic performance and their academic performance at UKOU and persistence, but also identified student performance in four courses,(Control Engineering, Introductory Electronics, Maths Computing and Telecommunication Systems), which have been good predictors of student performance and drop-out possibility at UKOU. Their findings showed that performance in different courses led to different levels of performance at UKOU.

In the present study, the definition of Previous Academic Performance was not as detailed as it was in the study of Eisenberg and Dowsett (1990); it was merely the students' high school grade point averages. Results from the analysis, however, showed that students with low high school grade point averages showed a greater tendency not to persist even though the relationship between previous academic performance and performance at UT was not significant.

Reasons for choosing Universitas Terbuka

From what students have expressed, it is obvious that **flexibility** is the most frequently cited reason that sample students have for choosing Unversitas Terbuka to continue their higher education. Flexibility can mean flexibility in study time, place of study, study load, and study method. The "warnings" of Paul (1990b) are worth looking at here. The first warning was that it is possible that flexibility has been oversold among UT students. In contrast, exactly what is needed for students to do in their study at UT is not comprehensively addressed. The second warning was about the difference between those who have choice and those who do not. Students who have choice tend to have greater commitment to their study. Considering both that many sample students have full time jobs (56.52%) and that the majority (84.7%) spend more than 40 hours a week at work and on their way to and from work, it appeared that UT is not one

of several available choices. In fact, it was almost the only choice for most of them! The assertion that UT was almost the only alternative could also be supported by the fact that other public universities reject high school graduates who have been graduated for 3 years or longer (Please refer to Table G.1 entries 26, 31, and 36). The high cost of studying in private universities would also be a barrier to these students to study in universities other than UT.

The public status of UT has two meanings. First, it means that the continuity of the program is guaranteed. Second, it means that certificates and degrees that UT awards have the same value as other public universities. The large number of students (29) who openly stated this reason further clarifies the existence of extrinsic motivation in the sample students even clearer.

Possible reasons for quitting and reasons for not registering

From the list of possible reasons for quitting in the future and reasons for not registering, it appeared that cost is one of the most often mentioned reason.; 6 times for the former and 3 times for the latter. The next most mentioned reason is **time**; either the time to complete the study program is too long or the time was limited due to the fact that students have to keep their jobs. The difficulties in finishing the study program, dissatisfaction with exam results, the tough scoring at UT, difficulty in anticipating what would come up in examination and preparation to make up exam results all signified low academic performance. It seemed that, in wondering about their ability to finish their study program, to some extent the students were conducting a kind of cost/benefit analysis, which, in Kember's (1989a, 1989b) drop-out model, is the last consideration before the students making a decision to quit.

The relationship between Academic Performance and Persistence

In this discussion, both scores on the final examination of EKON4110 and the grade point averages of students in the sample have been used as indicators of Academic Performance. Both t-test and discriminant analyses have been used to examine how scores on final examination of EKON4110 and grade point averages could explain variation in persistence. The results of t-test showed that both scores on the final examination of EKON4110 ($t = -3.24$, 2-tail Prob. = .002) and the grade point averages ($t = -3.73$; 2-tail Prob. < .001) significantly differentiated between persisters and non-persisters. The results of discriminant analysis showed that the scores of the final examination of EKON4110 could only predict 58.40% of persistence cases correctly; whereas, the grade point averages could predict 67.39% of persistence cases correctly. These findings support Tinto's (1970) and Kember's (1989a) model of drop-out, which suggest grades as strong predictors of drop-outs.

The value of the present research was that it showed students' difficulties in their studies and the possible sources of these difficulties. In the present study, these difficulties have been shown to have a negative correlation with academic performance, and then have the largest absolute value among other factors that correlate to academic performance. Academic performance can be expressed either in terms of scores or grades. In other words, non-persisters cases may be reduced by reducing the difficulties that students experience during their studies.

Threat to the Present Study

Since this study focused on the individual context of Bates' (1990a) notion of interactivity and given the fact that 42 students attended tutorial activities (Bates' social context of interactivity), the threat to the findings and conclusions of this study need to be addressed. Two statistical analyses: t-test and chi-

square were employed to address this threat. T-test analyses were used to examine whether or not there were differences between students who participated and students who did not participate in tutorial activities in terms of 10 factors that constituted the Individual Interaction and the Academic Performance. Chi-square analysis was used to examine whether the difference between persisters and non-persisters can be attributed to being participants and non-participants in tutorial activities. Table 5.8 and Table 5.9 present the results of t-test and chi-square analyses respectively.

It is clear from Table 5.8 that participants in the tutorial were significantly different from non-participants only in the Learning by Memorizing factor. They were not significantly different in terms of other 11 factors. The important things to note from this analysis are that both participants and non-participants experienced difficulties in their interaction with print learning materials and suffered low academic performance. Furthermore, Table 5.9 showed that, being participants or non-participants in the tutorial, was not related to being either persisters or non-persisters. It can be concluded, from these two analyses, therefore, that the threat to the findings of this study from the participation in the tutorial activities was not statistically significant.

Table 5.8
Comparison of participants and non-participants in tutorial activities

Factor	t Value	Degrees of Freedom	2-Tail Prob.
1. Individual Activities	.27	136	.791
2. Attitudes After Interaction	-.91	136	.366
3. Understanding of Directions	.35	133	.727
4. Difficulties in Interaction	1.39	136	.168
5. Study Motivation	1.20	136	.233
6. Time on Interaction	-.01	128	.993
7. Reading Speed	1.14	134	.256
8. Learning by Understanding	1.28	135	.203
9. Learning by Memorization	2.75	135	.007
10. Study Load	.23	133	.817
11. Scores on EKON4110 exam	-1.35	123	.180
12. Grade Point Average	-.80	136	.428

Table 5.9
Chi-square analysis of tutorial participation and Persistence

	Non-Persisters	Persisters		
Tutorial Participant			Row Total	%
Yes	21	21	42	30.4
No	46	50	96	69.6
Column %	67 48.6	71 51.4	138 100.0	

Chi-Square	Value	DF	Significance
Pearson	.05077	1	.82173

CHAPTER VI

CONCLUSIONS, RECOMMENDATIONS AND IMPLICATIONS

The two previous chapters have presented the findings of this research and discussed these findings by comparing theme to findings of other relevant researches. This chapter will, first, present the conclusions that can be made from this research. Next, based on the findings, discussions and conclusions, several recommendations will be presented for steps for Universitas Terbuka to take in order to alleviate difficulties in student interaction with print learning material (difficulties which students were experiencing and which might have caused them not to persist in their study at UT). Finally, this chapter will suggest further researches that can be conducted based on the findings of this research.

Conclusions

This section will first present the academic performance and persistence of students who participated in this research. Then, it will draw conclusions that will be arranged according to the purposes of this study.

Academic Performance and Persistence

Students who participated in this study had low academic performance in general. In the final examination of EKON4110, none of the students scored 70 or more in a 100-point scale, and there were only two students (1.4%) who scored between 60 and 69. There were only 27 students (19.6%) who scored 50 or higher. The average of the scores was 40.82, with a standard deviation of 9.18. The minimum score was 20 and the maximum score was 66.67. In terms of grade point average (GPA), there were only four students whose GPAs were 2.00 or above on a four-point scale. The average of GPAs was .98, and the

standard deviation was .54. These figures suggest that the sample students, in general, had low academic performance.

From 138 students who participated in this study, 67 students (48.6%) did not register in their second semester, and 71 students (51.4%) registered in their second semester. These figures nearly match the rate of previous years as reported in Appendices A.1 and A.2. This means that UT continues to lose its students right from the students' first semester!

Factors that are related to Academic Performance

Correlation analyses showed that three factors, namely Difficulties in Interaction, Attitude After Interaction and Reading Speed, were significantly correlated with Academic Performance. The other 9 factors: Individual Activities, Understanding of Directions, Study Motivation, Time on Interaction, Learning by Understanding, Learning by Memorizing, Study Load, Previous Academic Performance and Time that students spent at work and way to and from work, were not significantly correlated with Academic Performance.

Difficulties in Interaction with print learning material negatively correlates with academic performance; this means the higher the difficulties the lower the academic performance. The coefficient of correlation between Difficulties and Academic Performance has the highest absolute value among correlation coefficients between independent variables in this study and Academic Performance. Quantitative and qualitative data showed that the students considered unclear explanations in graphs, tables, illustrations and the unavailability of glossaries for difficult words as the sources of their difficulties.

Reading Speed was the only factor that was both significantly correlated to Academic Performance and significantly distinguished between persisters and non-persisters. The faster the Reading Speed the higher the Academic Performance, and slow reading speed was associated with non-persisters.

Although the Reading Speeds found in this study, 131 student reading at 20 pages or less an hour and the majority (66,7%) reading between 6 to 15 pages an hour, were close to what was recommended both at UT and at James Cook University in Queensland (Marland et al., 1990). They were, however, far below the norm of college reading speed, which is 51 pages an hour (Carver, 1992).

Attitudes After Interaction, which by essence is a kind of output of the interaction process with the print material, was significantly correlated to academic performance, the higher score on attitudes the higher the academic performance.

Regression analyses showed, in a fewer number of cases (69) due to incompleteness of data, that Reading Speed was the most significant factor related to Academic Performance. From a regression analysis that used the backward method, Learning by Memorizing appeared to be the last factor that was removed from the equation before it stopped, leaving reading speed alone in the equation. This means that Learning by Memorizing could be suspected of having an influence on Academic Performance; this is in line with the findings of Marton and Saljo (1976a) and. By excluding Time on Interaction and Attitudes After Interaction, the combination of the remaining 10 factors could explain 24% of the variation of Academic Performance (R^2 = .24; R^2 Sig. = .0427).

To get larger cases in the regression analyses, three factors that proved to have a significant correlation with Academic Performance: Reading Speed, Difficulty in Interaction, and Understanding of Directions were included in the analyses. This resulted in 123 cases in the analyses. At the end of the forward method, Difficulties in Interaction and Attitude After Interaction were in the regression equation. At the end of the backward analysis, all the free factors stayed in the equation. Finally, at the end of the stepwise method, Difficulties in Interaction and Attitude After Interaction were in the regression equation. These

findings mean that Difficulties in Interaction, Reading Speed, Learning by Memorizing, and Attitude After Interaction were related to Academic Performance.

Results of discriminant analysis on Academic Performance showed that Reading Speed and Difficulty in Interaction were the most correlated factors to the first discriminating factor of Academic Performance. These findings supported the results of correlation analysis and the second regression analysis. Study Load and Time that Student Spent at Work and on their way to/from work were the most correlated factors to the second discriminating function of Academic Performance. Overall, the combination of the 12 factors could predict the classification of Academic Performance: high, medium, and low, up to 65.2%.

Based on the above summaries of results of three analyses (correlation, regression, and discriminant), six factors could have been related to Academic Performance. These factors were: Difficulties in Interaction, Reading Speed, Attitudes After Interaction, Learning by Memorizing, Study Load, and Time that Students Spent at Work and on their way to/from work.

Factors that are related to Persistence

T-test analyses showed that four factors (Understanding Directions, Reading Speed, Previous Academic Performance and Time that students spent at work and on their way to and from work (Time-Off)), were significant in distinguishing the persisters from the non-persisters. The other 8 factors, Individual Activities, Attitude After Interaction, Difficulties in Interaction, Study Motivation, Time on Interaction, Learning by Understanding and Learning by Memorizing, were not significant in distinguishing persisters and non-persisters.

Understanding of Directions in print learning material significantly distinguished between the persisters and non-persisters. The findings have shown that 15, 11 and 7 students have had difficulties in understanding

Foreword, General Instructional Objectives, and Specific Instructional Objectives respectively.

Previous Academic Performance significantly distinguished between the persisters and non-persisters. Students' Previous Academic Performance was not significantly correlated with their Academic Performance at UT. Since Academic Performance of students at UT was generally low, and the differences between persisters and non-persisters in terms of scores in final examination of EKON4110 were statistically significant ($t = -3.24$ $p < .002$, and $t = -5.64$, $p < .001$ respectively), it can be expected that students who have had low Previous Academic Performance and low Academic Performance at UT would not persist in their study.

From the findings, it is clear that more than 75% of the students spent 40 hours or more a week at work and on their way to/from work. Even so, most of them take at least 12 semester credit unit courses (otherwise the cost per semester credit unit is considerably more expensive) which require approximately 28 hours a week of studying. This situation is somewhat unrealistic, since most distance education students have family and a job; this is just simply too much to do in a week. They cannot afford the "time cost" of their study. The poor examination results, therefore, should not be a surprise. And if the students decided to quit from their study program due to poor examination results, that should not be a surprise either.

The discriminant analysis results showed that Learning by Memorizing was the most correlated factor to the discriminating function of Persistence. Three factors that were closer to Learning by Memorizing in terms of correlation to the discriminating function of Persistence were Previous Academic Performance, Reading Speed and Understanding of Directions. Findings of this analysis supported the relatedness of Reading Speed to Persistence that was

found in t-test analysis. From the summary of the results of t-test and discriminant analyses, it can be concluded that the following factors, Reading Speed, Understanding of Directions, Previous Academic Performance, Time that students spent at work and on their way to/from work, and Learning by Memorizing, could be related to Persistence. Overall, the combination of the 12 factors could predict the persistence cases up to 64.10%.

Though the findings concerning students' individual activities from the present study were similar to the findings of other studies (Andriani et al., 1992; Marland et al., 1984; Marland et al., 1990; Valcke et al., 1993), Individual Activities were neither correlated to Academic Performance nor were significant factors in distinguishing between persisters and non-persisters. Since students' individual activities need time to take place, Schwittmann's (1982) model of learning could be used to offer an explanation of this phenomenon. Time for individual interaction with print learning material is a function of other factors such as Time for Job and Time for Family. The quality of the individual interaction with print learning material was influenced by the time available: the less the time, the lower the quality (Andriani, 1992; Marland et al., 1984). Academic Performance, therefore, was not significantly correlated with student Individual Activities.

The second explanation is that students were having difficulties in their interaction with print learning materials. The Difficulties in Interaction was significantly correlated to the Academic Performance. Since the correlation coefficient was negative, this means that the higher the difficulties, the lower the academic performance. In other words, the difficulties have undermined the quality of student interaction with print learning material. In turn, it undermined the relationship between Individual Activities and Academic Performance.

A considerable number of students had difficulties in their interaction with print learning materials. These difficulties were caused by unclear explanations in graphs, tables, illustrations and the unavailability of glossaries for difficult words, lengthy or wordy explanations and examples of correct answers that were not elaborated in detail.

Flexibility, mainly in terms of study time and study place, is the reason that most students chose UT to continue their study in higher education, because most of them have jobs. The public status of UT has also become the reason why students have chosen UT. Other major reasons are the relatively cheap cost of study and the distance between students' residences and their nearest conventional universities.

Both intrinsic and extrinsic motivations have driven students back to education. Few students have pure intrinsic motivation for engaging in education, such as to enrich their knowledge and to broaden their vision. Most of them have either mixed intrinsic and extrinsic motivation or pure extrinsic motivation. To support career advancement, to pursue a degree, to support job performance and to support job search were among the most frequently mentioned extrinsic motivations.

Students registered in their second semester for the following reasons: willingness to finish the study program as soon as possible, to obtain knowledge, strong study motivation and good results in the previous examination. In contrast, students mentioned cost, limited time, competing needs, health, difficulties in exam and plan to make up results of the previous examination were among reasons for not registering in their second semester.

Experiences in the first semester that students liked were extra time for studying, a chance to exchange ideas during tutorial, choice of courses, examinations that were held on Sundays, flexibility and freedom, no face-to-face

meeting, the availability of registration forms and socialization during examination. In contrast, experiences that students disliked mainly related to the administrative services of UT, such as slow information flow, the unavailability of registration forms and take home examination booklets, and the time needed to go back and forth to regional centers to pick them up since either the campus or the regional center was far away. Another experience that students disliked, which was not related to the administrative services, was when students were facing difficulties and they had no one to ask for help.

General Conclusion

In conclusion, Difficulties in Interaction with course material has made other factors in interaction with print material, such as students Individual Activities in their interaction with EKON4110 course material, the amount of Time that they spent in their interaction, their Study Motivation, their Learning Orientation and the two contextual factors, the Previous Academic Performance and Time that student spent at work and on their way to/from work (Time-Off), less related to the academic performance; the higher the Difficulties in Interaction was, the lower the Academic Performance was. Lack of clarity in the illustrations of ideas, in the explanations of graphs and tables, incomplete elaboration of formula, and non-elaborated answer keys are among sources of difficulties that students mentioned.

Reading Speed and Learning by Memorizing appeared to have a relationship to both Academic Performance and Persistence. It was shown that the faster the Reading Speed the higher the Academic Performance and the smaller the chance of being a non-persister. From the negative correlation between Reading Speed and Difficulties in Interaction, it appeared that only students who had fewer Difficulties in Interaction could read fast. Learning by Memorizing, though never be an important factor on its own, was a somewhat

strong factor in relation to Academic Performance and Persistence as shown by the results of both regression analysis and discriminant analysis. As both Marton and Saljo (1976b) and Harper and Kember (1986) stated, students can change to the Surface Approach due to perceptions of what they are expected to do. Students in this study could have used the surface approach of Learning by Memorizing due to their knowledge that the exam would be multiple choice and from the in-text exercises and formative tests which mainly ask for memorization of facts.

It has never been the purpose of this study to make generalizations of the findings in student interaction with EKON4110 course material across all courses that UT offers. The difficulties that students experienced in their interaction with print learning material and reported through the data gathering instrument of this research suggested otherwise. Though it was a deviation from the main purpose of this study, 20 students (Table G.5 entry no 1) reported that they have difficulties in working on EKON4113 (Mathematics Economics) course material. Also, entries number 35, 42, 46, 48, 60, 77 signaled difficulties in interacting with EKON4113 course material. The following is not a generalization, but it is a suggestion that the conclusion that students were experiencing difficulties with EKON4110 course material can be extended to include students who were experiencing difficulties in interaction with EKON4113 course material. The low academic performance, in general, judging from the low average of GPA, and the significant negative correlation between Difficulties in Interaction and Academic Performance suggested that further research to reveal what difficulties students experience across all courses needs to be conducted.

Recommendations

Based upon the findings, the discussion and the above conclusions, the following actions were recommended both to alleviate the generally low student achievement at UT and to reduce the number of non-persisters.

1. The **sources** of students' Difficulties in Interaction with EKON4110 can be and need to be eliminated. This could be done by providing enough explanation on graphs, tables, formula, and a complete elaboration of the examples of correct answers (answer keys). A glossary of difficult words is needed to help students who, for one reason or another, could not go to a library to find out the meanings of words that they do not know.
2. There should be an orientation for new students, either written or face-to-face, regarding what they are expected to do in their study at UT. The orientation should focus also on the assumptions and guidelines that were used in developing print materials. Students should understand the meaning of Semester Credit Unit so that they can better plan their study load. Even in the 1993 UT Catalog, there is no explanation of the meaning of semester credit unit. Schwittmann's (1982) model of learning is a valuable piece of knowledge for students so that they can calculate realistically the amount of time that they finally can devote to study.
3. UT needs to rearrange its packaged courses so that students are not indirectly forced to take study loads that are beyond their time and physical resources for the completion of the courses.
4. UT needs to rearrange its fee schedule to encourage students to take study loads according to their ability to pay, their available time for study and their learning rate so that students will not be penalized by paying the 9 semester credit units fee when they take only 3 to 8 semester credit units of courses.

5. UT should negotiate access to local public university libraries for UT students. If this is not possible, then, all referenced materials should be made available at regional centers.
6. In response to the experiences that students disliked, UT needs to improve its administrative services such as maintaining stocks of registration forms, modules, and take home examination booklets, shipping course material promptly with remote areas receiving higher priority, and responding quickly to students' requests for transfers of credit and other inquiries.

Implications for Future Research

The results of this study have shown that students experienced difficulties in their interaction with EKON4110 learning material. The identification of these difficulties, however, was not the main purpose of this research. It was fortunate that students have written so much in the open-ended questions in the research instrument of this study so that several recommendations for reducing student difficulties in their interaction with print learning material could be made. A comprehensive examination of students' difficulties in their interaction with print learning materials, especially in the first year courses when students are first learning to study by distance teaching material, is needed so that UT will be better informed of the areas where there is the greatest need for improvement in its print learning materials. A preliminary study can be done mainly by accessing UT's data base to identify students, by faculty and program of study, who never register for the second semester. This will indicate programs where research needs to be done to investigate students' difficulties in those programs.

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Appendix A.1 Facts of Registration at Universitas Terbuka

	Registration session															
Cohort	841	842	851	852	862	863	871	872	873	881	882	892	901	902	911	912
841	54035	31294	28185	38479	8811	11869	6117	7408	10784	10624	9794	7603	6766	5842	4688	3988
851			46910	38105	9392	14969	5561	7272	8173	8173	7655	6058	5613	5048	4104	3471
862					8586	1011	2277	2280	2599	2599	2160	1630	1442	1369	1114	943
863						11069	1006	2476	2869	2869	2242	1728	1490	1379	1142	952
871							1174	149	602	602	484	343	283	251	219	200
872								2062	922	922	699	507	453	386	329	265
873									4273	2085	1619	1199	889	792	663	569
881										3550	1588	1109	797	690	554	432
882											5491	2006	1428	1211	933	799
892												5739	2777	2246	1718	1312
901													4563	2597	2085	1651
902														10030	27632	26620
911															3980	2241
912																62533
Total	54035	31294	75095	76584	26789	38918	16135	21647	30222	31424	31732	27922	26600	31841	49161	105976

Source: Statistik Mahasiswa Universitas Terbuka Tahun 1991.
[The 1991 Student Statistics of Universitas Terbuka],
Jakarta, Indonesia: Universitas Terbuka, 1992.

Appendix B.

