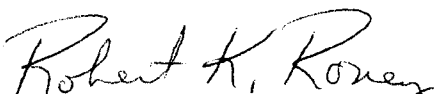


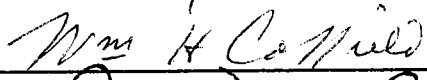
To the Graduate Council:

I am submitting herewith a dissertation written by Elisabeth Welter Craig entitled "An Examination of the Graduation Rates of Adult Students Compared to Traditional-age Students in Tennessee Universities." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements of Doctor of Education, with a major in Educational Administration and Supervision.


Robert K. Roney, Major Professor

We have read this dissertation
and recommend its acceptance:






Accepted for the Council:


Vice Provost
and Dean of The Graduate School

AN EXAMINATION OF GRADUATION RATES OF ADULT
STUDENTS COMPARED TO TRADITIONAL-AGE STUDENTS
IN TENNESSEE UNIVERSITIES

A Dissertation
Presented for the
Doctor of Education
Degree
The University of Tennessee, Knoxville

Elisabeth Welter Craig

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ABSTRACT

A pilot study conducted by this author in 1986 indicated that the adult graduation rate at The University of Tennessee at Chattanooga (UTC) was 15.8%, substantially below the 39.1% rate for traditional-age students. The purpose of this dissertation was to investigate the findings of the pilot study further through the means of a cross-sectional, a longitudinal and an autopsy study.

The longitudinal study examined the transcripts of 106 adults and 333 randomly selected students all of whom entered the University of Tennessee as first-time freshmen in 1977-79. The subjects were the same as those examined in the pilot study. Results showed that adults had lower GPAs, a higher attrition rate, and fewer transfers to other institutions than traditional-age students, but proportionally accounted for a higher number of honors.

The cross-sectional study examined the records of the 27,057 freshmen students who entered comparable public institutions in Tennessee in the same years (1977-79). This study found that adults had an overall graduation rate of 9.4% compared to a rate of 38.9% for traditional-age students. Despite the same proportionally low graduation rate across the state, the one at The University of Tennessee at Chattanooga was found to be significantly different from the other six institutions. At 14.3% the UTC rate was the second highest in the seven public institutions examined.

The autopsy study examined the ratings of barriers to graduation as perceived by adults who graduated compared to those who did not. The subjects were the same adults studied in the longitudinal study.

The barriers were divided into three types: dispositional, institutional and situational. The first and third types of barriers related to the individual, while the second was associated with the university. The survey determined that both graduates and non-graduates indicated that situational barriers, as a category, were the strongest barriers to persistence and to eventual graduation. No statistical tests were performed due to the small number of adult subjects who could be located.

It was found that the first two semesters were the critical ones for adult students, and often determined whether or not the student would persist to graduation. This suggested that universities should provide support services for adults at all times, but particularly in the initial semesters. Another recommendation was that The University of Tennessee at Chattanooga should repeat the longitudinal and cross-sectional studies in 1989, using data from the freshmen classes of 1982-84.

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CHAPTER 1

INTRODUCTION

Ask the average person whether adult students will be more successful in college than their younger counterparts and the probable answer will be "yes." Is this answer true? Do adult students in fact graduate at a rate equal to or greater than the traditional-age college student? A search of the literature regarding adult performance leads to mixed opinions, although the majority of studies appear to conclude that performance of adult students is at least equal to the traditional-age students. If this consensus is correct, then it should have been reflected by a pilot study involving students at The University of Tennessee at Chattanooga (UTC).

Statement of the Problem

In March 1986, data on freshman entry and degrees awarded were obtained from the Tennessee Higher Education Commission (THEC). These data were used in a July 1986 pilot study conducted by this author (Craig, 1986). The study was designed to examine the performance and graduation rate between a group of adult students and a similar group composed of traditional-age college students. Both groups were of equal size, and both contained students identified as first-time freshmen at The University of Tennessee at Chattanooga. The pilot study determined that there was a significant relationship between whether a student received a baccalaureate degree and whether that student was an adult student. In fact, adult students had

approximately half the graduation rate of traditional students. A detailed report on the results of this pilot study is included in Chapter 2. Because of its findings, this initial probe provided a rationale for a dissertation study to examine further the difference in graduation rates and to determine how universal it is at other comparable institutions in the State of Tennessee.

Purpose of the Study

Some studies have examined adult performance on a short-range premise, such as in a single course, and other studies have tried to isolate variables which predict undergraduate performance. Still other studies have focused on student retention, performance, or the needs of adult students. However, few have examined and compared graduation rates or long-term performance of adult students. Thus, the dissertation study examined an area of higher education which, while not neglected, shows a scarcity of data.

The purpose of the dissertation study was not to develop criteria for predicting which adult students would graduate. Instead, the past records of these students were examined to determine if there was a common factor or pattern discernible in those who eventually graduate. Past, not future, performance and comparative graduation rates was the focus.

Definition of Terms

Adult student. For the purpose of this study, this term refers to any student who was 25 years of age, or older, when he/she registered as a first-time freshman in a baccalaureate degree

program. This age is the one used at UTC to define an adult student for the purposes of reporting and analysing data.

Traditional-age student. This term refers to any student who entered college at age 24 or younger.

Comparable institutions in the State of Tennessee. This term refers to four-year, public universities with an undergraduate enrollment of greater than 5,000 but less than 10,500 students. A list of Tennessee institutions which match these criteria is provided in Table 1.1.

Archive tape records. This phrase refers to computerized records which have been copied to a magnetic tape from a mainframe computer, such as the Hewlett-Packard 3000, Series 58. These archive tapes are stored in vaults or other security areas so that records can be retrieved. An example of this type of record would be the Academic Inventory maintained by the Tennessee Higher Education Commission (THEC).

Research Questions

The hypothesis tested in the pilot study was that adult students at The University of Tennessee at Chattanooga had a performance record and a graduation rate equivalent to traditional-age students. The results of the pilot study caused the rejection of this null hypothesis. Since there was a significant difference between the graduation rates of adult as opposed to traditional-age students, this dissertation study focused on questions raised by the rejection of the pilot study's null hypothesis:

Table 1.1. Comparable Public Institutions in the State of
Tennessee.

Name of Institution	Undergraduate Headcount Enrollment (1978-79)
Austin Peay State University	5,161
East Tennessee State University	9,947
Middle Tennessee State University	10,327
Tennessee State University	5,305
Tennessee Technological University	7,256
University of Tennessee/Chattanooga	7,104
University of Tennessee/Martin	5,090

From: Postma, P.D. (Ed.). (1980). Tennessee Statistical Abstract
(5th ed.). Knoxville: Center for Business and Economic Research,
College of Business Administration, The University of Tennessee, p.
596.

1. Did adult students at The University of Tennessee at Chattanooga have a higher GPA and a higher retention rate than traditional-age students? Also, did other variables, obtained from UTC transcripts and described in Chapter 3, show a difference, depending on whether or not the student was an adult?

2. Was there a significant relationship between whether or not the adult graduated from The University of Tennessee at Chattanooga and the number of years between leaving school and entering UTC?

3. How did the graduation rate for adult students in comparable public institutions in the State of Tennessee compare to the rate at The University of Tennessee at Chattanooga?

4. Were there differences between the pilot study (UTC only) and the dissertation study (comparable institutions) with regard to the other variables examined in the pilot study, described in Chapter 2.

5. Were the barriers to retention, which adult graduates at The University of Tennessee at Chattanooga identified, different depending on whether these students received, or did not receive, a baccalaureate degree?

Delimitations

1. The population was restricted to first-time freshmen entering public institutions of higher education in the State of Tennessee from 1977-79.

2. The dissertation was limited to those institutions in the State of Tennessee which were comparable in size to The University of Tennessee at Chattanooga.

3. Only undergraduate students were selected; special, contract, and graduate students were not included.

4. Because many graduates had moved or had changed names, only those adults who could be located were included in the autopsy survey (all the adult students, however, were included in the cross-sectional and longitudinal studies, described in Chapter 4.)

Assumptions

1. The data obtained from Tennessee Higher Education Commission (THEC) were valid, and all first-time freshmen students who entered the target institutions in the fall of 1977, 1978 or 1979 were included.

2. All students who graduated with a baccalaureate degree were included in the Academic Inventory (archive tape file of graduates) received from the State of Tennessee.

Importance of the Study

Why is it important to expand the pilot study? The reasons relate to lifelong education, declining student enrollment, the uniqueness of the phenomena, and to problems associated with attrition and retention.

a) Lifelong Education. One of the most important roles of the university has been to graduate an educated electorate from which many of the nation's and state's leaders will emerge. As part of this process, it is important for citizens to understand the value of an education and to realize that education is a lifetime process which can be obtained regardless of age. Many adults fear

returning to a classroom. In order to encourage these students, institutions of higher education need to identify barriers which inhibit continuing education activities.

There is another important reason for an emphasis on continuing education. As the nation continues the transition from a manufacturing to an information processing environment, there will be an increased demand for employee retraining and for the updating of technological skills. In the future, expertise learned by young adults will be insufficient for a working life span of 30 or 40 years.' As a result, there will be an increased demand for continuing education; universities most assuredly will want to avail themselves of this opportunity to serve the community.

b) Uniqueness of Results. If the dissertation study indicated that the lower graduation rates of adult students was unique to UTC, this information would be valuable to university administrators. Information obtained through interviews with graduates and non-graduates could provide insights into barriers which affected adult student retention. On the other hand, if the dissertation study showed that the trend was apparent in other Tennessee institutions, then additional research in the area would be warranted.

The pilot study required a high degree of computer expertise to manipulate the over 60,000 total records involved. Other researchers may not have had access to such information or the capability to manipulate the data. Since most studies of adults

are either short-range or involve relatively small samples, it is possible that the lower graduation rate has not been noticed before.

c) Problem of Declining Birth Rates. Because of the declining birthrate, there are fewer students in the 18-24 year range. Butler (1983, p.27) notes that membership in the 18-24 year age group peaked in the early 1980s, but by 1985 membership in this age range declined by 5.5% and continues to drop. To maintain attendance figures in a healthy growth pattern, universities must find additional students. While some colleges have recruited from abroad, it is more typical for universities to attract adult students. For example, a potential source is older, female workers. Many of them currently hold clerical or lower echelon management jobs, and many view a degree as a way to move up the professional ladder.

d) Problem of Funding. Public pressure for university accountability, coupled with the diminishing flow of state and federal support, makes it imperative for higher education to find new funding sources. By attracting and keeping adult students, the institutions of higher education are solving the practical problem of survival, while at the same time serving a legitimate societal need. Thus, the problem of adult performance and retention is a timely one; it is less expensive for a university to retain a student than it is to recruit one.

Butler (1983, p.29) states that although it is difficult to obtain an accurate figure, American industry appears to have

committed from \$6 billion to \$30 billion per year to educational programs for employees. These dollars could be a major source of funding for ailing institutions. However, to attract these resources educational institutions need to provide services to improve deficient adult college skills, while ensuring that college courses have an occupational orientation and are based on flexible schedules. If institutions of higher education do not provide such services, business may look to other organizations.

e) Problem of Retention and Attrition. Since those students who did not graduate had either dropped out, had transferred, or were still taking courses, it is important to explore not only graduation rates but also the associated issues of college attrition and retention. If a student does not graduate, at what point in his/her college career is the dropout most likely to occur? A concurrent issue is to identify what aspects of college life present barriers to retention and what special services adults require to decrease their attrition rates.

Universities have not only an economic interest in determining why adult students do not complete their studies but also they have a need to identify barriers and/or the special needs of adults. Remedial action to remove barriers and to provide opportunities might be considered a university priority.

Procedures

In order to answer the research questions, three distinct areas were investigated. These areas are described in detail in Chapter 4 on Methodology, but a brief summary is appropriate at this point.

First, records were obtained from THEC for all first-time freshmen in selected public institutions in the State of Tennessee for the years 1977-79. Records relating to freshmen who entered the institutions listed in Table 1.1 were separated from the others. These selected records were matched against the Academic Inventory file containing information on all students who obtained an undergraduate degree in public institutions in the State of Tennessee from 1981 to 1987. (Tapes containing records for 1981 to 1985 were used in the pilot study, while additional tapes for the period 1985 to 1987 were obtained for the dissertation study.) Those records that matched were stored and later computer analyzed to determine whether the results replicated those of the pilot study. A chi-square analysis also was conducted; the results were compared to the findings of the pilot study.

Second, the UTC transcripts of the 442 students in the pilot study were obtained. Information from the transcripts, such as GPAs, number of semesters attended, total credit hours earned, and the reason for leaving UTC were collected and analyzed.

Third, a list of supposed barriers to graduation was constructed, partly based on material from other studies and partly from input from current adult students at The University of Tennessee at Chattanooga. Adult students, still in the Chattanooga area, who

appeared on the file of students in the pilot study were contacted to determine their perceptions of how each barrier influenced their success, or lack of it, in graduating from UTC.

This three process methodology allowed both the graduation rate and the possible barriers for the low performance of adults to be analyzed. The study also gave insights into other factors, such as age at entry and credit hours taken, which affected adult attrition.

Organization of the Dissertation Study

The remainder of the study is reported in the following chapter format:

Chapter 2 - Pilot Study

Chapter 3 - Review of Related Literature

Chapter 4 - Methodology

Chapter 5 - Data Analysis and Interpretation of
Longitudinal Study

Chapter 6 - Data Analysis and Interpretation of
Cross-sectional Study

Chapter 7 - Evaluation of Autopsy Study

Chapter 8 - Findings, Conclusions and Recommendations

CHAPTER 2

THE PILOT STUDY

Introduction

In early 1986, Dr. Dan Quarles, Director of the University of Tennessee, Knoxville/ University of Tennessee At Chattanooga Graduate Center, obtained computerized records of students who received undergraduate degrees in public institutions in the State of Tennessee from 1981 to 1985. This information was obtained from a file of archive tape records, known as the Academic Inventory, submitted by public institutions of higher education to the Tennessee Higher Education Commission (THEC). These records were compared against records kept on first-time freshmen at The University of Tennessee at Chattanooga (UTC) to determine how many first-time freshmen eventually graduated. Since the data were available, it was decided to isolate the adult students to see how many there were and how many graduated. In the years 1977-79, UTC reported 107 adult first-time freshmen. When it was determined that of the 107 adult students, only 17 (15.8%) graduated from UTC compared to 131 (39.1%) from the traditional-age students, this fact raised questions which became the basis of a pilot study conducted in the summer of 1986 (Craig, 1986).

Hypothesis

The null hypothesis of the pilot study was that when the records of adult students at UTC were examined, their graduation rate would

be as good as, or better than, a group of randomly selected traditional-age students.

Delimitations

1. The pilot study was limited to students attending only one institution, UTC, which is a public, urban university with a primarily commuter population.

2. The population was restricted to first-time freshman who entered UTC in the fall semesters of 1977 through 1979. Those freshmen who entered in other semesters in that time frame were not included.

3. Only undergraduate students were selected; special, contract, and graduate students were not included.

Limitations

1. The adult students were not randomly selected; all of these students were included in the study.

2. The traditional-age students were randomly selected using a BASIC program as a random number generator.

Assumptions

The assumptions described in Chapter I also applied to the pilot study. They were:

1. The data obtained from Tennessee Higher Education Commission (THEC) were valid, and all first-time freshmen students who entered UTC in fall 1977, 1978 or 1979 were included.

2. All students who graduated with a baccalaureate degree were included in the Academic Inventory (archive tape file of graduates) received from the State of Tennessee.

Methodology

As part of the study, each of the 442 students was matched against the THEC Academic Inventory file of Tennessee graduates, described in the previous section, to determine whether or not he/she graduated. In addition, computerized UTC archive tape records were examined to determine how many of these students continued taking classes in years subsequent to their freshman year.

To assist in the data collection and sorting process, several COBOL programs were written. One of these programs accessed a file containing all students reported to THEC in the fall semesters of 1977, 1978, and 1979. Only those students identified as first-time freshmen were selected; their records were matched against the Academic Inventory which contained 45,724 records of students who had graduated between 1981 and 1985 with baccalaureate degrees in the State of Tennessee. If a first-time student was found to have graduated, his/her record was written to a special file; a data record containing information on that student was created for verification purposes.

In the years 1977-79 there were 2,660 first-time freshmen who entered UTC: 824 in 1977, 863 in 1978, and 973 in 1979. Computer programs verified that of the total number of students 107 of them were adults: 32 each in 1977 and 1979 and 43 in 1978. After the adult students had been subtracted from the total number of freshmen,

there were 792 traditional-age students in 1977, 820 in 1978, and 941 in 1979.

For comparison purposes, a group of 335 traditional-age students was randomly selected from three files, one for each of the years 1977, 1978, 1979 (records of adult students were excluded from these files.) To maintain the same proportions, 100 traditional-age students were selected from 1977 and from 1979, while 135 were obtained from 1978. The selection process was accomplished through the use of a specially written BASIC program which allowed the user to enter the number of random students required and the upper limit of the range (792, 820 and 941 respectively). For each year, the program produced the required amount of random numbers within the specified range. Since the file containing the traditional-age students was numbered, it was easy to delete from the file all students except those matching the randomly selected numbers. After a new file had been created in this manner for each of the three years, these three files were joined to produce a main file containing the 335 randomly selected, traditional-age students.

Finally, the records of both groups were melded into a file containing the records of the 442 students. This file, which was processed to produce the statistical data discussed later, contained information on sex, race, age, and term of enrollment. A variable was added to indicate whether the student was in the adult or in the traditional-age range. For those students who graduated, information pertaining to the date the degree was received, the degree granting

institution, the type of degree, and the number of years for degree completion was added.

Data Analysis and Interpretation

Of the 442 students in the pilot study, 238 (53.8 percent) were female and 204 (46.2 percent) were male. The range of birth years was from 1927 to 1961. There were 360 (81.4 percent) white students, 73 (16.5 percent) black students and 8 of either American Indian or Hispanic descent; the race of one student was unknown.

The first-time freshmen numbered 132 each in 1977 and 1979 (29.9 percent) while there were 178 (40.3 percent) in 1979. Of the 442, only 148 (33.5 percent) received undergraduate degrees from UTC. Only 17 (11.5%) of the 148 UTC undergraduate degrees were awarded to adult students, while 131 (88.5%) were received by the traditional-age students. However, an additional seven students, all in the traditional-age group, were awarded undergraduate degrees from other public institutions in the State of Tennessee. Thus, a total of 155 of the selected 442 freshmen received a baccalaureate degree.

Of those 155 who graduated, 76 completed the degree requirements in 4 years, 47 took 5 years, 25 needed 6 years and 7 students took 8 years or longer. With regard to the type of degree, 22 (14.2 percent) received a B.A., 110 (70.9 percent) obtained a B.S., and the remaining 23 (14.8 percent) received other types of degrees such as B.F.A. and B.S.N.

The 335 traditional-age students included 256 who were aged 18 at the time they became first-time freshmen, 47 who were 19 years old, and 23 who fell into the 20 through 24 age bracket. Nine

students were aged 16 or 17 at the time they entered UTC. Among the 107 adult students, 72 (67.3 percent) were 25 to 34 at the time of admission, 29 (27.1 percent) were in the 35 to 44 range, and 6 (5.6 percent) were in the 45 to 55 age bracket.

Of the adult students, 86 (80.4 percent) were female and 21 (19.6 percent) were male, while among those of traditional-age, 183 (54.6 percent) were male and 152 (45.4 percent) were female. Of the total group of women, 156 did not graduate, but 82 did; while among the men 73 were successful in graduating, but 131 were not.

Table 2.1 shows the crosstabulation of type of student by number of years between entry as a freshman and graduation. The number of years between freshman entry and graduation is comparable since 110 of 155 (71.0%) of traditional students graduated within 5 years which closely matches the 13 out of 17 (76.5%) attained by the adult students. The result of crosstabulating the sex of the student against years needed to graduate is shown in Table 2.2.

Table 2.3 shows the results of crosstabulating the type of student against the type of degree received. Only one of the adult students received a B.A. degree, but the information regarding choice of a major was not among the variables available. Thus, it was not possible to tell from the pilot study whether the type of degree was a variable that should be examined or whether the low rate of B.A. degrees was by chance. An inspection of individual transcripts might indicate whether there was a relationship between type of student and major/degree obtained. Table 2.4 shows the results of

Table 2.1. Type of UTC Student by Number of Years Between Entry and Graduation, 1977-85.

Years from Entry to Graduation	Total Students	Type of Student	
		Adult	Traditional-age
4	76	7 (41.2%)	69 (50.0%)
5	47	6 (35.3%)	41 (29.7%)
6	25	3 (17.6%)	22 (15.9%)
7	0	0	0
8	5	0	5 (3.6%)
9	2	1 (5.9%)	1 (0.7%)
Total	155	17	138

Table 2.2. Sex of UTC Students by Number of Years Between Entry and Graduation, 1977-85.

Years from Entry to Graduation	Total Students	Sex of Student	
		Female	Male
4	76	48 (58.5%)	28 (38.4%)
5	47	22 (26.8%)	25 (34.2%)
6	25	9 (11.0%)	16 (21.9%)
7	0	0	0
8	5	3 (3.7%)	2 (2.7%)
9	2	0	2 (2.7%)
Total	155	82	73

Table 2.3. Type of UTC Freshman Student By Type of Degree Received, 1979-85.

Type of Student	Type of degree		
	B.A.	B.S.	Other
Adult	1 (5.9%)	13 (76.5%)	3 (17.6%)
Traditional	21 (15.2%)	97 (70.3%)	20 (14.5%)
Total	22	110	23

Table 2.4. Sex of UTC Freshman Student By Type of Degree Received, 1979-85.

Sex of Student	Type of degree		
	B.A.	B.S.	Other
Female	13 (15.9%)	57 (69.5%)	12 (14.6%)
Male	9 (12.3%)	53 (72.6%)	11 (15.1%)
Total	22	110	23

crosstabulating the sex of the student against the type of degree received.

Evaluation of Chi-square Tests

Table 2.5 shows the levels of significance of the chi-square tests which resulted from comparing the type of student with three variables (type of degree, number of years from freshman entry to graduation, and persistence to graduation.) Of the three chi-square analyses, the only one significant at the .05 level was the comparison between whether the student graduated and the type of student.

The fact that type of student and persistence to graduation was significantly different indicates that the two groups did not have comparable performance rates for graduation. Table 2.6 shows that the graduation rate for adults was less than half that of the other students.

Evaluation of Retention and Attrition

Finally, to obtain some information about the dropout rate, all records for each student in the sample were examined to determine whether that student registered in fall semesters subsequent to the one in which he/she was classified as a first-time freshman. This information is summarized in Table 2.7.

Table 2.7 shows that 46.9% of the adults who were first-time freshmen in fall 1977 were not recorded in subsequent years compared to a rate of 27% for the younger students. Of the 1977 freshmen, only 9 (28%) of the adults were still registered in the fall '79

Table 2.5. Comparison of Levels of Significance of Chi-Square Tests for Selected Variables for UTC Freshman Students, 1977-79.

	Adult v. Traditional-age Students	
	Probability Level	Chi-square Value
Degree Type	.8052	0.28
Number of Years From Entry to Graduation	.7894	0.47
Persistence to Graduation	.0000	21.70*

* Significant at .05 level

Table 2.6. Type of Student Versus Graduation from UTC,
1977-85.

	Did not Graduate	Graduated
Traditional	204 (60.9%)	131 (39.1%)
Adult	90 (84.2%)	17 (15.8%)
Total	294	148

Table 2.7. Comparison of Retention Rates Between UTC
Adult and Traditional-age Students, 1977-79.

Semesters of Registration	Type of Student	
	Adult	Traditional
First-time freshmen in 1977:		
Registered in 1977 only	15 (46.9)	27 (27.0%)
Registered 1977, 1979	1 (3.2%)	0
Registered 1977, 1978	7 (21.9%)	15 (15.0%)
Registered 1977, 1978, 1979	9 (28.0%)	58 (58.0%)
Subtotal	32 (100%)	100 (100%)

First-time freshman in 1978:		
Registered in 1978 only	27 (62.8%)	50 (37.0%)
Registered in 1978, 1979	16 (37.2%)	85 (63.0%)
Subtotal	43 (100%)	135 (100%)

First-time freshmen in 1979:		
Registered in 1979	32 (100%)	100 (100%)

Total (1977-79)	107	335

compared to 42 (58%) of the younger group. While Table 2.5 indicates that there was a higher attrition rate for adult students, the information available in the pilot study was limited. However, an in-depth examination of transcripts possibly could have provided additional information on whether GPA and credit hours were related to the higher attrition rate.

Summary

The results of comparing the traditional-age against adult students caused the rejection of the null hypothesis of the pilot study because there was a significant difference between the two groups. Since the results of this pilot study were quite different from those anticipated by the search of literature, additional research and an expanded study were required. Moreover, within the limitations of the pilot study, it was impossible to discern whether the adult performance was unique to UTC or whether it had been experienced at other public institutions across the state. The pilot study raised more questions than it answered and it indicated the need for extended research. For purely practical reasons, the high attrition rate and concomitant loss of student fees suggested that doing further research on this problem was of compelling interest not only to this researcher but also to the members of the UTC administration and to others concerned with higher education.

CHAPTER 3

A REVIEW OF RELATED LITERATURE

A review of literature indicates that there have been many studies which have explored adult performance and retention. The range of contributing variables is wide and often varies considerably from one study to another. Moreover, there appears to be no accurate consensus of opinion. The literature can be divided into five content areas: general characteristics associated with adult students, performance in higher education, attrition and retention, barriers to graduation and special needs of adult students which must be satisfied to encourage retention.

General Characteristics

Solomon and Gordon (1981, pp. 62-63) suggested that the aspirations for obtaining an undergraduate degree were lower for adult students, though those attending four year colleges showed a higher rate than those at two year institutions. Most adult students were engaged in undergraduate work, and those going on a part-time basis were more likely to be at the undergraduate level. The most probable majors selected by adults were Business (24%) and Health Professions (22%) by a wide margin, while Education and Engineering (at 6% each) were at the lower end of the scale (p. 70).

The estimates of the number of adults actively engaged in higher education varied depending upon the source. For example, Smart and Pascarella (1987) quoted the National Center for Education Statistics as the source to contend that the number of adult students (i.e.

those over 25) was 11% greater in 1982 than it was in 1970 (p. 306). On the other hand, Steltenpohl and Shipton (1986) set adult enrollments as being 2,400,000 in 1970, then rising to 4,800,000 in 1982 (p. 637), certainly a much greater increase than 11%.

Castro and Galvin (1983) determined that of the approximately 2.5 million students in the United States, one third were classified as adult (p. 52). According to Brazziel (1987), the number of adults taking courses in higher education will approximate 4.3 million in 1988 decreasing to 4.0 million in 1998. In his projections adults who attended U.S. universities on temporary visas were excluded, but, if added, would increase each of his totals by 400,000 (p.224).

Brazziel (1987) defined age 25 and over as the criteria for defining adult students and noted that this was used nationally by the National Center for Education Statistics (p. 224). The same age definition was used by Weil (1986). This dissertation, therefore, used age 25 as the criterion for distinguishing between the two groups.

Sewall (1984, p. 313) noted that his review of studies indicated that the majority of adult students was in the 25 to 34 range. Cross (1981, p. 55) found that adult participants in education were more likely to be in the under 34 age bracket rather than in other age groups. Fisher (1986) added the information that the National Center for Education Statistics in 1978 reported that only four percent of adults who were over 55 were engaged in educational activities (p. 202).

Other dispositional factors were for the adult to have four or more years of college, to be employed and to have an income (in 1978) of \$25,000 or over. Those individuals who had incomes of less than \$5,000 per year, who were black, or who had less than four years of high school were least likely to be adult students. Richter-Antion (1986) provided a similiar profile of the typical adult student: evenly split between the sexes, usually under age 35, more likely to be white and more likely to be single than married. Moreover, adults received 26.6% of baccalaureate degrees in the 1979-80 academic year (Brazziel, 1987, p. 230).

Kuh and Ardaiole (1979) noted that although 35% of the students in the geographical area they studied were adults, only one percent qualified as freshmen at a residential campus and only 10% at a commuter campus. This indicated several possible explanations: either many of the adults were attending on a part-time basis, had enrolled previously and were returning, or were taking non-credit courses (p. 217).

Past studies showed that there were as many adult men as women attending institutions of higher education (Sewall, 1984, p. 309). However, this has changed with time; by 1983 women formed the majority of adult students. Interestingly, some studies found that married adult women students did better than their unmarried counterparts, probably because husbands who often were college graduates themselves tended to be supportive (Thieman & Marsh-Williams, 1984, p. 263).

In the area of personal attributes, Knowles (1969, p. 29) noted that adult students, in general, had a more mature self-concept, possessed more experience, tended to apply immediately what was learned, and related new knowledge to roles in which they functioned. On the other hand, Weil (1986) described two problems with which adult students must cope. First, their actual experience at a university was often at variance with their expectations. Second, such students often disagreed with the interpretations dispensed by their instructors (p. 232).

The growth of adult student enrollment has resulted in a special branch of learning called andragogy which studies the adult learning process as opposed to that of a child (Houle, 1973, p. 242). Such a word clarifies the distinction which is necessary to reflect the differences in needs between the two types of students. For example, younger students tend to process newly acquired knowledge as it pertains to their role in society; adult students, on the other hand, use education as a means to adapt themselves to social and technological changes (Hesburgh, Miller, and Wharton, 1978, p. 54). p. 54).

Performance in Higher Education

The commonly held perception is that adult students bring a level of dedication and maturity to learning that enables them to compete successfully with younger students. Individuals who enjoyed school as children and who completed high school or college tend to retain the desire for more education. For example, Cross (1981, p. 55) maintained that "learning is addictive"; thus, college graduates

were twice as likely to be enrolled in adult education compared to high school graduates. Furthermore, Seltzer (1976, p. 4) referred to 10 studies done between 1962 and 1975 which found that older students did at least as well, and better in some instances, as their more traditional counterparts.

In 1965, D.P. Hoyt, as reported by Cohen (1984, p.282), reported that his (Hoyt's) overview of 46 studies indicated that there was little relationship between GPAs and adult attainments. However, Cohen (1984, p. 282) pointed out that Hoyt's work was over 20 years old and that it was disputed by other authors. To resolve this dilemma, Cohen synthesized data from 108 studies and concluded that "we can be relatively certain that grade average relates positively to criteria of adult achievement and success" (p. 288).

Von der Embse and Child (1979, pp. 476-7) found that older students were more likely to have a higher GPA range (i.e. GPA greater than 3.39) than did younger students. These authors found that 23.4% of adult students were in this range, compared to 15.5% of younger students. In discussing the effect of performance on persistence to graduation, Baker and Siryk (1984, p. 463) noted that freshmen students with high GPAs tended to stay and achieve greater honors. Moreover, DeBoer (1985, p. 237), in a study of 216 college students of all ages, found that the grade given by the instructor in a course was the most reliable predictor for performance in other years. On the other hand, Seltzer (1976, p. 4) quoted several studies which indicated that neither GPA nor ACT were good predictors of adult college performance.

Some studies postulated that a problem with adult students was that their test scores, school records and skills often were highly dated and were not creditable in determining college ability (Thieman and Marsh-Williams, 1984, p. 260). Related to this, Apps (1981, p. 206) cited several reasons why adult students were not as good as their younger colleagues at taking examinations. First, since adults stressed accuracy at the expense of speed, they might not have enough time to complete exams. Second, their reaction time was slower which lowered their response time to questions; this factor would be critical on timed test. Third, adult students read more into questions because of their lifelong experience. An additional factor was that adult students had less control over their academic timetables because of family and job responsibilities.

Although studies done in the 1930s indicated that educational performance was greatest at age 22 and thereafter declined, more recent studies have shown this to be pessimistic (Knowles, 1973, p. 152). One longitudinal study cited by this author described data collected over a 43 year period. The subjects were tested as freshmen, at age 50, and at age 60. At age 50 the subjects' performance was slightly better than at the freshmen level, while between 50 and 61 the only decline seemed to be in numerical ability.

Cookson (1986) expounded that if adult education participation (AEP) was high while the student was in his/her 30s, that individual's participation often continued for another three decades (p. 132). This comment is another indication that intellectual ability and growth is not restricted to a particular age group.

Attrition and Retention

Should society be concerned about dropouts? According to Fischer (1987, p. 42), future dropouts account for one-fifth of the present college attendance. Assuming a college expenditure of \$11,000 per average FTE and a nine million enrollment, then the cost is \$20 billion (\$11,000 times 1.8 million).

Fischer also noted that 50% of students did not persist to graduation and except during war time, "attrition rates have been stable for at least a century" (p. 43). Substantiating this idea, Tinto (1982, p. 698) stated that the dropout rate in higher education had not changed substantially over the past 100 years but had remained at approximately 45%. Specifically, he noted that not only was the dropout rate highest in the first year of study, but that the reasons given for these early dropouts might differ substantially from those made at a later time (p. 693).

The attrition rate among students of all ages who were undeclared majors was about 43% over a six year span (Titley & Titley, 1985, p. 465). Another study, examining only freshmen, determined that the mean cumulative percentage of freshman attrition for the first eight semesters for 28 colleges was 8.6%, 22.0%, 28.5%, 33.2%, 43.1%, 44.5%, 48.0% and 50.0% respectively (Cope and Hannah, 1975, p. 4). Pascarella and Terenzini (1980, p. 62) found that the voluntary dropout rate in the freshman year was 11 to 12%. With regard to attrition, it was found that the attrition rate for freshmen and sophomores was about 40% with the highest rate occurring

during the first six weeks of the semester (Blanc, DeBuhr, and Martin, 1983, p. 81).

Noel, Levitz, and Saluri (1985, p. 144) divided adult students into three types of individuals: the degree seeker, the problem solver, and the cultural enrichment seekers. These authors stated that a university should decide which of these groups it wanted to attract, recognizing that the latter two groups had a higher rate of attrition (one-third to one-half). The authors identified (p. 146) subgroups of variables related to persistence, namely: sociological influences, psychological factors, type of program, faculty behavior, level of communication, and situational variables.

Taking a different perspective, Thomas and Andes (1987, p. 333) divided freshmen into four categories: persisters (those who graduate), stopouts (those who withdraw but later return), dropouts (those who withdraw never to return), and leavers (those who leave without a formal withdrawal). These authors indicated that persisters had statistically higher GPAs than those in the other three groups (even when all students with a zero GPA were excluded). In addition, when only those students who had a GPA of 2.0 or better were examined, these authors found "the average GPA for persisters was statistically higher than the average GPA of leavers" (p. 335). Also, they noted that more males than females attended on a non-continuous basis. There were more female than male dropouts, yet among leavers the opposite was true as there were more males than females (p. 338).

Noel et al. (1985) added other information such as the statement that students with low ability and high anxiety had a lower persistence level, while those adults who did well in class, who communicated well, or who were enrolled in programs with strong administrative support services including tailor-made offerings tended to persist. This finding confirmed a study done by Morrissey (1971, p. 283) which indicated that for all types of students there was a relationship between the grade point average from the first semester and the subsequent attrition rate. For example, those with higher GPAs tended to persist.

Aitken (1982, p. 39) developed a model which used four variables to determine whether a student would continue his/her education at a specific college. These variables were: (1) retention beyond the first year, (2) academic satisfaction, (3) living satisfaction, and (4) academic performance. The study, which examined first-year students, found that a college's ability to retain students was related to programs which enabled students to integrate both social and academic experiences. Peer interaction appeared to play an essential role.

More recently, studies have concentrated on isolating single factors important to retention. For example, a study by Ayers and Bennett (1983, p. 530) suggested that findings resulting from a study made at four campuses indicated that the quality of the faculty was the institutional characteristic most important for student achievement. Good student-faculty relationships was a strong retention factor. DeBoer (1985, p. 235) found that students who felt

that they had ability and had worked hard continued their studies, while those who felt incompetent dropped out.

Kalna (1986, p. 274) collected data on freshmen in a three-year longitudinal study; one item of interest was that students who had trouble coping with the college bureaucracy were more likely to drop out. Pascarella (1986, p. 106) also found that factors such as faculty advising, the provision for supportive peer groups, and academic programs all influenced student retention. In a study conducted in community and junior colleges, Graham (1987) reported that students who transferred from other institutions were more likely to be placed on academic probation than those who remained at the same university or college. This would suggest that those who transfer have a higher likelihood of not graduating.

Students who did not persist to graduation were those who were less involved with institutional activities or who received less family support, according to Billson and Terry (1987). Those who left either did not understand the relationship between education and future careers, or, in many cases, lacked the skills to survive upper level courses (p. 298). Thus, to retain students universities need to project both awareness of individual needs and high academic standards.

Getzlaf, Sedlacek, Kearney, and Blackwell (1984, p. 267) contended that while no single factor accounted for college dropouts, factors such as low academic performance, lowered social and academic integration into the university environment, and less commitment to long-range goals appeared to contribute to attrition.

Barriers to Graduation

Adult learners usually cited cost, time involved, home or job responsibilities, and long-term commitments as barriers to completing a degree (Richter & Witten, 1984, p. 465). When anticipated barriers and those actually experienced were compared, lack of time and the cost were the highest rated barriers, while red tape and low grades were seen as the least severe barriers (p. 466). Fisher (1986) found that though other factors, such as satisfaction with life and the desire to learn were important, the variable most likely to discourage adult education was lack of knowledge about which local institutions provided such facilities (p. 204).

In a 1981 study cited by Noel et al. (1985, p. 148) three types of adult barriers were determined: situational (relating to adult responsibilities or existing situations); institutional (associated with university administration), and dispositional (based on life experience or on the student's self-perception). Cross (1981, p. 54) also delineated these three types of barriers and identified subdivisions within them, as shown in Table 3.1. The dispositional and situational types are of an individual nature. While a university could address institutional barriers through remedial action, it is less able to offer assistance in overcoming individual barriers.

Special Needs of Adult Students

Referring to the special needs of adult students, Steltenpohl and Shipton (1986) stated that these students often were uncertain about their academic ability, were unfamiliar with the university

Table 3.1. Perceived Barriers to Learning.

Barriers	Percent of Potential Learners ^a
Situational Barriers:	
Cost, including tuition, books, child care, and so on	53
Not enough time	46
Home responsibilities	32
Job responsibilities	28
No child care	11
No transportation	8
No place to study or practice	7
Friends or family don't like idea	3
Institutional Barriers	
Don't want to go to school full time	35
Amount of time to complete program	21
Courses aren't scheduled when I can attend	16
No information about offerings	16
Strict attendance requirements	
Courses I want don't seem to be available	12
Too much red tape in getting enrolled	10
Don't meet requirements to begin program	6
No way to get credit or a degree	5
Dispositional Barriers	
Afraid that I'm too old to begin	17
Low grades in past, not confident of my ability	12
Not enough energy or stamina	9
Don't enjoy studying	9
Tired of school, tired of classroom	6
Don't know what to learn or what it would lead to	5
Hesitate to seem too ambitious	3

^a Potential learners are those who indicated a desire to learn but who are not currently engaged in organizational instruction.

From: Cross, K.P. (1981). Adults as Learners
San Francisco: Jossey-Bass Publishers, p. 99.

environment and did not possess all the skills required of a successful undergraduate (p. 638). Adults tended to view higher education as an extension of childhood education. As a result, they were unable to understand and to cope with the different climate of a university. Typically, adults felt unskilled in areas such as critical reading, data organization, analysis, and use of library facilities (p. 646). While they could handle concrete thinking, they were at a loss with the abstract analysis required in many college courses. Adults demanded more from their professors and object to time-consuming processes, according to Richter-Antion (1986). Because of their wide age range, adults had more diverse needs and required more extensive physiological support systems than their younger counterparts who basically were all at the same developmental stage (p. 61).

Smart and Pascarella (1987) cautioned that university administrators should be aware that both men and women returned to higher education primarily to obtain additional skills to satisfy career goals (p. 319). Most students who did return exhibited a high degree of commitment to educational attainment and felt that a college degree was a pathway to success.

The desire to enhance a career path through additional education is reflected by other authors. For example, Clayton and Smith (1987) discovered that there were eight types of women who indicated a desire to return to college. They ranged from those who wanted to fulfill a career desire to those who saw education as a means to defining their role in life. The researchers hypothesized that those

involved in vocational aspects ranked as the highest performers, while those fulfilling role models were the lowest (p. 98).

While the reasons for going to college differed between the two types of students, so did other factors. For example, Fredrick, Mishler, and Hogan (1984) referred to three studies which discussed the varying needs of the two age groups. The results of the first indicated that while only 53% of freshmen in the traditional-age level believed they would require help in mathematics, 71% of adult freshmen perceived their need for this type of assistance (1984, p. 327). Supporting the accuracy of this perception, the second study, done at The University of Georgia, revealed that the average score of the mathematics section of the SAT for 1,000 adults was 388, while that of the younger group was 466 (p. 328). The third study, at Wisconsin Green Bay in fall 1980, compared 73 adult freshmen against 738 younger freshmen. The results of a battery of tests between the two groups are shown in Table 3.2. Based on these findings, the authors concluded that, despite the lower mathematics scores of the adults, the difference was not sufficient to cause concern, although the trend suggested that remedial mathematics courses were needed by adult students. Adding support to this conclusion was a study which showed that when remedial classes were offered, of the adult students who persisted, 65% used this opportunity. The researcher concluded that for the older students participation in such classes led to the survival of these students in college (Clarke, 1982, pp. 8-9).

Kuh and Ardaiole (1979) identified major differences between the two types of students which resulted in the need for different

Table 3.2. Scores of Adult Versus Younger Freshmen on Selected Placement Tests.

	Maximum Score	Adults N = 73	Younger N = 738	
Survey of College Achievement Test	397	215	214	
English Subtest	76	39	39	
Maths Subtest	82	41	44	
Social Science & History Subtest	78	43	42	
Humanities Subtest	84	47	44	*
Natural Science Subtest	77	45	45	
Metro. Math. Subtest-Advanced 2	50	35	39	*
Algebra Test	10	1.5	3.7	*
STEP English Expression	65	34	33	

*Significant at $p < .05$

NOTE: Number of students varied slightly from one test to another.

From: Fredrick D., Mishler, C. and Hogan, T. (1984)
College freshmen mathematics abilities: adults versus
younger students. School Science and Mathematics, 84, 330.

services. First, adults had to deal with greater family demands and/or financial restrictions. Second, adults had the reputation of being more motivated. Third, because of family responsibilities, adults spent less time on campus and concomitantly were less involved in extra-curricular activities.

One study indicated that when special support services were offered there was a higher retention rate among those who used these services (Blanc et al., 1983, p. 85). However, Pascarella, Terenzini and Wolfle (1986) found that extensive orientation for freshmen had only an indirect effect, usually associated with social integration and institutional loyalty, on persistence and retention.

Backus (1984, p. 14) focused on the special considerations that adult students needed. She noted that these students felt overwhelmed by the red tape, that they needed reassurance to overcome their fear of academic failure, and wanted a self-directional approach rather than a straight lecture approach. According to her, adult students showed concern about their writing skills and also wanted specific help on how to use the library and do research. Noel et al. elaborated on this and stated adult students had unique needs because they tended to be "problem centered, role bound, 'part-time' and self-directed" (1985, p. 138). Smallwood (1980, p. 72) noted that women adult students had even more specific needs, such as child care centers, counseling services, and scholarships.