Questionnaire framework and sources of ideas of items in the questionnaire

No.	Aspects of student interaction with print learning material	Source(s)								
		1	2	3	4	5	6	7	8	9
1.	f. Attention to Foreword	V			V			V		V
2.	g. Attention to Table of Contents	V			V			V		V
3.	h. Attention to the General Instructional Objectives	V			V			V		V
4.	i. Attention to the Specific Instructional Objectives	V			V					V
5.	j. Attention to the body of learning material					V			V	V
6.	k. Attention to in-text exercises				V	V	V	V	V	V
7.	l. Attention to formative tests				V	V	V	V	V	V
8.	m. Comparing answers to answer keys									
9.	n. Comparing what has been learned to General Instructional Objectives									
10	o. Comparing what have been learned to Specific Instructional Objectives									
11.	p. Thought stimulated by :									
	* Headings and subheading	V	V						V	V
	* Italicized words		V						V	V
	* Underlined words		V							V
	* Graphs		V							V
	* Illustrations		V							V
	* References to ideas of other's			V						V
	* Maps									V
	* Tables		V							V
12.	q. Relating what has been read to things that I have read before	V	V	V	V			V	V	V
13.	r. Relating what has been read to real life experience			V	V			V	V	V
14.	s. Rereading materials that have been read before		V	V	V					
15.	t. Attempt to remember all the details of the learning materials			V	V				V	V
16.	u. Attempt to obtain general understanding of the learning material			V					V	V
17.	v. Summarizing what has been learned	V	V		V			V		
18.	e. Satisfaction from interaction with learning materials				V					
19.	b. Number of hours per week per semester credit spent on print learning materials				V	V	V			
20.	c. Study schedule		V	V	V	V	V			
21.	d. Observance of schedule		V	V	V	V	V			
22.	a. Reading speed	V	V			V	V			V

Sources:

1. Muller, R.J. (1984). Study behavior inventory. An Appendix in "Building an instrument to measure study behaviors and attitudes: A factor analysis of 46 items." ERIC Clearinghouse ED 254535.
2. Parsons' (1986) Inventory of study behavior.
3. Entwistle and Wilson's (1987) Approaches to studying. In M.S. Parer (1988) Textual design and student learning. ERIC Clearing House ED 311 881.
4. Biggs'(1987) Study processes inventory. In M.S. Parer (1988) Textual design and student learning. ERIC Clearing House ED 311 881.
5. Roberts (1985).
6. Clyde et al. (1983).
7. Rowntree (1990).
8. Marland et al. (1984).
9. Marland et al. (1990).

Appendix C
Variables, Questionnaire Items, and Internal Consistency
(α Cronbach)

Variable 1: Individual Activities consists of the following items:

No.	Item Code	Description of Item
1	K17_STHD	Stop To Think (STT) on Headings
2	K17_STSH	STT on Sub-Headings
3	K17_STMP	STT on Maps
4	K17_STGR	STT on Graphs
5	K17_STLL	STT on Illustrations
6	K7_LRNAC	Read Learning Activities
7	K2_TABCO	Read the Table of Contents
8	K1_INTRO	Read the Foreword
9	K17_STCR	STT on Caricatures
10	K17_STTB	STT on Tables
11	K17_STRF	STT on References to Other Opinions
12	K11_DO_F	Do Formative Test
13	K3_GENOB	Read the General Instructional Objectives(GIO's)
14	K4_SPEOB	Read the Specific Instructional Objectives(SIO's)
15	K10_DO_X	Do Exercises
16	K12_RE_O	Read Overviews
17	K13_CO_Q	Compare Own Answer to Answer Keys
18	K14_CO_G	Compare What Has Been Learned to GIO's
19	K15_CO_S	Compare What Has Been Learned to SIO's
20	K17_SIND	STT on Indentations
21	K17_STIT	STT on Italicized Words
22	K17_STUL	STT on Underlined Words
23	K23_RERD	Re-Read Materials
24	K26_MKSM	Take Notes and Make Summary of What Has Been Read

α = .8675

Variable 2. Attitude After Interaction consists of the following items:

No.	Item Code	Description of Item
1	K20_HTBL	Usefulness of Tables
2	K27_OPIN	Usefulness of the Interaction with Modules
3	K20_HMAP	Usefulness of Maps
4	K32_ENJO	Enjoyment of Studying Modules for The Best Result
5	K20_HCRC	Usefulness of Caricatures
6	K20_HUDL	Usefulness of Underlined Words
7	K6B_HGEN	Usefulness of the GIO's
8	K20_HRFR	Usefulness of References
9	K16_USGE	Usefulness of Examples
10	K20_HGRP	Usefulness of Graphs
11	K20_HITL	Usefulness of Italicized Words
12	K20_HSHD	Usefulness of Headings and Sub-Headings
13	K6A_HINT	Usefulness of Foreword
14	K16_USFT	Usefulness of Formative Tests
15	K16_USXR	Usefulness of Exercises
16	K20_HILL	Usefulness of Illustrations
17	K6C_HSPE	Usefulness of the SIO's
α = .8764		

Variable 3. Understanding of Directions consists of the following items:

No.	Item Code	Description of Item
1	K5A_UINT	Understanding of Foreword
2	K5B_UGEN	Understanding of the GIO's
3	K5C_USPE	Understanding of the SIO's
a = .7894		

Variable 4: Difficulties in Working with Print Learning Material consists of the following items:

No.	Item Code	Description of Item
1	K18_DILL	Difficulties in Working with Illustrations
2	K8_DIFFI	Having General Difficulty
3	K18_DFMP	Difficulties in Working with Maps
4	K18_DGRP	Difficulties in Working with Graphs
5	K18_DTBL	Difficulties in Working with Tables
α = .8048		

Variable 5: Study Motivation consists of the following items:

No.	Item Code	Description of Item
1	I12_AMBI	Ambition
2	J5_IMPCR	The Importance of Completing EKON4110 Course
3	K30_FLSC	Observance of Personal Study Schedule
4	I13_IMPP	The Importance of Completing the Study Program
5	I11_DIS	Personal discipline
α = .6060		

Variable 6: Time on Interaction with Print Learning Material consists of the following items:

No.	Item Code	Description of Item
1	K28_DAWK	Number of Days Work on Modules
2	K28_TMWK	Numbers of Hours Spent on Modules in A Week
3	K28_TIMD	Numbers of Hours Spent on Modules in A Day
There is no internal consistency measure		

Variable 7: Reading Speed consists of the following items:

No.	Item Code	Description of Item
1	K31_SPED	Reading Speed
There is no internal consistency measure		

Variable 8: Learning by Understanding consists of the following items:

No.	Item Code	Description of Item
1	K22_LDLF	Relate What Is Learned to Daily Life Experience
2	K21_LNBF	Relate What Is Learned to What Was Learned Before
3	K25_LUND	Try to Understand by Mastering Related Ideas inside
α = .6369		

Variable 9: Learning by Memorizing consists of the following items:

No.	Item Code	Description of Item
1	K24_MEMO	Try to Memorize the Materials
There is no internal consistency measure		

Variable 10; Study Load consists of the following items:

No.	Item Code	Description of Item
1	I7TOTALK	The total number of course-credits taken by sample students
There is no internal consistency measure		

Variable 11:Previous Academic Performance consists of the following items:

No.	Item Code	Description of Item
1	I6_NEM	Grade point average in high school certificate
There is no internal consistency measure		

Variable 12: Time-off consists of the following items:

No.	Item Code	Description of Item
1	TIMEONWO	Time spent at work and on the way to/from work
There is no internal consistency measure		

Appendix D.1

Translation of the Introductory Letter by the Chairman of UT Research Center

Number : 4263/PT45/N/1993
Attached : One set of questionnaire
Regard : The completion of a questionnaire for a research

To : Universitas Terbuka Students.

What makes Universitas Terbuka students differ from students of other universities is the absence of compulsory attendance of face-to-face activities with lecturers. Universitas Terbuka students can study from modules that have been designed for self-study. For that, a research needs to be done to find out to what extent Universitas Terbuka students interact with modules and their parts. This research is being conducted by A.P. Hardhono, a UT staff member who is taking an S3-Program at University of Victoria, Canada.

As a UT student, you are the main source of information in this research. For that purpose, you are asked to complete this questionnaire according to the directions given. The information that you give has great value in the development of knowledge of distance education. The confidentiality of information that you give is guaranteed so that you can complete this questionnaire according to your heart.

Take a week or so to reflect upon things that you have done in interacting with modules. Then, please complete this questionnaire with all your heart. By doing that, the information that you give will make a significant contribution for the development of knowledge of distance education. Please fold this questionnaire and put it in the attached envelope with written return address and a stamp. Mail it right away after you finish.

As an expression of thankfulness for your participation, the researcher has prepared souvenirs that will be given away by draw for student-respondents who complete this questionnaire and whose returned questionnaire is received by June 19, 1993. The draw will be held on Monday, June 21, 1993 and the souvenirs will be mailed that day as well. These souvenirs are:

1. First souvenir: One Canadian Sweater.
2. Second souvenirs: 10 souvenirs from the OLA, B.C., Canada (OLA stands for Open Learning Agency. The OLA is an institution that offers distance education programs in the province of British Columbia, Canada).

Your cooperation and participation are very much appreciated since the success of this research depends on you. We believe that you will return this questionnaire, filled in completely and on time. Thank you for your attention, cooperation and participation.

The Center of Research and Community Services
Chairman,

Dr. Aria Djalil
NIP. 130 364 776

Appendix D.2
Questionnaire and Its Reponses

QUESTIONNAIRE - Time One
This questionnaire has been pilot-tested on 25 students.
This questionnaire was completed by 156 students in May - June, 1993 and by 38 students in December 1993 - February 1994.

I. PERSONAL AND CONTEXTUAL INFORMATION

Please answer the following questions and complete the following statements.

1. Student Number: .....
2. Gender : Male / Female

Gender	Number	Percent
Missing	1	.7
Female	22	15.9
Male	115	84.0
Total	138	100.0

3. Program of Study : .....

Program of Study	Number	Percent
Economic and Development Study	137	99.3
MANAGEMENT	1	.7
Total	138	100.0

4. Regional Center : .....

Table D.1 Respondents distribution by UPBJJ.

UPBJJ or Regional Centre	Frequency	Percent
Banda Aceh	1	.7
Medan	1	.7
Pekanbaru	1	.7
Palembang	12	8.7
Bengkulu	2	1.4
Bandar Lampung	1	.7
Jakarta	45	32.6
Bogor	12	8.7

UPBJJ or Regional Centre	Frequency	Percent
Bandung	16	11.6
Purwokerto	8	5.8
Semarang	5	3.6
Surakarta	1	.7
Yogyakarta	3	2.2
Pontianak	1	.7
Banjarmasin	4	2.9
Samarinda	1	.7
Surabaya	6	4.3
Malang	2	1.4
Denpasar	3	2.2
Kupang	2	1.4
Palu	1	.7
Kendari	5	3.6
Ambon	1	.7
Irian Jaya	1	.7
Dilli	2	1.4
Total	138	100.0
Valid cases 138	Missing cases 0	

5. Employment Status:
   a. **Full time**: 78 students (56.52%)
      Number of working hours a day: ..... hours.
      Number of working days a week : ..... days.
      Time spent on traveling to/from workplace: ..... hours.
   b. **Part time**: 32 students (23.19%)
      Number of working hours a day: ..... hours.
      Number of working days a week : ..... days.
      Time spent on traveling to/from workplace: ..... hours.
   c. **Not employed** : 22 students (15.38%)
   d. Full & Part time : 5 students (3.62%)
   e. Retired : 1 student (.7 %)

Employment Status	Number	Percent
[Unemployed]	24	15.38
less than or equal 30	2	2.56
31 - 40	5	1.92
41 - 50	50	32.05
51 - 60	34	29.49
61 - 70	20	5.77
* More than 70	15	9.62
Missing	5	3.21
Total	138	100.0

6. **Please write your GPA in senior high school.**
   GPA : .....

High School GPA	Number	Percent
Missing	26	18.8
HS-GPA <= 2	1	.7
2 < HS-GPA <= 3	0	0
3 < HS-GPA <= 4	4	2.9
4 < HS-GPA <= 5	8	5.8
5 < HS-GPA <= 6	20	14.5
6 < HS-GPA <= 7	48	34.8
8 < HS-GPS <= 9	1	.7
Total	138	100.0

7. List of courses : Course Number SCU

a. ....
b. ....
c. ....
d. ....
e. ....
f. ....

Total SCU ...

Note: SCU is Semester Credit Unit

The Number of Units	Number	Percent
9	1	.7
12	112	83.7
14	1	.7
15	8	5.8
18	3	2.2
20	2	1.4
21	3	2.2
22	1	.7
23	2	1.4
24	2	1.4
Missing	3	2.2
Total	138	100.0

8. Before attending UT, have ever taken courses from distance education institutions?
   a. Yes, I have
   b. No, I have not.

Study Experience in Other Distance Education Institutions

	Frequency	Percent
Have Experience	6	3.8
Have No Experience	132	95.5
Total	138	100.0

9. If you answered "yes, I have" on the question no. 8, please describe the level of education, when, and where you attended that education.

Seven students have pervious experience in study by distance method
1 student - in Universitas Terbuka - Public Administration, 1986
1 student - in a private institution "Sumber Pengetahuan", Bandung, Englsih Program in AIDA, Jakarta, English Program
1 student - in a private institution, Cambridge English House, Yogyakarta, Englsih Program, 1992
1 student - in LPPM - Jakarta, Basic Accounting, 1992-1993
1 student - in in-service traing at the Ministry of Demography and Environment 1988-1989
1 student - in Pajajaran University, Bandung, Extension Course in Business Administration , 1963
1 student - in Lambung Mangkurat University, Banjarmasin, on course Research Methods in Education (3 units), 1984.

10. Please explain why you have chosen UT for continuing your education!

Refer to Table G.1 in Appendix G for students responses to this question.

11. How do you rate your self in terms of self-discipline?
(Please rate your self-discipline on the scale below!)

Not discipline								Very discipline			
1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
2	1.4	4	2.9	57	41.3	66	47.8	9	8.3	0	0

12. How ambitious do you think you are to excel in whatever you do?
(Please rate your ambition level on the scale below!)

Not ambitious								Very ambitious			
1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
2	1.4	5	3.5	55	39.9	60	43.5	16	11.6	0	0

13. How important is it for you to complete your study program?

Not Important								Very Important			
1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
0	0	0	0	13	9.4	49	35.5	76	55.1	0	0

14. Please elaborate the rationale for your answer to question no. 16 in the available space below.

Please refer to Table G.2 in Appendix G for student's reponses to this question.

II. INTERACTION WITH PRINT-LEARNING MATERIALS

Students studying at a distance learn from print materials which were produced specifically for them. The following questions refer to the EKON4110 course.

A. Course Information.

1. Do you attend tutorial or study group activities ?

	Freq.	Percent
a. Yes	42	30.1
b. No	96	69.2
Total	138	100.0

2. Was the course that you received the one you wanted?

	Freq.	Percent
a. Yes	130	94.2
b. No	7	5.1
Missing	1	.7

3. In your study program, the course that you took is:

	Freq.	Percent
a. Compulsory course	109	79.0
b. Elective course	10	7.2
c. General course	15	10.9
Missing	4	2.8

4. How does this course fit into your long term goal?

Please refer to Table G.3 in Appendix G for student's reponses to this question

5. How important is it for you to complete your course?

Not Important — Very Important

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
0	0	1	.7	5	3.6	44	31.9	88	63.8	0	0

6. Please explain your rationale of your answer to question no. 5 above.

Please refer to Table G.4 in Appendix G for student's reponses to this question

B. INFORMATION ON INTERACTION WITH PRINT-LEARNING MATERIAL

Circle the number from 1 to 5 that best describes what you were doing when you were using Print Learning Material. The meanings of these numbers are as follows:

1 : never
2 : rarely
3 : sometimes
4 : often
5 : always

1. I read the Foreword

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	1.4	17	12.3	38	27.5	32	23.2	49	35.5	0	0

2. I read the Table of Contents

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
2	1.4	5	3.6	32	23.2	32	23.2	67	48.6	0	0

3. I read the General Instructional Objectives

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
2	1.4	8	5.8	23	16.7	37	26.8	68	49.3	0	0

4. I read the Specific Instructional Objectives

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
3	2.2	5	3.6	19	13.8	34	24.6	76	55.5	1	.7

5. I understood the contents of the followings:

a. Foreword

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
5	3.6	10	7.2	42	30.4	36	26.1	41	29.7	4	2.9

b. The General Instructional Objectives

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
5	3.6	6	4.3	36	26.1	40	29.0	48	34.8	3	2.2

c. The Specific Instructional Objectives

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
3	2.2	4	2.9	33	23.9	37	26.8	58	42.0	3	2.2

6. I found the following access structures are helpful

a. Foreword

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
4	2.9	12	8.7	39	28.3	34	24.6	43	31.2	6	4.3

b. The General Instructional Objectives

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
4	2.9	6	4.3	30	21.7	47	34.1	50	36.2	1	.7

c. The Specific Instructional Objectives

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
4	2.9	4	2.9	23	16.7	40	29.0	66	47.8	1	.7

7. I read the body of the learning materials

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
0	0	8	5.8	17	12.3	38	27.5	74	53.6	1	.7

8. I had difficulties in understanding the content of the print learning materials

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
5	3.6	12	8.7	74	53.6	35	25.4	8	5.8	4	2.9

9. If you ever had any difficulty in understanding the content of print learning materials, please describe them in the space below.

Please refer to Table G.5 in Appendix G for student's reponses to this question

10. I did the in-text exercises

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
0	0	6	4.3	32	23.2	52	37.7	48	34.4	0	0

11. I did the formative tests

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
0	0	4	2.9	20	14.5	43	31.2	71	51.4	0	0

12. I read the Overview

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
0	0	2	1.4	12	8.7	27	19.6	96	69.6	2	1.4

13. I compared my answers with the answer keys

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
2	1.4	2	1.4	22	15.9	24	17.4	88	62.8	0	0

14. I compared what I have learned from reading the learning materials with the General Instructional Objectives

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
13	9.4	19	13.6	56	40.6	34	24.6	16	11.6	0	0

15. I compared what I have learned from reading the learning materials to the Specific Instructional Objectives

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
11	8.0	19	13.8	48	34.8	40	29.0	19	13.8	1	.7

16. I found the following structures are useful in understanding the contents of print learning materials:

a. examples

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
0	0	0	0	4	2.9	27	19.6	106	76.8	1	.7

b. in-text exercises

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
0	0	0	0	4	2.6	31	19.9	118	75.6	3	2.2

c. formative tests

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
0	0	1	.7	6	4.3	21	15.2	108	78.3	2	1.4

17. I stopped reading to think when I find

a. Headings

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
21	15.2	21	15.2	49	35.5	23	16.7	23	16.7	1	.7

b. subheading

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
16	11.6	23	16.7	49	35.5	26	18.8	23	16.7	1	.7

c. Italicized words

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
2	1.4	8	5.8	24	17.4	51	37.0	52	37.7	1	.7

d. Underlined words

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
3	2.2	2	1.4	18	13.0	44	21.9	69	50.0	2	1.4

e. Graphs

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
3	2.2	7	5.1	25	18.1	47	34.1	55	39.9	1	.7

f. Illustrations

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
6	4.3	11	8.0	37	26.8	47	34.1	34	24.6	3	2.2

g. References to ideas of other's

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
10	7.2	13	9.4	50	36.2	32	23.2	30	21.7	3	2.2

h. Maps

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
14	10.1	7	5.1	40	29.0	40.0	29.0	34	24.6	3	2.2

i. Caricatures

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
12	8.7	23	16.7	39	28.3	37	26.8	21	15.2	6	4.3

j. Tables

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
3	2.2	5	3.6	30	21.7	45	32.6	51	37.0	4	2.9

k. Indentations

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
8	5.8	13	3.6	45	32.6	33	23.9	34	24.6	5	3.6

18. I found difficulties in understanding the following non-verbal features

a. Graphs

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
10	7.2	16	11.6	60	43.5	36	26.1	14	10.1	2	1.4

b. Maps

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
20	14.5	21	22.5	56	40.6	24	17.4	3	2.2	4	2.9
3.5											

c. Tables

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
17	12.3	18	13.0	64	46.4	30	21.7	6	4.3	3	2.2

d. Illustrations

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
16	11.6	31	22.5	57	41.3	25	18.1	6	4.3	3	2.2

19. If you ever had any difficulty(ies) that you reported in no. 17, please elaborate them in the space below!

Please refer to Table G.6 in Appendix G for student's reponses to this question

20. I found the following non-verbal features are useful in mastering the print learning materials

a. Headings and subheading

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
6	4.3	11	8.0	34	24.6	32	23.2	52	37.7	3	2.2

b. Italicized words

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
3	2.2	3	3.3	20	14.5	45	32.6	62	44.9	5	3.6

c. Underlined words

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
0	0	1	.7	12	8.7	43	31.2	80	58.0	2	1.4

d. Graphs

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	.7	5	3.6	36	26.1	43	31.2	51	37.0	2	1.4

e. Illustrations

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
3	2.2	13	9.4	38	27.5	40	29.6	42	30.4	2	1.4

f. Maps

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
3	2.2	13	8.3	45	28.8	48	30.8	43	27.6	4	2.6

g. Tables

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
2	1.4	7	5.1	32	23.2	50	36.2	45	32.6	2	1.4

h. Caricatures

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
7	5.1	18	13.0	48	34.8	31	22.5	29	21.0	5	3.6

j. References to others' opinion

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
5	3.6	7	5.1	39	28.3	42	30.4	43	31.2	2	1.4

21. I relate what I have just read to things that I have read before

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
2	1.4	3	2.2	26	18.8	54	29.1	52	37.7	1	.7

22. I relate what I have just read to my real life experience

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
0	0	6	4.3	41	29.7	47	34.1	43	31.2	1	.7

23. I re-read materials that I have read before

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	.7	3	2.2	41	29.7	58	42.0	34	24.6	1	.7

24. I attempt to remember all the details of the learning materials

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
5	3.6	17	12.3	51	37.0	33	23.9	31	22.5	1	.7

25. I attempt to obtain overall understanding of the materials by mastering the inter-relationships of their parts

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
0	0	3	2.2	17	12.3	44	31.9	72	52.2	2	1.4

26. I make summaries and notes of what I have read

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
10	7.2	10	7.2	39	28.3	43	31.2	36	26.1	0	0

27. I find my interaction with learning materials useful

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
0	0	0	0	14	10.1	36	26.1	88	63.8	0	0

28. Please write the average time you spend on reading modules

a. hours/day : ..... hours
b. days/week: ..... days
c. hours/week: ..... hours

Number of hours	Number of students
Missing	10
Up to 5	11
6 - 10	51
11 - 15	42
16 - 20	10
21 - 25	14
26 - 30	9
31 - 35	1
36 - 40	2
41 - 45	2
46 - 50	2
60	1
136	1

29. Do you have a study schedule?

	Freq.	Percent
a. Have A Schedule	95	68.8
b. Have No Schedule	43	31.2
Missing	0	0
Total	138	100.0

30. If your answer if yes, please indicate how often you study according to that schedule

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
4	2.9	6	4.3	31	22.5	55	39.9	15	10.9	27	19.6

31. Please indicate your reading speed

Reading Speed (pages/hour)	Frequency	Percent
Missing	2	1.4
a. 5 pages or less	14	10.1
b. 6 to 10 pages	55	39.9
c. 11 to 15 pages	37	26.8
d. 16 to 20 pages	22	15.9
e. 21 pages or more	7	5.1
Two Speeds	1	7
Total	138	100.0

32. Overall, I enjoy making the effort to do well in this course

1		2		3		4		5		Missing	
Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
0	0	1	.7	10	7.2	38	27.5	89	64.5	0	0

33. In case you have additional comments regarding your interaction with learning materials, please write down them in the space below.

Please refer to Table G.7 in Appendix G for student's reponses to this question

Thank you for your valuable time and effort to complete this questionnaire.

QUESTIONNAIRE - Time Two

This questionnaire was administered in December 1993 to 85 students.

I. PERSONAL AND CONTEXTUAL INFORMATION

(Note: 1. As in Questionnaire - Time One
2. Tables in Appendix G report student's reponses to the essay items except the previous experience studying by distance.

II. INTERACTION WITH PRINT-LEARNING MATERIALS

(As in Questionnaire - Time One)

III.

A. To the returning students (non drop-outs)

1. Based on the data available at UT's Registrar Office, you re-registered please explain what motivated you to register at UT again. (Please mention what you liked most/least, if any, from your experience in studying at UT).

Please refer to Chapter IV Research Findings

2. Is it possible that you will drop-out in the future ?
   a. Yes 11 (44%)
   b. No 11 (44%)
   No answer 3 (12%)

   Please explain why and what would be possible causes for you to drop-out from UT.

Please refer to Chapter IV Research Findings

B. To students who have not registered.

1. Based on data available in the UT's Registrar Office, you have not registered. Is it true that you are not going to register this coming semester?
   a. Yes, it is true that I am not going to register this semester. Eight students confirmed that they did not register. Reasons for not registering are listed in the following item.

b. No, it is not true. I have sent my registration form.
Three students claimed that they have registered. Upon cross-checking with the final registration data, however, only one student whose claim could be confirmed.

2. If your answer to question number 1 above is "yes", please describe why you did not register at UT this semester!

From 10 non-persisters who returned the questionnaire:

Please refer to Chapter IV Research Findings.

(Please mentioned what you liked most/least, if any, from your experience in studying at UT).

3. If your answer to question number 1 above is "no", please describe why you registered at UT this semester!

Please refer to Chapter IV Research Findings.

Appendix E.1
Correlation analysis of responses in two stages

No.	Item Code	r	N-Pair Max=38	Sig. Lvl. Prob.	Description of Item
1	K31_SPED	.12	34	.25200	Reading Speed
2	K22_LDLF	.14	37	.19700	Relate What Is Learned to Daily Life Experience
3	K17_STHD	.19	36	.13000	Stop To Think (STT) on Headings
4	K18_DILL	.20	36	.12000	Difficulties in Working with Illustrations
5	K28_DAWK	.21	36	.10500	Number of Days Work on Modules
6	K20_HTBL	.22	36	.09500	Usefulness of Tables
7	K17_STSH	.23	36	.08500	STT on Sub-Headings
8	K17_STMP	.24	36	.08300	STT on Maps
9	I12_AMBI	.23	37	.08200	Ambition
10	K27_OPIN	.24	37	.07200	Usefulness of the Interaction with Modules
11	K17_STGR	.26	36	.06100	STT on Graphs
12	K17_STLL	.28	36	.05200	STT on Illustrations
13	K7_LRNAC	.28	36	.04800	Read Learning Activities
14	K2_TABCO	.28	37	.04700	Read the Table of Contents
15	K20_HMAP	.30	36	.03700	Usefulness of Maps
16	K1_INTRO	.32	38	.02600	Read the Foreword
17	K32_ENJO	.35	37	.01800	Enjoyment of Studying Modules for The Best Results
18	K8_DIFFI	.35	37	.01700	Having General Difficulty
19	J5_IMPCR	.36	36	.01500	The Importance of Completing EKON4110 Course
20	K17_STCR	.37	35	.01500	STT on Caricatures
21	K5A_UINT	.37	34	.01500	Understanding of Foreword
22	K30_FLSC	.41	30	.01200	Observance of Personal Study Schedule
23	K18_DFMP	.40	35	.00900	Difficulties in Working with Maps
24	K17_STTB	.40	35	.00800	STT on Tables
25	K5B_UGEN	.42	34	.00700	Understanding of the GIO's
26	K21_LNBF	.41	37	.00600	Relate What Is Learned to What Was Learned Before
27	K24_MEMO	.42	37	.00500	Try to Memorize the Materials
28	I13_IMPP	.44	37	.00300	The Importance of Completing the Study Program
29	K20_HCRC	.46	34	.00300	Usefulness of Caricatures
30	K20_HUDL	.45	36	.00300	Usefulness of Underlined Words
31	K6B_HGEN	.44	36	.00300	Usefulness of the GIO's
32	K17_STRF	.46	36	.00200	STT on References to Other Opinions
33	K20_HRFR	.46	36	.00200	Usefulness of References
34	K28_TMWK	.48	36	.00200	Numbers of Hours Spent on Modules in A Week
35	I11_DIS	.49	37	.00100	Personal discipline
36	K11_DO_F	.49	37	.00100	Do Formative Test
37	K16_USGE	.48	36	.00100	Usefulness of Examples
38	K20_HGRP	.53	36	.00100	Usefulness of Graphs
39	K20_HITL	.53	35	.00100	Usefulness of Italicized Words
40	K20_HSHD	.50	36	.00100	Usefulness of Headings and Sub-Headings
41	K3_GENOB	.52	37	.00100	Read the General Instructional Objectives
42	K4_SPEOB	.48	37	.00100	Read the Specific Instructional Objectives
43	K6A_HINT	.52	35	.00100	Usefulness of Foreword

Appendix E.1
Correlation analysis of responses in two stages (continued)

No.	Item Code	r	N-Pair Max=38	Sig. Lvl. Prob.	Description of Item
44	K10_DO_X	.78	37	0	Do Exercises
45	K12_RE_O	.63	37	0	Read Overviews
46	K13_CO_Q	.60	36	0	Compare Own Answer to Answer Keys
47	K14_CO_G	.61	37	0	Compare What Has Been Learned to GIO's
48	K15_CO_S	.63	37	0	Compare What Has Been Learned to SIO's
49	K16_USFT	.56	36	0	Usefulness of Formative Tests
50	K16_USXR	.76	36	0	Usefulness of Exercises
51	K17_SIND	.56	34	0	STT on Indentations
52	K17_STIT	.72	36	0	STT on Italicized Words
53	K17_STUL	.58	36	0	STT on Underlined Words
54	K18_DGRP	.54	36	0	Difficulties in Working with Graphs
55	K18_DTBL	.58	35	0	Difficulties in Working with Tables
56	K20_HILL	.58	36	0	Usefulness of Illustrations
57	K23_RERD	.65	37	0	Re-Read Materials
58	K25_LUND	.56	37	0	Try to Understand by Mastering Related Ideas
59	K26_MKSM	.56	37	0	Take Notes and Make Summary of What Has Been Read
60	K28_TIMD	.59	37	0	Numbers of Hours Spent on Modules in A Day
61	K5C_USPE	.61	34	0	Understanding of the SIO's
62	K6C_HSPE	.64	36	0	Usefulness of the SIO's

Appendix E.2
T-test analysis of responses in two stages

No.	Item Code	Mean-1	Mean-2	t	Sig. Lvl. Prob.	Description of Item
1	K31_SPED	2.68	2.59	0.36	.720	Reading Speed
2	K22_LDLF	3.84	3.84	0.00	1.000	Relate What Is Learned to Daily Life Experience
3	K17_STHD	2.72	3.11	-1.50	.142	Stop To Think (STT) on Headings
4	K18_DILL	2.69	2.47	1.21	.233	Difficulties in Working with Illustrations
5	K28_DAWK	5.19	4.89	0.90	.375	Number of Days Work on Modules
6	K20_HTBL	4.14	3.69	1.99	.055	Usefulness of Tables
7	K17_STSH	3.03	2.94	0.36	.719	STT on Sub-Headings
8	K17_STMP	3.39	3.17	0.87	.390	STT on Maps
9	I12_AMBI	3.65	3.57	0.55	.584	Ambition
10	K27_OPIN	4.51	4.51	0.00	1.000	Usefulness of the Interaction with Modules
11	K17_STGR	4.22	3.81	2.26*	.030	STT on Graphs
12	K17_STLL	3.36	3.50	-0.66	.515	STT on Illustrations
13	K7_LRNAC	4.39	4.50	-0.70	.487	Read Learning Activities
14	K2_TABCO	4.08	3.73	1.71	.096	Read the Table of Contents
15	K20_HMAP	3.83	3.36	2.05*	.048	Usefulness of Maps
16	K1_INTRO	3.66	4.36	0.11	.910	Read the Foreword
17	K32_ENJO	4.70	4.38	2.78	.009	Enjoyment of Studying Modules for The Best Results
18	K8_DIFFI	3.27	3.24	0.22	.831	Having General Difficulty
19	J5_IMPCR	4.67	4.26	2.74*	.010	The Importance of Completing EKON4110 Course
20	K17_STCR	3.02	2.94	0.39	.702	STT on Caricatures
21	K5A_UINT	3.82	3.73	0.42	.675	Understanding of Foreword
22	K30_FLSC	3.90	3.30	2.26*	.031	Observance of Personal Study Schedule
23	K18_DFMP	2.54	2.74	-1.02	.314	Difficulties in Working with Maps
24	K17_STTB	4.03	3.71	1.54	.133	STT on Tables
25	K5B_UGEN	3.97	3.76	1.04	.304	Understanding of the GIO's
26	K21_LNBF	4.02	3.84	1.16	.255	Relate What Is Learned to What Was Learned Before
27	K24_MEMO	3.89	3.57	1.61	.116	Try to Memorize the Materials
28	I13_IMPP	4.46	4.40	.49	6.24	The Importance of Completing the Study Program
29	K20_HCRC	3.26	3.26	0.00	1.00	Usefulness of Caricatures
30	K20_HUDL	4.50	4.28	1.67	.103	Usefulness of Underlined Words
31	K6B_HGEN	3.92	4.02	-0.63	.535	Usefulness of the GIO's
32	K17_STRF	3.31	3.14	0.80	.430	STT on References to Other Opinions
33	K20_HRFR	3.81	3.33	2.26*	0.030	Usefulness of References
34	K28_TMWK	15.69	13.75	1.14	.263	Numbers of Hours Spent on Modules in each Week
35	I11_DIS	3.57	3.46	1.00	.324	Personal discipline
36	K11_DO_F	4.49	4.32	1.29	.205	Do Formative Test
37	K16_USGE	4.69	4.69	0.00	1.000	Usefulness of Examples
38	K20_HGRP	4.11	3.86	1.66	.107	Usefulness of Graphs

continued .....

Appendix E.2
T-test analysis of responses in two stages (continued)

No.	Item Code	Mean-1	Mean-2	t	Sig. Lvl. Prob.	Description of Item
39	K20_HITL	3.97	3.83	0.76	.454	Usefulness of Italicized Words
40	K20_HSHD	3.78	3.50	1.35	.185	Usefulness of Headings and Sub-Headings
41	K3_GENOB	4.32	3.84	2.76*	.009	Read the General Instructional Objectives
42	K4_SPEOB	4.43	4.08	2.07*	.046	Read the Specific Instructional Objectives
43	K6A_HINT	3.63	4.03	-0.63	.535	Usefulness of Foreword
44	K10_DO_X	4.19	4.13	0.53	.600	Do Exercises
45	K12_RE_O	4.70	4.40	2.23*	.032	Read Overviews
46	K13_CO_Q	4.36	4.58	-1.85	.073	Compare Own Answer to Answer Keys
47	K14_CO_G	3.13	3.24	-0.61	.544	Compare What Has Been Learned to GIO's
48	K15_CO_S	3.30	3.35	-0.30	.762	Compare What Has Been Learned to SIO's
49	K16_USFT	4.67	4.72	-0.63	.535	Usefulness of Formative Tests
50	K16_USXR	4.64	4.50	1.71	.096	Usefulness of Exercises
51	K17_SIND	3.79	3.53	1.25	.221	STT on Indentations
52	K17_STIT	4.00	3.78	1.60	.118	STT on Italicized Words
53	K17_STUL	4.31	4.05	1.72	.095	STT on Underlined Words
54	K18_DGRP	3.47	3.44	0.20	.845	Difficulties in Working with Graphs
55	K18_DTBL	2.97	2.82	.90	.377	Difficulties in Working with Tables
56	K20_HILL	3.89	3.33	3.16*	.003	Usefulness of Illustrations
57	K23_RERD	4.08	3.81	1.96	.058	Re-Read Materials
58	K25_LUND	4.49	4.27	1.85	.073	Try to Understand by Mastering Related Ideas
59	K26_MKSM	3.76	3.51	1.30	.203	Take Notes and Make Summary of What Has Been Read
60	K28_TIMD	2.85	2.39	2.55*	.015	Numbers of Hours Spent on Modules in A Day
61	K5C_USPE	4.20	4.09	.75	.458	Understanding of the SIO's
62	K6C_HSPE	4.25	4.30	-.039	.487	Usefulness of the SIO's

Appendix F.1
Results of Overall Inter-raters Consistency Test

List of codewords used in coding students' FINAL COMMENTS

Researcher's codes

	Original Theme	Broader Thm	*Fr*
	B: Reduce complain by means of academic s	aca-sup	1
	B: Stimulate learning	aca-sup	1
	H: to borrow modules	aca-sup	1
	S: Establish Library	aca-sup	1
	S: Give access to public universities' libraries	aca-sup	1
	S: Improve learning process	aca-sup	1
	S: Make modules available in a local library	aca-sup	1
	S: Make modules available in Regional Center	aca-sup	1
	S: Support for learning	aca-sup	1
1	Aademic support	aca-sup	9
	B: of analytic thinking	anl-thk	1
	S: Conduct examination on holidays	assessment	1
	S: Conerning scoring procedure	assessment	1
	S: Exams are conducted twice a year	assessment	1
	S: Make exam close to module and Take Hom	assessment	1
	S: Pass students who already taken courses t	assessment	1
	S: Use oral examination	assessment	1
	X: Exam center is too far	assessment	1
	X: Get tired before exam due to travel.	assessment	1
2	Assessment	assessment	8
3	S: Pay attention to every individual student	att-i-std	1
	B: of audio cassette for various students	aud-cas	1
	C: Audio material is helpfull	aud-cas	1
	S: Modules are acompanied with audi cassett	aud-cas	1
	S: Produce Audio and video cassette	aud-cas	1
	S: Publish audio cassette material	aud-cas	1
4	Audio Cassettes	aud-cas	5
	S: Fix broadcast schedule	broadcast	1
	S: Increase broadcasting hours	broadcast	4
	S: Increase electronic and print broadcast	broadcast	1
	X: Broadcast program is important	broadcast	1
	X: I never watch broadcasted program	broadcast	1
5	Broadcasting program	broadcast	8

Raters' code

No.	Original Theme	Broader Thm	Fr
	H: Hope for a library	aca-sup	2
	H: Hope for library to supply material	aca-sup	1
	Improve academic supprt	aca-sup	1
	S: Improve learning process and quality of gra	aca-sup	1
	S: Library support	aca-sup	1
	S: Meetings improve academic support	aca-sup	1
	S: Provide academic support	aca-sup	1
	S: Provide learning assistance	aca-sup	1
	S: Set up a library	aca-sup	1
	X: Want to borrow modules	aca-sup	1
	Academic Support	aca-sup	11
	Pr: Administrative system	adm-service	1
	H: Exercises have more weight	assessment	1
	H: Pass student who repeat course	assessment	1
	S: Add exam frequency	assessment	1
	S: Conduct exams close too students' local	assessment	1
	S: Exam schedulling	assessment	1
	X: Experience before taking exam (tired)	assessment	1
	X: Related to assignment completion (difficult	assessment	1
	Assessment	assessment	7
	X: Appeal to dean to pay attention to individual	att-i-std	1
	X: Rector to pay attention to individual student	att-i-std	1
	Attention to individual student	att-i-std	2
	B: Audi cassettes improve grades	aud-cas	1
	C: Audi cassettes are helpful	aud-cas	1
	S: Add audio video materials	aud-cas	1
	S: Audio cassette is a means to standardize	aud-cas	1
	S: Modules are accompanied with audio cass	aud-cas	1
	S: Use audio cassettes	aud-cas	1
	X: Audio cassettes help	aud-cas	1
	X: Audio materials requires less time	aud-cas	1
	X: It is wise to publish audio cassettes	aud-cas	1
	Audio cassette	aud-cas	9
	C: Fix broadcast schedule	broadcast	1
	C: Radio and Televisi program support learnin	broadcast	1
	C: TVRI programs are helpful	broadcast	1
	C: UT's programs on TPI are inappropriately	broadcast	1
	H: Electronic broadcast	broadcast	1
	H: Increase print broadcast	broadcast	1
	Pr: Broadcasting programs are not long enou	broadcast	1
	Pr: Lack of broadcasting programs	broadcast	1
	S: Broadcast program on tv once/twice a wee	broadcast	1
	S: Lengthen radio and television program	broadcast	1
	S: More broadcast	broadcast	1
	X: Not knowing that there is UT's program on	broadcast	1
	Broadcasting Program	broadcast	12

6	H: UT will reach all Indonesian who need H.E.	catchment	1
	S: Improve communication	communi	1
	X: Communication is good	communi	1
7	Communication	communi	2
	B: Reduce difficulty	difficulty	1
	C: Difficulties with social sciences	difficulty	1
	X: Difficulties due to background	difficulty	1
	X: Difficulties due to tired of work	difficulty	1
	X: Difficulties in calculation	difficulty	1
8		difficulty	5
	H: for high quality graduate	graduate	1
	S: Improve graduates' quality	graduate	1
11		graduate	2
	S: HQ closely supervises UPBJJ	HQ-UPBJJ	1
	S: Low esteem	feeling	1
	X: Proud of being a UT's student	feeling	1
9		feeling	2
10	Request for general lecture	gnrl-lect	1
	X: Having a tiring job	job	1
	X: No tutor makes learning less deep/wide	learn	1
	X: Which is the best learning method	lrn-mtd	1
	S: Distribution of activity schedule	information	1
	S: Prompt Information Distribution	information	3
12		information	4
	H: There is a mail-based contact point at UT-	contac-pt	1
	X: Pursuing a degree	dgre-prst	1
	C: Answer keys are incomplete	mdl-q	1
	C: Answer keys are not available	mdl-q	1
	C: Difficulties in comparing answers	mdl-q	1
	C: No direction of where to find the answer ke	mdl-q	2
	C: Unelaborated answer keys	mdl-q	4
	C: Wrong answers	mdl-q	2
	S: Add more questions and answers	mdl-q	1
	S: Check questions and the answer keus	mdl-q	1
	S: Provide answer keys always	mdl-q	1
	S: Provide direction where to find answer key	mdl-q	2
	S: Provide elaborated answers	mdl-q	2
34		mdl-q	18

H: UT reach all Indonesians	Catchment	1
Comments	com	2
C: Communication is good	communi	1
C: No communication	communi	1
Communication	communi	2
S: Eliminate difficulties	difficulty	1
X: Want to master English	english	1
X: English is necessary for work	english	1
	english	2
Pr: Psychologic feeling of being a UT student	feeling	1
X: Lack of status beaing a UT student	feeling	1
X: Proud of being a UT student	feeling	1
Feeling	feeling	3
C: Provide General Lecture	gen-lec	1
C: Provide a schedule for general lectures	gen-lec	1
General lecture		2
Hope	hope	1
H: UT help to make modern Indonesia	Indonesia	1
H: Activity information	information	1
S: Distribute schedule information	information	1
S: Distribution of academic information	information	1
S: Inform dead line of THE submission	information	1
S: Provide extra curricula schedule	information	1
Information distribution	information	5
X: Study and work	job	1
X: Time consuming job	job	1
Job-related		2
X: High of living in Jakarta	living-cost	1
S: Standardize modules	mdl-	1
C: Answer keys need work	mdl-ans-q	1
C: Incomplete number of answer keys	mdl-ans-q	1
H: Answer keys help student to understand	mdl-ans-q	1
Pr: Answer keys are not in detail	mdl-ans-q	1
Pr: Comparing answers to answer keys	mdl-ans-q	1
Pr: No information of where to find answer ke	mdl-ans-q	1
Pr: There is a module without answer keys	mdl-ans-q	1
S: Elaborate answer keys setp by step	mdl-ans-q	1
S: Make answer keys in detail	mdl-ans-q	1
S: Provide answer keys always	mdl-ans-q	1
S: Provide answer keys in modules	mdl-ans-q	1
S: Provide answer keys with explanation	mdl-ans-q	1
S: Provide explanation of answer keys for sub	mdl-ans-q	1
X: Answer keys without explanation	mdl-ans-q	1
Answer keys	mdl-ans-q	14

C: Modules are easy to read	mdl-char	1
C: Modules are good	mdl-char	25
S: Make complete modules	mdl-char	1
S: Make module easy to read	mdl-char	1
S: Make modules clearer	mdl-char	1
S: Modules should be detail	mdl-char	1
C: Thick modules make me lazy to read	mdl-char	1
C: Modules are books	mdl-char	1
	mdl-char-sg	4
S: Do Quality Control on modules	mdl-q-c	1
C: Diagrams are helpful	mdl-diag	1

C: Material is too much	mdl-content	2
S: Keep explanation, examples, exercises, an	mdl-content	1
S: Keep modules up to date	mdl-content	3
S: Maintain relevance	mdl-content	1
S: Provide actual information	mdl-content	1
S: Reduce Material	mdl-content	6
14	mdl-content	14

C: Difficulties with unknown/new words	mdl-dif-wrd	2
C: The more foreign words the better	mdl-dif-wrd	1
C: There is no glossary	mdl-dif-wrd	1
S: Explain symbols	mdl-dif-wrd	1
S: Provide Glossaries	mdl-dif-wrd	11
15 Difficult words in modules	mdl-dif-wrd	17

C: Module are helpful	mdl-char	2
C: Module are OK	mdl-char	4
C: Modules are adequate	mdl-char	2
C: Modules are difficult to read	mdl-char	1
C: Modules are easy to understand	mdl-char	1
C: Modules are good	mdl-char	20
C: Modules are out of date	mdl-char	1
C: Modules are readable	mdl-char	2
C: Modules are satisfying	mdl-char	1
C: Modules are understandable	mdl-char	1
X: Modules are understandable	mdl-char	1
X: Modules are difficult to understand	mdl-char	1
Pr: Modules are difficult to read	mdl-char	1
Pr: Modules too difficult to understand	mdl-char	1
	mdl-char-difficul	3
H: Easy to learn material	mdl-char	1
H: Modules are understandable	mdl-char	1
S: Make module concise	mdl-char	1
S: Make modules clear	mdl-char	1
S: Make modules effective	mdl-char	1
S: Make modules efficient	mdl-char	1
S: Modules are wordy	mdl-char	1
S: Modules readability	mdl-char	1
S: Modules understandability	mdl-char	1
S: Provide clear pictures in modules	mdl-char	1
	mdl-char	8