Levin (1986, p. 372), describing work done at The University of Georgia, noted that adult students had specific psychological problems such as dealing with the midlife crisis and with mental and

physical aging. In addition, many had to rethink personal expectations against the reality of their lives. However, despite these problems, it was found that adult students were more active on campus and were less likely to be absent from classes than their younger colleagues.

Knowles (1969, pp. 25-6) stated that evening and junior college administrators often held the view that the needs of adult students were similar to those of regular students and that the adults should be satisfied with the programs normally available. A few university administrators, however, have pointed out that traditional curricula lacked imagination when applied to adult students and have advocated that these students' needs be studied in order to develop courses which are meaningful.

Summary

The review of literature indicates that there are varying conceptions, not only about adult students themselves, but also about the factors which affect their retention rates. Barriers of an individual or institutional nature appear to prevent adults from receiving undergraduate degrees. These students are perceived as requiring special services because of the unique psychological factors associated with the aging process. The findings of the researchers indicated that in order to retain adult students, a university must offer support services that normally were not required for younger students.

There appears to be a scarcity of literature relating to long-term performance and graduation rates of adult students. While

the studies cited in this section showed extensive attention to short-range performance over a single school term, there has been comparatively little research into how adults perform over a period of years.

CHAPTER 4

METHODOLOGY

Introduction

Terenzini (1980, pp. 258-260) described the three types of methodology commonly used in studies of large aggregates of students:

- (1) the longitudinal type which examines the same students over a period of time and allows both comparison and the control of data;
- (2) the cross-sectional study which collects data at a single point but allows comparison;
- (3) the autopsy, or post hoc type, which traditionally has a low response rate and is often biased.

Of the three, the first is the strongest from a research point of view. However, Terenzini cautions that any relationships found are not causal but correlational and should be treated as such.

Methodology for Dissertation Study

The dissertation study used all the methods detailed by Terenzini to investigate further and to explore the findings of the pilot study. In other words, there were three distinct processes in the dissertation study: a longitudinal investigation of graduation rates, a cross-sectional examination of transcripts of the pilot study students, and an autopsy investigation of barriers to retention. For all three the Statistical Package for Social Sciences (SPSS-X version) was used on a Hewlett-Packard, Series 44/58 mini-computer to perform the descriptive and statistical analyses. In all cases the .05 level of significance was used.

Longitudinal Study

This phase of the dissertation study examined in-depth the transcripts of the 439 students identified in the pilot study: 106 adults plus 333 traditional-age students. (Although there were 442 students in the pilot study, information on three students was missing, so these subjects were omitted from the dissertation study.)

The sample size for the traditional-age students was set at 333, because this was the recommended number for a population of 2660 subjects at the .05 level of significance (Hauskin, 1963, p. 3). The students were selected randomly from a file that did not contain the adult students. Thus, in the dissertation study the traditional-age sample consisted of a total of 333 students: 100 each from 1977 and 1979 plus 133 from 1978. Of these traditional-age students, 131 or 39% received undergraduate degrees from UTC. By comparison, only 17 (16.0%) of the 106 adult students graduated. This finding regarding adult performance differed from those of other studies. For example, a computer analysis determined that of all the 2660 first-time freshmen at The University of Tennessee at Chattanooga in the years 1977 to 1979, 861 (or 32.4%) received a baccalaureate degree. In addition, a study of first-time freshmen by The Tennessee Higher Education Commission found that approximately 33% of white, first-time freshmen eventually graduated, while 20% of black students received undergraduate degrees (Smith, 1985).

The individual transcripts of these 439 students were examined. As shown by the review of literature, certain variables, such as the GPA and number of credit hours, were determined to be indicators of

persistence to graduation. Thus, the GPA at the end of the first semester, the last semester GPA recorded, the cumulative GPA, and other variables were examined. Unfortunately, the UTC transcripts did not contain data on marital status, income, employment, number of children and other variables indicated by some studies to be statistically significant. Since UTC did not have a "weed-out" course in the freshman year, it was not possible to study this aspect. However, data on GPAs, as well as information on the number of terms the student attended UTC, the reason for leaving, transfer hours, and the credit number of hours attempted per semester, were collected and analyzed. This detailed examination of transcripts comprised a longitudinal study examining the students for the period 1977 to 1987.

Cross-sectional Study

Additional records pertaining to adult freshmen at other Tennessee institutions were obtained from The University of Tennessee System and from THEC. Using the programs designed for the pilot study, this researcher isolated in a file all first-time freshmen from the years 1977-79 who entered any of the institutions named in Table 1.1. This file then was matched against the THEC Academic Inventory file of all baccalaureate graduates in the State of Tennessee; this procedure replicated that of the pilot study. It then was possible to do a statistical analysis to obtain new, state-wide results comparing adults to traditional-age students. Because of the large number of students, it was not possible to replicate the evaluation of retention and attrition which was part of

the pilot study. However, the data from the comparable institutions were used to replicate the frequencies and chi-square analysis performed in the pilot study. The chi-square test was used to determine whether a statistically significant difference was detected between graduation rates of adult and traditional-age students in comparable size institutions in the State of Tennessee.

The Academic Inventory file, containing data on all graduates from 1981 to 1985, which was used in the pilot study was expanded by adding data from academic years 1985 to 1987 as they became available. The 439 students (106 adults, 333 traditional-age) also were matched against this expanded file.

This examination of freshmen students across the state provided a good barometer as to whether the UTC findings were duplicated in other institutions.

Autopsy Study

Since other studies have shown that situational, institutional, and dispositional variables are significant to the process of student retention, an instrument was designed to survey past UTC adult students to determine how importantly they ranked these as barriers. The barriers identified by Cross and other researchers were included in the survey. Although it might have been tempting to use just this list, this decision could have resulted in the ignoring of local, but important, barriers. To overcome this problem, a small group of currently enrolled adult students was enlisted to "brain-storm" and identify barriers encountered at UTC. The list provided by these adults and Cross's list were combined to provide a survey instrument

which included general barriers as well as those peculiar to The University of Tennessee at Chattanooga.

Because of the time which had elapsed since 1977, plus the possibility that students had moved or had changed names, the survey was administered to those adults who could be located. This meant those who participated were volunteers, resulting in a systematic bias. Because of this situation and because of the problem of locating the adults, this part of the dissertation study was conducted for interest only and not to determine any statistical significance. The frequencies were tabulated, but no statistical tests were performed on the responses from the adults.

Those adult subjects who could be identified and could be contacted by telephone or letter were asked to rate each barrier on a Likert-type scale of 10 points. The continuum ranged from whether the respondent considered the specific barrier a strong influence on retention (high rating) to whether it had a negligible impact (low rating). The instrument was constructed to obtain definite information yet at the same time allowed those surveyed to interject insights or comments (See Appendix A.)

Hypotheses

In order to investigate the research questions postulated in Chapter 1, the following hypotheses were tested in the dissertation study. The .05 level of significance was used to test for significant differences between the variables denoted in these hypotheses. The type of statistical test for each hypothesis is shown in parentheses. Hypotheses I and II are discussed in the

longitudinal study (Chapter 5) and Hypotheses III and IV are examined in the cross-sectional study (Chapter 6).

Hypothesis I: There was no significant difference between adults and traditional-age students for the following dependent variables:

- a) GPA at the end of the first semester (t-test);
- b) last recorded semester GPA (t-test);
- c) cumulative GPA (t-test);
- d) reason for leaving UTC, i.e. graduation, dismissal, transfer, (chi-square);
- e) number of semesters that the student attended UTC (t-test);
- f) whether or not semesters were continuous, with the exception of summer, (chi-square);
- g) average credit hour load per semester (t-test);
- h) cumulative credit hours (t-test).

Hypothesis II: There was no relationship between the graduation rate of adult students and the number of years between high school graduation and freshman entry (point-biserial correlation).

Hypothesis III: The graduation rate for adult students at UTC was not significantly different from those encountered at other comparable institutions in the State of Tennessee (chi-square).

Hypothesis IV: The results of the comparison of state-wide data, using variables shown in Table 2.5, were not significantly different from the findings of the pilot study (chi-square).

Summary

A three-phase approach, a parallel to the three types of studies as defined by Terenzini, was undertaken. The detailed examination of

records for the 439 students was a longitudinal study addressing the period 1977 to 1987. The comparison of first-time freshmen across the state fitted the cross-sectional category. The interview survey of former UTC adult students fell into the autopsy category.

The use of three methods to examine the problem allowed both a qualitative and a quantitative aspect. The examination of transcripts and computerized data provided a highly clinical and "frozen" approach in which there was a relatively low risk of bias. On the other hand, the interviews produced a biased, but dynamic and unrestricted, viewpoint. The combination of a clinical and an anthropology perspective produced a study which took into account not only diverse viewpoints but also synthesized information from a variety of sources.

CHAPTER 5

DATA ANALYSIS AND INTERPRETATION OF LONGITUDINAL STUDY

This longitudinal study was an extension of a pilot study, conducted in 1986, which determined that adult students at UTC had a lower graduation rate than their younger colleagues. The variable of primary interest was whether the subject belonged to the adult or traditional-age group. The purpose of the longitudinal study was to determine which variables, described below, were significantly different depending upon whether the student was an adult or not.

There were 442 subjects in the longitudinal study: 107 adults and 335 traditional-age students. The latter were selected randomly from the approximately 2,600 first-time freshmen registered at UTC in the fall semesters of the years 1977 to 1979. Since there were only 107 adults (excluding special or contract students) who were first-time freshmen in these years, they comprised the adult population for this study.

The transcripts of 439 of the 442 students were located, but these records were missing for two traditional-age students and one adult. All three of the missing transcripts belonged to females. Because the three subjects constituted only a very small percentage of the population, it was decided to eliminate them from the data analysis described in this chapter.

The remaining 439 transcripts (106 adults, 333 traditional-age students) were examined and the following variables were recorded:

- a) GPA at the end of the first semester;
- b) GPA at the end of the last recorded semester at UTC;

- c) cumulative GPA;
- d) reason for leaving UTC (graduation, dismissal etc.);
- e) number of semesters the student attended UTC;
- f) whether the semesters were continuous;
- g) credit hours earned;
- h) number of years between leaving high school and entering UTC as a freshman;
- i) number of academic suspensions and/or dismissals accumulated by the student.

Analysis of Transcripts

After the data collection was completed, an analysis was performed on the dependent variables listed above. Descriptive analyses, such as frequencies and crosstabulations, were performed in addition to the prescribed chi-square and t-tests discussed in the previous chapter.

Before discussing the results of the chi-square and t-tests, it is appropriate to discuss information derived from crosstabulating the data. Since the 106 adults accounted for only 24% of the total number of subjects, percentages are provided in addition to numeric values. The use of these proportional figures allows a better comparison between the two groups.

Table 5.1 reports the crosstabulation between the age at which the freshman student entered UTC and whether or not that student eventually graduated. Of the 333 traditional-age students, 202 (60.7%) did not graduate from UTC, while among the 106 adult students (84.0%) did not receive an undergraduate degree from UTC.

Table 5.1. Age of Student at Freshman Entry by Variable
Indicating Whether Student Graduated from UTC.

Age at Freshman Entry	Graduation Variable		
	Did Not Graduate ^a	Graduated from UTC	Total
To age 24	202 (60.7%)	131 (39.3%)	333 (100%)
Age 25 to 34	60 (84.5%)	11 (15.5%)	71 (100%)
Age 35 to 44	23 (79.3%)	6 (20.7%)	29 (100%)
Age 45 plus	6 (100%)	0	6 (100%)
Total	284 (64.7%)	148 (33.7%)	439 (100%)
Total age 25 plus	89 (84.0%)	17 (16.0%)	106 (100%)

^a Includes 7 traditional-age students who graduated from other Tennessee institutions.

Among the 439 subjects there were 148 UTC graduates; of these only 17 (11.5%) were adults while the remaining 131 (88.5%) were from the traditional-age group. Therefore, though the adult population composed of 106 subjects, represented 24.1% of the 439 member entry group it could account for only 11.5% of the graduates. None of the six students over the age of 45 graduated. (Seven traditional-age students who graduated from other Tennessee institutions were included in Table 5.1 in the non-graduating category.)

While Table 5.1 indicated a differing graduating rate based on age at entry, Table 5.2 indicates that the UTC graduation rate was basically the same for both sexes. For example, 33.6% of the women graduated, compared to a 33.8% graduation rate for men.

Although there was no difference between the two groups based on sex, the same cannot be said when the variables relating to the GPA are explored. Table 5.3 shows the disparity between the adult and traditional-age students when the variable in question is the student GPA at the end of the first semester. Thus, 35.8% of the adults had GPA scores of zero compared to only 9.3% of the traditional-age students. However, at the other end of the scale, over 21.7% of the adults had a first semester GPA of 3.5 or better, while only 8.4% of the younger group attained this level.

Baker and Siryk (1984) had noted that there was a relationship between a high GPA and persistence to graduation. Table 5.4 expands information from Table 5.3 by reporting not only the relationship between GPA at the end of the first semester and the type of student, but also whether that student received a degree. The

Table 5.2. Sex of Student by Variable Indicating Whether Student Graduated from UTC.

Sex of Student	Graduated?			Total
	No	Yes From UTC	Yes Other	
Female	153 (65.1%)	79 (33.6%)	3 (1.3%)	235
Male	131 (64.2%)	69 (33.8%)	4 (2.0%)	204
Total	284	148	7	439

Table 5.3. Type of Student by GPA at the End of the First Semester at UTC.

GPA at end of First Semester	Type of Student		
	Adult	Traditional-age	Total
Zero	38 (35.8%)	31 (9.3%)	69
0.001 - 1.999	13 (12.3%)	114 (34.2%)	127
2.000 - 2.499	12 (11.3%)	64 (19.2%)	76
2.500 - 2.999	8 (7.5%)	42 (12.6%)	50
3.000 - 3.499	12 (11.4%)	54 (16.3%)	66
3.500 Plus	23 (21.7%)	28 (8.4%)	51
Total	106 (100%)	333 (100%)	439

Table 5.4. GPA at the End of the First Semester by Type of Student and Whether Student Graduated from UTC or Other Tennessee Institutions.

GPA First Semester	Type of Student	Graduated?		
		No ^a	Yes ^b	Total
Zero	Traditional	30 (96.8%)	1	31
	Adult	38 (100%)	0	38
0.001 to 1.999	Traditional	94 (82.5%)	20 (2)	114
	Adult	12 (92.3%)	1	13
2.000 to 2.499	Traditional	33 (51.6%)	31	64
	Adult	8 (66.7%)	4	12
2.500 to 2.999	Traditional	17 (40.5%)	25 (2)	42
	Adult	6 (75.0%)	2	8
3.000 to 3.499	Traditional	15 (27.8%)	39 (2)	54
	Adult	8 (66.7%)	4	12
3.500 to 4.000	Traditional	6 (21.4%)	22 (1)	28
	Adult	17 (73.9%)	6	23

Traditional-age		195 (58.6%)	138 (7)	333 (75.9%)
Adult		89 (84.0%)	17	106 (24.1%)
Total		284	155	439 (100%)

^a Numbers in parentheses show percentage this column represents of the total for the line.

^b Numbers in parentheses show number of students in this column who graduated from institutions other than UTC.

inter-relationship between the GPA at the end of the first semester and eventual graduation is one of the features reported in this table. It can be seen that only one student who had a zero GPA at the end of the first semester received a degree. Of those who had a GPA of between 0.001 and 1.999 only 21 (or 4.8% of the population) ever graduated, including two students who completed their degree work at other Tennessee institutions. At the same time, it is noteworthy that although 51 students had a first semester GPA of 3.5 or greater, only 28 (or 55%) in this category graduated. Another example of the fact that a high first semester GPA did not connote graduation is that 17 (16.0%) of the 106 adults had a GPA of 3.5 but did not receive degrees. Thus, it would appear that for the UTC students a high GPA at the end of the first semester was a good prognosis for persistence but did not presume graduation.

Table 5.5 examines the crosstabulation of the last recorded GPA at UTC and the type of student. The comparison indicates that over half the adult students received a zero GPA during the last semester they attended UTC, while only a quarter of the traditional-age students could be included in this category. At the high end of the scale, both groups had approximately the same percentage with about 20% classified as attaining a GPA of 3.5 or higher. This is at variance with the finding pertaining to the GPA at the end of the first semester, where the rate for adults was approximately two and a half times that of traditional-age students (see Table 5.3).

Table 5.6 takes the information from Table 5.5 (the type of student, GPA at the end of the last semester) and adds the variable

Table 5.5. Type of Student by GPA at the End of the Student's Last Recorded Semester at UTC.

GPA at end of Last Semester	Type of Student		
	Adult	Traditional-age	Total
Zero	55 (51.8%)	84 (25.2%)	139
0.001 - 1.999	8 (7.5%)	71 (21.5%)	79
2.000 - 2.499	4 (3.8%)	37 (11.1%)	41
2.500 - 2.999	3 (2.9%)	24 (7.2%)	27
3.000 - 3.499	17 (16.0%)	47 (14.0%)	64
3.500 Plus	19 (18.0%)	70 (21.0%)	89
Total	106 (100%)	333 (100%)	439

Table 5.6. GPA at the End of the Last Semester by Type of Student and Whether Student Graduated from UTC or Other Tennessee Institutions.

GPA Last Semester	Type of Student	Graduated?		
		No ^a	Yes ^b	Total
Zero	Traditional	83 (98.8%)	1	84
	Adult	55 (100%)	0	55
0.001 to 1.999	Traditional	66 (93.0%)	5 (3)	71
	Adult	8 (100%)	0	8
2.000 to 2.499	Traditional	18 (48.6%)	19 (1)	37
	Adult	2 (50.0%)	2	4
2.500 to 2.999	Traditional	7 (29.2%)	17	24
	Adult	2 (66.7%)	1	3
3.000 to 3.499	Traditional	14 (29.8%)	33 (1)	47
	Adult	14 (82.4%)	3	17
3.500 to 4.000	Traditional	7 (10.0%)	63 (2)	70
	Adult	8 (42.1%)	11	19

Traditional-age		195 (58.6%)	138 (7)	333 (75.9%)
Adult		89 (84.0%)	17	106 (24.1%)
Total		284	155	439 (100%)

^a Numbers in parentheses show percentage this column represents of the total for the line.

^b Numbers in parentheses show number of students in this column who graduated from institutions other than UTC.

of whether or not the student graduated. Of the 439 subjects in the study, 138 (31.6%) had a zero GPA at the end of the last semester and did not graduate. Presumably, members of this category either withdrew or failed all the courses for which they were registered.

Another perspective is to examine the adults and traditional-age students as two subgroups. Table 5.6 reports that among those who had a zero GPA were 55 adults, or 51.4% of this 106 member subgroup. Traditional-age students numbered 84 subjects, that is 25.2% of this 333 member subgroup. Overall, only 15 subjects with a last semester GPA of 3.5 failed to graduate. If the figures for those students with a GPA of 3.0 or better are examined, 22 (20.8%) of all adults and 21 (6.3%) of all traditional-age students were in this range and failed to graduate, a proportionally higher figure for adults.

The results of the crosstabulation of the cumulative GPA by the type of student is detailed in Table 5.7. In this table the difference between the two groups is again noticeable since 35.8% of the older group received a zero GPA, compared to a 7.5% rate for the traditional-age group. The number of students who obtained a cumulative GPA of 3.5 or higher was only slightly different for the two groups (11.3% for the adults, 8.7% for other students.) Also, 32 (30.2%) of the adults had a GPA of 3.0 or better, yet among the traditional-age students, the percentage was only 24.6%.

Table 5.8 amalgamates information on the two variables from Table 5.7 (type of student, cumulative GPA) with data showing whether the student graduated or not. Among the 17 adult graduates, 16 subjects (94%) obtained a cumulative GPA of 2.5 or better, but among

Table 5.7. Type of Student by Cumulative GPA at UTC.

Cumulative GPA	Type of Student		
	Adult	Traditional-age	Total
Zero	38 (35.8%)	25 (7.5%)	63
0.001 - 1.999	14 (13.2%)	103 (30.9%)	117
2.000 - 2.499	6 (5.7%)	64 (19.3%)	70
2.500 - 2.999	16 (15.1%)	59 (17.7%)	75
3.000 - 3.499	20 (18.9%)	53 (15.9%)	73
3.500 Plus	12 (11.3%)	29 (8.7%)	41
Total	106 (100%)	333 (100%)	439

Table 5.8. Cumulative GPA by Type of Student and Whether Student Graduated from UTC or Other Tennessee Institutions.

Cumulative GPA	Type of Student	Graduated?		
		No ^a	Yes ^b	Total
Zero	Traditional	25 (100%)	0	25
	Adult	38 (100%)	0	38
0.001 to 1.999	Traditional	102 (99.0%)	1 (1)	103
	Adult	14 (100%)	0	14
2.000 to 2.499	Traditional	38 (59.4%)	26 (2)	64
	Adult	5 (83.3%)	1	6
2.500 to 2.999	Traditional	14 (23.7%)	45 (1)	59
	Adult	11 (68.8%)	5	16
3.000 to 3.499	Traditional	12 (22.6%)	41 (2)	53
	Adult	14 (70.0%)	6	20
3.500 to 4.000	Traditional	4 (13.8%)	25 (1)	29
	Adult	7 (58.3%)	5	12

Traditional-age		195 (58.6%)	138 (7)	333 (75.9%)
Adult		89 (84.0%)	17	106 (24.1%)
Total		284	155	439 (100%)

^a Numbers in parentheses show percentage this column represents of the total for the line.