S: Give charts for rote learning stuff in modul	mdl-chart	1
S: Provide charts to help in memorizing things	mdl-chart	1
	mdl-chart	2

C: Material is too much	mdl-content	1
C: Module completeness	mdl-content	1
C: Modules are too wide	mdl-content	1
Pr: Modules do not reflect reality	mdl-content	1
Pr: Problem in EKU101 module # 6	mdl-content	1
	mdl-content	5
S: Check writing in modules from improveme	mdl-content	1
S: Improve modules' content	mdl-content	1
S: Include new information in modules	mdl-content	1
S: Make modules comprehensive	mdl-content	1
S: Make modules concise	mdl-content	1
S: Modules presents main ideas	mdl-content	1
S: Provide actual information in modules	mdl-content	1
S: provide real pictures in modules	mdl-content	1
S: Reduce modules' content	mdl-content	1
S: Summarize modules	mdl-content	1
	mdl-content	10

Pr: Difficult words left unexplained	mdl-diff-w	1
Pr: Foreign words without explanation	mdl-diff-w	1
Pr: There are not enough key words in modul	mdl-diff-w	1
	mdl-diff-w	3
S: Add glossary	mdl-diff-w	1
S: Add list of key words	mdl-diff-w	1

C: Easy examples are boring	mdl-egs	1
C: Examples are of low quality	mdl-egs	2
C: Examples are too easy	mdl-egs	1
C: Unrelated examples	mdl-egs	1
H: Clear Examples	mdl-egs	2
S: Clear Examples	mdl-egs	4
S: Do not give easy examples	mdl-egs	1
S: Elaborate examples	mdl-egs	3
S: More Examples	mdl-egs	9
S: Provide actual examples	mdl-egs	1
S: Provide complete examples	mdl-egs	1
S: Provide examples of usages	mdl-egs	1
S: Provide related examples	mdl-egs	1
S: Provide short examples	mdl-egs	1
S: Real cases for examples	mdl-egs	3
S: Simplify examples	mdl-egs	1
S: Use clear examples	mdl-egs	2
S: Varied Examples	mdl-egs	3
X: Examples are too easy	mdl-egs	1
16	mdl-egs	39

C: Incorrect pages in modules	mdl-err	1
C: Misprints confuse me	mdl-err	2
C: Wrong collating in modules	mdl-err	1
H: for module quality check	mdl-err	1
S: Avoid misprints	mdl-err	1
S: Avoid Misprints	mdl-err	4
S: Check pages of modules	mdl-err	1
S: Provide errata	mdl-err	1
S: Provide errata	mdl-err	3
17 Errors in modules	mdl-err	15

C: Difficulties with long explanations	mdl-exp	1
C: Explanations are good	mdl-exp	1
C: Explanations are too long	mdl-exp	2
C: Irrelevant explanations	mdl-exp	1
C: Unclear explanations	mdl-exp	1
S: Avoid too long explanation	mdl-exp	1
S: Elaborate calculation	mdl-exp	1
S: Give short but comprehensive explnation	mdl-exp	1
S: Prepared better explanation	mdl-exp	1

S: Fix words	mdl-diff-w	1
S: It is good to present ideas using specific te	mdl-diff-w	1
S: provide definition of terms	mdl-diff-w	1
S: Provide glossary in modules	mdl-diff-w	2
S: Provide glossary in modules	mdl-diff-w	2
S: Provide list of foreign words with their mea	mdl-diff-w	1
S: Publish a glossary	mdl-diff-w	1
	mdl-diff-w-glossa	11
S: Use clear words	mdl-diff-w	1

C: Examples need more explanations	mdl-egs	1
Pr: Examples need broader scope	mdl-egs	1
X: Example of formula usages	mdl-egs	1
H: Actual examples in modules	mdl-egs	1
H: Attention to examples	mdl-egs	1
H: Examples that are easy to understand	mdl-egs	1
H: Varied examples	mdl-egs	1
S: Do not give too easy examples	mdl-egs	1
S: Elaborate examples in modules	mdl-egs	1
S: Examples are easy	mdl-egs	1
S: Explain examples in complete	mdl-egs	1
S: Give clear and detail examples	mdl-egs	1
S: Give example of usage	mdl-egs	1
S: Give examples from daily life	mdl-egs	1
S: Give examples of various difficulty levels	mdl-egs	1
S: Provide clear examples	mdl-egs	2
S: Provide concise examples	mdl-egs	1
S: Provide detail examples	mdl-egs	1
S: Provide more examples	mdl-egs	10
S: Provide more examples in EKON4110	mdl-egs	1
S: Provide more examples in EKON4113	mdl-egs	1
S: Provide varied examples	mdl-egs	2
S: Shorten examples	mdl-egs	1
S: Simplify examples	mdl-egs	1
S: Suggestions for content and examples	mdl-egs	1
		33
C: Elaborate Calculation	mdl-elb	1
C: Elaboration are not too long	mdl-elb	1
C: Module lengthy elaboration	mdl-elb	1
C: Theory derivations are incomplete	mdl-elb	1

C: Errors confuse	mdl-err	1
C: Errors in writings	mdl-err	1
C: Misprints in modules	mdl-err	2
H: Carefull check be done on printings	mdl-err	1
Pr: Some typing errors in modules	mdl-err	1
S: Avoid misprints in modules	mdl-err	2
C: Errata is important	mdl-ert	1
S: Provide errata	mdl-ert	1
S: Provide errata	mdl-ert	1
S: Provide errata on misprints	mdl-ert	1

C: Explanation helps	mdl-exp	1
C: Explanations are wordy	mdl-exp	1
C: Inconsistent explanation	mdl-exp	1
Pr: More explanations are needed in modules	mdl-exp	1
S: Accompany graph with adequate explanati	mdl-exp	2
S: Content, examples and exercises need mo	mdl-exp	1
S: Explanations should be more understanda	mdl-exp	1
S: Explain formula step by step	mdl-exp	1
S: Explain systematically	mdl-exp	1

S: Provide comprehensive explanation	mdl-exp	1
S: Provide explanation systematically	mdl-exp	1
S: Provide more explanation	mdl-exp	1
S: Shorten explanation	mdl-exp	2
18	mdl-exp	15

C: Excercises help	mdl-exr	1
C: Exercises are not varied	mdl-exr	1
C: Exercises are too easy	mdl-exr	1
C: No exercise no. 6	mdl-exr	1
19 Exercises in modules	mdl-exr	4

S: Elaborate exercises	mdl-exr	1
S: Increase the weight of exercise (THT)	mdl-exr	1
S: Make exercises and formative tests similar	mdl-exr	1
S: More Exercises	mdl-exr	6
S: Provide High Quality Exercises	mdl-exr	2
S: Vary exercises	mdl-exr	2
Suggesstions on exercises	mdl-exr	13

S: Elaborate formula	mdl-fml	2
S: Formulas Usage Explanation	mdl-fml	2
S: Publish a book of formulas	mdl-fml	1
20 Formulas in modules	mdl-fml	5

C: Formative tests are of low quality	mdl-fmt	1
S: Give more formative tests	mdl-fmt	1
21 Formative tests in modules	mdl-fmt	2
22 S: Give footnotes in important words	mdl-fn	1
S: provide direction in foreword	mdl-gdln	1
S: Provide study guidelines	mdl-gdln	2
23 Guidelines in modules	mdl-gdln	3

C: Difficulties in working with graphs	mdl-grph	1
S: Elaborate graphs	mdl-grph	2
S: Use graphs	mdl-grph	1
24 Graphs in modules	mdl-grph	4
25 X: This interaction is useful	mdl-int	1
26 C: Italized words are helpfull	mdl-itl	1

C: Difficulties with sentences	mdl-lgg	1
C: Language Style	mdl-lgg	2
S: Use simple language style	mdl-lgg	5
27	mdl-lgg	8

S: Give more explanation in modules	mdl-exp	1
S: Make explanation clear	mdl-exp	1
S: make explanation succint	mdl-exp	1
S: More explanation in modules	mdl-exp	1
S: Shorten explanation	mdl-exp	1

C: Exercises are inadequate	mdl-exr	1
C: Exercises need more explanation	mdl-exr	1
C: Exercises without explanations	mdl-exr	1
C: Modules, Exercise, and answer keys misle	mdl-exr	1
H: Exercises on actual case	mdl-exr	1
H: Varied exercises	mdl-exr	1
Pr: Exercises are not related to materials	mdl-exr	1
Pr: Exercises need broader scope	mdl-exr	1
Pr: Modules lack of exercises	mdl-exr	2
Pr: Solution of exercises are unclear	mdl-exr	1
S: Check consistensy between exercises and	mdl-exr	1
S: Enrich exercise	mdl-exr	1
S: Exercise requires rote learning	mdl-exr	1
S: Exercises are easy	mdl-exr	1
S: Give clear exercise	mdl-exr	1
S: Give more exercise and answer keys	mdl-exr	1
S: More arithmetic exercises	mdl-exr	1
S: Provide exercises of various difficulty level	mdl-exr	1
S: Provide more exercises	mdl-exr	6
S: Provide varied exercises	mdl-exr	1
S: Provide wider exercises	mdl-exr	1
X: Text and exercise in mathematic modules	mdl-exr	1

C: Lack of application	mdl-fml	1
H: Use of formula in calculation	mdl-fml	1
S: Publish a summary of formulas	mdl-fml	1

S: Enrich formative tests	mdl-fmt	1
S: Provide varied formative test	mdl-fmt	1
S: Footnotes are better than endnotes	mdl-fn	1

C: Module guide line	mdl-gdln	1
Pr: There should be directions in modules	mdl-gdln	1
S: Give additional direction in modules	mdl-gdln	1

C: Graphs cause difficulties	mdl-grp	1
S: Use more graphs in modules	mdl-grp	1
X: Modules are important to read rehardless t	mdl-imptt	1
C: Want to join "module-interaction" research	mdl-int	1
C: Italic words help in making a summary	mdl-itl	1

C: Module language style	mdl-lgg	1
C: There are incorrect sentences	mdl-lgg	1
Pr: Sentences in modules are difficult to unde	mdl-lgg	2
Pr: Too long sentences	mdl-lgg	1
S: Present clear sentences in modules	mdl-lgg	1
S: Use simple grammar	mdl-lgg	1
S: Use simple sentences in modules	mdl-lgg	1
S: Limit modules to six modules a course	mdl-lmt	1
C: Find the best learning method	mdl-lmth	1
X: Module - Learning style	mdl-lrn-stl	1

C: Difficulties in EKON4113	mdl-math	2
C: Modules EKON4113 easy to read	mdl-math	1
C: Modules EKON4113 satisfies	mdl-math	1
28	mdl-math	4

S: Overview and audio casette	mdl-ovw	1
S: Overview matches final exam	mdl-ovw	1
S: Provide comprehensive overview	mdl-ovw	2
S: Provide Overview	mdl-ovw	1
S: Provide overview	mdl-ovw	1
S: Widen overview	mdl-ovw	1
29	mdl-ovw	7

B: Better print will care eye	mdl-phys	1
C: Printing results are not clear	mdl-phys	1
S: Better binding system for modules	mdl-phys	1
S: Improve printings	mdl-phys	1
S: Make modules portable	mdl-phys	2
S: Print underlined words in bold	mdl-phys	1
S: Reduce modules	mdl-phys	1
S: Use better paper	mdl-phys	1
S: Use better paper for modules	mdl-phys	2
S: Use colors in modules	mdl-phys	1
30	mdl-phys	12

S: Give modules discount	mdl-prc	1
S: Reduce Module's Price	mdl-prc	3
31	mdl-prc	4

S: Improve module presentation	mdl-prsn	1
S: Improve modules' presentation	mdl-prsn	2
33	mdl-prsn	3

C: Difficulties with references	mdl-ref	1
C: Unrelated references	mdl-ref	1
S: Provide References	mdl-ref	2
S: Provide referred material	mdl-ref	3
S: Use standard in references	mdl-ref	1
35	mdl-ref	8

S: Improve modules	mdl-rvsn	3
S: review module periodically	mdl-rvsn	1
S: Revise module every 5 years	mdl-rvsn	1
36	mdl-rvsn	5

C: Mathematic modules are satisfying	mdl-math	1
C: Mathematic modules have adequate exam	mdl-math	1
X: Mathematic modules are difficult	mdl-math	1
X: Mathematic modules are the most difficult	mdl-math	1
X: Mathematic modules are too many	mdl-math	1
X: Mathematic modules need understanding	mdl-math	1

H: Master course	mdl-mstr	1
H: Student understand more	mdl-mstr	1
H: Understand course	mdl-mstr	1
S: Questioning how to measure mastery	mdl-mstr	1
X: Mastery of modules	mdl-mstr	1

X: No suggestions for modules	mdl-no-sg	1
X: No suggestions	mdl-no-sg	1

H: Overviews correspond to final exam	mdl-ovw	1
Pr: Modules need comprehensive overview	mdl-ovw	1
S: Summarize modules	mdl-ovw	1
S: Make overviews comprehensive	mdl-ovw	1
S: Make overviews correspond to final exam	mdl-ovw	1
S: Overview are needed in modules	mdl-ovw	1
S: Provide overviews in modules	mdl-ovw	1
S: Make overview chronologically	mdl-ovw	1
S: Make systematic overview	mdl-ovw	1

B: Quick to grasp modules	mdl-phys	1
B: Modules endurance (binding)	mdl-phys	1
S: Improve modules binding	mdl-phys	1
S: Make modules in color	mdl-phys	1
S: Reduce the format of modules	mdl-phys	1
S: Improve modules layout	mdl-phys	1
S: Use better paper in printing modules	mdl-phys	2
S: Improve modules' production quality and p	mdl-phys	1
S: Make modules in a smaller format	mdl-phys	1
S: Separate modules one from another	mdl-phys	1
S: Print underlined words in bold	mdl-phys	1
X: Modules are broken	mdl-phys	1
H: Take care eyes (re: printing)	mdl-phys	1
S: Print modules with a better lay out	mdl-phys	1
S: Print modules better	mdl-phys	1
S: Use better presentation in modules	mdl-phys	1

C: Modules are expensive	mdl-prc	1
H: Price of mudules is low	mdl-prc	2
H: Module price be cheaper	mdl-prc	1
H: Discount on modules	mdl-prc	1
H: UT give away modules	mdl-prc	1
H: No constraint to buy modules	mdl-prc	1

S: Improve modules' presentation	mdl-prsn	1
S: Improve modules presentation	mdl-prsn	1

C: Modules have positive prospect	mdl-psp	1

C: Unmatched references	mdl-ref	1
C: Reference materials are not available	mdl-ref	1
S: Provide other sources	mdl-ref	1
S: Provide more references	mdl-ref	1

H: Modules update	mdl-rvsn	1
S: Revise modules every 5 years	mdl-rvsn	1
S: Improve modules	mdl-rvsn	1
S: Review modules	mdl-rvsn	1
S: renovate modules	mdl-rvsn	1

	C: Modules are not available	mdl-stck	2
	H: for module availability	mdl-stck	1
	S: Maintain module stock	mdl-stck	1
	S: Maintain module stock	mdl-stck	3
37		mdl-stck	7
38	S: Use better teaching method	mdl-t-mtd	1
39	C: Underlined words are helpful	mdl-udl	1
	C: Difficulties in working with tables	mdl-tbl	1
	S: Use multimedia	mult-media	1
40	What is the best learning medium?	media	1
	X: I use regular book that is easier to read tha	oth-source	1
	X: Never read UT's modules	oth-source	1
43		oth-source	2
	P: Apology	personal	7
	P: Apology and hope	personal	1
	P: Apology and thankfulness	personal	2
	P: Ask suggestion concerning arranging time	personal	1
	P: Hope a.a. and Thankfulness	personal	3
	P: Hope the best fo UT	personal	3
	P: interest in the module-interaction research	personal	1
	P: Pray and thankfulness	personal	1
	P: Thank and hope	personal	1
	P: Thank for being chosen	personal	2
	P: Thankfulness	personal	1
	P: Thankfulness, hope and apology	personal	1
	P: Want a personal response	personal	1
	P: Want a souvenir	personal	1
	X: Happy of having opportunity to study at H.	personal	1
	X: Personal situation	personal	1
	X: Thank for oppotunity to study at H.E.	personal	1
44		personal	30
45	S: Add vocational program	program	1
46	X: Reading speed varies on difficulty of materi	read-speed	1
47	S: Set up registration time	regist	1
	B: Accumulated saing for Grad. cost	saving	1
	S: Compulsory saving	saving	1
48		saving	2
	H: for shipment priority	shipment	1
	S: Make reliable shipment	shipment	1
	S: Ship quick	shipment	1
	X: Priority shipment for far destination	shipment	1
49		shipment	4
50	X: Students are of different abilities	std-abl	1
	C: There is no study group	std-grp	1
	S: Increase study group activity	std-grp	2
	S: Talented students help study groups	std-grp	1
	X: Solving problems by study group discussio	std-grp	1

C: Module availability	mdl-stck	1
H: Modules available	mdl-stck	1
H: Modules reprints	mdl-stck	1
S: Maintain modules availability	mdl-stck	1
S: Module storing (placement)	mdl-stck	1
S: Maintain modules stock	mdl-stck	1
S: Use teaching method that is easy to under	mdl-t-mtd	1
S: Find likable teaching method	mdl-t-mtd	1
C: Underlined words help students to study m	mdl-udl	1
C: Incorrect words	mdl-wrd	1
S: use other media	media	1
X: Which one best medium?	media	1
X: Use other material	other-mat	1
S: Compare to other book	other-mat	1
News	news	1
H: To get priority in receiving souvenir	personal	1
Personal	Personal	12
P: Apology	Personal	7
P: A Question to researcher	Personal	1
P: Ask suggestion for a way out	Personal	1
P. Thank	Personal	2
X: Thankfulness	personal	6
X: UT's programs are helpful	program	1
X: UT's programs have positive prospect	program	1
X: Study at UT is good	program	1
S: Increase vocational program	program	1
X: UT's programs	program	2
X: Related to content of modules (reading spe	read-speed	1
S: Arrange course unit to be taken by student	regist.	1
S: Set regristration session	regist.	1
S: Use accumulated saving after finishing stu	saving	1
S: Make student compulsory saving	saving	1
S: Form a student cooperative	saving	1
C: Delivery late	shipment	1
C: Comment on this data collection (late ship	shipment	1
H: On time shipping of modules	shipment	1
S: Ship quick	shipment	1
X: Modules came late	shipment	1
X: Students have different abilities	std-abl	1
C: Most UT students have jobs	std-char	1
C: Want to join student activities	std-grp	1
H: Study groups help students	std-grp	1
H: Want to join a study group	std-grp	1
S: Set study group base on residence	std-grp	1

X: There is no student group	std-grp	1
52	std-grp	6

B: of relationship among students	std-int	1
S: More interaction is needed	std-int	1
X: Interaction...	std-int	1
X: Peer Discussion	std-int	1
53	std-int	4

54 S: Improve services	std-service	1

C: Emphasis on students' role in learning	std-emph	1
X: Emphasis on students' role in learning	std-emph	2
51	std-emph	3

C: Supplements are needed	supplement	1
C: Supplements are not available	supplement	1
X: Reference material is not available	supplement	1
55	supplement	3

B: of Take Home Exam for every module is co	tk-home-xm	1
C: Take Home Examination ***	tk-home-xm	1
S: Give more weight on Take Home Exam	tk-home-xm	1
S: Inform dead line of Take Home Exam	tk-home-xm	1
S: Maintain availability of Take Home Exam b	tk-home-xm	1
S: Make different sets of Take Home Exam b	tk-home-xm	1
S: Make Take Home Test close to module	tk-home-xm	1
S: Prepare Take Home Exam better	tk-home-xm	1
58	tk-home-xm	8

57 X: How is to arrange study time?	time	1

C: Unqualified tutors	tutor	1
S: Make tutors active	tutor	1
S: Select qualified tutors	tutor	2
59	tutor	4

S: Conduct tutorial monthly	tutorial	1
S: Conduct tutorials on holidays	tutorial	1
S: Keep promise (on tutorial)	tutorial	1

S: UT initiates study group	std-grp	1
X: There is no study group	std-grp	1
X: Willingness to join a study group	std-grp	1

X: Ask friends to solve problems	std-int	1
S: Needs to see other students	std-rlshp	1
S: Student interaction	std-rlshp	1
S: To know other students	std-rlshp	1
S: Increase student-tutor activities	std-ttr-ac	1
C: Study group, tutorials are mentioned in the	std-ttrl	1

X: UT' student number is increasing	std-num	1
S: Increase student services	std-service	1

Students' will count	sth-emph	1

H: To be listened (re: suggestion)	suggestion	1
H: My sugesstion be accepted	suggestion	1

C: Supplements are supportive	supplement	1
H: Supplement material	supplement	1
Pr: Supplements are hard to find	supplement	1
S: Provide supplement materials	supplement	1
S: Make referred material available	supplement	1
S: Make suggested text available at UPBJJ	supplement	1
S: Provide supplement materials	supplement	1
X: Read suggested text	supplement	1
X: Reference materials are inaccesible throuh	supplement	1
X: It is time consuming to get reference mater	supplement	1

C: Different set of THE for every semester	the	1
C: THE for every module is useful	the	1
C: Inform THE dead line	the	1
C: Incorrect explanation in THE	the	1
C: Irrelevant items in THE	the	1
C: Misprint in Take Home Exam booklet	the	1
C: Unclear explantions in THE	the	1
S: Make THE for each module	the	1
S: Bigger contribution of THE in final grade	the	1
S: Marking of THE	the	1
S: Prepare THE thoroughly	the	1
S: Maintain stock of THE booklet	the	1
S: Renew THE every semester	the	1
S: THEs cover content of modules	the	1
S: Give Take Home Exam 90% weight	the	1
C: Received Take Home Exam booklet withou	the-una	1

X: Students have to make time to study	time	1
C: Time limitation	time	1
H: To overcome time difficulty	time	1
X: Planning time	time	1
X: Time conflict	time	1

C: Tutor is unable to solve an item	tutor	1
H: UT invite well known tutor	tutor	1
Pr. Unqualified tutors	tutor	1
S: UT-HQ provide tutors	tutor	1
S: Tutors should be on time	tutor	1
S: Tutor study groups make better	tutor	1
X: Need tutors	tutor	1

H: Tutorial every one/two weeks	tutorial	1
H: Tutorials help students	tutorial	1
H: Increase tutorial in the weekend	tutorial	1

S: Make tutorial mandatory	tutorial	2	
S: Provide tutorial	tutorial	3	
S: Provide tutorial schedule	tutorial	2	
S: Schedule tutorial at nights	tutorial	1	
S: Set up face-to-face session	tutorial	1	
S: Share tutorial cost	tutorial	2	
S: There should be a place for student meetin	tutorial	1	
S: UT Head Quarter initiates tutorial	tutorial	1	
S: UT initiates tutorial	tutorial	2	
60	tutorial	18	

Pr: Reason for the imposibility of attending tut	tutorial	1	
S: Share cost for face-to-face session	tutorial	1	
S: Provide face-to-face for EKON4110	tutorial	1	
S: Provide face-to-face for EKON4113	tutorial	1	
S: Make face-to-face compulsory	tutorial	1	
S: Provide a place for face-to-face meeting	tutorial	1	
S: Conduct meeting every week or month	tutorial	1	
S: Conduct meeting before exam	tutorial	1	
S: Provide meeting place for students	tutorial	1	
S: Let student pay for tutorial	tutorial	2	
S: Inform tutorial schedule and topics	tutorial	1	
S: Conduct tutorial once a month	tutorial	1	
S: Provide tutorial schedule	tutorial	1	
S: UPBJJ organize tutorials on specific subje	tutorial	1	
X: Face-to-face support learning	tutorial	1	
C: Make face-to-face compulsory	tutorial	1	

Criticism concerning transfer of credit	tx-credit	1	
H: for credit transfer	tx-credit	1	
S: Provide chance to transfer credit	tx-credit	2	
X: Should transfer of credit fail, I quit	tx-credit	1	
61	tx-credit	5	

H: Transfer of credit reconsideration	tx-credit	1	
S: Provide means to transfer credits	tx-credit	1	
S: Reconsider transfer of credit	tx-credit	1	
X: Transfer of credit	tx-credit	2	
X: Transfer of credit reconsideration	tx-credit	1	

62 S: Staff should be responsive	UPBJJ	1	

S: UPBJJ's staff be responsive	upbjj	1	
S: UPBJJ set tutorial fees	upbjj	1	
S: UPBJJ set tutorial schedule	upbjj	1	
S: UPBJJ collect stamp to send information	upbjj	1	
S: UPBJJ arrange tutorials	upbjj	1	

X: Concern for UT's reputation	UT-reput	1	
Irrelevant response		1	
No Comment		2	
Uninterpretable		2	
X: Anticipating forcasted advancement		1	
S: Improve always		1	
S: Having almamater jacket is complusory		1	
X: Description of a UT's regional office		1	
X: Enough		2	

X: UT students value added compared to stud	value-added	1	
S: Use visual aid	visual-aid	1	
X: Experience for WUDE	WUDE	1	
S: Apply WUDE's experience	WUDE	1	
H: Stimulate learning		1	
H: Today is better than yesterday (no comment)		1	
S: Make buying of almamater jacket compulsory		1	
X: UT-HQ know more about UT		1	
X: Positive response		1	
X: Related to presenting skills		1	
X: Suggestion and hope		1	
X: Modul - study group		1	
X: Willingness to pay mailing cost (continued interaction)		1	
X: Wrong		1	
Enough		2	
X: Modules		2	
X: UT is good		2	
Expression		5	

S: Extend join work with OLA	UT-OLA	1	
S: Share experience in DE***	UT-OLA	1	
63	UT-OLA	2	

S: Extend OLA-UT join work	OLA-UT	1	

C: Multiples Choice items are less useful	test	1	
C: Test are not complete	test	1	
C: Tests are helpful	test	1	
C: Tests are in multiple choice form only	test	1	
C: Unrelated test items	test	1	
S: Develop essay type items	test	1	
S: Give varied tests	test	1	
S: Test in essay format	test	1	
56	test	8	

Pr: Multiple choice type is not preferred	test	1	
C: Essay type is OK	test	1	

	S: Treat differently students who have jobs	treatment	1
	X: having to study and work	std-wrk	1
	X: I want to meet professor(s)		2
41	B: of having someone to ask	need-s-o	1
42	S: Help search for a job	new-std	1
	S: UT should heave its own office	own-offc	1
	X: People look down at UT	people-l	1
	X: Want to change the way people look UT	people-l	1
	X: To acquire knowledge	purpose	1
	X: To meet human resouces need	purpose	1

	C: Need some one to ask	need-s-o	1
	S: Pay attention to non-working students	n-w-std	1
	X: New student	new-std	1

Appendix F.2
Results of Partial Inter-raters Consistency Test

Rater #1

Sample #1

		Reseacher
1	S: Use better paper for modules	S: Use better paper
2	H: Take good care of eyes	B: Take good care of eyes
3	H: Stimulate learning	B: Stimulate learning
4	H: To ship quickly	S: Quick shipment
5	C: modules came late	
6	X: Explanation of WUDE	X: Share distance education experience
7	S: Apply WUDE's experience	S: Use oral exam
8	S: Give 90% weight on take-home exam	S: Give more weight to take home exam
9	S: Color modules	S: Color modules
10	B: Grasp modules quickly	
11	S: Better module binding	S: Use better module binding
12	B: Module's endurance	
13	C:Modules are easy get broken	

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Rater: 13 entries
Researcher: 9 entries
Match entries: 9 entries
Consistency rate 69.23076923
Note: Considering the closeness between rater's entries no 4 and 5 and researcher emtries no 4, and rater's entries no 11, 12 and 13, and researcher's entry (beside rater's entry no 11, it is reasonable to expect that the consistency rate is greater than 69.23% as calculated above.

Sample # 16

1	X: Mathematic modules are difficult	C: Mathematic modules are difficult
2	X: Ask friends to solve problems	
3	X: Appeal to dean to pay attention to every individual student	S: Attention be given to every individual students
4	X: Appeal to rector to pay attention to every individual students	
5	H: Student can understand more	
6	H: More electronic broadcast	S: More electronic and print broadcast
7	H: More print broadcast	
8	X: A new student	S: Information distribution
9	X: Want to know more UT-HQ	
10	H: Activity information	
11	S: Pay attention to non-working students	S: Help job search
12	H: To get priority in getting souvenier	P: To get a souvenier
13	H: Positive response	
14	X: Wrong responses	P: apology for wrong responses

Rater:14 entries
Researcher: 7 entries
Match entries: 7
Consistency Rate: 50
Note: Considering the closeness between rater's entries no 6 and 7 and reseracher entries beside rater's no 6 entry, and rater's entries no 8, 9 and 10 and researcher's entry beside rater's entry no 8, it is reasonable to expect that the real rate is greater than 50 % as calculated above.

Appendix F.2
Parial Inter-raters Consistency Test (continued)

Rater # 2	
Sample # 122	
1 S; Provide more reference informaton	S; Provide reference information
2 S: Publish glossary	S: Provide glossary
3 S: Avoid misprints	S: Avoid misprints
4 S: UT initiates study groups	S: UT initiates study groups
5 S: Create study groups by residences	
6 X: Most UT's students have jobs	
Rater: 6 entries Researcher: 4 entries Match entries: 4 Consistency Rate: 66.66666667	
Sample # 125	
1 C: Modules are helpful	C; Modules are good
2 C; Audio cassettes are helpful	C: Audio cassettes are good
3 S: Use visual aid	S: Broadcast program
4 S: UT organizes tutorial	S: UT initiates tutorials
Rater: 4 entries Researcher: 4 entries Match entries: 4 Consistency Rate: 100	
Sample #156	
1 S: Print modules better	S: Print modules better
2 S; Modules lay out	S: Reduce material
3 X; Modules are important regardless their thickness	C: Thickness make me lazy to read
4 C: There was a tutor who was unable to solve an item in a tutorial session	X: Emphasis on student's self C: An unqualified tutor
Rater: 4 entries Researcher: 5 entries Match entries: 3 Consistency Rate: 60	

Appendix F.2
Partial Inter-raters Consistency Test (continued)

Rater # 3	
Sample # 194	
1 X: reading speed is related to content	X: reading speed varies
2 S: Provide glossary in modules	S: Provide glossary
3 S: Related to wordings in modules	S: Language style
4 Personal	Personal; pray and thank
Rater: 4 entries	
Researcher: 4 entries	
Match entries: 4	
Consistency Rate (in percent) 100	
Sample #190	
1 S: Modules hould be concise	S; Explanation should be short
	S: Explanation should be comprehensive
2 S: Modules are difficult to understand	C: Explanations are not clear
3 S; Provide glossary	S: Provide glossary
	S: Explain symbols
4 S: More variation of formative test	C: Tests are multiple choice only
	S: Provide tests in essay format
Rater: 4 entries	
Researcher: 7 entries	
Match entries: 4	
Consistency Rate(in percent) 57.14285714	

Appendix F.2
Partial Inter-raters Consistency Test (continued)

Rater #4

Sample #244

1	Pr: Typing erros occurs frequently	H: Modules quality check
2	S: Provide answer keys in modules	S: Provide direction to find answer keys
3	Pr: Not every modules has answer keys	C: Answer keys are not available
4	Pr: Answer keys are not detailed enonugh	C: There is no direction to find answer keys

Rater: 4 entries
Researcher: 4 entries
Match entries: 2
Consistency Rate(in percent) 50

Sample # 247

		C: Math modules are the easiest
1	Pr: Some modules are difficult to understand	
2	Pr: Too long sentences	C: Language style
3	S: Compare to regular book	X: Use regular book
4	Pr: Psychologic of being a UT student	X: Low esteem
		X: Personal

Rater: 4 entries
Researcher: 5 entries
Match entries: 3
Consistency Rate (in percent) 60

Appendix F.2
Partial Inter-raters Consistency Test (continued)

Rater # 5		
Sample #301		
1 C: Modules are good		C: Modules are good
2 C: Modules misprints		C: Modules mis-colating
3 C: The number of answer keys are not equal to the number of tests		C: Answer keys are incomplete
4 H: Check module printing		S: Check modules pages
Rater: 4 entries		
Researcher: 4 entries		
Match entries: 4		
Consistency Rate (in percent)	100	
Sample #305		
1 C: Modules are good		C: Modules are good
2 S: Tutorial would be better		S: Provide tutorial
3 News		X: Description of a UT regional
4 C: Late delivery		C: Far areas are disadvantaged in shipment
5 S: Ship modules on time		H: Make shipment priority
6 P: Apology		P: Apology]
Rater: 6 entries		
Researcher: 6 entries		
Match entries: 5		
Consistency Rate (in percent)	83.33333333	

Table G.1.
Reasons for choosing UT

No.	Students' Responses	Stage 1 [N=156]	Stage 2 Persisters [N=28]	Stage 2 Non-Persisters [N=10]	All [N=38]
		n	n	n	n
1.	Flexible study time	48	11	3	14
2.	Job	39			
3.	Public status	29	2	2	4
4.	Job - Time concern	25			
5.	The study cost is cheap	23	8	3	11
6.	The study cost is affordable	19	3		3
7.	No negative effect on job	19	6	2	8
8.	The study method	19	1		1
9.	Flexible place to study	15	5	2	7
10.	Cost concern	14	1		1
11.	Resident is far from the nearest university	12			
12.	To support career advancement	9	2	1	3
13.	Limited time	9			
14.	Want to be independent	9			
15.	To acquire knowledge	8	5	2	7
16.	Flexible study method	7			
17.	The study cost is inexpensive	6			
18.	The availability of the needed study program	5			
19.	Easy entrance at UT	5	1	1	2
20.	High motivation	5	1		1
21.	Proud of individual independent effort	5		1	1
22.	UT is available through out Indonesia	4			
23.	To broaden vision	4	2	1	3
24.	Flexible study load	4	3		3
25.	The location of working place	4			
26.	Rejected by other universities	4			
27.	Facilities in UT	3			
28.	Flexible procedures	3			
29.	Flexibility	3			
30.	Free to arrange	3			
31.	There is no age limitation at UT	2	1		1
32.	Believe in UT's ability to deliver educational programs	2			
33.	UT is better than private universities	2			
34.	To support the search for a job	2			
35.	To acquire knowledge to support job	2	2		2
36.	My only choice	2	2		2
37.	Positive perception on modules	2			
38.	Positive perception on module writers	2			
39.	To increase self-confident	2			
40.	Try to self discipline	2			
41.	Try to study by distance education method	2	3		3
42.	To acquire useful knowledge	1			
43.	Accommodate financial differences	1			
44.	Accommodate intellectual differences	1			

Table G.1
Reasons for choosing UT (Continued)

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Stage 2 Non-Persisters [N=10] n	Stage 2 All [N=38] n
45.	Facilities are available at UT	1			
46.	Availability of study material	1			
47.	Due to limited available time	1			
48.	To broaden knowledge	1			
49.	Cannot compare my answers to key answers	1			
50.	UT is challenging	1			
51.	There is a chance to continue to master programs	1			
52.	To continue higher education	1			
53.	To continue from a Diploma-3 program	1			
54.	The study cost is economic	1			
55.	The study cost is fair	1		1	1
56.	Dissatisfied by current job	1			
57.	Effective and efficient	1	2		2
58.	Family support	1			
59.	Familial responsibilities	1			
60.	Family - Time concern	1			
61.	Activity freedom	1			
62.	Free to make own strategy	1			
63.	Limited fund	1			
64.	To give an example to young generation	1			
65.	UT's graduates are of equal quality	1			
66.	UT's graduates' quality	1			
67.	High commitment	1			
68.	High interest	1			
69.	Home activities	1			
70.	As a housewife	1			
71.	Husband is a way	1			
72.	The implication of flexibilities is self-descipline	1			
73.	Independence in acquiring knowledge	1			
74.	Informal learning activity	1		1	1
75.	An investment for retirement	1			
76.	Irrelevant response	1			
77.	The content is related to job	1		1	1
78.	Study at UT requires less energy	1			
79.	Study at UT requires less time	1			
80.	I like UT	1			
81.	Low commitment to UT	1			
82.	There is no face-to-face	1			
83.	There is no pressure	1			
84.	To obtain value added	1			
85.	To take the given opportunity	1	1	1	2
86.	Personal intention	1			

Table G.1.
Reasons for choosing UT (Continued)

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Stage 2 Non-Persisters [N=10] n	Stage 2 All [N=38] n
87.	Study at UT is practical	1			
88.	Future preparation	1	1	1	2
89.	Motivated by parent	1			
90.	Warranty of the program continuation	1			
91.	Program equality	1			
92.	Feeling of a member of a big university family	1			
93.	To pursue a degree	1	3		3
94.	Program quality	1			
95.	To stimulate reading habit	1			
96.	To save energy	1			
97.	To save time	1			
98.	To secure job	1			
99.	To share knowledge	1			
100.	To stimulate self-study habit	1			
101.	To stimulate hard work	1			
102.	The study media	1			
103.	The study is practical	1			
104.	The study is relax	1	1		1
105.	To support future job	1			
106.	It's supportive	1			
107.	To support another study	1	1		1
108.	To use spare time	1			
109.	UT emphasizes on quality	1			
110.	UT produces good graduates	1			
111.	UT suits my situation	1			
112.	Want to actualize	1			
113.	Want to be creative	1			
114.	Want to change job	1			
115.	Beneficial		1		1
116.	To devote the knowledge to God		1		1
117.	Communication channel is good		1		1
118.	To implement knowledge		1		1
119.	To be a mature and independent		1		1
120.	Less obstacles		1		1
121.	Availability of service		1		1
122.	To be a businessman		1		1
123.	To be a professional		1		1
124.	To be an expert		1		1
125.	Expectation differs from reality			1	1
126.	Need more funding			1	1
127.	Need more energy			1	1
128.	Need more time			1	1
129.	Conflicting schedule			1	1
130.	The absence of library			1	1
131.	The absence of tutorial			1	1
132.	Exam and module cost is expensive			1	1

Table G.1.
Reasons for choosing UT (Continued)

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Non-Persisters [N=10] n	All [N=38] n
133.	Information flow is slow			1	1
134.	To follow progress			1	1
135.	To work and to study			3	1
136.	Attitude toward quality is positive			1	1

Table G.2.
The rationales for completing the study program

No.	Students' Responses	Stage 1 [N=156]	Stage 2 Persisters [N=28]	Stage 2 Non-Persisters [N=10]	/ /	Stage 2 All [N=38]
		n	n	n	/	n
1.	To acquire knowledge	49	11	1	/	12
2.	To advance career	34	9	1	/	10
3.	To pursue a degree	33	2	2	/	4
4.	To broaden vision	28	3	2	/	5
5.	To devote knowledge to the state	16	7	1	/	8
6.	To support job	15	10	1	/	11
7.	To implement knowledge	14			/	
8.	To prepare for the future	10	2	2	/	4
9.	To look for a job	10	1	1	/	2
10.	To keep up with progress	10	1		/	
11.	To be qualified human resources	5			/	
12.	To improve income	5	1		/	
13.	To avoid waste of time and money	5		3	/	
14.	To meet academic requirements	4			/	
15.	Important: no explanation	4			/	
16.	To develop knowledge	4			/	
17.	Knowledge is asset	4	2		/	
18.	To meet the human resource demand of the era	4	2	1	/	3
19.	To open opportunity	4			/	
20.	UT is the only alternative	4			/	
21.	To get value-added	4			/	
22.	To acquire experience	4			/	
23.	To improve ability	3	1	1	/	2
24.	To increase competitiveness	3			/	
25.	Degree is required	3	1	1	/	2
26.	Indicator of ability	3			/	
27.	To change job	3	3	1	/	4
28.	For life betterment	3			/	
29.	Many responsibilities	3			/	
30.	As a milestone	3			/	
31.	Personal Development	3	3		/	3
32.	To participate in development	3	1		/	1
33.	To increase self confidence	3		1	/	1
34.	To be a high quality human resource	3			/	
35.	Work-study	3			/	
36.	To achieve what was planned	2			/	
37.	As an asset for real life	2			/	
38.	Belief in life-long learning	2			/	
39.	Financial difficulty	2	1		/	1
40.	To give a role model to children	2	1		/	1
41.	High school certificate is not good enough	2			/	
42.	As an indicator of success	2			/	
43.	Perfectionist	2			/	
44.	Planning to pursue a masters degree	2			/	
45.	To learn skills	2			/	

Table G.2
The rationales for completing the study program (Continued)

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Non-Persisters [N=10] n	/ /	All [N=38] n
46.	Emphasis on student's role	2			/	
47.	To stimulate self discipline	2			/	
48.	To be an economist	2			/	
49.	Work-study-family	2			/	
50.	To raise expertise	2			/	
51.	Absolutely required	1			/	
52.	Analytic skills	1			/	
53.	As an asset for retirement	1			/	
54.	To obtain the benefit of completion	1			/	
55.	To improve chances	1			/	
56.	Dissatisfied with current job	1			/	
57.	To convince young generation	1			/	
58.	Economy is power	1			/	
59.	Education is number one	1	1		/	1
60.	Financial resource	1			/	
61.	Family is number one	1			/	
62.	Family reputation	1			/	
63.	To change fortune	1			/	
64.	Give examples to young generation	1			/	
65.	Global market	1			/	
66.	Happiness	1			/	
67.	Human resources regeneration	1			/	
68.	To develop ideas	1			/	
69.	To materialize dreams	1			/	
70.	The place of Indonesia in global economy	1			/	
71.	Independent study	1			/	
72.	Independent thought	1	1		/	1
73.	Internal satisfaction	1	1		/	1
74.	Irrelevant	1			/	
75.	To obtain knowledge of Indonesia's economy	1			/	
76.	To share knowledge	1			/	
77.	To change life	1			/	
78.	Low expectation of program completion	1			/	
79.	Low commitment to UT	1			/	
80.	To make a difference	1			/	
81.	Motivated by parents and family	1			/	
82.	Not very important	1			/	
83.	To promote self study	1			/	
84.	To increase professionalism	1			/	
85.	To change profession	1			/	
86.	Programs are equal	1	1		/	1
87.	To promote UT	1			/	
88.	Personal interest	1			/	
89.	For personal satisfaction	1			/	
90.	To search for a position	1	2		/	2

Table G.2.
The rationales for completing the study program (Continued)

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Non-Persisters [N=10] n	/ /	All [N=38] n
91.	Reading and writing skills	1	1		/	1
92.	Reasons for dissatisfaction with the current job	1			/	
93.	To remedy weakness	1			/	
94.	Rejected by other public universities	1			/	
95.	It is required for becoming a high school principal	1			/	
96.	Self pride	1			/	
97.	To make the nation smart	1			/	
98.	Use spare time	1			/	
99.	Study-family	1			/	
100.	To sharpen thinking ability	1	3		/	3
101.	To be a businessman	1			/	
102.	Treated better	1			/	
103.	Not supportive background knowledge	1			/	
104.	Uncertainty of ability to finish	1			/	
105.	Unclear response	1			/	
106.	Way of thinking	1			/	
107.	Work is number one	1			/	
108.	Work study and neighborhood activities compete	1			/	
109.	Very important		5		/	5
110.	Time concern		4		/	4
111.	Age concern		1		/	1
112.	Quality as an asset		1		/	1
113.	Like the subject		1		/	1
114.	To reduce load		1		/	1
115.	Positive perception on availability		1		/	1
116.	Will quit when exam cost is not levied			1	/	1
117.	Will quit when a library is not available			1	/	1
118.	Will quit when a tutor is not available			1	/	1
119.	Failed before			1	/	1
120.	No more failure			1	/	1
121.	To increase education level			1	/	1
122.	Always serious			1	/	1
123.	To master the study program well			1	/	1

Table G.3
The Position of the Course in Students' Longterm Plans

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Non-Persisters [N=10] n	All [N=38] n
1.	Academic	36	5	3	8
2.	To support Job	24	4	2	6
3.	To acquire knowledge	21	1	3	4
4.	To broaden vision	17			
5.	To implement knowledge	16	5	1	6
6.	For career advancement	13			
7.	Supportive (no explanation)	12	3	1	4
8.	As an asset in real life	7	1		1
9.	Personal development	7			
10.	To support future job	7			
11.	To pursue a degree	6			
12.	As an asset in serving society	5	2		2
13.	To be independent	5	1		1
14.	Irrelevant	4			
15.	To search for a job	4	1		1
16.	To be an expert in economy	3		1	1
17.	To participate in national development	3		1	1
18.	To set up own business	3		1	1
19.	Unclear responses	3			
20.	Complaints	2			
21.	Degree is an asset	2			
22.	To develop own business	2			
23.	Important (No Explanation)	2	1		1
24.	Knowledge as an asset	2			
25.	To develop knowledge	2			
26.	To be a high quality human resource	2			
27.	Not influential	2			
28.	To prepare for retirement	2			
29.	To improve performance	2			
30.	To increase self confident	2			
31.	To enrich experience	2			
32.	To get the added value	1			
33.	As planed by the government	1			
34.	As an asset for entrepreneurship	1			
35.	As an asset in problem solving	1			
36.	To build a sense of responsibility	1			
37.	For the benefits of the state	1			
38.	To compare to Muslim's economic concept	1	1		1
39.	To increase competitiveness	1			
40.	To create employment opportunity	1	1	1	2
41.	To counsel and motivate family members	1			
42.	Course contents are not related to job	1			
43.	Deep understanding of corporate administration	1	5		5
44.	Obtain decision making skills	1			
45.	To develop agro-business	1			