^b Numbers in parentheses show number of students in this column who graduated from institutions other than UTC.

the traditional-age group only 111 of the 131 graduates (84.7%) could satisfy this criteria. Also, it should be noted that 32 (30.2%) of the 106 adults had a cumulative GPA of 2.5 or better but did not graduate. However, only 30 (9.0%) of the traditional-age students achieved this level without receiving a degree.

In order to remain in good academic standing, a UTC student must attain a specific GPA associated with the hours attempted. A student who attempts one to 23 hours must maintain a 1.0 GPA; for 24 to 39 hours a GPA of 1.5 is required; the range of 40 through 55 hours requires a GPA of at least 1.8; and for 56 hours or more the critical value is a GPA of 2.0 or better. If the student does not meet the criteria, he/she is placed on academic probation. If the probation is not removed at the end of the next semester then the student is considered to be on academic suspension.

Using the information on the transcripts, it was possible to determine the status of the student when he/she left UTC. Table 5.9 shows that 148 (33.7%) of the subjects graduated (17 adults, 131 traditional-age). Also, 181 (41.2%) of the subjects left either because of academic dismissal, suspension or probation (32 adults, 103 traditional-age). A surprisingly large number of subjects, 108 (24.6%), were in good standing at the end of the last recorded semester. Those who left UTC in good standing represented 33% of the adult group and 21.9% of the younger students. The transcripts did not indicate whether some of these transferred to other institutions.

There are other points of interest detailed in Table 5.9. Adults had nearly triple the withdrawal rate (19.8%) of that

Table 5.9. Type of Student by Status or Reason for Leaving UTC.

Status at End of Last Recorded Semester	Type of Student		
	Adult	Traditional-age	Total
Graduated from UTC	17 (16.0%)	131 (39.3%)	148 (33.7%)
Good Standing	35 (33.0%)	73 (21.9%)	108 (24.6%)
Withdrawn	21 (19.8%)	25 (7.5%)	46 (10.5%)
Academic Probation	30 (28.4%)	59 (17.7%)	89 (20.3%)
Academic Suspension	2 (1.9%)	24 (7.2%)	26 (5.9%)
Academic Dismissal	0	20 (6.1%)	20 (4.5%)
Still Attending UTC	1 (0.9%)	1 (0.3%)	2 (0.5%)
Total	106 (100%)	333 (100%)	439 (100%)

associated with the younger group (7.5%). For adults the graduation rate was 16%, for traditional-age subjects it was 39.3%. At 28.4%, the adults had almost twice the rate for academic probation compared to their younger colleagues with a rate of 17.7%. On the other hand, adults had a much lower rate for suspension and dismissal (1.9% compared to 13.2%). Incidentally, at the end of the fall 1987 semester, one student from each group still was attending UTC.

Earlier, Table 5.3 (p. 57) indicated that there was a disparity between first semester GPAs when the two groups were compared. This may be partially explained by Table 5.10 which shows that 36.8% of the adults attended for only one semester compared to 10.8% rate for the traditional-age students. This table also reports that 50% of the adults were no longer attending UTC after the second semester compared to an attrition rate of 26.4% for the younger students for the same period.

What inferences can be made by comparing Tables 5.3 and 5.10? The former showed that 35.8% of the adults had a zero GPA at the end of the first semester while the latter indicated 50% of this group had left UTC by the end of the second semester. Because of this 14.2% difference (35.8% and 50%) between the two percentages, it could be surmised that barriers to persistence were not limited to a low GPA at the end of the first semester. Thus, other barriers possibly accounted for the 14.2% differential.

Table 5.10 also shows that the persistence rate for traditional-age students remained lower through the intervals up to, and including, the three to five semester interval. In the six to

Table 5.10. Type of Student by Number of Semesters Student Attended UTC.

Number of Semesters at UTC	Type of Student		
	Adult	Traditional-age	Total
Only 1	39 (36.8%)	36 (10.8%)	75
Only 2	14 (13.2%)	52 (15.6%)	66
3 to 5	24 (22.6%)	49 (14.7%)	73
6 to 9	9 (8.5%)	76 (22.8%)	85
10 to 14	15 (14.2%)	106 (31.8%)	121
15 or more	5 (4.7%)	14 (4.3%)	19
Total	106 (100%)	333 (100%)	439

nine semester interval, the percentage for traditional-age students was higher (22.8% compared to 8.5%) than that for adult students. However, both groups showed basically the same persistence rate for 15 semesters or more (4.7% to 4.3% respectively).

Information on whether students attended UTC on a continuous basis is explored in Table 5.11. In constructing this table, students were deemed to have attended on a continuous basis even if they omitted summer semesters since this is a common practice at UTC. Fewer adults attended on a continuous basis; only 43.4% fit into this category compared to a 61.9% rate for traditional-age students. Furthermore, if the drop-outs (i.e. those who attended only one semester) are eliminated from both categories, the adults have a 63.2% rate for remaining more than semester as opposed to the traditional-age rate of 88.6%. Also, 36.8% of the adults only attended UTC for one semester, while for the younger group the drop-out rate at the end of the first semester was 11.1%. This high adult drop-out rate should be reflected in other variables such as the credit hours, as indeed is the case.

Although the transcripts contained information on both the credit hours attempted and earned by the student, only the latter will be considered because they are the criteria for granting degrees. In order for a student to graduate from UTC that student must have earned 128 or more semester credit hours.

Table 5.12 tabulates the number of credit hours earned by the type of student. Again the disparity is very apparent since over 50% (54) of the adults left UTC with nine or fewer credit hours recorded.

Table 5.11. Type of Student by Variable Indicating Whether Semesters Were Continuous at UTC.

Semesters	Type of Student	
	Adult	Traditional-age
Not Applicable ^a	39 (36.8%)	38 (11.4%)
Continuous	46 (43.4%)	206 (61.9%)
Not Continuous	21 (19.8%)	89 (26.7%)
Total	106 (100%)	333 (100%)

^a Only attended 1 semester.

Table 5.12. Type of Student by Total Credit Hours Earned at UTC.

Number of Credit Hours Earned	Type of Student		
	Adult	Traditional-age	Total
0 to 9	54 (50.9%)	54 (16.2%)	108
10 to 15	6 (5.7%)	19 (5.7%)	25
16 to 30	18 (17.0%)	40 (12.0%)	58
31 to 60	4 (3.8%)	37 (11.2%)	41
61 to 90	5 (4.7%)	27 (8.1%)	32
91 to 127	2 (1.9%)	24 (7.2%)	23
128 or more	17 (16.0%)	132 (39.6%)	31
Total	106 (100%)	333 (100%)	439

Using the same percentage as a comparison, one has to reach the 61 to 90 credit hour interval before finding 50% of the traditional-age students had left. Moreover, only 16.0% of adults accrued 128 or more hours (the amount necessary to graduate) compared to a 39.6% rate reported by their younger colleagues.

Using the UTC classifications for credit hours defined earlier, Table 5.13 was developed to examine further the specified earned credit hours crosstabulated with the GPA. Adults have double the rate compared to that of traditional-age students (67.9% to 27.3%) at the low end of the scale.

Table 5.14 expands Table 5.12 by adding the variable indicating whether or not the student graduated. The most notable feature of this table is that 27 students (25 traditional-age and 2 adults) had more than 91 credit hours but did not receive a degree. The "one last course" which certain students can not master may have been a factor in accounting for this result. The fact that only two adults did not persist might be an indication that adults had a greater motivation to overcome this problem.

The average credit hours and how they related to the type of student are reported in Table 5.15. The average credit hours for this and the subsequent table was calculated by dividing the total number of credit hours by the number of semesters that each student attended UTC. As a matter of information, the UTC Catalog specifies that an undergraduate student is considered full-time if he/she is registered for 12 hours or more. If a student wanted to obtain a degree within a four year time frame, that student must take 16 hours

Table 5.13. Type of Student by Total Credit Hours Earned
According to UTC Guidelines.

Number of Credit Hours Earned	Type of Student		
	Adult	Traditional-age	Total
0 to 23	72 (67.9%)	91 (27.3%)	163
24 to 39	7 (6.6%)	34 (10.2%)	41
40 to 55	2 (1.9%)	19 (5.7%)	21
56 plus	25 (23.6%)	189 (56.8%)	214
Total	106 (100%)	333 (100%)	439

Table 5.14. Credit Hours Earned by Type of Student and Whether Student Graduated from UTC or Other Tennessee Institutions.

Credit Hours Earned	Type of Student	Graduated?		
		No ^a	Yes ^b	Total
To 9.0	Traditional	53 (98.1%)	1 (1)	54
	Adult	54 (100%)	0	54
10 to 15	Traditional	18 (94.7%)	1 (1)	19
	Adult	6 (100%)	0	6
16 to 30	Traditional	40 (100%)	0	40
	Adult	18 (100%)	0	18
31 to 60	Traditional	35 (94.6%)	2 (2)	37
	Adult	4 (100%)	0	4
61 to 90	Traditional	24 (88.9%)	3 (3)	27
	Adult	5 (100%)	0	5
91 to 127	Traditional	24 (100%)	0	24
	Adult	2 (100%)	0	2
128 plus	Traditional	1 (0.7%)	131	132
	Adult	0	17	17

Traditional-age		195 (58.6%)	138 (7)	333 (75.9%)
Adult		89 (84.0%)	17	106 (24.1%)
Total		284	155	439 (100%)

^a Numbers in parentheses show percentage this column represents of the total for the line.

^b Numbers in parentheses show number of students in this column who graduated from institutions other than UTC.

Table 5.15. Type of Student by Average Credit Hours at UTC.

Average Credit Hours ^a	Type of Student		
	Adult	Traditional-age	Total
Zero	36 (34.0%)	24 (7.2%)	60
1 to 3	18 (17.0%)	22 (6.6%)	40
4 to 6	18 (17.0%)	35 (10.6%)	53
7 to 9	18 (17.0%)	59 (17.7%)	77
10 to 12	10 (9.4%)	85 (25.5%)	95
13 to 15	3 (2.8%)	79 (23.7%)	82
16 or more	3 (2.8%)	29 (8.7%)	32
Total	106 (100%)	333 (100%)	439

^a Calculated by dividing earned credit hours by number of semesters student attended UTC.

a semester. To take over 20 hours a semester a student must obtain special permission.

Taking this into consideration, Table 5.15 shows that only 2.8% of the adults attempted 16 or more credit hours compared to 8.7% of the traditional-age group. The adult students showed no strong tendency by age group since 17.0% were recorded for each of the three intervals: 1 to 3, 4 to 6 and 7 to 9 hours. By comparison, the younger students appeared to favor the 10 to 12 hours (25.5%) or 13 to 15 hours (23.7%) intervals.

Table 5.16 reports on the average credit hours compared to the cumulative GPA recorded for the students. Those subjects who had zero credit hours were excluded from this table. Overall, the majority of the students (25%) attempted an average of 10 to 12 credit hours per semester, with the next largest group (22%) registered to take an average of from 13 to 15 hours. However, those students with lower GPAs tended to take fewer hours, while those with GPAs of 3.5 or higher tended to take a full load. Only 32 students are shown as taking an average of 16 or more hours needed to ensure graduation within four years.

It might be assumed that all the traditional-age students proceeded directly from high school to college, but as Table 5.17 shows this is not correct. It was found that 24 subjects in the younger group had a gap of 1 to 5 years between educational institutions, with the greatest number occurring in the 1 year category. Among the adults, 37% had been away from school for from 6 to 10 years, and nearly as many (30%) had a gap of 30 or more years.

Table 5.16. Cumulative GPA by Average Credit Hours
Earned at UTC.^a

Cumulative GPA	Average Credit Hours ^b					
	1 to 3	4 to 6	7 to 9	10 to 12	13 to 15	16 Plus
Zero	1	0	0	0	0	2
0.001 to 1.999	23	38	30	17	8	1
2.000 to 2.499	4	5	25	20	15	1
2.500 to 2.999	3	5	11	32	17	7
3.000 to 3.499	7	3	7	17	26	13
3.500 to 4.000	2	2	4	9	16	8
Total	40	53	77	95	82	32
Percent	11	14	20	25	22	8

^a Students (63 in number) who had no credit hours were not included in this table.

^b Average credit hours were calculated by dividing total credit hours by number of semesters the student attended UTC.

Table 5.17. Type of Student By Years Between High School Graduation and College Entry at UTC.

Years Between School and College ^a	Type of Student	
	Adult	Traditional-age
1 year	2 (2.0%)	10 (41.6%)
2 years	0	7 (29.2%)
3 to 5 years	3 (3.0%)	7 (29.2%)
6 to 10 years	37 (37.0%)	0
11 to 15 years	28 (28.0%)	0
16 to 20 years	13 (13.0%)	0
21 plus years	17 (17.0%)	0
Total	100 (100%)	24 (100%)

^a Not known for 7 adult students.

Transcripts for seven adults did not contain information on the year of graduation from high school making it impossible to determine the number of years between secondary and higher education for these cases.

Although earlier tables reported that the adults had a lower graduation rate and a higher drop-out rate, the adults did exhibit a disproportionate rate of graduation honors, as the data in Table 5.18 shows. For example, 29.8% of the traditional-age students received an honor, but the rate for this variable among adults was 47.1%. Furthermore, 23.6% of the adults graduated either summa or magna cum laude, while only 16% of the traditional-age students achieved these top two types of honors. The comparison becomes more dramatic when only the summa cum laude honors are considered. In this situation, the adults had a 11.8% rate compared to a 1.5% rate for traditional-age students.

Table 5.19 examines the crosstabulation between the type of student and hours transferred by students from other institutions. For both groups, the hours transferred to UTC tended to be from nearby institutions such as Chattanooga State Technical Community College or Cleveland State Community College. Since all the subjects were first-time freshmen no hours from other institutions were transferred until after the first semester. As this table indicates, adults tended to stay at an institution once they had selected it; thus, only two adults showed hours transferred to UTC from other colleges.

Table 5.18. Type of Student By Type of Honors Received by Students who Graduated from UTC.

Type of Honor	Type of Student		Total
	Adult	Traditional-age	
None Received	9 (52.9%)	97 (70.3%)	106
Cum Laude	4 (23.5%)	19 (13.8%)	23
Magna Cum Laude	2 (11.8%)	20 (14.4%)	22
Summa Cum Laude	2 (11.8%)	2 (1.5%)	4
Total	17 (100%)	138 (100%)	155

Table 5.19. Student Type by Variable Indicating Whether Student Transferred Credits to UTC.

Credits	Type of Student	
	Adult	Traditional-age
Transferred hours	2 (1.9%)	59 (17.7%)
Did not transfer	104 (98.1%)	274 (82.3%)
Total	106 (100%)	333 (100%)

How did the number of years to graduation crosstabulate with the age at entry? As Table 5.20 reports, nearly 50% of those who graduated did so in a four year period, and 90% had received degrees within six years of freshman entry. The rates between the two groups of graduates were, in this instance, comparable. For example, 69 (50%) of the 138 traditional-age students graduated in four years compared to 7 (41.1%) of the 17 adults.

Analysis of t-tests for Hypothesis I

Hypothesis I stated: there was no significant difference between adults and traditional-age students for the following dependent variables:

- a) GPA at the end of the first semester (t-test);
- b) last recorded semester GPA (t-test);
- c) cumulative GPA (t-test);
- d) number of semesters that the student attended UTC (t-test);
- e) cumulative earned credit hours (t-test).
- f) average credit hour load per semester (t-test);
- g) reason for leaving UTC, i.e. graduation, dismissal, transfer, (chi-square);
- h) whether or not semesters were continuous, with the exception of summer, (chi-square);

Table 5.21 reports on the results obtained when the t-tests listed in Hypothesis I were performed to determine if there was a significant difference in the means of the dependent variables. All of the 439 subjects in the study (106 adults and 333 traditional-age) were used in this first series of t-tests. In the t-tests all the

Table 5.20. Number of Years Needed to Graduate by Age at Freshman Entry to UTC.

Age at Freshmen Entry	Number of Years From Freshman Entry to Graduation						Total
	4	5	6	7	8	9+	
To age 24	69	41	16	6	5	1	138
Age 25 to 34	5	4	0	2	0	0	11
Age 35 to 44	2	2	0	1	0	1	6
Age 45 plus	0	0	0	0	0	0	0
Total	76	47	16	9	5	2	155
Percent	49	30	12	7	3	1	
Percent age 25+	41	35	0	18	0	6	

Table 5.21. Comparison of t-tests and Means of Adult (N=106) and Traditional-age (N=333) UTC Students on Selected Dependent Variables.

Selected Dependent Variables	Mean		t-value	2-tail Prob.
	Adult	Trad-age		
GPA First Semester	1.75	2.02	1.68	0.094
GPA Last Semester	1.39	1.90	3.02*	0.003
GPA Cumulative	1.75	2.13	2.42*	0.017
Semesters Attended	4.61	7.12	4.73*	0.000
Credit Hours Earned	34.49	76.86	6.97*	0.000
Average Credit Hours	2.58	3.81	6.76*	0.000

* significant at $p < .05$

variables were significant at the .05 level except for the first semester GPA.

The same t-tests then were performed again, but this time only those students who graduated were included. In this series of tests, reported in Table 5.22, only the average credit hours, semesters attended, and cumulative GPA were significant at the .05 level.

Both Tables 5.21 and 5.22 indicate the means for the adults and traditional-age groups for each of the selected variables. A negative t-value indicates that the mean of the adults was higher than that the mean for the traditional-age students. A positive t-value indicates the opposite, that is, that of the two groups the mean for the adults was the lower one.

Based on the results of these t-tests (Tables 5.21 and 5.22), the findings regarding the hypotheses can be stated as follows:

Hypothesis I (a): There was no significant difference between the first semester GPAs of adult and traditional-age students when all the students in the study were involved. Also, when only graduates were considered there was no significant difference. Thus, the null hypothesis is not rejected for both series of tests. It can be concluded, therefore, that the mean of the first semester GPA score of the adults was no different from that for the traditional-age students other than could be expected by chance alone.

Hypothesis I (b): There was a significant difference when the dependent variable was the last semester GPA and all 439 students are compared. Based on these results, the null hypothesis must be

Table 5.22. Comparison of t-tests and Means of Adult (N=17) and Traditional-age Students (N=138) with Selected Dependent Variables (Graduates only).

Selected Dependent Variables	Mean		t-value	2-tail Prob.
	Adult	Trad-age		
GPA First Semester	2.97	2.72	- 1.26	0.222
GPA Last Semester	3.41	3.18	- 1.18	0.240
GPA Cumulative	3.24	2.97	- 2.07*	0.040
Semesters Attended	13.65	10.77	- 3.72*	0.000
Credit Hours Earned	135.64	131.16	- 0.81	0.420
Average Credit Hours	3.82	4.55	3.11*	0.002

* significant at $p < .05$

rejected. This result would indicate that the difference between the adult mean GPA for the last semester differed from that of the younger group more than could be expected by chance. Because there was no significant difference between the mean GPA for the last semester when graduates only were considered, the null hypothesis is not rejected for the second series of tests.

Hypothesis I (c): There was a significant difference between the cumulative GPAs of adults and traditional-age students when all 439 students were tested. The same result also was found when only graduates were included. For both series of tests the null hypothesis should be rejected.

Hypothesis I (d): There was a significant difference when the dependent variable was the number of semesters attended and when all the students in the study were considered. Therefore, the null hypothesis should be rejected. Also, because there was a significant difference even when only graduates were included, the null hypothesis is rejected in this instance too.

Hypothesis I (e): When the dependent variable was credit hours earned there was a significant difference when all the students in the study were considered. On the other hand, when only graduate students were tested, there was no significant difference. Therefore, the null hypothesis is rejected for the first series of tests, but is not rejected for the second series.

Hypothesis I (f): When all 439 students were examined and the dependent variable was the average credit hour load, there was a significant difference between adults and traditional-age students.

Since this result indicates that the difference was due to factors other than chance, the null hypothesis must be rejected. Moreover, when only graduates were tested there was a significant difference between the two age groups. Thus, the null hypothesis should be rejected.

Analysis of Chi-Square Tests

Chi-square tests were performed to test parts (g) and (h) of Hypothesis I. A summary of the chi-square analyses is presented in Table 5.23.

The first dependent variable tested was the status of the students when they left UTC. Since only 32 adults were on probation, suspension, or dismissal (30, 2 and 0 respectively), these 32 were grouped to create a chi-square cell which fulfilled the criteria of containing five or more cases. The traditional-age students also were grouped into the same four classifications: graduated, left in good standing, withdrew, or had academic problems (suspension, dismissal, probation). The statistical procedure showed that the chi-square value was 29.00 and that it was significant at the .05 level. Based on this finding, the null hypothesis that there would be no significant difference between the two groups is rejected.

The second chi-square test involved the dependent variable showing the total number of semesters that the student attended UTC. The chi-square value was 36.88 and was significant at the .05 level. Thus, the null hypothesis that there would be no significant difference should be rejected.

Table 5.23. Comparison of Chi-Square Scores for
Selected Dependent Variables.

Adult v. Traditional- age UTC Students	
Chi-square Value	
Reason for Leaving UTC	29.00*
Continuous Semesters	36.88*

* Significant at $p < .05$

Testing of Hypothesis II

Hypothesis II stated: there was no relationship between whether the adult students graduated or not, and the number of years between high school graduation and freshman entry (point-biserial correlation).

The point-biserial correlation procedure for this variable determined that there was no significant relationship when the dependent variable was the number of years between high school and college entry and the graduation rate. The calculated value was 0.085 which was not significant at the .05 level. Thus, the null hypothesis cannot be rejected.

Summary

One of the research questions asked whether the adults had a higher retention rate and a higher GPA than their younger colleagues. The analysis of the 439 subjects makes it clear that the answer to the first part of the question is in the negative. Based on the archive tapes and on the transcripts, it was found that over 50% of the adults had left UTC by the end of the first year (i.e. second semester) compared to a 25% rate for the traditional-age student. Moreover, many of the adults were in the category of "leavers", that is, they did not formally withdraw and were in good standing at the end of their last semester. It was determined that 33.0% of the adults were "leavers" compared to a 22.0% rate for traditional-age students.

Cope and Hannah (1975) quoted freshmen attrition rates as being 8.6% at the end of the first semester and 22.0% by the end of the

second semester. In this UTC study, the traditional-age students closely approximated this with rates of 10.8% and 26.4% respectively for those semesters. However, the adult students, with respective percentages of 38.8% and 50% for the two semesters, showed a wide divergence from the quoted rate.

With regard to the question of whether the adults had a higher GPA than traditional-age students, the answer is a mixed one. Along with this attrition factor, it was found that a higher percentage of the adults had a zero GPA regardless of whether the GPA was examined at the end of the first semester, the end of the last semester or on a cumulative basis. Adults also showed a much higher rate for being on academic probation, suspension or dismissal than their younger counterparts. However, those adults who did persist performed better than their younger colleagues. When the three GPAs are examined, adults had a higher percentage of subjects in the 3.5 and better range. This compares with the literature review in which Von der Embse and Child (1979) indicated that adults were more likely to have a GPA of 3.39 or higher, at a rate of 23.4% for adults to 15.5% for the younger group.

Other discernible differences among the UTC students were that adults had a negligible transfer rate and were more economical of their time (as evidenced by the fact that they over-accumulated fewer credit hours prior to graduation). Also, those adults who graduated from UTC received proportionally more honors.

The findings discussed in this chapter applied only to those UTC students who were in the longitudinal survey, and should be viewed in

this limited framework. Nevertheless, when all the facts are considered there still remains the central concern regarding the disparity of graduation rates. This rate was 33.7% for all students since only 148 of the 439 subjects were degree-receiving. Among the traditional-age group 131 of the 333, or 39.3%, received degrees, while among adults only 17 of the 106, or 16.0% graduated. Would the same low percentage of persistence to graduation among adults apply to students at comparable institutions in the State of Tennessee? This was the question which the cross-sectional study addressed and which is discussed in the next chapter.

CHAPTER 6

DATA ANALYSIS AND INTERPRETATION OF CROSS-SECTIONAL STUDY

The methodology of the cross-sectional study involved the comparison of the graduation rates of adult students with those of younger students in seven public institutions of higher learning in the State of Tennessee. The purpose was to determine whether the low graduation for UTC adults, which was apparent in the longitudinal study, also was present at the other six universities.

The population for this study was composed of first-time freshmen students entering the seven public institutions in the fall semesters of the years 1977-79. The Tennessee Higher Education Commission (THEC) provided not only records of the students who qualified as first-time freshmen in those years, but also supplied data pertaining to the students who received baccalaureate degrees in the State of Tennessee from 1979 through to the summer of 1987. (In the 1986 pilot study the data used did not include the years 1986-87).

This chapter is divided into four sections: a description of the seven institutions; an overview of the 27,057 first-time freshmen students; a profile of the 9,975 subjects out of this number who graduated; and an analysis of the performance of the adult students in the seven institutions.

Description of Institutions

The seven institutions included in the cross-sectional study were: The University of Tennessee at Chattanooga (UTC), The

University of Tennessee at Martin (UTM) Austin Peay State University (APSU), East Tennessee State University (ETSU), Middle Tennessee State University (MTSU), Tennessee Technological University (TTU) and Tennessee State University (TSU).

These seven were selected as being comparable institutions because all were four-year public institutions with undergraduate student enrollments of between 5,000 and 10,500 students. Though located in different geographical areas of the state, the seven universities all had student bodies which were predominantly composed of residents of the State of Tennessee.

The following information was obtained from the 12th edition of American Universities and Colleges. Although this volume was published in 1983, the data in it were collected in 1980, just a year later than the period of the cross-sectional study.

The University of Tennessee at Chattanooga is an urban, commuter type of campus located in downtown Chattanooga. In 1980 this university accepted 97% of those who applied; 72% of those accepted decided to enroll. The mean ACT for the 1980 freshman class was 17.4. The percentage of freshmen which the university administration expected to graduate in a five year period was 30%. Information on the number of students from the State of Tennessee was missing. In order to graduate, a candidate had to have a minimum of 128 semester hours.

Austin Peay State University, located in Clarksville, Tennessee, had a freshman class in 1980 in which 75% of those enrolled were from the State of Tennessee. The mean ACT score for entering freshmen was

16. Approximately 95% of the students who applied were accepted and 70% of these enrolled. Successful candidates required 192 quarter hours to receive a degree. This university indicated it expected that 56% of the 1980 freshman students would graduate within five years.

East Tennessee State University is in the eastern end of the state in Johnson City. In 1980 this college accepted 94% of those who applied; the rate of acceptance by students to attend was 67%. The mean ACT for the entering freshmen was 17.5. To obtain an undergraduate degree, a student needed to complete 128 semester hours. The 1980 freshman class had a 88% rate for in-state students. No data were available on the expected number of years between entry and graduation.

Middle Tennessee State University accepted 98% of those who applied in 1980; of those who were accepted, 67% decided to attend. According to the administration of that university, 40% of the freshman class could anticipate graduating within a five year period. Located in Murfreesboro, about 50 miles from Nashville, this institution is in the geographical center of the state. To graduate a student required 132 semester hours. The class mean ACT was 17.2 in 1980. In that year, 95% of the students were from Tennessee.

Tennessee Technological University in Cookeville, Tennessee also is close to the geographical center of the state. The 1980 class of freshman students entering this institution had a mean ACT of 20. TTU accepted 95% of applicants; of those who were accepted, 68% decided to enroll. The university expected that 46% of the freshmen

would graduate within five years. Those students who did graduate did so by accumulating credit for 198 quarter hours. The percent of the freshmen with an in-state status was 89%.

The University of Tennessee at Martin is affiliated, as is UTC, with the UT system and is located in Martin, a primarily rural area in west Tennessee. This institution reported in 1980 that it accepted 98% of the applications it received and 80% of the students enrolled. The 1980 freshman class was composed of 95% of Tennessee residents. Students were required to obtain 191 quarter hours for an undergraduate degree. No information was available on the expected number of years between entry and graduation or on ACT scores.

Located in Nashville, Tennessee State University accepted 100% of those who applied, but only 50% decided to attend. This university reported a mean ACT score of 11.8 for the 1980 freshman class. The students were predominantly black and 70% of them were from Tennessee. About 40% of the entering freshmen could expect to graduate in five years after earning 128 to 134 semester hours.

The seven institutions all had the requirement that a student must have a 2.0 or better GPA in order to graduate.

Overview Of Freshmen Students

The rationale for including this overview of freshmen is that it provides a comparison for the later discussion of the profile of the graduates in the next section. How many freshmen, in fact, entered the seven public institutions in the designated semesters? Records supplied by THEC provided the information that in these seven institutions there were a total of 28,175 students who met the

criteria of being first-time freshmen in the fall semesters of the years 1977, 1978 and 1979. However, subsequent evaluation of the THEC records indicated that 1,118 records were either duplicates, or contained information of students who did not fit the criteria of being first-time freshmen. These records were excluded leaving a total of 27,057 subjects.

Table 6.1 reports not only the number of freshmen students enrolled in each of the seven institutions for the years 1977 to 1979, but also the percentages which these numbers represented compared to the total enrollment for each year. According to this table, the number of freshmen increased from 8,717 in 1977 to 9,557 in 1979, a rise of 9.6% over the three year period. The largest number of students was reported at Middle Tennessee State University, while UTC showed the smallest enrollment.

Data obtained by crosstabulating age at the time of freshman entry by the year in which the student was a freshman is tabulated in Table 6.2. This table provides another perspective on the data in Table 6.1 since it provides a breakdown by age group. The under-25 group, or traditional-age students, accounted for 8,227 students (94.4%) in 1977, for 8,211 (93.5%) in 1978 and for 8,795 (92.0%) in 1979. Thus, the percentage for traditional-age students showed a slight decrease over the three years, while the percentage of adult students increased correspondingly from a low of 5.6% in 1977 to a high of 8.0% in 1979. The majority of the adults (4.5%) were in the 25 to 34 age range; as might be expected the lowest percentage (0.7%) was in the 45 and over interval.

Table 6.1. First Time Freshman, Enrollments in Tennessee Institutions 1977 to 1979, (N=27,057).

Tennessee Institution ^a	Total Fall 1977	Total Fall 1978	Total Fall 1979
APSU	1,089 (12.5%)	1,131 (12.9%)	1,152 (12.1%)
ETSU	1,543 (17.7%)	1,696 (19.3%)	1,757 (18.4%)
MTSU	1,930 (22.1%)	1,955 (22.3%)	1,967 (20.6%)
TSU	1,019 (11.7%)	778 (8.9%)	1,096 (11.5%)
TTU	1,360 (15.6%)	1,423 (16.2%)	1,488 (15.6%)
UTC	819 (9.4%)	853 (9.7%)	957 (10.0%)
UTM	957 (11.0%)	947 (10.8%)	1,140 (11.9%)
Total	8,717 (100%)	8,783 (100%)	9,557 (100%)

^a APSU = Austin Peay State University, ETSU = East Tennessee State University, MTSU = Middle Tennessee State University, TSU = Tennessee State University, TTU = Tennessee Technological University, UTM = University of Tennessee at Martin, UTC = University of Tennessee at Chattanooga.

Table 6.2. Year of Freshman Entry by Age at Freshman Entry for Seven Tennessee State Universities.

Age at Freshman Entry	Year of Freshman Entry			
	1977	1978	1979	Total
To 24 yrs.	8,227	8,211	8,795	25,233 (93.3%)
25 to 34	346	381	496	1,223 (4.5%)
35 to 44	99	129	186	414 (1.5%)
45 and plus	45	62	80	187 (0.7%)
Total	8,717	8,783	9,557	27,057
Trad. Age %	94.4	93.5	92.0	93.3
Adult %	5.6	6.5	8.0	6.7

The data in the previous two tables can be re-examined to show the division between the two types of students. Data resulting from crosstabulating the type of freshmen student by the university of freshmen entry are shown in Table 6.3. As previously mentioned, traditional-age students were by far the biggest group (25,233 subjects) and represented 93.3% of the total population. As reported in this table, there were 1,824 adults, comprising only 6.7% of the population. The largest percentage of adults was concentrated at Austin Peay where adults comprised 18.4% of the total number of students. At the other end of the range was Middle Tennessee State University where adults only accounted for 2.4% of the freshman class.

In Table 6.3, UTC is listed as reporting 126 adult students in the three year period although only 107 of these were involved in the longitudinal study discussed in Chapter 5. The reason for this is that 19 students were special or contract students who did not qualify to be included in the study because of the limitations specified in Chapter 1. Without access to more extensive records of the other institutions it was impossible to determine how many of these types of students were reported by the other six universities.

The information in Table 6.3 relating to adults was isolated and reorganized by age group, in Table 6.4. The majority (67.1%) of the adults were concentrated in the 25 to 34 year old range. For this interval the percentages ranged from a low of 61.1% at UTC to a high of 74.9% at Tennessee State University. (By comparison, UTC had the highest percentage (28.6%) for the 35 to 44 year interval, while

Table 6.3. Type of Student by Tennessee Institution of Freshman Entry, Fall Semesters 1977-79.

Tennessee Institution of Freshman Entry ^a	Type of Student		
	Adult	Traditional-age	Total
APSU	620 (18.4%)	2,752 (81.6%)	3,372
ETSU	414 (8.3%)	4,582 (91.7%)	4,996
MTSU	141 (2.4%)	5,711 (97.6%)	5,852
TSU	295 (10.2%)	2,598 (89.8%)	2,893
TTU	151 (3.5%)	4,120 (96.5%)	4,271
UTC	126 (4.8%)	2,503 (95.2%)	2,629
UTM	77 (2.5%)	2,967 (97.5%)	3,044
Total	1,824 (6.7%)	25,233 (93.3%)	27,057

^a APSU = Austin Peay State University, ETSU = East Tennessee State University, MTSU = Middle Tennessee State University, TSU = Tennessee State University, TTU = Tennessee Technological University, UTM = University of Tennessee at Martin, UTC = University of Tennessee at Chattanooga.

Table 6.4. Tennessee Institution of Freshman Entry by Age at Freshman Entry (Adults only), Fall Semesters 1977-79.

Tennessee Institution of Freshman Entry ^a	Adult Age (in years)			Total
	25 to 34	35 to 44	45 and over	
APSU	393 (63.4%)	154 (24.8%)	73 (11.8%)	620
ETSU	268 (64.7%)	102 (24.6%)	44 (10.6%)	414
MTSU	96 (68.1%)	32 (22.7%)	13 (9.2%)	141
TSU	221 (74.9%)	49 (16.6%)	25 (8.5%)	295
TTU	110 (72.8%)	29 (19.3%)	12 (7.9%)	151
UTC	77 (61.1%)	36 (28.6%)	13 (10.3%)	126
UTM	58 (75.3%)	12 (15.6%)	7 (9.1%)	77
Total	1,223 (67.1%)	414 (22.7%)	187 (10.3%)	1,824

^a APSU = Austin Peay State University, ETSU = East Tennessee State University, MTSU = Middle Tennessee State University, TSU = Tennessee State University, TTU = Tennessee Technological University, UTM = University of Tennessee at Martin, UTC = University of Tennessee at Chattanooga.

Austin Peay reported the highest percentage (11.8%) for the 45 and over students.) For all three age groups, as age increased, the number of students enrolling declined. This negative correlation is consistent in all seven universities.

Differences in concentrations of adults were found by age group; however, were there differences between these students and their younger cohorts based on sex or race? Table 6.5 reports freshman subjects according to sex. The percentage of males ranged from a low of 41.4% at East Tennessee State University to a high of 58.0% at Tennessee Technological University. Overall there were more females than males with a total of 13,759 for the former and 13,298 for the latter.

When sex was crosstabulated against age at entry, there was only a slight difference between the proportions of male and female students as is shown in Table 6.6. Among the adults, 5.9% were males and 7.6% were females; among the younger students 94.1% were males and 92.4% were females. The table shows that the proportion of males related to the percentage of females was consistent through all the age groups, and that the adult students were not predominantly from one sex.

The race of the freshmen students, based on the institution of freshman entry, is reported in Table 6.7. White students, who numbered 21,124 (78.1%), predominated. Black students constituted the second largest group since they accounted for 5,342 (19.7%) of the students. The greatest concentration of this racial group was at Tennessee State University which is the only predominantly black

Table 6.5. Sex of Subjects by Tennessee Institution of Freshman Entry, Fall Semesters 1977-79.

Tennessee Institution of Freshman Entry ^a	Sex of Student	
	Male	Female
APSU	1,796 (53.3%)	1,576 (46.7%)
ETSU	2,068 (41.4%)	2,928 (58.6%)
MTSU	2,716 (46.4%)	3,136 (53.6%)
TSU	1,383 (47.8%)	1,510 (52.2%)
TTU	2,478 (58.0%)	1,793 (42.0%)
UTC	1,357 (51.6%)	1,272 (48.4%)
UTM	1,500 (49.3%)	1,544 (50.7%)
Total	13,298 (49.1%)	13,759 (50.9%)

^a APSU = Austin Peay State University, ETSU = East Tennessee State University, MTSU = Middle Tennessee State University, TSU = Tennessee State University, TTU = Tennessee Technological University, UTM = University of Tennessee at Martin, UTC = University of Tennessee at Chattanooga.

Table 6.6. Sex of Subjects by Age at Freshman Entry for
Seven State Universities in Tennessee, Fall
Semesters 1977-79.

Age at Freshman Entry	Sex of Student	
	Male	Female
To 24 yrs.	12,516 (94.1%)	12,717 (92.4%)
25 to 34	550 (4.1%)	673 (4.9%)
35 to 44	156 (1.2%)	258 (1.9%)
45 plus	76 (0.6%)	111 (0.9%)
Total	13,298 (100%)	13,759 (100%)
Traditional-age	94.1%	92.4%
Adult	5.9%	7.6%

Table 6.7. Race of Student by the Tennessee Institution of Freshman Entry, Fall Semesters 1977-79.

Tennessee Institution of Freshman Entry ^a	Race of Student					
	Asian	Nat. Amer.	Black	Hisp.	White	Other
APSU	37	7	821	77	2,416	14
ETSU	10	15	186	10	4,614	161
MTSU	20	11	654	11	5,143	13
TSU	26	3	2,500	1	358	5
TTU	26	9	132	35	4,069	0
UTC	11	6	419	14	2,169	10
UTM	23	0	630	25	2,355	11
Total	153	51	5,342	173	21,124	214
Percentage	0.6	0.2	19.7	0.6	78.1	0.8

^a APSU = Austin Peay State University, ETSU = East Tennessee State University, MTSU = Middle Tennessee State University, TSU = Tennessee State University, TTU = Tennessee Technological University, UTM = University of Tennessee at Martin, UTC = University of Tennessee at Chattanooga.

university among the seven studied. An additional fact is that Austin Peay had a higher concentration of Asian students than any of the other six universities.

Table 6.8 builds upon Table 6.7 by examining the crosstabulation of the data pertaining to the students' age at freshman entry and the racial group to which they belonged. For easier comparison, Hispanic, Native American and Asian students are grouped into an "Other" category. White and black students had basically the same entry rate (93% to 94%) for traditional-age students, but those in other categories were less likely to be in this group (82.0%). In the range of 25 to 34 years, while the black and white students each accounted for approximately 4% of the subjects, the other racial groups (Hispanic, Asian, etc.) had more than double this rate (12.5%); this higher relative rate is maintained throughout the other intervals.

In summary, this overview of the population of 27,057 freshmen in the years 1977 to 1979 had a small percentage of adults (6.7%) although there was a slight increase in numbers over the three years. The adult and traditional-age students had proportionally equal representation based on sex and race. The greatest concentration of adults was in the 25 to 34 year old interval with the smallest percentage in the 45 and older range.

Profile of Graduates

Each of the 27,057 student records of first-time freshmen was compared to the total 92,393 records of baccalaureate degrees awarded from 1979 to the summer of 1987 in public institutions in the State

Table 6.8. Race of Student by the Age at Freshman Entry to Tennessee Institutions, Fall Semesters 1977-79.

Age at Freshman Entry	Race of Student		
	Other ^a	Black	White
To 24	485 (82.1%)	5,033 (94.2%)	19,715 (93.3%)
25 to 34	74 (12.5%)	237 (4.4%)	912 (4.3%)
35 to 44	23 (3.9%)	43 (0.8%)	348 (1.6%)
45 plus	9 (1.5%)	29 (0.5%)	149 (0.7%)
Total	591 (100%)	5,342 (100%)	21,124 (100%)
Traditional-age	82.1%	94.2%	93.3%
Adult	17.9%	5.8%	6.7%

^a Includes Hispanic, Native American, and unknown.

of Tennessee. At the conclusion of the matching process, it was determined that 9,975 (36.9%) of the 27,057 students who entered as first-time freshmen in 1977 to 1979 had been graduated from Tennessee public institutions.

Some of the students were graduated from three other universities in Tennessee which were not included in this dissertation study because they had a larger enrollment than the specified 10,000 students. These three institutions were: The University of Tennessee at Knoxville; The University of Tennessee Center for the Health Sciences in Memphis; and Memphis State University.

This section reports the findings of crosstabulating the 9,975 students who did graduate in Tennessee from the target institutions, with particular emphasis on the differences between the adult and the traditional-age groups. Information also is included on the transfer of students between institutions for two reasons. First, because it is of general interest; and, second, because it reflects, on a state-wide basis, the low transfer rate among the UTC adults found in Chapter 5.

Since the data discussed in this section relate only to graduates, the findings may not be representative of all students. Thus, it cannot be determined whether the students who did not graduate in fact dropped out of college or transferred to other non-public Tennessee colleges or universities or to institutions in other states.

The distribution between adults and traditional-age graduates, based on the institution which they entered as first-time freshmen, is reported in Table 6.9. Since Austin Peay State University was shown earlier (Table 6.3) to be the institution with the largest percentage of adults, it is not surprising that this university also graduated the largest proportion (5.1%) of these students. Middle Tennessee State University reported the lowest graduating proportion of adult students (0.7%).

Earlier, in Table 6.3 (p. 104), it was noted that adults (1,824 subjects) comprised 6.7% of the freshman class. Table 6.9 shows that this group of over 24 years old (171 in all) formed only 1.7% of the 9,975 graduating students. Looking at the data from a different viewpoint, of the original 1,824 first-time freshman adults, only 171 (9.3%) actually received baccalaureate degrees, either from one of the target universities or from one of the other three public institutions. For comparison purposes, 9,804 (38.8%) of the 25,233 traditional-age students became graduates of one of the ten universities included in this study.

Table 6.10 isolates information on adult students from Table 6.9 and extends it to determine how the age groups were represented. In all the institutions except Austin Peay State University, the highest proportion of adult graduates was in the 25 to 34 age interval. The percentage in this age group ranged from 39.4% at Austin Peay State University to 93.8% at Tennessee Technological University. Only three of the seven universities showed adult graduates in the 45 and older interval.

Table 6.9. Type of Graduated Student by Tennessee Institution of Freshman Entry, Fall Semesters 1977-79.