Table G.3.
The Position of the Course in Students' Longterm Plans (Continued)

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Non-Persisters [N=10] n	All [N=38] n
46.	To advance development	1			
47.	Have a different background (mechanical Eng.)	1			
48.	Don't know	1			
49.	To acquire education	1			
50.	To follow development	1			
51.	Improve Indonesia's economy	1			
52.	To improve thought	1			
53.	To keep up with the progress	1			
54.	To meet human resource need	1			
55.	No idea	1			
56.	Not too important	1			
57.	Not to pursue a degree	1		1	1
58.	To increase professionalism	1			
59.	To participate in UT development	1			
60.	To reduce unemployment	1			
61.	Knowledge is required to be a company head	1			
62.	To acquire research ability	1			
63.	To obtain risk-taking and problem solving skills	1			
64.	Reasons to transfer credit	1			
65.	Suggestion	1			
66.	To support plan	1			
67.	To be a teacher in economy	1			
68.	To build thinking ground	1			
69.	To pursue a wish	1			
70.	To increase work motivation	1			
71.	To share experience	1			
72.	To get rid of poverty		1		1
73.	Time concern		1		1
74.	To be a manager		1		1
75.	To measure ability			1	1
76.	Knowledge is foundation for development			1	1
77.	To be an administrator			1	1
78.	To introspect about my study method			1	1

Table G.4.
The Rationales of Finishing the Course

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Stage 2 Non-Persisters [N=10] n	/ /	Stage 2 All [N=38] n
1.	Academic requirement	50	7	6	/	13
2.	Time concern	36	6	1	/	7
3.	To acquire knowledge	25	3	1	/	4
4.	To support job performance	21	1	1	/	2
5.	To pursue a degree	14	5		/	5
6.	To implement knowledge	12	1	1	/	2
7.	To acquire vision	7	3		/	1
8.	Not to waste time and money	6		1	/	1
9.	To devote to the state	5	3	1	/	4
10.	To achieve the plan	4	1	1	/	2
11.	Asset for entrepreneurship	4			/	
12.	To make good achievement	4	1		/	1
13.	To increase self confident	4			/	
14.	Important (no explanation)	3			/	
15.	Irrelevant response	3			/	
16.	Personal development	3		1	/	1
17.	Asset for living	2	2	1	/	3
18.	Cost concern	2			/	
19.	As a milestone	2			/	
20.	To motivate children	2			/	
21.	To motivate oneself	2		1	/	1
22.	To avoid taking a course twice	2			/	
23.	Not specific	2		1	/	1
24.	To obtain problem solving skill	2		3	/	3
25.	To sharpen thinking power	2			/	
26.	Age concern	1			/	
27.	Career concern	1	5	1	/	6
28.	Feel challenged	1			/	
29.	Follow curiosity	1			/	
30.	Follow national development	1			/	
31.	Get rid of relax life style	1			/	
32.	To graduate with good quality	1			/	
33.	My obsession is my handicap	1			/	
34.	High motivated	1			/	
35.	Indicator of achievement	1			/	
36.	Indicator of knowledge and achievement	1			/	
37.	Indicator of ability	1	1		/	1
38.	Interested in the subject	1			/	
39.	My intention is matched	1			/	
40.	Search for a job	1	2		/	1
41.	To know the history of Indonesia's economy	1			/	
42.	To know the natural resource of Indonesia	1			/	
43.	To meet human resource needs	1			/	
44.	Not to waste effort	1		1	/	1
45.	No to waste time	1		1	/	1

Table G.4.
The Rationales of Finishing the Course (Continued)

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Non-Persisters [N=10] n	/ /	All [N=38] n
46.	The content is not very important	1	1		/	1
47.	To complete the program	1	1		/	1
48.	To participate in national development	1			/	
49.	A key course to understand the economy	1	2		/	
50.	It's students' responsibility	1			/	
51.	To support socialization	1			/	
52.	Time and age concern	1			/	
53.	Time is not a major concern	1			/	
54.	Limited time	1			/	
55.	Thinking power is related to age	1			/	
56.	Unclear response	1			/	
57.	Unsure about ability to finish the program	1			/	
58.	Course content is related to interest		1		/	1
59.	To share the benefit of having the knowledge		1		/	1
60.	To increase educational level		1		/	1
61.	To develop the knowledge		1		/	1
62.	For personal benefit		1		/	1
63.	For UT image building		1		/	1

Table G.5.
Student's General Difficulties

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Non-Persisters [N=10] n	/ /	All [N=38] n
1.	Difficulties with EKON4113	20	3		/	3
2.	To understand	15	5		/	5
3.	Misprints	13	1	1	/	2
4.	Graphs	12	3	2	/	5
5.	Difficult words	10	1	1	/	2
6.	Difficult words - foreign words	9	4	1	/	5
7.	Too wordy explanations	8	1		/	1
8.	Formulas	8	5		/	5
9.	Need some one to ask	8	1		/	1
10.	Ask peers to solve problem	7			/	
11.	Non-elaborated answer keys	7			/	
12.	Things that cannot be overcome	6			/	
13.	Unclear explanations	6	2	1	/	3
14.	No difficulties	6			/	
15.	Emphasis on student self	6	1		/	1
16.	Calculations	5	1	2	/	3
17.	Difficulties with EKON4110	5	2		/	2
18.	Examples are not detail	5			/	
19.	Not enough examples	5	2		/	2
20.	Language	5			/	
21.	Memorizing	5			/	
22.	Need a professor	5			/	
23.	Tables	5	1	1	/	2
24.	Answers do not match the questions	5	2		/	2
25.	Symbols	4			/	
26.	Limited time	4			/	
27.	Diagrams	3	1		/	1
28.	Too short explanations	3			/	
29.	Due to lack of background	3		1	/	1
30.	My answers differ from answer keys	3			/	
31.	New material	3			/	
32.	Study groups do not help	3			/	
33.	Curves	2	1		/	1
34.	Difficult words - scientific terms	2			/	
35.	Examples in EKON4113	2			/	
36.	There are irrelevant examples	2			/	
37.	Examples are not varied	2			/	
38.	Explanations unmatched by references	2			/	
39.	Exercises	2	2	1	/	3
40.	Language style	2	1		/	1
41.	Too much material	2	2		/	2
42.	Misprints in EKON4113	2			/	
43.	Too short overview	2			/	
44.	Wordy sentences	2			/	
45.	Almost similar things	1			/	
46.	Answer keys in EKON4113	1			/	
47.	Final answer only; no elaboration	1			/	

Table G.5.
Student's General Difficulties (Continued)

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Stage 2 Non-Persisters [N=10] n	Stage 2 All [N=38] n
48.	Calculations in EKON4113	1			
49.	Comparing own work to the answer keys	1			
50.	Compare to other source	1			
51.	News from campus	1			
52.	Definitions	1			
53.	Difficulties with EKON4101	1			
54.	Difficulties with EKON4107	1			
55.	Different ways	1			
56.	Difficult words that have no explanation	1			
57.	Double pages	1			
58.	Developing thinking ability	1			
59.	S: Provide more explanations in examples	1			
60.	Examples are not clear in EKON4113	1			
61.	Examples are too many	1			
62.	S.Provide more examples	1			
63.	S: Provide more examples of Q's and A's	1			
64.	Unclear examples	1		2	2
65.	Elaboration to narrow	1	2		2
66.	Too wide explanation	1			
67.	Explanation is rare	1			
68.	Explanations unmatched by conclusions	1			
69.	Unclear explanation in exercises	1			
70.	No guidelines in exercises	1			
71.	Exercises do not correspond to answer keys	1			
72.	Exercises do not correspond to tests	1			
73.	Formula usage	1	1		1
74.	Unclear explanations in formative test	1			
75.	Graphs with no explanations	1		1	1
76.	Illustrations do not suit graphs	1			
77.	Graphs in EKON4113	1			
78.	Graphs stimulate	1			
79.	Irrelevant words	1			
80.	Tiring job	1			
81.	Wrong numbered answer keys	1			
82.	Too scientific language	1			
83.	Confusing language	1			
84.	Inefficient language	1			
85.	Access to material	1			
86.	Irrelevant additional material	1			
87.	Materials are in story format	1			
88.	Ineffective sentence in modules	1			
89.	Modules are incomplete	1			

Table G.5
Student's General Difficulties (Continued)

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Stage 2 Non-Persisters [N=10] n	Stage 2 All [N=38] n
90.	Modules are easy	1			
91.	Modules are good	1	1		1
92.	Modules are not enough	1			
93.	Mathematics problems	1			
94.	Inadequately explained new material	1			
95.	No answer keys	1			
96.	No feedback	1			
97.	Other problem	1			
98.	Overlapping subject	1			
99.	No errata on wrong items	1			
100.	Further reading	1			
101.	Limited references	1			
102.	Relative rightness	1			
103.	S: Provide more explanation	1			
104.	S: Provide concrete explanation	1			
105.	S: Provide more examples	1			
106.	S: Provide glossary	1			
107.	S: Please include conclusions in overviews	1			
108.	S: Improve overview	1	1		1
109.	S: Student-advisor ration is 5:1	1			
110.	S: Use simple language	1	1		1
111.	S: Elaborate answer keys	1			
112.	Incorrect sentences	1			
113.	Unclear sentences	1			
114.	Supplementary material	1			
115.	Tables stimulate	1			
116.	Take home exam do not correspond to modules	1			
117.	Too many take home exam	1			
118.	To concentrate	1			
119.	To understand questions	1			
120.	Incorrect translation	1			
121.	Translated sentences	1			
122.	Try to overcome	1			
123.	Tests do not correspond to formula	1			
124.	Unorganized tests	1			
125.	Which one is the best study method?	1			
126.	Ways of elaboration	1			
127.	Watch TPI	1			
128.	Watch video material	1			
129.	Indecipherable	1			
130.	Tutorial is limited		1		1
131.	Having to read repeatedly		2		2
132.	Interrupted study time		1		1
133.	S.Reduce lengthy explanation		1		1
134.	S.Control the quality		1		1

Table G.5
Student's General Difficulties (Continued)

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Non-Persisters [N=10] n	/ /	All [N=38] n
135.	S.Simplify the material		1		/	1
136.	Do not know how to master modules		1		/	1
137.	Difficulties with maps			1	/	1
138.	Formative tests no 1, 3, 5, 7			1	/	1
139.	Lack of systematics			1	/	1

Table G.6.
Student's Specific difficulties

No.	Students' Responses	Stage 1 [N=156]	Stage 2			
			Persisters [N=28]	Non-Persisters [N=10]	/ /	All [N=38]
		n	n	n	/	n
1.	GRAPHS	44	8	4	/	12
2.	Tables	20		3	/	3
3.	Maps	11	2	1	/	3
4.	No difficulties	10	2		/	2
5.	Difficult to understand	7	2		/	2
6.	Illustrations	6			/	
7.	Need someone to ask	6	2	2	/	4
8.	Unclearly-explained graphs	5		1	/	1
9.	Inadequate elaboration of tables	5	2		/	2
10.	Caricatures	4	1		/	1
11.	diagrams	4			/	
12.	Difficult words - italicized words	4	1	1	/	2
13.	Unclear explanation	4			/	
14.	How to make a graph	4			/	
15.	Graphs in EKON4113	4			/	
16.	Emphasis on students' role	4			/	
17.	Things that I cannot overcome	3			/	
18.	Difficult words - foreign words	3			/	
19.	Difficult words - underlined words	3	1	1	/	2
20.	Formulas	3			/	
21.	Relationship between a graph and formula	3			/	
22.	Inadequate explanation in graphs	3			/	
23.	No explanation in graphs	3	4	2	/	6
24.	Difficult to memorize	3			/	
25.	Need a professor	3			/	
26.	Unclearly explained symbols	3			/	
27.	S: Provide more explanations	3			/	
28.	Communication with peers	2			/	
29.	No explanations for exercises	2			/	
30.	Terms that are used in graphs	2			/	
31.	Indentations	2			/	
32.	Irrelevant explanations	2			/	
33.	Too much material	2			/	
34.	Misprints	2			/	
35.	S: Provide more explanation for graphs	2			/	
36.	Tables in EKON4110	2			/	
37.	Applications	1			/	
38.	Asymptote concept in EKON4113	1			/	
39.	Conflicting ideas	1	1		/	1
40.	Get tired of work	1			/	
41.	Difficulties with EKON4113	1	1		/	1
42.	Difficult words	1			/	
43.	Difficult words - concepts	1			/	
44.	Discussion	1			/	
45.	Lack of explanation in difficult words	1			/	
46.	Unclear graph in page 44 of EKON4110	1			/	

Table G.6
Student's Specific difficulties (Continued)

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Stage 2 Non-Persisters [N=10] n	Stage 2 All [N=38] n
47.	Inadequate examples	1			
48.	Inadequate explanations	1			
49.	No answer keys for exercises	1			
50.	Inadequate explanations of formulas	1			
51.	Inadequate elaboration of formulas	1			
52.	Formulas in EKON4113	1			
53.	Get bored	1			
54.	Incomplete information in graphs	1			
55.	Irrelevant illustration in graphs	1	1		1
56.	Unclearly-drawn graphs	1	2	1	3
57.	Graphs in EKON4110	1			
58.	Classical (cliche) illustrations	1			
59.	Irrelevant illustrations	1			
60.	Wordy Illustrations	1			
61.	Unclear illustrations	1			
62.	Inconsistencies	1			
63.	Inadequate explanations	1			
64.	Lack of background knowledge	1			
65.	Lack of clear explanations	1			
66.	Language	1			
67.	Translated language	1			
68.	Learning seems useless	1			
69.	Unclear maps	1	2		2
70.	Modules are too short	1			
71.	Unclear explanation in maps	1			
72.	Unable to explain	1			
73.	Need a tutor	1			
74.	Never read UT's modules	1			
75.	No references	1			
76.	Not detailed	1			
77.	Irrelevant paragraphs	1			
78.	Difficulty with "power" in EKON4113	1	1		1
79.	Rare to have difficulty	1			
80.	Symbols lack explanations	1			
81.	S: Provide index for foreign words	1			
82.	S: Improve the language	1			
83.	S: Provide more examples	1			

Table G.6.
Student's Specific difficulties (Continued)

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Non-Persisters [N=10] n	All [N=38] n
84.	S: provide more explanation for tables	1			
85.	S: Shorten explanations	1			
86.	Symbols	1			
87.	Tables help understanding	1			
88.	Confusing numbers in tables	1			
89.	Tables and formulas relationship	1			
90.	Lack of background makes difficult to understand graphs	1			
91.	Misprint in tables	1			
92.	Limited time	1	1		1
93.	No explanation for take home tests	1			
94.	Varied problems	1			
95.	Responses cannot be interpreted	2			
96.	Incomplete answer keys		1		1
97.	Difficulty with sub heading		1		1
98.	Difficulty with EKON4110		1		1
99.	Non-systematic heading		1		1
100.	Confusing references		1		1
101.	Unavailability of tutor		1		1
102.	No student organization			1	1

Table G.7
Student's Final Comments

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Stage 2 Non-Persisters [N=10] n	Stage 2 All [N=38] n
1.	C: Modules are good	27	3		3
2.	S: Provide Glossaries	11	1		1
3.	S: More Examples	9	2		2
4.	P: Apology	7	1		1
5.	S: Reduce Material	7	2	1	3
6.	S: More Exercises	6			
7.	S: Increase broadcasting program	5			
8.	S: Use Simple Language Style	5	1	1	2
9.	C: Answer keys are not in detail	4			
10.	P: Hope a.a. and Thankfulness	4			
11.	S: Clear Examples	4			
12.	S: Prompt Information Distribution	4	1	1	2
13.	S: Avoid Misprints	4			
14.	P: Hope the best for UT	3			
15.	P: Thankfulness	3	3		3
16.	S: Elaborate examples	3	1		1
17.	S: Real cases for examples	3			
18.	S: Varied Examples	3	1		1
19.	S: Errata	3			
20.	S: Improve modules	3			
21.	S: Reduce Module's Price	3	1		1
22.	S: Keep modules up to date	3			
23.	S: Provide comprehensive overview	3	2		2
24.	S: Provide referred material	3			
25.	S: Maintain module stock	3		1	1
26.	S: UT initiates tutorial	3			
27.	S: Provide tutorial	3			
28.	C: No direction of where to find the answer keys	2			
29.	C: Wrong answers	2			
30.	C: Difficulties in EKON4113	2			
31.	C: Difficulties with unknown/new words	2		1	1
32.	C: Explanations are too long	2			
33.	C: Examples are of low quality	2			
34.	C: Language Style	2			
35.	C: Material is too much	2	2		2
36.	C: Modules are not available	2	1		1
37.	C: Misprints confuse me	2	1		1
38.	H: Clear Examples	2			
39.	No Comment	2			
40.	P: Apology and thankfulness	2			
41.	S: Provide direction where to find answer keys	2			
42.	S: Provide elaborated answers	2	2		2
43.	S: Use better paper for modules	2			
44.	S: Share tutorial cost	2		1	1
45.	S: Provide chance to transfer credit	2			
46.	S: Use clear examples	2			

Table G.7
Student's Final Comments (Continued)

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Stage 2 Non-Persisters [N=10] n	Stage 2 All [N=38] n
47.	S: Develop essay type items	2	2	1	3
48.	S: Shorten explanation	2			
49.	S: Provide High Quality Exercises	2			
50.	S: Vary exercises	2			
51.	S: Elaborate formula	2	1		1
52.	S: Formulas Usage Explanation	2			
53.	S: Elaborate graphs	2		1	1
54.	S: Improve modules' presentation	2	3		3
55.	S: Make modules portable	2			
56.	S: Provide overview	2			
57.	S: Provide References	2			
58.	S: Increase study group activity	2			
59.	S: Provide study guidelines	2	1		1
60.	S: Make tutorial mandatory	2			
61.	S: Select qualified tutors	2			
62.	S: Provide tutorial schedule	2			
63.	X: Enough	2			
64.	X: I want to meet professor(s)	2			
65.	X: having to study and work	2	1		1
66.	X: Emphasis on students' role	2			
67.	Responses cannot be interpreted	2			
68.	B: of audio cassette for various students	1			
69.	B: of analytic thinking	1	1		1
70.	B: Reduce complain from academic support	1			
71.	B: Reduce difficulty	1			
72.	B: Better print will care eye	1			
73.	B: Accumulated saving for graduation cost	1			
74.	B: of having someone to ask	1			
75.	B: of Take Home Exam for every module is comprehen	1			
76.	B: of relationship among students	1			
77.	B: Stimulate learning	1	1		1
78.	C: Thick modules make me lazy to read	1			
79.	C: The more foreign words the better	1			
80.	C: Modules EKON4113 easy to read	1			
81.	C: Modules EKON4113 satisfies	1			
82.	C: Answer keys are incomplete	1			
83.	C: Answer keys are not available	1			
84.	C: Audio material is helpful	1			
85.	C: Diagrams are helpful	1			
86.	C: Difficulties in comparing answers	1			
87.	C: Difficulties with long explanations	1			

Table G.7.
Student's Final Comments (Continued)

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Stage 2 Non-Persisters [N=10] n	Stage 2 All [N=38] n
88.	C: Difficulties with references	1			
89.	C: Difficulties with sentences	1			
92.	C: Examples are too easy	1			
91.	C: Difficulties in working with tables	1	1		1
92.	C: Examples are too easy	1			
93.	C: Easy examples are boring	1			
94.	C: Unrelated examples	1			
95.	C: Irrelevant explanations	1			
96.	C: Unclear explanations	1			
97.	C: Explanations are good	1			
98.	C: Exercises help	1			
99.	C: Exercises are not varied	1			
100.	C: Formative tests are of low quality	1			
101.	C: Difficulties in working with graphs	1			
102.	C: Italicized words are helpful	1			
103.	C: Incorrect pages in modules	1			
104.	C: Modules are books	1			
105.	C: Wrong collating in modules	1	1		1
106.	C: Multiples Choice items are less useful	1			
107.	C: No exercise no. 6	1			
108.	C: There is no glossary	1			
109.	C: There is no study group	1			
110.	C: Printing results are not clear	1			
111.	C: Unrelated references	1			
112.	C: Emphasis on students' role in learning	1			
113.	C: Supplements are not available	1			
114.	C: Supplements are needed	1			
115.	C: Take Home Examination ***	1			
116.	C: Tests are helpful	1			
117.	C: Tests are in multiple choice form only	1			
118.	C: Test are not complete	1			
119.	C: Unrelated test items	1			
120.	C: Unqualified tutors	1			
121.	C: Underlined words are helpful	1			
122.	S: Provide errata	1			
123.	H: for credit transfer	1			
124.	H: UT will reach all Indonesian who need H.E..	1			
125.	H: for high quality graduate	1			
126.	H: There is a mail-based contact point at UT-HQ	1			
127.	H: for module availability	1			
128.	H: to borrow modules	1			
129.	H: for module quality check	1			

Table G.7.
Student's Final Comments (Continued)

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Non-Persisters [N=10] n	All [N=38] n
130.	H: for shipment priority	1			
131.	Irrelevant response	1			
132.	Criticism concerning transfer of credit	1			
133.	P: Apology and hope	1			
134.	P: Ask suggestion concerning arranging time	1			
135.	P: interest in the module-interaction research	1		1	1
136.	P: Pray and thankfulness	1			
137.	P: Want a personal response	1			
138.	P: Want a souvenir	1			
139.	P: Thankfulness, hope and apology	1			
140.	What is the best learning medium?	1			
141.	Request for general lecture	1			
142.	S: Support for learning	1			
143.	S: Maintain relevance	1			
144.	S: Produce Audio and video cassette	1			
145.	S: Exams are conducted twice a year	1			
146.	S: Distribution of activity schedule	1			
147.	S: Provide answer keys always	1			
148.	S: Pay attention to every individual student	1			
149.	S: Fix broadcast schedule	1			
150.	S: Better binding system for modules	1			
151.	S: Elaborate calculation	1	1		1
152.	S: Improve communication	1			
153.	S: Compulsory saving	1			
154.	S: Use colors in modules	1	1		1
155.	S: provide direction in foreword	1			
156.	S: Provide actual examples	1			
157.	S: Provide complete examples	1			
158.	S: Do not give easy examples	1	1		1
159.	S: Provide related examples	1			
160.	S: Provide short examples	1			
161.	S: Simplify examples	1			
162.	S: Provide examples of usages	1			
163.	S: Avoid too long explanation	1	1		1
164.	S: Provide comprehensive explanation	1			
165.	S: Provide more explanation	1			
166.	S: Prepared better explanation	1			
167.	S: Give short but comprehensive explanation	1			
168.	S: Provide explanation systematically	1			
169.	S: Elaborate exercises	1			
170.	S: Increase the weight of exercise (THE)	1			

Table G.7
Student's Final Comments (Continued)

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Stage 2 Non-Persisters [N=10] n	Stage 2 All [N=38] n
171.	S: Make exercises and formative tests similar to exam	1			
172.	S: Publish a book of formulas	1			
173.	S: Give more formative tests	1			
174.	S: Give footnotes in important words	1			
175.	S: Set up face-to-face session	1	2		2
176.	S: Improve graduates' quality	1			
177.	S: Use graphs	1			
178.	S: HQ closely supervises UPBJJ	1			
179.	S: More interaction is needed	1			
180.	S: Having almamater jacket is compulsory	1			
181.	S: Help search for a job	1			
182.	S: Improve learning process	1			
183.	S: Establish Library	1	1	1	2
184.	S: Low esteem	1			
185.	S: Improve always	1			
186.	S: Make modules available in public library	1			
187.	S: Make modules available in Regional Center	1			
188.	S: Modules are accompanied with audio cassettes	1			
189.	S: Keep explanation, examples, exercises, and test	1			
190.	S: Make modules clearer	1			
191.	S: Make complete modules	1			
192.	S: Give modules discount	1			
193.	S: Modules should be detail	1			
194.	S: Make module easy to read	1	1		1
195.	S: Do Quality Control on modules	1			
196.	S: Maintain module stock	1			
197.	S: Avoid misprints	1			
198.	S: Use multimedia	1			
199.	S: Use oral examination	1			
200.	S: Overview and audio cassette	1			
201.	S: Overview matches final exam	1			
202.	S: UT should heave its own office	1			
203.	S: Use better paper	1			
204.	S: Give access to public universities' libraries	1			
205.	S: Publish audio cassette material	1			
206.	S: Check pages of modules	1			
207.	S: There should be a place for student meeting	1			
208.	S: Add vocational program	1			
209.	S: Keep promise (on tutorial)	1			
210.	S: Improve printings	1			

Table G.7
Student's Final Comments (Continued)

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Stage 2 Non-Persisters [N=10] n	Stage 2 All [N=38] n
211.	S: Improve module presentation	1			
212.	S: Pass students who already taken courses twice	1			
213.	S: Check questions and the answer keys	1			
214.	S: Add more questions and answers	1			
215.	S: Ship quick	1			
216.	S: Use standard in references	1			
217.	S: Set up registration time	1			
218.	S: Make reliable shipment	1			
219.	S: Revise module every 5 years	1			
220.	S: review module periodically	1			
221.	S: Talented students help study groups	1			
222.	S: Concerning scoring procedure	1			
223.	S: Improve services	1	1	1	2
224.	S: Staff should be responsive	1			
225.	S: Explain symbols	1			
226.	S: Use better teaching method	1	1		1
227.	S: Maintain availability of Take Home Exam booklet	1			
228.	S: Make different sets of Take Home Exam booklet	1			
229.	S: Inform dead line of Take Home Exam	1			
230.	S: Give more weight on Take Home Exam	1			
231.	S: Make Take Home Test close to module	1			
232.	S: Prepare Take Home Exam better	1			
233.	S: Treat differently students who have jobs	1			
234.	S: Give varied tests	1			
235.	S: Make tutors active	1		1	1
236.	S: Conduct tutorials on holidays	1			
237.	S: Conduct tutorial monthly	1			
238.	S: Schedule tutorial at nights	1			
239.	S: Print underlined words in bold	1			
240.	S: Conduct examination on holidays	1			
241.	S: Make exam close to module and Take Home Exam	1			
242.	S: Extend join work with OLA	1			
243.	S: Share experience in DE***	1			
244.	X: Which is the best learning method	1		1	1
245.	X: How is to arrange study time?	1			

Table G.7
Student's Final Comments (Continued)

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Stage 2 Non-Persisters [N=10] n	Stage 2 All [N=38] n
246.	X: Broadcast program is important	1			
247.	X: I never watch broadcasted program	1			
248.	X: Communication is good	1			
249.	X: Pursuing a degree	1			
250.	X: Difficulties due to background	1			
251.	X: Difficulties in calculation	1			
252.	X: Examples are too easy	1			
253.	X: Exercises are too easy	1			
254.	X: Priority shipment for far destination	1			
255.	X: Anticipating forecasted advancement	1			
256.	X: Happy of having opportunity to study at H.E.	1			
257.	X: Intern reflection	1			
258.	X: This interaction is useful	1			
259.	X: Having a tiring job	1			
260.	X: To acquire knowledge	1			
261.	X: Never read UT's modules	1			
262.	X: To meet human resources need	1			
263.	X: No tutor makes learning less deep/wide	1			
264.	X: Peer Discussion	1			
265.	X: Want to change the way people look UT	1	1		1
266.	X: People look down at UT	1			
267.	X: Proud of being a UT's student	1			
268.	X: Personal situation	1			
269.	X: Reading speed varies on difficulty of material	1			
270.	X: Reference material is not available	1			
271.	X: Students are of different abilities	1			
272.	X: Solving problems by study group discussion	1			
273.	X: There is no student group	1			
274.	X: Thank for availability of modules (study by distance)	1			
275.	X: Thank for opportunity to study at H.E.	1			
276.	X: Get tired before exam due to travel	1			
277.	X: Should transfer of credit fail, I quit	1			
278.	X: I use regular UT that is easier to read than UT	1			
279.	X: Description of a UT's regional office	1			
280.	X: Concern for UT's reputation	1			
281.	X: Exam center is too far	1			
282.	Benefit of essay type items		1		1
283.	Benefit of the improvement of overviews		1		1

Table G.7.
Student's Final Comments (Continued)

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Non-Persisters [N=10] n	All [N=38] n
284.	Dissatisfied by exam results (75% D's)		1		1
285.	Exam items were difficult		1		1
286.	Expect of quick completion		1		1
287.	Frustration that may lead to drop out		1		1
288.	Hope for good but cheap student service		1		1
289.	Hope for training programs for people of all age		1		1
290.	Hope of study cost affordability		1		1
291.	Live improvement		1		1
292.	Modules of Accounting I are good		1		1
293.	Please broadcast UT's program in the evening		1	1	2
294.	Please continue research on interaction		1		1
295.	Please establish Faculty of Medicine		1		1
296.	Please establish laboratory		1		1
297.	Please increase the relatedness of modules and exam		1		1
298.	Please make questions and answer close one another		1		1
299.	Please reduce MC type exercises		1		1
300.	Proud of good achievement		1		1
301.	Reasons why Accounting modules are good		1		1
302.	Reduce foreign words		1		1
303.	Students' learning speeds vary		1		1
304.	Suggestions for re-structuring learning activities		1	1	2
305.	Thank to module writer		1		1
306.	Underlined words and italicized words are difficult		1		1
307.	UT attractiveness is related to the price of UT's		1		1
308.	UT tutors are poor		1		1
309.	Want to be intellectually rich		1		1
310.	Want to know more about UT		1		1
311.	What are the benefit if modules are difficult to read		1		1
312.	What makes a module good		1		1
313.	Modules are important			1	1
314.	Modules represent professors			1	1
315.	Please eliminate exam fee			1	1
316.	Please examine the relationship between study behavior and grade point			1	1
317.	Please explain figures more detail			1	1
318.	Please give student a chance to meet module writer			1	1

Table G.7
Student's Final Comments (Continued)

No.	Students' Responses	Stage 1 [N=156] n	Stage 2 Persisters [N=28] n	Non-Persisters [N=10] n	All [N=38] n
319.	Please help poor students			1	1
320.	Please provide learning counselling			1	1
321.	Reason for establishing a library			1	1
322.	Reasons for helping the poor			1	1
323.	Scoring in UT is hard			1	1
324.	The benefit of analysing study behaviors and grade point avarage			1	1
325.	There were exams that were not on Sunday			1	1
326.	Please explain new terms			1	1

Appendix H.1
Valcke et al. (1993) Embedded Support Devices

Starting conditions

Indiciations about required prior knowledge
Indications about study skills required
References about required prior knowledge
Starting level tests
Prior knowledge state tests

Learning objectives

Course Introduction
Course Introduction

Learning content

Structure pages
Content pages
Repeat-units
Registers and indexes
Advance organisers
Schemes
Course additions
Content extensions
References to other learning units
Text structure (paragraphing)
Summaries
Text documentation
Examples
Formal style/Ou-style (margin text, fonts, etc)
Writing style

Learning activities

Indications about study load
Indications about support provisions
Indications about the expected study approach
Questions, task about the study approach
Pre-questions
Questions
Tasks
Feedback

Media

Use of additional media, media-mix
Support to the use of media

Evaluation

Mastery requirements
Information about test formats
Tests (formative, summative)
Examples of (correct) answers

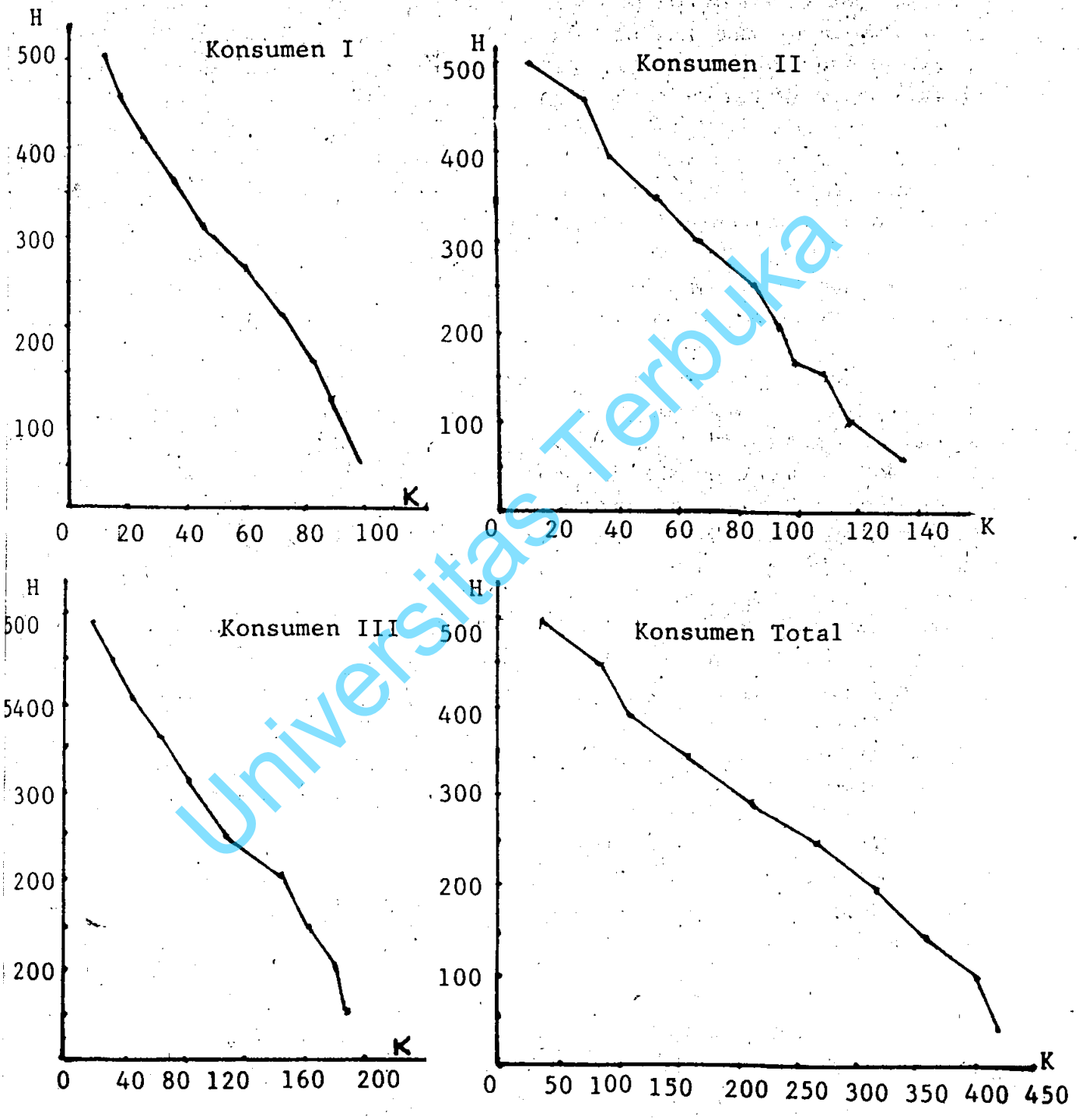
Appendix H.2
The use of ESD in the study by Valcke et al. (1993)

	1	2	3
ESD	% use by students	% surface use by students	% deep-level use
Study guideline	100		
Example	100	28	96
Scheme(1)	96	25	88
Questions (2)	96	6	96
Introduction	92	48	91
Margin text	92	4	96
Reference to other learning units	88	6	92
Scheme (2)	88	11	83
Title	84	22	83
Task	84	28	77
Example of correct answer (feedback)	84	12	79
Summary	84	16	80
Learning objective	80	24	65
Text paragraph	80	0	96
Pre-question	80	16	81
Question (1)	80	19	90
Font types (italics)	80	10	76
Advance organizer	80	65	70
Additional remark	76	41	67
Indication aout prior knowledge	68	37	56
Small printed text	64	47	65
Content page	60	25	54
Facultative activity	28	24	30

Gambar kurve permintaan pasar dan permintaan masing-masing konsumen dapat dilihat pada gambar berikut.

Diagram 1.4

Kurve Permintaan beras masing-masing peminta (individual) dan Kurve permintaan beras di pasar (total)



Appendix J.1

Rationales for the completion of the program of 71 low achievers

304: Score: 35.00 Grade: 0 GPA: 0.75
It is important for me to finish the program because all facilities are available in good condition, e.g., modules, audio cassettes, broadcast in TV, radio, and newspaper and lecturers are helpful when students have problems in completing registration forms.
Even though I registered at UT in terms 93.1, I felt already that it is good to study at UT and I hope I can finish.

302: Score: 0.00 Grade: 0 GPA: 0.00
1. To continue pursuing the postponed dream.
2. To advance career since the subject that I take is needed by my office.
3. To increase my knowledge on economy.

214: Score: 31.67 Grade: 0 GPA: 0.58
Since the program that I take is related very much to my job. Later it will advance my career, and I can develop what I learned from this study in my daily work at the office.

246: Score: 38.33 Grade: 1 GPA: 0.83
After I master the lessons from UT, especially if I can obtain a degree from UT, I want to apply for the sake of the progress of my village especially to participate in the development that rapidly progress. Without wide knowledge I will be left behind and can do nothing. beside that there is an idea, if it is possible, I want to participate in promoting UT in the areas of Temanggung and its surroundings, in a way as directed by UT. For that, I expect UT's help so that a retired man like me receive special attention during graduation.
May all experiences I have becomes basis for determining my success in my study at UT to obtain a degree from UT.

293: Score: 28.33 Grade: 0 GPA: 0.19

300: Score: 35.00 Grade: 1 GPA: 0.42
In undergoing my study, I will know the lacks that I do not have so far. And also to widen vision and way of viewing things in improving work creativity, quality and efficiency.

298: Score: 0.00 Grade: 0 GPA: 1.11
I think the program that I take is very important to my career advancement.

301: Score: 40.00 Grade: 1 GPA: 1.08
For me, it is very important to finish this study program since I want to increase my knowledge so that with knowledge as an asset, will widen my way of viewing things to follow and adapt the growth and changes that are happening in times to come.

263: Score: 40.00 Grade: 1 GPA: 1.00
Finishing study right on time is something that is very important since it means that we helped the government in its effort to the nation smart and beneficial for me personally to contribute thinking for the country and nation.

11: Score: 30.00 Grade: 1 GPA: 0.92
To increase knowledge. I also have a strong will to finish this study program since I expect I will obtain a degree. With that degree I hope I will be more responsible and be able to serve the state, the nation, and religion.

13: Score: 40.00 Grade: 1 GPA: 1.00
Finishing this program is important for me. Since by finishing it, I would have finished a higher education so that I would have broadened my thinking framework especially in the economic field. Of course it is not economic science only, but also sciences that I have learned before. By the broadening my thinking framework, I expect I will receive a higher income.

89: Score: 30.00 Grade: 0 GPA: 0.58
Since we, as students and as an employees of a company, must have a target to determine everything. For example, to complete a study program that we chose, Economic and Development Study, we have a target to complete the study program at least within six years. That target is that we have to reach with a note: that we have to work harder and consult students or tutors who are senior so that we can achieve the target and the scores are satisfactorily.

28: Score: 0.00 Grade: 0 GPA: 0.00

It is simple and ordinary. I am personally not a stupid nor a smart person.

91: Score: 0.00 Grade: 0 GPA: 0.00
1. My rational in this case is that I sometimes put more weight on the family. Study can happen when family condition well (the health and wealth). I have married.
2. I learning I believe in "lifelong education".

274: Score: 26.67 Grade: 0 GPA: 0.58
Since by the present ways of learning I will know more what and the correct usage economic terms and I know ways to apply them in society at once.

280: Score: 0.00 Grade: 0 GPA: 0.00
- Considering the age factor that has reached 37 and activities of several needs that are ever increasing, from now on, I have to race with time.
- The study program can be finished soon if we ragarded that as an important thing.

227: Score: 0.00 Grade: 0 GPA: 0.00
Education/certificate that I have (SMTA - High School) does not help to solve career problem.

291: Score: 20.00 Grade: 0 GPA: 0.17
As a government employee, UT programs help me to do my daily jobs and to broaden my horizon. It will also help to increase my income to support my family.

228: Score: 0.00 Grade: 0 GPA: 0.00
Since education and acquisition of knowledge are important for my career progress.

223: Score: 30.00 Grade: 0 GPA: 0.27
Very important since we, living men, are obliged to search for knowledge from birth to death.

31: Score: 40.00 Grade: 1 GPA: 0.92
Due to the increasingly tight job competition, I think I need to broaden my horizon as a capital for seeking a better job.

265: Score: 38.33 Grade: 1 GPA: 0.75
In education it suggested for lifelong learning. It is especially true for me since I am a teacher.

154: Score: 40.00 Grade: 1 GPA: 1.33
Finishing this study program is very important for me since finishing it means it will broadened my vision for my long term plan. Moreover, seeking for knowledge is something that I have to do.

244: Score: 26.67 Grade: 0 GPA: 1.56
I hope when I have obtained my degree and the knowledge from UT I will change my job. I felt depressed as a teacher for the following reasons:
a. The salary is far below compared to salary in private companies.
b. Boring working environment.
c. Unchallenging and static life.
d. There is no appreciation for those whore are talented and potential.

216: Score: 26.67 Grade: 1 GPA: 1.50
By finishing the study program faster means it will soon support my career.

134: Score: 0.00 Grade: 0 GPA: 0.00
The development of human resources is needed very much in the long term development. Beside that, intellectual enrichment is urgent, either through formal or informal education. I am willing to finish this program completely.

97: Score: 33.33 Grade: 1 GPA: 1.08
Since if I can finish the study quickly, I am still young and I can devote my knowledge that I learned to my society. It also will support my job that I long for.

95: Score: 38.33 Grade: 1 GPA: 0.83
I want to continue my higher education, but it is financially impossible for me to go to conventional universities. Therefore I hope I can continue my education or acquire knowledge at UT which was established by the government.

217: Score: 30.00 Grade: 0 GPA: 0.50
Very important to build career.

72: Score: 38.33 Grade: 1 GPA: 0.71
I wish to study in a conventional university. But this is impossible, so I take this program. I assume this program is the same with the one in conventional universities but with a different teaching-learning method (self-study and tutorial).

245: Score: 0.00 Grade: 0 GPA: 0.00
Because by obtaining a degree in Economic, my career at work will be considered by the management.

261: Score: 0.00 Grade: 0 GPA: 0.00
This is my wish to finish this study even though I am fully busy.

271: Score: 33.33 Grade: 1 GPA: 0.83

8: Score: 20.00 Grade: 0 GPA: 0.17
Since I think I know a little bit more knowledge at (graduated from STM Pertanian, " Agricultural Technical School" - Hardhono) after I was accepted at Experimental Garden for Food Plantation.

I cannot process the data and I cannot make scientific writing of research data since that is available for those who have S1 - Sarjana degree only. By the establishment of UT, my thinking broadened. I hope I can reach what I dream of.

270: Score: 0.00 Grade: 0 GPA: 0.00
1. Most of members of my family graduated from elementary school only I have an intentions to do something more.
2. By means of "degree", I will have a better chance than if I have only high-school certificate.
3. It has always been my intention to graduate from higher education.

208: Score: 25.00 Grade: 0 GPA: 0.33
To widen my vision and expertise with a hope that I can improve my future level of living.

133: Score: 33.33 Grade: 1 GPA: 0.77
According to my opinion, the study program that I chose is very useful for me myself, especially it increase my vision of knowledge. Secondly, the knowledge that I learned can be applied in the development of the nation and state that is approaching the take-off program (PJPT II, the second long term development). From the above explanation, we need to know that the role of economy is PJPT II is needed very much.

231: Score: 40.00 Grade: 1 GPA: 1.42
* For me, finishing this study program means that I have succeeded in the first step.

* For the next step, I will develop what I have learned for the need of my nation and country (through the company that I work now).

* The opportunity is not closed for me personally whether the company would respond or follow up to the my degree.

* But the important thing after I finish this S1-program is I will pursue for the S2-program (Master level - Hardhono).

80: Score: 31.67 Grade: 0 GPA: 0.50
When I graduated from senior high school I liked to continue my study in higher education. Unfortunately, my parent could not afford the cost for that study. Since that I looked for a job. After I found a job I still have an intention to continue my education. The only place that makes me possible to study, work and to take care my family is UT. I hope that I will achieve my wish to be a "sarjana" (Bachelor Degree).