Tennessee Institution of Freshman Entry ^a	Type of Student		
	Adult	Traditional-age	Total
APSU	33 (5.1%)	618 (94.9%)	651
ETSU	44 (2.4%)	1,759 (97.6%)	1,803
MTSU	18 (0.7%)	2,405 (99.3%)	2,423
TSU	28 (4.2%)	644 (95.8%)	672
TTU	16 (0.8%)	2,075 (99.2%)	2,091
UTC	18 (1.8%)	980 (98.2%)	998
UTM	14 (1.0%)	1,323 (99.0%)	1,337
Total	171 (1.7%)	9,804 (98.3%)	9,975

^a APSU = Austin Peay State University, ETSU = East Tennessee State University, MTSU = Middle Tennessee State University, TSU = Tennessee State University, TTU = Tennessee Technological University, UTM = University of Tennessee at Martin, UTC = University of Tennessee at Chattanooga.

Table 6.10. Age of Graduates at Freshman Entry by Tennessee Institution of Freshman Entry, Fall Semesters 1977-79 (Adults only).

Tennessee Institution of Freshman Entry ^a	Age (in years)			Total
	25 to 34 years	35 to 44 years	45 and over	
APSU	13 (39.4%)	16 (48.5%)	4 (12.1%)	33
ETSU	28 (63.6%)	13 (29.5%)	3 (6.8%)	44
MTSU	16 (88.9%)	2 (11.1%)	0	18
TSU	22 (78.6%)	5 (17.8%)	1 (3.6%)	28
TTU	15 (93.8%)	1 (6.2%)	0	16
UTC	11 (61.1%)	7 (38.9%)	0	18
UTM	13 (92.9%)	1 (7.1%)	0	14
Total	118 (69.0%)	45 (26.3%)	8 (4.7%)	171

^a APSU = Austin Peay State University, ETSU = East Tennessee State University, MTSU = Middle Tennessee State University, TSU = Tennessee State University, TTU = Tennessee Technological University, UTM = University of Tennessee at Martin, UTC = University of Tennessee at Chattanooga.

Table 6.11 examines the crosstabulation between the type of student and the institution from which they graduated. This table shows a close parallel between the percentages reported by each institution for freshman entry (Table 6.9) and the proportion who were graduated. For example, at UTC 1.8% of the adult freshmen entered were adults (Table 6.9) and the same percentage graduated (Table 6.11).

Moreover, Tables 6.9 and 6.11 also give some indication of transfer pattern for the adults as compared to the traditional-age group. All 18 adults who entered UTC also graduated from UTC. However, 21 traditional-age students changed institutions between entry and graduation since 980 entered UTC (Table 6.9), but only 959 received degrees (Table 6.11). Another comparison of the data in this table shows that overall only five adults transferred to and eventually graduated from The University of Tennessee, Memphis State University or The University of Tennessee Center for the Health Sciences compared to 964 traditional-age students. This finding supports the low transfer rate found among the 107 adult students at UTC examined in the longitudinal study. Thus, it can be inferred, based on these seven universities, that once adult students had selected an institution they had a greater tendency to stay through to graduation. Since the mobility of adults is hampered by family and job responsibilities, this low transfer rate is not unexpected.

Whereas the previous table showed the breakdown between the two types of students, Table 6.12 presents data in a different perspective by reporting only on adults, grouped by age, based on the

Table 6.11. Type of Student by the Tennessee Graduating Institution, 1979-87.

Tennessee Graduating Institution ^a	Type of Student		
	Adult	Traditional-age	Total
APSU	32 (5.4%)	562 (94.6%)	594
ETSU	42 (2.6%)	1,602 (97.4%)	1,644
MTSU	22 (1.0%)	2,221 (99.0%)	2,243
TSU	26 (3.8%)	650 (96.2%)	676
TTU	12 (0.7%)	1,797 (99.3%)	1,809
UTC	18 (1.8%)	959 (98.2%)	977
UTM	14 (1.3%)	1,049 (98.7%)	1,063
UTK	3 (0.5%)	652 (99.5%)	655
UTCHS	0	166 (100%)	166
MSU	1 (0.7%)	146 (99.3%)	147
Unknown	1 (100%)	0	1
Total	171 (1.7%)	9,804 (98.3%)	9,975

^a APSU = Austin Peay State University, ETSU = East Tennessee State University, MTSU = Middle Tennessee State University, TSU = Tennessee State University, TTU = Tennessee Technological University, UTM = University of Tennessee at Martin, UTC = University of Tennessee at Chattanooga, UTK = University of Tennessee at Knoxville, UTCHS = University of Tennessee Center for the Health Sciences, MSU = Memphis State University.

Table 6.12. Age of Adult Students at Freshman Entry (Fall Semesters 1977-79) by Tennessee Graduating Institution.

Tennessee Graduating Institution ^a	Adult Age at Freshman Entry			Total
	25 to 34 yrs.	35 to 44 yrs.	45 yrs and over	
APSU	12 (37.5%)	16 (50.0%)	4 (12.5%)	32
ETSU	27 (64.3%)	12 (28.6%)	3 (7.1%)	42
MTSU	19 (86.4%)	3 (13.6%)	0	22
TSU	20 (76.9%)	4 (15.4%)	2 (7.7%)	26
TTU	12 (100%)	0	0	12
UTC	11 (61.1%)	7 (38.9%)	0	18
UTM	13 (92.9%)	1 (7.1%)	0	14
UTK	2 (66.7%)	1 (33.3%)	0	3
UTCHS	0	0	0	0
MSU	0	1 (100%)	0	1
Unknown	1 (100%)	0	0	1
Total	117	45	9	171
Percent	68.4	26.3	5.3	

^a APSU = Austin Peay State University, ETSU = East Tennessee State University, MTSU = Middle Tennessee State University, TSU = Tennessee State University, TTU = Tennessee Technological University, UTM = University of Tennessee at Martin, UTC = University of Tennessee at Chattanooga, UTK = University of Tennessee at Knoxville, UTCHS = University of Tennessee Center for the Health Sciences, MSU = Memphis State University.

graduating institution. As might be expected, the greatest number (68.4%) of these adult students were in the 25 to 34 age category. Six of the universities showed the greatest percentage in this age group, though the one exception, Austin Peay State University, reported a slightly higher rate for the 35 to 44 age groups.

To obtain a different perspective on the Tennessee graduates, the institution of freshman entry was crosstabulated by institution of graduation in Table 6.13. The result provides an overview of the transfer of students from one college to another in the process of obtaining a degree. For example, Austin Peay State University, which had a freshman enrollment of 651, graduated 560 of these students, but lost students to other universities in Tennessee. In this instance, the greatest loss (33 students) was to The University of Tennessee at Knoxville. In fact, this institution attracted most of the transfers, 655 in all.

Since the matrix in Table 6.13 is complex, the data are reorganized into Table 6.14 which examines the transfer pattern in a simpler format. Table 6.14 compares the freshman enrollment figures of the 9,975 graduates against the number of students graduating on an institution by institution basis. The column titled "Difference" indicates the number of students who transferred and what proportion of the original freshman enrollment this number represents. Based on this table, The University of Tennessee at Martin was determined to be the university with the highest attrition rate since it lost 274 students, or 20.5% of its entering freshmen to other institutions. At the other end of the scale, UTC was determined to have lost only

Table 6.13. Tennessee Institution of Freshman Entry, Fall Semesters 1977-79 by Tennessee Graduating Institutions 1977-87.

Tennessee Graduating Institution ^a	Tennessee Institution of Freshman Entry						
	APSU	ETSU	MTSU	TSU	TTU	UTC	UTM
APSU	560	1	14	0	15	0	4
ETSU	1	1,585	13	1	36	5	3
MTSU	16	10	2,087	19	73	15	23
TSU	15	1	18	630	6	2	4
TTU	10	8	42	2	1,731	4	12
UTC	1	9	41	1	15	908	2
UTM	4	0	15	1	7	2	1,034
UTK	33	171	115	5	170	51	110
UTCCHS	3	13	50	0	23	6	71
MSU	8	5	27	13	15	5	74
Unknown	0	0	1	0	0	0	0
Total	651	1,803	2,423	672	2,091	998	1,337

^a APSU = Austin Peay State University, ETSU = East Tennessee State University, MTSU = Middle Tennessee State University, TSU = Tennessee State University, TTU = Tennessee Technological University, UTM = University of Tennessee at Martin, UTC = University of Tennessee at Chattanooga, UTK = University of Tennessee at Knoxville, UTCCHS = University of Tennessee Center for the Health Sciences, MSU = Memphis State University.

Table 6.14. Comparison of Enrollment and Graduating Rates and Difference in Numbers and Percentages Between Tennessee Institutions (All Graduates).

Name of Tennessee Institution ^a	Freshman Enrollment	Graduated Students	Difference
APSU	651	594	- 57 (8.7%)
ETSU	1,803	1,644	- 159 (8.8%)
MTSU	2,423	2,243	- 180 (7.4%)
TSU	672	676	+ 4
TTU	2,091	1,809	- 282 (13.5%)
UTC	998	977	- 21 (2.1%)
UTM	1,337	1,063	- 274 (20.5%)
UTK	0	655	+ 655
UTCHS	0	166	+ 166
MSU	0	147	+ 147
Unknown	0	1	+ 1
Total	9,975	9,975	

^a APSU = Austin Peay State University, ETSU = East Tennessee State University, MTSU = Middle Tennessee State University, TSU = Tennessee State University, TTU = Tennessee Technological University, UTM = University of Tennessee at Martin, UTC = University of Tennessee at Chattanooga, UTK = University of Tennessee at Knoxville, UTCHS = University of Tennessee Center for the Health Sciences, MSU = Memphis State University.

21 students (2.1%) of the original number. Of the seven institutions being studied, Middle Tennessee State University UTK graduated 655, or 6.6%, of the 1977-79 freshmen from the seven institutions.

The differences between the number of adults who entered and graduated from the institutions are examined in Table 6.15. Two universities, (UTC and UTM) showed no transfers, another indication of the low transfer rate for adults. Tennessee Technological University had the highest rate of attrition (25%). Middle Tennessee State University gained four adult students overall.

This examination of attrition rates leads to the question of how do the graduation rates of the two types of students compare? This question is addressed by the information in Tables 6.16 to 6.18. The enrollment statistics for these three tables were obtained from Table 6.3 (p. 101), while the graduation rates are Table 6.9 (p. 111). Each of the Tables 6.16 to 6.18 reports the number of students entering the seven institutions, how many graduated, and the graduation rate by institution. Table 6.16 shows this information for all the students, regardless of age. The overall graduation rate for all students was 36.9%. The highest graduation rate was found at Tennessee Technological University (48.9%) and the lowest was at Austin Peay State University (19.3%)

Table 6.17 isolates and examines only the traditional-age students. The highest graduation rate for this group of students was again at Tennessee Technological University with a rate of 50.4%, while the lowest, 22.5%, was at Austin Peay State University. The

Table 6.15. Comparison of Enrollment and Graduating Rates and Difference in Numbers and Percentages Between Tennessee Institutions (Adults only).

Name of Tennessee Institution ^a	Adult Freshman Enrollment	Adult Graduated Students	Difference
APSU	33	32	- 1 (3.0%)
ETSU	44	42	- 2 (4.5%)
MTSU	18	22	+ 4
TSU	28	26	- 2 (7.1%)
TTU	16	12	- 4 (25.0%)
UTC	18	18	0
UTM	14	14	0
UTK	0	3	+ 3
UTCHS	0	0	0
MSU	0	1	+ 1
Unknown	0	1	+ 1
Total	171	171	

^a APSU = Austin Peay State University, ETSU = East Tennessee State University, MTSU = Middle Tennessee State University, TSU = Tennessee State University, TTU = Tennessee Technological University, UTM = University of Tennessee at Martin, UTC = University of Tennessee at Chattanooga, UTK = University of Tennessee at Knoxville, UTCHS = University of Tennessee Center for the Health Sciences, MSU = Memphis State University.

Table 6.16. Graduation Rate of All Students by Tennessee Institution of Freshman Entry, Fall Semesters 1977-79.

Tennessee Institution of Freshman Entry ^a	Number of Students			Graduation Rate
	Graduated	Did Not Graduate	Total	
APSU	651	2,721	3,372	19.3%
ETSU	1,803	3,193	4,996	36.1%
MTSU	2,423	3,429	5,852	41.4%
TSU	672	2,221	2,893	23.2%
TTU	2,091	2,180	4,271	48.9%
UTC	998	1,631	2,629	38.0%
UTM	1,337	1,707	3,044	43.9%
Total	9,975	17,082	27,057	36.9%

^a APSU = Austin Peay State University, ETSU = East Tennessee State University, MTSU = Middle Tennessee State University, TSU = Tennessee State University, TTU = Tennessee Technological University, UTM = University of Tennessee at Martin, UTC = University of Tennessee at Chattanooga.

Table 6.17. Graduation Rate of Traditional-age Students
by Tennessee Institution of Freshman Entry,
Fall Semesters 1977-79.

Tennessee Institution of Freshman Entry ^a	Traditional-age Students			Graduation Rate
	Graduated	Did Not Graduate	Total	
APSU	618	2,134	2,752	22.5%
ETSU	1,759	2,823	4,582	38.4%
MTSU	2,405	3,306	5,711	42.1%
TSU	644	1,954	2,598	24.8%
TTU	2,075	2,045	4,120	50.4%
UTC	980	1,523	2,503	39.2%
UTM	1,323	1,644	2,967	44.6%
Total	9,804	15,429	25,233	38.9%

^a APSU = Austin Peay State University, ETSU = East Tennessee State University, MTSU = Middle Tennessee State University, TSU = Tennessee State University, TTU = Tennessee Technological University, UTM = University of Tennessee at Martin, UTC = University of Tennessee at Chattanooga.

Table 6.18. Graduation Rate of Adults by Tennessee Institution of Freshman Entry, Fall Semesters 1977-79.

Tennessee Institution of Freshman Entry ^a	Adult Students			Graduation Rate
	Graduated	Did Not Graduate	Total	
APSU	33	587	620	5.3%
ETSU	44	370	414	10.6%
MTSU	18	123	141	12.8%
TSU	28	267	295	9.5%
TTU	16	135	151	10.6%
UTC	18	108	126	14.3%
UTM	14	63	77	18.2%
Total	171	1,653	1,824	9.4%

^a APSU = Austin Peay State University, ETSU = East Tennessee State University, MTSU = Middle Tennessee State University, TSU = Tennessee State University, TTU = Tennessee Technological University, UTM = University of Tennessee at Martin, UTC = University of Tennessee at Chattanooga.

graduation rate for the group was 38.9, exactly 2% greater than the rate for all students.

The information on the 1,824 adult students is shown in Table 6.18. The lowest graduation rate for adults was 5.3% at Austin Peay State University, while the highest (18.2%) was recorded by The University of Tennessee at Martin. For the purposes of comparison, it can be seen that the overall graduation rate for adults was 9.4%.

By extrapolating data from Tables 6.16 to 6.18 it can be determined that the low graduation rate for adults tended to deflate the overall graduation rates for the seven universities by approximately 2%. Only the fact that the adults were relatively few in numbers, prevented the effect from being worse than it was.

In addition to the deflating effect of adults on graduation rates, other factors, such as year of entry, should be explored to discern differences. Thus, Table 6.19 reports on the crosstabulation between the year of freshman entry and the institution entered. Based on the year of entry, the number of freshmen who graduated varied only slightly from a low of 3,323 in 1978 to a high of 3,385 in 1979, an increase of 1.9%.

Table 6.20 extends the previous one, by breaking the students into four age intervals. In the years 1977-79 adults accounted for 5.6%, 6.5% and 8.0% of the total number of students (Table 6.2), but the percentages of adults who graduated from those years are 1.5%, 1.8% and 1.9% respectively (Table 6.20). Therefore, while the enrollment of adults increased by 2.4%, the graduation rate only increased by 0.4%.

Table 6.19. Year of Freshman Entry (1977-79) by Tennessee Institution of Freshman Entry.

Tennessee Institution of Freshman Entry ^a	Year of Freshman Entry			
	1977	1978	1979	Total
APSU	239 (36.7%)	208 (32.0%)	204 (31.3%)	651
ETSU	520 (28.8%)	650 (36.1%)	633 (35.1%)	1,803
MTSU	845 (34.9%)	779 (32.2%)	799 (33.0%)	2,423
TSU	275 (40.9%)	209 (31.1%)	188 (28.0%)	672
TTU	693 (33.1%)	681 (32.6%)	717 (34.3%)	2,091
UTC	329 (33.0%)	321 (32.2%)	348 (34.9%)	998
UTM	422 (31.6%)	419 (31.3%)	496 (37.1%)	1,337
Total	3,323 (100%)	3,267 (100%)	3,385 (100%)	9,975

^a APSU = Austin Peay State University, ETSU = East Tennessee State University, MTSU = Middle Tennessee State University, TSU = Tennessee State University, TTU = Tennessee Technological University, UTM = University of Tennessee at Martin, UTC = University of Tennessee at Chattanooga.

Table 6.20. Year of Freshman Entry (1977-79) by Age at Freshman Entry to Seven Public Tennessee Institutions.

Age at Freshman Entry	Year of Freshman Entry			
	1977	1978	1979	Total
To 25 yrs.	3,273	3,209	3,322	9,804 (98.3%)
25 to 34	37	42	39	118 (1.2%)
35 to 44	11	13	21	45 (0.5%)
45 plus	2	3	3	8 (0.1%)
Total	3,323	3,267	3,385	9,975
Trad. Age %	98.5	98.2	98.1	98.3
Adult %	1.5	1.8	1.9	1.7

The age at freshman entry crosstabulated against the year of graduation is reported in Table 6.21. In all age categories, the years 1981 to 1984 had the largest number of graduates, which is to be expected since the students entered in 1977-79 and most would graduate in 4 to 5 years. In the overview of the seven universities earlier in this chapter, all of them predicted that a high percentage of students would graduate within the traditional four to five years.

An examination of the number of years needed to graduate by the institution of freshman entry, as reported in Table 6.22, reveals that of the 9,975 graduates 4,997 (50.1%) did indeed graduate within a four year period. The next greatest percentage, 30.0%, received degrees within a five year period; 2,996 subjects fit this category. A small group of 106 students (1.0%) required nine years or more.

Table 6.23 re-examines data from Table 6.22 by crosstabulating the number of years between entry and graduation by the type of student (adult or traditional-age). In both types, the largest percentage graduated (50%) within a four year or less span, with the second largest percentage being in the five year span. If those who took six years or longer are isolated, it is found that the percentage for adults is 29.7% compared to a 19.4% rate for traditional-age students.

Information on the number of years between entry and graduation by age group is detailed in Table 6.24. To simplify the table, only four groups are shown: those who graduated in four years or less; in five years; in six years; or in seven years or longer. Comparing the two types of students, a larger proportion of adults (15% to 16%)

Table 6.21. Age at Freshman Entry by Year of Graduation
(1979-87) at Seven Public Tennessee
Institutions.

Year of Graduation	Age at Freshman Entry				Total
	Up to 24 yrs.	25 to 34 yrs.	35 to 44 yrs.	44 yrs and up	
1979	2	0	1	0	3
1980	134	6	2	0	142
1981	1,567	18	4	3	1,592
1982	2,638	36	13	1	2,688
1983	2,869	19	7	4	2,899
1984	1,558	16	10	0	1,584
1985	636	12	3	0	651
1986	292	8	4	0	304
1987	108	3	1	0	112
Total	9,804	118	45	8	9,975
Percent	98.3	1.2	0.5	0.1	

Table 6.22. Number of Years Needed to Graduate by Seven Public Tennessee Graduating Institutions, 1979-87.

Tennessee Graduating Institution ^a	Number of Years From Freshman Entry to Graduation					
	To 4	5	6	7	8	9+
APSU	240	232	65	35	12	10
ETSU	1,027	388	136	46	37	10
MTSU	1,434	488	154	108	41	18
TSU	224	236	126	59	19	12
TTU	818	613	243	86	31	18
UTC	513	280	106	46	22	10
UTM	437	414	136	38	26	12
UTK	198	239	124	54	30	10
UTCHS	64	66	28	6	2	0
MSU	41	40	29	17	14	6
Unknown	1	0	0	0	0	0
Total	4,997	2,996	1,147	495	234	106
Percent	50.1	30.0	11.5	5.0	2.3	1.0

^a APSU = Austin Peay State University, ETSU = East Tennessee State University, MTSU = Middle Tennessee State University, TSU = Tennessee State University, TTU = Tennessee Technological University, UTM = University of Tennessee at Martin, UTC = University of Tennessee at Chattanooga, UTK = University of Tennessee at Knoxville, UTCHS = University of Tennessee Center for the Health Sciences, MSU = Memphis State University.

Table 6.23. Type of Student by the Years Needed to Graduate
from Seven Public Tennessee Institutions, 1979-87.

Years Between Entry and Graduation	Type of Student		
	Adult	Traditional	Total
4 years or less	86 (50.4%)	4,911 (50.1%)	4,997
5 years	34 (19.9%)	2,962 (30.2%)	2,996
6 years	25 (14.6%)	1,122 (11.4%)	1,147
7 years	14 (8.2%)	481 (4.9%)	495
8 years	7 (4.1%)	227 (2.3%)	234
9 or more years	5 (2.8%)	101 (0.8%)	106
Total	171 (100%)	9,804 (100%)	9,975

Table 6.24. Number of Years Needed to Graduate by Age at Freshman Entry, Fall Semesters 1977-79.

Age at Entry	Number of Years From Freshman Entry to Graduation			
	To 4 years	5 years	6 years	7 or more
To 24	4,911 (50%)	2,962 (31%)	1,122 (11%)	809 (8%)
25 to 34	60 (51%)	22 (19%)	17 (14%)	19 (16%)
35 to 44	19 (42%)	11 (24%)	8 (18%)	7 (16%)
45 plus	7 (86%)	1 (14%)	0	0
Total	4,997	2,996	1,147	835
Trad. Age %	98.3	98.8	97.8	96.9
Adult %	1.7	1.2	2.2	3.1

took longer (seven years plus) to obtain a degree, than did their younger colleagues who had only 9% who required this length of time.