215: Score: 28.33 Grade: 0 GPA: 0.33
It is very important since:
1. To support my career at work.
2. Broaden knowledge horizon that matches with my profession as a government employee (Department of Cooperative)
3. To support my better future (become administrators).

14: Score: 35.00 Grade: 1 GPA: 0.92
There were people who asked me "You have a job, why do you go to university?". have many answers to that questions. I,

who have a chance to study, hope I can give input to the development of the discipline and apply it in my thinking for both family and society.

307: Score: 31.67 Grade: 1 GPA: 1.00
It is very important for me to finish this program since attending education at UT opens a way of thinking with national scope.

The government of Indonesia emphasized the importance of the quality of human resources in the second stage of long term development plan. It requires us to study from UT.

200: Score: 38.33 Grade: 1 GPA: 1.22
1. I have registered at UT so I have to graduate
2. I have registered at UT so I have to finish the program as soon as I can even though with limited time and fund.
3. When I finish, I might find a better job.

262: Score: 36.67 Grade: 1 GPA: 0.67
1. Personal participation in order to raise the quality of human resources.
2. The limited knowledge in solving problems in daily work.
3. To widen insight/vision.

16: Score: 26.67 Grade: 0 GPA: 0.33
It can be said that it is not very important by it is important. What matter is I want to catch up with the lessons that left behind after I close for years since I graduated from high school. And if I reach this, it will support what I long for which is my future career and I can materialize in finding a job.

309: Score: 37.78 Grade: 0 GPA: 0.22
Finishing this study program is important since by finishing it, I can understand, monitor and approach economic problems. It is also for acquiring the general knowledge and obtaining the framework of thinking in economic and others related fields.

19: Score: 31.67 Grade: 1 GPA: 0.83
Very important since it is an indicator of my ability and the time that has to be caught up according to SKS (Sistim Kredit Semester - Semester Credit Unit - Hardhono). Well, the sooner the better since it affects time and money to support. So we are serious in finishing the program except when there is "halangan" that is very important.

185: Score: 35.00 Grade: 1 GPA: 0.58
Finishing this study program is important since it is an absolute requirement that must be met.

106: Score: 31.67 Grade: 1 GPA: 0.83
Why do I say it is very important? Since, the more we know science the wider the way we think. It is so in the study program. the faster we finish the study program, the faster we advance the left behind career with adequate Index Performance.

51: Score: 28.33 Grade: 0 GPA: 1.17
My educational background does not quite match with the study that I am pursuing this time. When I attended military education, I got several courses on economy. Beside that, the development of science requires people who at least master one knowledge discipline. Therefore, it is very important for me to finish this study program, since learning without professors helps us to be discipline and raises our ability.

96: Score: 33.33 Grade: 1 GPA: 1.00
I think it is important since beside increasing knowledge and vision, it will change our future also to a better one.

167: Score: 36.67 Grade: 1 GPA: 1.25
Finishing a study program is very important. Based on that, finishing a study gets a higher priority that other things. When I finish this study program I have successfully finished study. But I will try to meet the target faster so that it will not take long but the Index of Performance is the main priority.

122: Score: 36.67 Grade: 1 GPA: 1.27
It is indeed very difficult to complete this study program on time. Moreover, I am an employee whose activities are not only limited at work, but also in

neighborhood and other activities that take time. By doing like that, however, I learn how to arrange time so that I will finish my study at the time as I planned. So, it is very important to finish this study program especially I want to go further to take the S2 program.

132: Score: 40.00 Grade: 1 GPA: 0.67
To step forward in thinking framework for the future since high school graduates and those who have degrees think in different pattern.
To supplement in the coming globalization era where the present generation have to have degrees since the tight competition.
As a support for career promotion in a government or private institution.

165: Score: 35.00 Grade: 1 GPA: 0.92
Since the important of knowledge at a degree level in achieving a better career so the availability of distance education program opens the opportunity for us/me and considering my age and opportunity that is still long I will not abandon it. One and other of my interpretation maybe wrong that in the Year 2000 society will tend to orient to degrees.

117: Score: 38.33 Grade: 1 GPA: 1.00
- It match my major in high school.
- It is supportive to my job.

168: Score: 28.33 Grade: 0 GPA: 0.33
Finishing this program is important so that I can go to the graduation ceremony. Beside that, I like to obtain a degree in economic.

219: Score: 35.00 Grade: 1 GPA: 1.17
Basically, everybody who takes a program wants to finish it as soon as possible. For me, the sooner the better. Since the time to finish is not long, I can enjoy soon the benefit of what I have learned during taking the courses. I will get income by using what I have learned as well.

196: Score: 21.67 Grade: 0 GPA: 0.58
It is very important for me to finish this program. It has benefits for my future. I like to change my fortune. I like to progress to obtain knowledge that I do not have when I starts taking this program. I will study hard individually to achieve my wish.

34: Score: 0.00 Grade: 0 GPA: 0.00
I have a wish to study until higher education (Sarjana). This has been since when I was small, now and tomorrow. I will not stop pursuing it until I achieve it. "Ternyata", in accordance with the nowadays development, with only a high school certificate, people will be treated as how they should be treated as people who have a high school certificate.

163: Score: 28.33 Grade: 1 GPA: 0.83
In the globalization era we have to be potential human resources. The development in every field is growing day by day and if we are not seriously catching up with the development in every field, we will be left behind. Finishing this program is important to me so that my future and the future of my nation will not be left behind by other nations.

125: Score: 0.00 Grade: 0 GPA: 0.00
1. I think it is important to finish the study since it will support the throughput of my work with the knowledge that I learned. It is also useful for my career advancement.
2. Considering the speed of growth of the present time, I realize that a high school certificate is not an adequate asset.

158: Score: 40.00 Grade: 1 GPA: 0.83
I think that the level of importance to finish the study program is important or important enough but not very important. It means that all wishes and hopes that we are pursuing must be based on some factors that are related. For example thinking ability, family environment, and responsibilities besides taking the study program since I am married and I have a job, with a note: finding ways so that all can work well even though we do not get the result on time.

111: Score: 40.00 Grade: 1 GPA: 0.83
Finishing this study program means my ambition to advance and change status/condition is open.

229: Score: 30.00 Grade: 1 GPA: 1.17
Very important to finish a study program in the globalization era. If education and knowledge are left behind so everything else will be left behind. For me education and knowledge seeking is endless. Because of that I continue my study program. At UT there is a way to widen vision of knowledge and education and gives freedom to its students in independent study and thinking.

99: Score: 30.00 Grade: 0 GPA: 0.69
It is related to time. I am still young. My future is still long. So, I need knowledge and experience that are applicable in society.

218: Score: 35.00 Grade: 1 GPA: 1.42
It is very important for me to finish this study program, especially in this age when every thing is heading to industrialization. So, finishing his study program quickly will be very supportive to my career that I am working on.

23: Score: 31.82 Grade: 0 GPA: 1.22
To materialize my original wish to be an economist.

157: Score: 38.33 Grade: 1 GPA: 1.00
Finishing a study program is important since it is the beginning and the end of students responsibilities even though the challenge is heavy and needs sacrefices that is not small, especially it is true for me.
Finishing the study program is my main asset to more self confident in facing the next stage.

183: Score: 36.67 Grade: 1 GPA: 0.75
Finishing this program is important for me so that I can have firm knowledge and experience.
It is a pride for me if I can finish my study at UT and achieving the degree through self-study and broaden my thinking framework. It support my career advancement in the future so that I can serve my nation.

21: Score: 38.33 Grade: 2 GPA: 1.39
I take this program to increase my knowledge. Beside that it is important to me because I want to understand thoroughly the program that I take.

126: Score: 28.33 Grade: 1 GPA: 1.00
1. It is very important to finish study program on time and we can follow the technological progress of our country's development.
2. I want to increase knowledge and experience soon as well as better income.

256: Score: 0.00 Grade: 0 GPA: 0.00
The first thing is that my wish to obtain a degree in economy.
The second thing is as a result of my success in study, my position at work will have a big chance to improve.

192: Score: 25.00 Grade: 0 GPA: 0.33
Very important for me to finish my study program on time and devote it to my country, nation, and state, the Republic of Indonesia.

156: Score: 31.67 Grade: 1 GPA: 0.83
Since by finishing this study program I will obtain a degree. This degree will enables to find a job as newsman in a more bonefide newspaper. This time I work at "Pelita" daily news. It was since 1974. I have tried several times to move to other more established newspaper companies, but I failed since they required a full degree or at least a bachelor degree.

257: Score: 0.00 Grade: 0 GPA: 0.00
Finishing this program is important for me since after I finish that program it would help me to advance my career when my job match with the program that I took.

194: Score: 40.00 Grade: 1 GPA: 0.75
It is very important since if I succeed

in this program it certainly will be beneficial for me myself and it will be even better if I can serve the state and the nation by using what I have learned.

226: Score: 36.67 Grade: 1 GPA: 1.08
My rationale for finishing this study program is to raise my thinking vision and knowledge to be implemented in society and also to increase skills in order to give contribution to the state and nation that are developing. This is a potential asset for the development sometime later if God wants - Amen.

123: Score: 0.00 Grade: 0 GPA: 0.00
For me, education is number one since I have a wish to be the number one. Therefore, any study program that can help me to reach what I wish is very important.

206: Score: 35.00 Grade: 1 GPA: 1.00
By attending UT, I hope I can increase my knowledge and broaden my horizon. I hope I can complete the program which is important for my career.

136: Score: 35.00 Grade: 1 GPA: 1.29
I like to know the Indonesian economic system, growth economic or equally-distributing economic. I like to know the policy as well as how this system will face the global market system.

40: Score: 38.33 Grade: 1 GPA: 1.25
In this 20th century we have to be a potential human resources. If we are not serious in every matter, we will be left behind by other nations. How can a nation makes a progress if its people do not make their own progress.

212: Score: 33.33 Grade: 0 GPA: 0.40
After finishing this program I could plan the next program.

44: Score: 40.00 Grade: 1 GPA: 0.83
1. Men without degrees are not established yet.
2. Knowledge is important for everyone.
3. A degree is important for career advancement in Indonesia.
4. Broaden the thinking framework to act and take position.

49: Score: 40.00 Grade: 1 GPA: 0.75
Indeed I have a guideline that I have to finish the study program that I am pursuing. Who knows that by having knowledge that I am seeking right now I can make contribution for the state and the society some day later.

37: Score: 40.00 Grade: 1 GPA: 1.17
Since: finishing study is important and this is a invaluable happiness and we can show that while work we can study. And we can see the realities and be able to apply discipline in time and money. Indeed, it is very difficult to be discipline if we are not consequent. But if we are consequent, we will feel the benefits of it.

202: Score: 35.00 Grade: 1 GPA: 0.58
It is important for me to finish this program. But finishing a program depends on the students. Beside understanding the economic, finishing the program means
obtaining the degree as well so that we can help the economic of my developing country. Elders are impossible to lead and to develop the knowledge forever. The young generation needs to replace the older generation in leading and developing the economic of the country in order to reach the just and prosper society.

178: Score: 35.00 Grade: 1 GPA: 1.17
Beside my intention to obtain a degree, I like to develop the knowledge, e.g economic. I like also to serve the state and the nation with the knowledge that I learned.

250: Score: 40.00 Grade: 1 GPA: 0.58
Finishing my program study is a means for my career advancement in the future.

Appendix J.2
Frequencies of motivation of 71 low achievers

	Code	Freq.	Meaning
1	KNOW-ACQ	48	To acquire knowledge
2	CAREER-A	34	Career advancement
3	DGRE-PUR	33	To purse a degree
4	VISN-BRD	28	To broaden vision
5	SUPPRT-J	15	To support current job
6	KNOW-IMP	14	To implement knowledge
7	DVT-STAT	10	To devote to state
8	K-UP-PRG	10	To keep up with the progress
9	JOB-SEAR	9	To look for a job
0	FTR-PRPR	6	Preparation for the future
11	BE-QLFD-	5	Be qualified Human Resouce
12	FTR-BTRM	5	Future betterment
13	XPRN-ACQ	5	To obtain experience
14	ACADEMIC	4	Academic
15	IMP-NO-E	4	Important but no explanation
16	KNOW-DVL	4	To develop knowledge
17	KNOW-S-A	4	Knowledge is an asset
18	NO-WST-T	4	No waste of time
19	OPP-OPEN	4	To oppen opprtunity
20	STUDY-WO	4	Study and work
21	UT-ONLY-	4	Ut is only alternative
22	VALUE-AD	4	To take the value added
23	INCOME-B	4	To improve income
24	ABL-IMPV	3	Improve ability
25	CMPTTNS-	3	To increase competitiveness
26	DGRE-REQ	3	A degree is reqired
27	DVT-SOCI	3	To devote to society
28	FINANCL-	3	Financial difficulty
29	GIVE-EGS	3	To give an example
30	IDCT-ABL	3	Indicator of ability
31	JOB-CHAN	3	To change job
32	LIFE-BTR	3	Life betterment
33	MANY-RSP	3	Many responsibilities
34	MILESTON	3	As a milestone
35	MT-ERA-D	3	To meet the demand
36	SLF-CFD-	3	To increase self confidence
37	TO-B-HQ-	3	To be a high qualified human resource
38	DVT-STT-	3	To devote to state
39	AC-PLANN	2	Achieve what is planned
40	AST-R-LI	2	Asset for living
41	HSC-NOT-	2	High school certificate is not good enough

Appendix J.2
Frequencies of motivation of 71 low achievers

	Code	Freq.	Meaning
42	IDCT-SUC	2	Indicator of success
43	PLAN-TO-	2	To continue to master program
44	PSN-DVLP	2	Personal development
45	PTCP-IN-	2	To participate in development
46	SKIL-IMP	2	To improve skill
47	STM-SLF-	2	To stimulate self discipline
48	TO-B-ECN	2	To be an economist
49	BLV-L-L-	2	Believe in Life Long Learning
50	ABSLT-RE	1	Degree is absolute required
51	ANLTC-SK	1	Analytic skill
52	AST-F-RT	1	Asset for retirement
53	BNFT-CMP	1	To tke benefit from completion
54	CHANCE-I	1	To improve chance
55	CJOB-DIS	1	Dissatisfied by current job
56	CONV-YOU	1	To convince youth
57	DIF-TO-S	1	Difficult to study
58	ECO-IS-P	1	Economy id power
59	ED-IS-NM	1	Education is number one
60	FM-IS-NO	1	Family is number one
61	FM-WRK-S	1	Family, work, study
62	GLBL-MAR	1	Global market
63	HAPPINES	1	To seek for happines
64	HR-REGEN	1	Human resource regenaration
65	IDEA-DVL	1	To develop idea
66	IDEA-RLZ	1	To materialize idea
67	IND-PLC-	1	To place Indonesia in global market
68	INDP-STU	1	Independent student
69	INDP-THG	1	Independent thought
70	INT-SATI	1	Internal satisfaction
71	IRRELEVA	1	Irrelevant
72	KNOW-ID-	1	To know Indonesian Economy
73	KNOW-SHA	1	To share knowledge
74	LIFE-CHN	1	To improve life chance
75	LOW-EPCT	1	Low expectation
76	LOW-INT-	1	Low Interest
77	MAKE-A-D	1	To make a different
78	MT-HR-NE	1	To meet human resource needs
79	MTVT-PR-	1	Motivated by parent
80	NT-VRY-I	1	Not very important
81	PERFECTN	1	Perfectionist
82	PMT-SLF-	1	To promore self study

Appendix J.2
Frequencies of motivation of 71 low achievers (continued)

	Code	Freq.	Meaning
83	PRFSNLM-	1	To increase professionalism
84	PROFS-CH	1	To change profession
85	PROGRM-E	1	Program is equal to other program
86	PROMOTE-	1	To promore UT
87	PSN-INTR	1	Personal interest
88	PSN-SATI	1	Personal satisfaction
89	PSTN-SEA	1	To seek for a position
90	R&W-SKIL	1	To obtain reading and writing skills
91	REASONS-	1	Reasons for dissatisfaction with current job
92	REMDY-LA	1	To remedy weakness
93	RJTED-OP	1	To take
94	RQRD-4-P	1	Required for
95	SELF-PRO	1	Self promotion
96	SMART-NA	1	To make the nation smart
97	SPRE-TM-	1	To use spare time
98	STD-FM	1	Study and family
99	STDNT-SE	1	Emphasis on student
100	STDT-RSP	1	Student responsibility
101	THKG-AB-	1	To increase thingking ability
102	TO-B-BNS	1	To be a businesman
103	TREATD-B	1	To be treated better
104	UMTCHD-B	1	Unmatched background
105	UNCERTAI	1	Uncertainty of ability to finish
106	UNCLEAR	1	Unclear response
107	WAY-F-TH	1	To improve way of thinking
108	WK-IS-NM	1	Work is number one
109	WK-ST-NB	1	Work, study and neighborhood
110	XPTS-LEA	1	To be an expert

Appendix J.3

Coded rationales for the completion of the program of 71 low achievers

8:KNOW-ACQUI
R&W-SKILLS
OPP-OPENED
DGRE-PURST
VISN-BRDEN

11:KNOW-ACQUI
DGRE-PURST
PSN-DEV
DVT-STT-RL

13:KNOW-ACQUI
INCOME-RSD

14:KNOW-ACQUI
KNOW-DVLPM
KNOW-IMPLM

16:JOB-SEARCH
CAREER-ADV

19:IDCT-ABLTY
NO-WST-T-M

21:KNOW-ACQUI

23:TO-B-ECNMS

31:VISN-BRDEN
CMPTTNS-IC
JOB-SEARCH

37:HAPPINESS
IDCT-ABLTY
ANLTC-SKIL
KNOW-IMPLM

40:BE-QLFD-HR

44:DGRE-PURST
KNOW-ACQUI
CAREER-ADV
VISN-BRDEN

49:DVT-STATE

51:BE-QLFD-HR
STM-SLF-DS
ABIL-RAISD

72:UT-ONLY-AL
PROGRM-EQL

80:UT-ONLY-AL
WRK-STD-FM
DGRE-PURST

89:ACH-?-PLND

95:UT-ONLY-AL
FINANCL-RS

96:KNOW-ACQUI
VISN-BRDEN
FTR-BTRMNT

97:DVT-SOCITY
SUPPRT-JOB

99:FTR-PRPRTN
KNOW-ACQUI
XPRN-ACQUI
KNOW-IMPLM
DVT-SOCITY

106:VISN-BRDEN
CAREER-ADV

111:OPP-OPENED
FTR-BTRMNT

117:BG-MATCH
SUPPRT-JOB

122:PLAN-TO-S2
WK-ST-NBH+
DIF-TO-STD

126:K-UP-PRGRS
KNOW-ACQUI
XPRN-ACQUI
INCOME-BTR

132:WAY-F-THKG
DGRE-PURST
CMPTTNS-IC
CAREER-ADV

133:VISN-BRDEN
KNOW-IMPLM
DVT-STATE

136:KNOW-ID-EC
IND-PLC-EC
GLBL-MARKT

154:VISN-BRDEN
KNOW-ACQUI

156:DGRE-PURST
JOB-SEARCH
JOB-CHANGE
DGRE-REQRD

157:STDT-RSPBL
AST-R-LIFE
SLF-CFD-IC

158:NT-VRY-IMP
FM-WRK-STD

163:BE-QLFD-HR
K-UP-PRGRS
FTR-PREPTN

165:KNOW-ACQUI
CAREER-ADD
OPP-OPENED
DGRE-PURST

167:IMP-NO-EXP

168:DGRE-PURST

178:DGRE-PURST
DVT-STATE
KNOW-DVLPM

183:KNOW-ACQUI
XPRN-ACQUI
DGRE-PURST
VISN-BRDEN
CAREER-ADV
DVT-STATE

185:ABSLT-REQD

192:DVT-STATE

194:PSN-DVLPMN
DVT-STATE

196:FTR-PRPTN
FTN-CHANGE
KNOW-ACQUI

200:NO-WST-T-M
JOB-SEARCH

202:STDNT-SELF
KNOW-ACQUI
DGRE-PURST
DVT-STATE
HR-REGENRT

206:KNOW-ACQUI
VISN-BRDEN
CAREER-ADV

208:VISN-BRDEN
XPRTS-RAIS
LIFE-BTRMN

212:ACADEMIC

214:SUPPRT-JOB
CAREER-ADV
KNOW-IMPLM

215:CAREER-ADV
KNOW-ACQUI
SUPPRT-JOB
JOB-CHANGE
FTR-PRPTN

216:CAREER-ADV

217:CAREER-ADV

218:MT-HR-NEED
CAREER-ADV

219:BNFT-CMPLT
INCOME-BTR

223:KNOW-ACQUI

226:VISN-BRDEN
KNOW-IMPLM
SKIL-IMPVM
DVT-STATE

229:K-UP-PRGRS
KNOW-ACQUI
MT-ERA-DMN
VISN-BRDEN
INDP-STUDY
INDP-THGHT

231:MILESTONE
KNOW-DVLPM
KNOM-OMPLM
CAREER-ADV
DGRE-PURST
PLAN-TO-S2

244:DGRE-PURST
KNOW-ACQUI
JOB-CHANGE
CJOB-DISTF
REASONS-DS

246:KNOW-ACQUI
DGRE-PURST
KNOW-IMPLM
DVT-SOCITY
PTCP-IN-DV
K-UP-PRGRS
PROMOTE-UT
PSN-INTRST

250:CAREER-ADV

262:TO-B-HQ-HR
KNOW-ACQUI
SUPPRT-JOB
VISN-BRDEN

263:SMART-NATN

265:BELIEVE-LL

274:KNOW-ACQUI

291:SUPPRT-JOB
VISN-BRDEN
INCOME-BTR

300:REMDY-LACK
VISN-BRDEN
SUPPRT-JOB

301:KNOW-ACQUI
KNOW-S-AST
VISN-BRDEN
K-UP-PRGRS

304:IMP-NO-EXP

307:VISN-BRDEN
TO-B-HQ-HR

309:VISN-BRDEN

Appendix J.4
Categorizarion of low achievers based on study motivation

Group1 Pure Instrinsic	Group 2 Mixed-Intrinsic-Extrinsic	Group 3 Pure Extrinsic	Group 4 1-2-3-state-devotion
14, 21, 154, 223 229, 274, 309 265	8, 13, 31, 44, 51 96, 106, 126, 165 196, 307, 229 206, 208, 215, 231, 244 262, 291, 300, 301	16, 40, 80, 111, 212 132, 156, 163, 37,89 185, 200, 214, 19 216, 217, 218, 23 219, 250, 136, 72 117, 157, 168,212	11,133, 226, 99,183 246, 49, 97,122, 178 192, 194, 226, 263
8 students	21 students	26 students	14 students

Outsiders 95 and 304

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