When the sex of the graduated student is compared to age, there appears to be little difference between the sexes according to Table 6.25. The number of women graduates exceeded the men by 399 subjects; the proportion of males to females in the various age groups was consistent.

Table 6.26 matches adult students against their younger colleagues based on race. The ratio is basically the same for the two major racial groups, while the other groups have a proportionately higher representation of adults.

Since one of the variables examined in the pilot study was the type of degree and how this crosstabulated to the type of student, this comparison has been repeated for the state-wide graduates and is reported in Table 6.27. This crosstabulation shows that the proportion of BSs was roughly equivalent for both groups, since each type of student had approximately a 81% rate for those receiving BS degrees. However, the rate for receiving other degrees, such as Nursing, was higher for the adults than for the younger group.

Testing of Hypotheses

Hypothesis III stated that the graduation rate for adult students at UTC was not significantly different from those encountered at other comparable institutions in the State of Tennessee. When the chi-square statistic was calculated the value (23.6) was significant at an alpha level of .05. Therefore, it can be stated that there was a significant difference, at the stipulated

Table 6.25. Sex of Student by Age at Freshman Entry to Seven Public Tennessee Institutions, Fall Semesters 1977-79.

Age at Freshman Entry	Sex of Student		
	Male	Female	Total
To 25 yrs.	4,721 (98.6%)	5,083 (98.0%)	9,804
25 to 34	46 (1.0%)	72 (1.4%)	118
35 to 44	17 (0.4%)	28 (0.5%)	45
45 plus	4 (0.1%)	4 (0.1%)	8
Total	4,788 (100%)	5,187 (100%)	9,975

Table 6.26. Type of Student by Race at Seven Public Tennessee Institutions, Fall Semesters 1977-79.

Race	Type of Student		
	Adult	Traditional-age	Total
White	136 (79.5%)	8,377 (85.4%)	8,513
Black	27 (15.8%)	1,355 (13.8%)	1,382
Asian	3 (1.8%)	37 (0.4%)	40
Hispanic	3 (1.8%)	25 (0.3%)	28
Native American	2 (1.2%)	9 (0.1%)	11
Unknown	0	1 (0.0%)	1
Total	171 (100%)	9,804 (100%)	9,975

Table 6.27. Type of Student by the Type of Baccalaureate Degree Awarded 1979-87 by Seven Tennessee State Institutions, 1979-87.

Type of Degree Awarded	Type of Student		
	Adult	Traditional-age	Total
BA	24 (14.4%)	1,749 (17.8%)	1,773
BS	139 (81.3%)	7,891 (80.5%)	8,030
Other	8 (4.8%)	164 (1.7%)	172
Total	171	9,804	9,975

.05 level, between the adult graduation rates at the seven institutions in the study, and that the null hypothesis should be rejected. It can be concluded, therefore, that the adult graduation rates differed between the institutions, other than could be expected by chance alone.

Hypothesis IV stated that the results of the comparison of state-wide data, using variables shown in Table 2.5, would not be significantly different from the findings of the pilot study (chi-square). The three variables in that table were type of degree, persistence to graduation, and the number of years between entry and graduation. These three variables were crosstabulated against the variable which indicated whether or not the student was an adult. The findings in the pilot study were used as the expected values, and the data collected in the cross-sectional study were used as the observed values.

When the chi-square for the type of degree was calculated (the value was 1407.6), there was a significant difference at the .05 level for this variable. As a result, the null hypothesis was rejected.

When the variable examined was persistence to graduation, there was a significant difference. (The chi-square value was 4516.0.) The null hypothesis was rejected. This result indicated that the difference between the two studies, with regard to persistence to graduation, was more than could be expected by chance.

The last of the three variables examined the relationship between the type of student and the number of years between entry and

graduation from university. The chi-square statistic (883.9) for this comparison showed that there was a significant difference between the two groups, and the null hypothesis was rejected.

Chi-square calculations determined that for all three variables (type of degree, persistence to graduation and years between entry and graduation) there was a significant difference between the expected values (pilot study) and the observed values (dissertation study) other than could be the based on chance or on the prior expectations of the pilot study.

Summary

On a state-wide basis, the two types of students were proportionally the same based on sex, race, type of degree and number of years between entry and graduation. However, the adults did vary, on a percentage basis, in two areas. Unlike their younger cohorts, adult students tended to have a lower transfer rate and a lower graduation rate. (While the overall graduation rate for all the students was 36.9%, when the adults were isolated, it was determined that only 9.4% of them graduated.) The low graduation rate of adults resulted in an approximately two percent deflation of the overall graduation rates; this finding was apparent in all seven public institutions.

When chi-square tests were performed to determine statistically significant differences between the pilot and the dissertation studies, it was determined that such differences existed for three specified variables. These were the type of degree, the persistence to graduation, and the number of years between entry and graduation.

This suggests that the findings of the pilot study and of the longitudinal study applied to students at The University of Tennessee at Chattanooga but could not be extrapolated to apply to students in the other six public institutions.

Although the adults had a low percentage rate of graduation at all the seven public universities, a chi-square analysis of the rates indicated that there were statistically significant differences among the universities. While all seven reported low graduation percentages, these rates were not comparable on a statistical basis. The graduation rate of adults at UTC was not comparable to that of other six public institutions in the State of Tennessee.

How do the data in this chapter relate to the review of literature? The cross-sectional study supports the statement of Sewall (1984) that the majority of the adult students are in the 25 to 34 year interval, because it was found that 64.7% of the Tennessee adults studied were in this interval (912 of 1,409). Moreover, these findings agree with the those of Richter-Antion (1986) that adults are predominantly white, are evenly split between the sexes and are usually under the age of 35. However, the contention of Brazziel (1987) that adults received 26.6% of the baccalaureate degrees in the academic year 1979-80 is not supported by this study. In the seven Tennessee public universities in the academic years 1979 to 1987, only 9.4% of adults graduated. Even taking into consideration that some adults might have graduated from other institutions not in the study, it seems unlikely that Tennessee graduation rates would match the one reported by Brazziel. It is made even more unlikely since it

has been demonstrated in both the longitudinal study and the cross-sectional study that adults transferred in small numbers.

CHAPTER 7

EVALUATION OF AUTOPSY STUDY

The main purpose of the autopsy study was to determine whether there was a difference in the ratings of the barriers to graduation by adult students who received degrees as opposed to those who did not. Only the 106 adults identified in the longitudinal study were included in the autopsy study. Of these students, 17 were recorded as receiving degrees from The University of Tennessee at Chattanooga. Prior to the autopsy study a pilot study of currently enrolled adult students was conducted to determine barriers which were local in nature.

As discussed in Chapter 4, the three types of barriers defined by Cross (1981) and others were used in the survey instrument. These three types were: institutional (associated with the college or university), dispositional (related to life experience), and situational (associated with the additional responsibilities of adults). Because these barriers had been developed at a national level, local (i.e. UTC) barriers were missing. This omission was felt to be one that should be corrected since local barriers might have as important an impact on UTC adults as those selected by Cross. Thus, it was necessary to discover, through a pilot study, what these local issues were before surveying the 106 students in the autopsy study.

It is appropriate at this point to discuss some of the resources currently available at UTC which are mentioned by the respondents.

Currently Available Resources

In late 1981, an Adult Services Center was established in a focal point of the UTC Student Center. The purpose of the Adult Services Center is to admit, advise, register, and accept fee payments from adult students. Two full-time people staff the center which conducts adult orientations. The Adult Scholars Program, associated with the Center, is designed to facilitate adult entry into college; these scholars act as mentors for other adults and host receptions.

There is an active group called Elderscholars (also known as the Senior Scholars) which meets monthly under the auspices of Adult Services. Composed of senior citizens, this group features speakers who discuss topics of special interest to the members.

In 1971, UTC initiated a program called Individualized Education Program (IEP) which allows adult students to obtain credits for work experience. Besides having access to this program, those UTC students who are over 21 years old are exempted from taking SAT or ACT exams for admittance to an undergraduate degree.

When the mailing list for the currently enrolled adults was compiled, there were found to be 124 students, a growth of 15% from the 106 students studied in the 1977-79 period. This is substantiated by Dr. Robert Marsh of UTC's Continuing Education Department. He noted that the number of adults who are first-time freshmen is increasing as is the number of adults returning to complete degrees.

Pilot Study of Currently Enrolled Students

Information on local barriers was obtained from a pilot survey on all adults currently enrolled (Fall 1987) in undergraduate programs at UTC. In the selection process, care was taken to ensure that these current adults all had been first-time freshmen at the time they entered UTC. The survey instrument contained the list of the barriers delineated by Cross, plus a section which allowed respondents to list, and rate, their own barriers. An area was reserved for comments from the respondents. A Likert-type scale running from one to ten was printed beside each barrier. Respondents were asked to rate the barriers using a scale in which the lowest rating (one) indicated that it was a negligible barrier for them, and the highest rating (ten) denoted a barrier which had had a very strong impact. The same scale was used for both the pilot and autopsy surveys.

A cover letter provided background information on the survey, gave instructions on how to complete the instrument, and listed two UTC administrators who could be contacted to verify the validity of the survey. In addition, each mailing contained a self-addressed, stamped envelope to encourage the return of surveys. A copy of the cover letter and the instrument is shown in Appendix A.

In February 1988, 124 questionnaires were mailed to currently enrolled students. Subsequently, one was returned because the respondent was no longer at the specified address. Of the remaining 123, 61 replied, a response rate of 50%. Many of the respondents added comments and 12 persons indicated, and rated, barriers which

they identified as being local ones. Based on this information, a list of ten local barriers was created and was added to the instrument which was used to solicit responses from the 106 adults in the autopsy study.

To supplement the information being received about local barriers from the pilot survey, the author attended the February 1988 meeting of the UTC Senior Students. This group meets once a month at the UTC Student Center and is composed of senior citizens attending classes at UTC. Members present at the meeting were asked to complete the survey instrument and to provide comments. Although most of the senior citizens at the meeting were audit students, they provided some valuable insights and comments about their perceptions of the barriers. Nobody who attended the meeting was on the mailing list to receive a copy of the pilot study.

Table 7.1 indicates the mean and median ratings given by the currently enrolled students who returned the questionnaires. In this table the barriers are listed by each type of barrier and arranged in descending order based on the mean score. Thus, the first barrier under each type was the one which received the highest mean score from the 61 respondents.

Overall, the situational barriers received the widest range of scores with means ranging from 6.098 to 1.817. Dispositional barriers generally received lower ratings with means ranging from 3.167 to 2.200. These two types of barriers relate directly to the individual, and in most instances changes made by a institution would

Table 7.1. Mean and Median Ratings Given By Currently Enrolled UTC Adult Students (N=61) to Perceived Barriers.

Barriers	Ratings ^a	
	Mean ^b	Median
Situational Barriers:		
Home responsibilities	6.098	6.000
Not enough time	5.627	6.000
Cost, including tuition, books etc.	5.333	5.000
Job responsibilities	4.950	5.000
No place to study or practice	2.763	1.000
No child care	2.167	1.000
Friends or family don't like idea	1.967	1.000
No transportation	1.817	1.000
Institutional Barriers:		
Amount of time to complete program	4.787	4.000
Courses aren't scheduled when can attend	4.367	4.000
Courses needed not available	3.458	1.000
Strict attendance requirements	3.393	1.000
No information about offerings	3.200	2.000
Don't want to go to school full time	3.066	1.000
Too much red tape in enrolling	2.967	1.000
No way to get credit or a degree	2.508	1.000
Don't meet program requirements	2.500	1.000
Dispositional Barriers:		
Not enough energy or stamina	3.167	3.000
Afraid too old to begin	3.115	1.000
Don't know what to learn or what it would lead to	2.881	1.000
Tired of school, tired of classroom	2.667	1.000
Don't enjoy studying	2.667	2.000
Low grades in past, not confident of ability	2.508	1.000
Hesitate to seem too ambitious	2.200	1.000

^a Mean ratings range from a low of one (negligible barrier) to a high of ten (strong barrier).

^b Mean scores are arranged in descending order by type of barrier.

do little to affect them. Institutional barriers ranged from a high of 4.787 to a low of 4.787.

Situational barriers relating to home and job responsibilities were rated highly as were the cost of tuition and the lack of time. This is in keeping with the statement of Richter and Witten, discussed in Chapter 3, that these barriers were the ones most commonly mentioned as inhibiting graduation. Lack of time was given the second highest ranking; this is in keeping with the other barriers, since time is required to deal with home and job responsibilities.

Institutional barriers which received the highest rating were the amount of time involved in attaining a degree, the inability to attend courses when they are scheduled, and the strict attendance requirements. As will be seen, many of the comments from currently enrolled students were related to these last two barriers. Dispositional barriers most frequently cited were not having enough energy and the feeling of being too old.

Since age seemed to be an important barrier, the 61 respondents were broken into three age groups: 25 to 34, 34 to 44, and over 45. Table 7.2 reports the median ratings for the barriers and how these scores varied depending on the age group. For example, adults under 45 selected home responsibilities as the greatest situational barrier. Those respondents aged 45 and older indicated that cost was the strongest barrier for them, yet it was relegated to third choice by those age 25 to 34 and to fourth choice by the 35 to 44 year old group. Lack of transportation was ranked as the lowest barrier by

Table 7.2. Mean Scores of Perceived Barriers as Rated by Currently Enrolled Adult Students (N=57) According to Age Group.

Barriers	Ratings by Age Group ^a		
	25 to 34 (N=22)	35 to 44 (N=24)	45 plus (N=11)
Situational Barriers:			
Cost, including tuition, books etc.	5.633	4.600	5.556
Not enough time	6.103	5.350	4.333
Home responsibilities	6.833	6.100	3.900
Job responsibilities	5.300	4.850	3.444
No child care	2.467	2.300	1.000
No transportation	2.100	1.550	1.556
No place to study or practice	2.931	3.050	1.444
Friends or family don't like idea	2.067	2.150	1.333
Institutional Barriers:			
Don't want to go to school full time	2.433	3.100	4.200
Amount of time to complete program	4.433	5.100	4.800
Courses aren't scheduled when can attend	4.633	4.150	3.333
No information about offerings	3.100	2.950	4.000
Strict attendance requirements	4.133	2.850	2.400
Courses needed not available	3.000	3.650	3.875
Too much red tape in enrolling	2.933	2.350	4.400
Don't meet program requirements	2.433	2.550	2.667
No way to get credit or a degree	2.167	2.350	3.900
Dispositional Barriers:			
Afraid too old to begin	3.067	2.800	4.100
Low grades in past, not confident of ability	2.367	2.550	3.000
Not enough energy or stamina	3.300	2.600	3.556
Don't enjoy studying	3.033	2.050	2.333
Tired of school, tired of classroom	3.233	2.300	1.556
Don't know what to learn or what it would lead to	2.862	2.800	3.333
Hesitate to seem too ambitious	2.100	2.100	2.889

^a Mean ratings range from a low of one (negligible barrier) to a high of ten (strong barrier).

those under 45, but figured in fifth place for the oldest age group. As might be expected, lack of child care received the lowest rating from those over 45.

With regard to institutional barriers, differences between age groups also were apparent. Although those under 45 indicated the amount of time to complete a program and course scheduling were the two top rated barriers, those over 45 selected red tape as the second highest barrier after the amount of time.

Fear of being too old was selected as the highest rated dispositional barrier by those over 45, with second place being given to lack of energy and stamina. The latter barrier also was highly rated by those under 35. Those in the 35 to 44 age bracket gave the highest rating equally to age and to the barrier related to not realizing what a degree would lead to.

The comments from the 61 currently enrolled students were used to create the local barriers required for the autopsy study on the 106 adults who entered UTC in the fall semesters of 1977-79.

Survey of Students in Autopsy Study

The autopsy study population was comprised of the adults who entered UTC as first-time freshmen in 1977-79 and who were part of the longitudinal study (Chapter 5). One of the problems connected with surveying these 106 adult students was that some of the subjects had moved from the Chattanooga area. In addition, many of the women had married making it difficult to locate them under their new names. Only if a woman requested a transcript was there a record of her new name on file at UTC.

The University of Tennessee Development Office was most helpful and provided the telephone numbers and/or addresses for 18 of the 106 adults. The Chattanooga Tennessee City Directory (1987 edition) was used to identify other students. It listed individuals by name and address. Although many of the subjects had moved from their 1977-79 addresses, it was possible to locate their new residencies through the Directory.

Table 7.3 reports the status of finding the 106 students. Forty eight of the adults could not be traced. One subject had suffered a stroke and was not capable of completing the survey. Six of those found declined to participate. Five people had the same name as the person in the study but had not attended UTC. Two people with unlisted telephone numbers evidently had moved from the specified address, as the survey was returned. Eighteen people had unlisted telephones and could be reached only by mail. The 26 subjects who could be identified with a current telephone number and address were contacted and asked whether they would be willing to participate in the survey. (Even though the survey instrument was only two pages long, it was deemed too difficult to obtain meaningful ratings over the telephone.)

The 44 individuals who either had unlisted numbers or who agreed to participate were sent a copy of the survey with a cover letter and self-addressed, stamped envelope. Since the instrument contained the addition of the local barriers discussed above, and the letter was changed from the present to past tense, a copy of the revised letter and the survey are shown in Appendix B.

Table 7.3 Status of 106 Adults in Autopsy Study.

Status	Number of Adults
Untraceable	48
Traceable:	
Incapacitated	1
Right name, wrong person	5
Declined to participate	6
Mail Returned, invalid address	2
Unlisted phone, sent mailing only	18
Telephoned and sent mailing	26
Total	106

Two weeks after the initial mailing a postcard was sent to the subjects urging them to respond if they had not already done so. This elicited three additional responses. The 21 returned surveys (out of 44) represented a 47% return rate, comparable to that of the pilot study.

Results of Autopsy Study

Table 7.4 reports on the mean and median ratings given by the respondents to the different barriers. The barriers are listed in descending order of mean within each category. The situational barriers again received the highest ratings, ranging from a high of 7.524 for home responsibilities to a low of 1.190 for a lack of transportation. In fact, the ratings given by those in the pilot study closely matched those in the autopsy study if the rank order of situational barriers is examined. The only difference is that the autopsy subjects reversed the order of cost and job responsibilities by giving cost a lower ranking.

The institutional barriers received ratings ranging from 5.762 to 2.922, a wider range than that in the pilot study where the highest mean was 4.787 and the lowest mean was 2.500. There were some interesting differences between the ratings given by the two groups: red tape was given a much lower mean by the currently enrolled students than it was by those in the autopsy study.

The dispositional barriers overall were given a higher rating by autopsy students than by the current UTC adults. However, the two strongest dispositional barriers in both surveys were related to age and stamina.

Table 7.4. Mean and Median Ratings Given By Respondents in Autopsy Study (N=21) to Perceived Barriers.

Barriers	Ratings ^a	
	Mean ^b	Median
Situational Barriers:		
Home responsibilities	7.524	8.000
Not enough time	7.048	8.000
Job responsibilities	6.000	7.000
Cost, including tuition, books etc.	5.238	5.000
No place to study or practice	3.048	1.000
No child care	2.238	1.000
Friends or family don't like idea	2.190	1.000
No transportation	1.190	1.000
Institutional Barriers:		
Courses aren't scheduled when can attend	5.762	6.000
Amount of time to complete program	4.857	3.000
Too much red tape in enrolling	4.571	3.000
Don't want to go to school full time	3.905	3.000
No information about offerings	3.857	3.000
Strict attendance requirements	3.381	2.000
Courses needed not available	3.762	3.000
No way to get credit or a degree	3.550	1.000
Don't meet program requirements	2.952	1.000
Dispositional Barriers:		
Not enough energy or stamina	3.857	3.000
Afraid too old to begin	3.190	2.000
Don't enjoy studying	2.524	1.000
Tired of school, tired of classroom	1.950	1.000
Low grades in past, not confident of ability	2.286	1.000
Don't know what to learn or what it would lead to	1.762	1.000
Hesitate to seem too ambitious	1.619	1.000

Table 7.4 (Continued)

Barriers	Ratings ^a	
	Mean ^b	Median
Local Barriers:		
Insufficient Offerings	5.762	6.000
Advisement/Registration process	5.190	6.000
Parking facilities on campus	5.143	5.000
Prerequisites for courses	4.381	5.000
Core courses (including languages)	4.238	4.000
Course credit not given for experience	3.952	4.000
Library facilities	3.095	1.000
Cost of Campus Food	2.714	1.000
Lab requirements for sciences	2.429	1.000
Lack of part-time child care	2.095	1.000

^a Ratings range from a low of one (negligible barrier) to a high of ten (strong barrier).

^b Mean scores are arranged in descending order by type of barrier.

Ratings for the local barriers in the autopsy study varied from a high of 5.762, given to the insufficient offerings barrier, to a low of 2.095 (for lack of child care) The advisement/registration barrier received the second highest ratings. Interestingly, parking was named highest choice though this item was not mentioned in any of the comments by either the currently enrolled students or by the autopsy study subjects.

The reaction of the autopsy study students to the barriers based on age group is reported in Table 7.5. Since there were only two respondents in the 45 plus group, these subjects' ratings were added to the 35 and over group. As had been seen earlier in the ratings from currently enrolled students, there were differences in perceptions based on age group. In each of the four categories of barriers each age group gave the highest rating to the same barrier. Thus, they both selected home responsibilities (situational), courses not scheduled at convenient times (institutional), not enough energy (dispositional) and insufficient offerings (local) as their top choices.

In Table 7.6 the differences in ratings between those who graduated (N=10) versus those who did not receive degrees (N=13) are reported. With regard to situational barriers, both graduates and non-graduates ranked home responsibilities and lack of time as the two strongest barriers. At the other end of the scale, both groups gave the lowest rating to lack of transportation. Those who graduated gave cost of tuition a rating of 6.000 (tied for second

Table 7.5. Mean Scores by Age Group of Perceived Barriers as Rated by Adult Students (N=23) in Autopsy Study.

Barriers	Mean Scores ^a by Age Group	
	25 to 34 (N=11)	35 plus (N=12)
Situational Barriers:		
Cost, including tuition, books etc.	4.273 (3)	5.417 (4)
Not enough time	5.364 (2)	8.333 (2)
Home responsibilities	5.636 (1)	8.917 (1)
Job responsibilities	4.182 (4)	6.833 (3)
No child care	1.545 (7)	2.667 (5)
No transportation	1.273 (8)	1.083 (8)
No place to study or practice	3.091 (5)	2.667 (5)
Friends or family don't like idea	2.273 (6)	1.917 (7)
Institutional Barriers:		
Don't want to go to school full time	2.909 (7)	5.083 (3)
Amount of time to complete program	4.273 (4)	5.500 (2)
Courses aren't scheduled when can attend	5.091 (1)	6.333 (1)
No information about offerings	4.364 (3)	2.917 (9)
Strict attendance requirements	3.091 (5)	4.000 (5)
Courses needed not available	3.091 (5)	3.917 (6)
Too much red tape in enrolling	4.909 (2)	3.833 (7)
Don't meet program requirements	2.455 (8)	3.083 (8)
No way to get credit or a degree	2.400 (9)	4.833 (4)
Dispositional Barriers:		
Afraid too old to begin	3.000 (4)	3.000 (2)
Low grades in past, not confident of ability	3.091 (1)	1.500 (7)
Not enough energy or stamina	3.091 (1)	4.083 (1)
Don't enjoy studying	3.091 (1)	1.750 (4)
Tired of school, tired of classroom	2.000 (5)	1.667 (5)
Don't know what to learn or what it would lead to	1.727 (6)	1.833 (3)
Hesitate to seem too ambitious	1.545 (7)	1.583 (6)

Table 7.5 (Continued)

Barriers	Mean Scores by Age Group ^a	
	25 to 34 (N=11)	35 plus (N=12)
Local Barriers:		
Cost of Campus Food	2.818 (8)	2.333 (9)
Parking facilities on campus	4.545 (2)	5.000 (3)
Library facilities	3.091 (7)	2.750 (7)
Lack of part-time child care	1.545 (10)	2.417 (8)
Course credit not given for experience	3.273 (6)	4.082 (5)
Advisement/Registration process	4.545 (2)	5.083 (2)
Prerequisites for courses	4.364 (4)	3.750 (6)
Core courses (including languages)	3.636 (5)	5.000 (3)
Insufficient Offerings	4.818 (1)	5.833 (1)
Lab requirements for sciences	2.818 (8)	2.333 (9)

^a Numbers in parentheses indicate the rank order of the rating by type of barrier.

Table 7.6. Mean Scores of Perceived Barriers to Learning
Rated by Whether Adult Student Graduated or Not.

Barriers	Graduated? ^a	
	Yes (N=10)	No (N=13)
Situational Barriers:		
Cost, including tuition, books etc.	6.000 (2)	4.000 (4)
Not enough time	6.000 (2)	7.615 (2)
Home responsibilities	6.800 (1)	7.769 (1)
Job responsibilities	4.100 (4)	6.692 (3)
No child care	1.900 (7)	2.308 (5)
No transportation	1.300 (8)	1.077 (8)
No place to study or practice	3.600 (5)	2.308 (5)
Friends or family don't like idea	3.000 (6)	1.385 (7)
Institutional Barriers:		
Don't want to go to school full time	3.500 (7)	4.462 (3)
Amount of time to complete program	4.900 (3)	4.923 (2)
Courses aren't scheduled when can attend	5.600 (2)	5.846 (1)
No information about offerings	4.200 (5)	3.154 (6)
Strict attendance requirements	3.600 (6)	3.538 (5)
Courses needed not available	4.300 (4)	2.923 (7)
Too much red tape in enrolling	6.900 (1)	2.385 (9)
Don't meet program requirements	2.900 (9)	2.692 (8)
No way to get credit or a degree	3.111 (8)	4.154 (4)
Dispositional Barriers:		
Afraid too old to begin	4.000 (1)	2.231 (2)
Low grades in past, not confident of ability	3.200 (3)	1.538 (6)
Not enough energy or stamina	3.700 (2)	3.538 (1)
Don't enjoy studying	2.600 (4)	2.231 (2)
Tired of school, tired of classroom	1.900 (7)	1.769 (4)
Don't know what to learn or what it would lead to	2.000 (5)	1.615 (5)
Hesitate to seem too ambitious	2.000 (5)	1.231 (7)

Table 7.6 (Continued)

Barriers	Graduated? ^a	
	Yes (N=10)	No (N=13)
Local Barriers:		
Cost of Campus Food	3.800 (6)	1.615 (10)
Parking facilities on campus	5.900 (1)	3.923 (5)
Library facilities	4.100 (5)	2.000 (8)
Lack of part-time child care	2.000 (10)	2.000 (8)
Course credit not given for experience	3.100 (8)	4.154 (4)
Advisement/Registration process	5.500 (3)	4.308 (3)
Prerequisites for courses	4.400 (4)	3.769 (6)
Core courses (including languages)	3.300 (7)	5.154 (1)
Insufficient Offerings	5.800 (2)	5.000 (2)
Lab requirements for sciences	2.300 (9)	2.769 (7)

^a Numbers in parentheses indicate the rank order of the rating by type of barrier.

highest rank), but those who did not receive degrees rated it at 4.000 (fourth place).

Where institutional barriers are involved, the graduates gave a high rating of 6.90 to red tape, while non-graduates gave this barrier the lowest rating (2.385). For those who did not graduate, scheduling of courses was indicated as the strongest barrier, and for the graduates this barrier ranked as the second strongest one.

Fear of being too old was cited by graduates as the strongest dispositional barrier with a rating of 4.000, but was rated in second place by the non-graduates. Those who did not receive degrees rated lack of energy (3.538) at the top of this category of barriers.

Graduates indicated that parking (with a rating of 5.900) was the strongest local barrier for them, while non-graduates specified the core course requirements as the most important barrier (5.154). Whether they graduated or not, students rated insufficient offerings as the second strongest local barrier; both groups rated the Advisement/Registration process in third place.

As discussed in Chapter 4, no statistical tests were run on the autopsy survey due to the low number of respondents and to the fact that those responding were volunteers and, therefore, may be biased. However, the ratings provided by the students, while they did not allow any determination of statistical significance, did present some insights into the barriers which adult students encounter.

Comments from Respondents

Most of the comments were received from the currently enrolled students. Many of those in the autopsy study indicated they did not

consider themselves typical students or stated that their college experience had been so long ago that they felt their remarks were no longer pertinent.

As previously noted in Chapter 3, Steltenphol and Shipton (1986) had noted that adults tended to view university as an extension of grade school and found it difficult to cope with the demands of a university. This concept was confirmed by several of the respondents. One adult wrote, "I feel as an adult student that treating us as children in the first grade is obscene." The other side of the problem was clearly defined by an adult who expressed not outrage but the anxiety attached to returning to campus life.

For the adult coming back to school it is like starting back in first grade and wanting someone to hold one's hand until they get adjusted. ... It really is scary when you come back after a hundred years. I still have test anxiety.

The adults had quite definite views about courses, but most of the comments in this area were directed towards two departments: Art and Foreign Languages. For example, several students complained that Foreign Languages and Art courses were given at the same time each semester. Two respondents noted that language courses were not offered at night. Another student cited the need for a stronger Foreign Language department and specifically noted that there were no advanced courses in German. A respondent, who identified himself/herself as an Fine Arts major, commented that there were few art classes in the summer, while another student added that the only evening offering in Art was a class in photography.

One respondent, incensed about core requirements, stated,

I think I've had enough time to develop my knowledge about people and the world without a professor telling me how life really is. Many lectures and seminars are a waste of my studying and(or) working time.

This reaction to core courses was reflected by a student who stated, "Math 105 and 106 hurts the student and the teachers, and it's a rip off as far as grading goes."

As previously noted, the dispositional barrier with the highest rating was the one concerning age. The respondents to the pilot survey gave a variety of responses to this barrier according to the age of the respondent. For example, a student who was in the 35 to 44 age group asserted, "I have not encountered any barriers concerning my age." On the other hand, an older respondent clearly felt the pressure of age when she remarked, "It will take me eight years to receive my degree. Considering my age (55), I feel that I might not be able to get my degree in special education before retirement."

The barrier referring to the cost of attending university received a high rating, and this was reflected in some of the comments. In discussing the cost of tuition, it was suggested that attendance at UTC often was linked to an employer's willingness to compensate 50%. One respondent suggested that, to ease the costs for retired students, there should be not only a tuition waiver, but also the ability to obtain credit and get grades.

Evidently some adults felt that faculty should be more responsive to the needs of the students. A typical comment was that, "teachers don't make any kinds of allowances for sickness of either

the adult student or his or her family members." Another student complained that a professor stated how important it was for students to be involved in extracurricular work but did not realize it took 3 hours for this particular student to do the return trip from home to UTC.

The barrier of strict attendance elicited several comments, such as, "with adults, home, job and family emergencies can arise; and the instructor does not seem to take account of this with adult students." Another voiced the same concern and added "I'm afraid the professor will lower my grade." Some of these statements must be taken in the light of the contention by Steltenphol and Shipton that adults often do expect to be treated as they were in grade school and anticipate "spoon feeding".

One subject commented on the need for more credits for lifetime experience, "I feel strongly that credit for some humanities courses be given to people who have raised or are raising children - there's too much hassle given when trying to get this credit."

Several respondents alluded to a perceived need for institutional support services. It was noted that there were no organizations and few, if any support groups, for adult students. A respondent mentioned that there were no adult group activities to participate in at UTC. On the other hand, there was a comment on the commitment UTC had to adults; the writer specified that "Adult Services had been a big plus in my staying at UTC."

One respondent commented that there was a "feeling of being restricted by the demands of studying and maintaining the academic

level required for the completion in my major (pre-med)." The respondent added that he/she found no one in the first five years "truly capable of counseling me about the possibilities I had as a pre-med major."

While some used the survey as an opportunity to express frustration and discuss problems, others took a more positive approach. For example, a respondent wrote, "I relied on the experiences of other adult students to identify and overcome problems before they were critical." Typical of the independence of some students, was the comment "I just want to be a student. I don't want special favor or attention." Another student added "The major barriers I have encountered are self-inflicted or caused by family."

A major problem associated with adult students is that they form a very small percentage of the enrollment. Also, they are fragmented by differences in age and time of attendance at UTC. As a result, there is no such thing as the quintessential adult student. Adults attending college run the gamut from those who obviously are in complete control and are independent to those who, for one reason or another, need help to graduate.

Several people commented on the compensations of adult education. For example, one respondent said she attended "because I enjoy the thrill of learning." Another student wrote, "returning to school was the best thing I've ever done. I enjoy the challenge. My family is proud of me and helps whenever and however they can." This comment not only underscores the feeling of enjoyment but sustains

the statement by Billsen and Terry (1987) that those who persisted were more likely to be those who received family support.

Of the currently enrolled adults, not one indicated that they felt they did not have the ability to graduate. Indeed, the underlying assumption was that one way or another they were going to graduate. However, it must be remembered that those who responded were "volunteers" and hence were more likely to be survivors than those who were silent and did not respond. Despite the problems, there still appeared to be strong indications that most students handled the barriers effectively and enjoyed attending a university. As one person put it, "these barriers are nothing I can't handle ... with perseverance and a constant eye toward my goals."

CHAPTER 8

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

The dissertation study was an extension of a pilot study conducted by this author in 1986. The finding of the pilot study was that the graduation rate for adult students was 15.8% compared to a 39.1% rate for randomly selected traditional-age students. Both types of students entered UTC as first-time freshmen in 1977-79. In the dissertation study the 439 subjects from the pilot study were examined in depth by means of a longitudinal and an autopsy study. Also, data pertaining to seven comparable Tennessee universities were examined in a cross-sectional study. The latter study was designed to determine how adult graduation rates compared with those for traditional-age students at the specified institutions.

This chapter summarizes the information derived from each of the three studies. The research questions are discussed, conclusions are drawn, and recommendations for future action are made.

Findings with Regard to Research Questions

Question 1: Did adult students at The University of Tennessee at Chattanooga have a higher GPA and a higher retention rate than traditional-age students? Also, did other variables, obtained from UTC transcripts and described in Chapter 3, show a difference, depending on whether or not the student was an adult?

The longitudinal study did not provide a clear answer to this question. It was found that initially adults did leave in large

numbers and consequently had a lower retention rate than their younger colleagues. Fifty percent of the adults did not survive beyond the second semester. On the other hand, those adults who persisted received a proportionally higher number of graduation honors than the traditional-age students. Also, once past this critical time, adults tended to have a higher GPA than their counterparts.

If the records of graduates only are examined, there is a significant difference between the two types of students for cumulative GPA, semesters attended, and average credit hours. For the cumulative GPA and number of semesters attended, the mean of the adult group was higher than that of the younger group, but the reverse was true for average credit hours. However, when all the students are examined the three previously named variables, plus the last semester GPA and credit hours earned, are all significant. For all five variables, the mean of the traditional-age group was higher than the mean for the adult one.

Question 2: Was there a significant relationship between the adult graduation rate at The University of Tennessee at Chattanooga and the number of years between leaving school and entering UTC?

The longitudinal study reported that there was no significant relationship between graduation and number of years between leaving high school and entering college as a freshman.

Question 3: Was the graduation rate for adult students higher in comparable institutions in the State of Tennessee compared to the rate at The University of Tennessee at Chattanooga?

The cross-sectional study of 27,075 freshmen found that 9,975 of them graduated, a graduation rate of 36.9%. Only 171 (9.4%) of the 1,824 adults received degrees. The adult graduation rate for adults at UTC was 14.3%, above the average rate of 9.4%, but below the top rate of 18.3%. The low adult graduation rate reduced the graduation rate at all seven universities by approximately 2% on a proportional basis. However, statistical tests indicated that UTC's rate was significantly different from those at the other six institutions at the .05 level.

Question 4: Were there differences between the pilot study (UTC only) and the dissertation study (comparable institutions) with regard to the other variables examined in the pilot study, described in Chapter 2?

The cross-sectional study examined the variables: type of degree, persistence to graduation, and number of years between high school and entry to college. For all three variables the chi-square was significant at the .05 level. This indicated that there was a difference between the subjects in the two studies, other than could be explained by chance alone.

Question 5: Were the barriers to retention, which adult graduates at The University of Tennessee at Chattanooga identified,

different depending on whether these students received, or did not receive, a baccalaureate degree?

It was not possible to test this question at a statistical level since the small numbers and "volunteer" subjects would cause a bias. However, the results indicated that situational barriers had the highest rating of the three types of barriers regardless of whether or not the student graduated.

Summary of Findings from Three Parts of the Dissertation Study

This section provides an overview of the findings from each of three studies.

The longitudinal study of 439 subjects (106 adults, 333 traditional-age), described in Chapter 5, indicated:

1. The graduation rate for all students at UTC was 33.7%, but only 16.0% of the adults graduated.

2. Adults had a higher attrition rate during the first two semesters than their younger colleagues (50% compared to 25%).

3. Many of the adults (33.0%) left in good standing and without formally withdrawing compared to a 21.9% rate for traditional-age subjects. There was a significant difference between the two groups when a chi-square test was used. The adult rate was 11% higher than that of the younger students.

4. Although adults had a higher rate of academic probation and academic dismissal than traditional-age students, those who persisted had a higher percent in the 3.5 GPA range and received more graduation honors.

5. There was no significant difference when the variables examined were whether the adult graduated and the number of years between high school and college entry.

The cross-sectional study of the 27,057 first-time freshmen in Tennessee in 1977-79, described in Chapter 6, found:

1. In the seven institutions the average adult graduation rate was 9.4% compared to the traditional-age rate of 38.9%.

2. There were statistically significant differences, based on chi-square tests, between adult graduation rates of UTC and those at the other six public universities. The average rate for adults was 9.4%, but the UTC rate (14.3%) was the second highest of the seven institutions.

3. The profile of Tennessee students with regard to sex, race, and age groups matched profiles found in the review of literature.

4. Transfers for adults were proportionally lower in number than those for traditional-age students.

5. There were significant differences (based on chi-square tests) between type of degree, persistence to graduation, and number of years from entry to graduation between this study and the pilot study. For all three variables the observed frequencies for the adults was lower than the expected frequencies.

The autopsy study of 106 adults who first entered UTC in 1977-79 did not include statistical tests. However, it did indicate that of the three types of barriers (situational, institutional, and dispositional) situational barriers received the highest ratings.

Conclusions

Based on the findings related to the research questions, the major conclusions of the dissertation study were:

1. The first two semesters are critical ones for retaining adult students. From this fact it can be deduced that adults face special problems, which many find insurmountable, in the first year. Since those adults who persist have a higher percentage of graduation honors, it also can be concluded that adults have both intellectual ability and motivation comparable to those of the younger students.

2. Because there were no differences on adult performance based on the years between leaving high school and entering college, we can conclude that adults are viable candidates for graduation regardless of how long it has been since they were in a classroom. It can be further deduced that factors other than this variable have a greater effect on adult attrition.

3. Since the low graduation rate for adults was universal in the seven Tennessee public universities, it can be concluded that this may be a phenomenon worth studying in other states. There is no reason to believe that the seven public universities in Tennessee are different from other small universities. The fact that the profile of students in Tennessee matched that described in the review of literature supports this conclusion.

4. It can be concluded that there were factors at UTC which accounted for its differing significantly from the other six universities. The seven universities do have different environments

(rural versus urban) and the orientation of the institutions also varies (e.g. emphasis on technology versus liberal arts).

5. The ratings in the autopsy study lead to the conclusion that although a university can lessen the effect of institutional barriers, it can do little to overcome situational or dispositional barriers. Since autopsy students rated red tape highly, but currently enrolled subjects did not, it also can be concluded that the Adult Services Center (started in 1981) and other facilities, described in Chapter 7, have reduced this barrier.

There is one other issue of a general nature that should be addressed. It could be argued that some of the adults who dropped out had intended to attend the university only for one or two courses. However, the rebuttal to this argument is, first of all, that those who wanted to take only a few courses would most likely attend one of the local junior colleges or take continuing education courses. Secondly, any student who completed the registration process, including paying an admission fee, obtaining a transcript, and acquiring references, was serious about entering college. It can be concluded, then, that most of the first-time freshmen in the study initially entered with the idea of eventually graduating. This is supported by the currently enrolled adults who all indicated that they intended to persist to graduation.

Recommendations

1. It has been concluded that if adults persist during their first year there is a greater probability that they will graduate eventually. Therefore, universities should make special services

available to support adults during the critical first two semesters. Typical services could include receptions for freshmen adults, peer support groups, counseling facilities, and reserved areas in the Student Center and Library.

In particular, The University of Tennessee at Chattanooga should repeat the longitudinal study in 1989 using the first-time freshman class of 1982-84. This study would determine if there are statistically significant differences between the 1977-79 and 1982-84 adult graduation rates. (Both the longitudinal and cross-sectional studies indicated 80% of students, regardless of age group, graduated within five years. By 1989 this five year period would have been completed even by those students who entered in 1984.)

2. Colleges and universities should actively recruit more adult students through publicity in local newspapers, distributing brochures and working with local organizations. Also, more scholarships and awards, designated specifically for adult students, should be funded. Contacts with local businesses should be established to encourage working adults to enroll and participate in lifelong learning. Particular emphasis should be placed on contacting companies with extensive (Reduction in Force) RIF programs. Specifically, The University of Tennessee at Chattanooga should continue its programs which encourage adults to return to the classroom after a long absence, and should continue its commitment to the Elder Scholars.

3. Institutions in other states, which are comparable in size to those in the study, should be contacted to determine if the same low

adult graduation rate has been identified. The University of Tennessee at Chattanooga should repeat the cross-sectional study, using the 1982-84 freshman class at the Tennessee institutions, to determine if changes in socio-economic conditions since the 1970s have resulted in a change in the rate of adult graduation.

4. The seven public institutions in Tennessee should integrate information related to adults to determine the different methods used to recruit and retain adult students. Differences in adult programs should be examined to determine those which appear to be successful. Also, using the data obtained in the previous recommendation, The University of Tennessee at Chattanooga should compare the findings from 1977-79 with those from 1982-84 to determine if there are again significant differences between the universities relating to the specified variables.

5. Universities could consider establishing ad hoc committees composed of representatives of the administration, faculty and adult students. These group would focus on the barriers encountered by adults and design strategies to overcome them. Workshops on time management, controlling stress, and other topics which could assist adults in coping with the pressures of combining learning with home and job responsibilities should be initiated and offered without charge. The University of Tennessee at Chattanooga should continue to support the Adult Services Center at UTC and at the same time undertake measures to determine what other facilities should be made available to help adult students overcome barriers. In addition, it is recommended that The University of Tennessee at Chattanooga

undertake an anthropological survey to determine how the three types of barriers affect adults.

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APPENDICES

Appendix A

Cover Letter and Instrument Used in Survey of Currently Enrolled Adult Students

7112 Saratoga Lane
Chattanooga, TN 37421
February 7, 1988

Dear Adult Student,

Do undergraduate students who enter college after age 25 encounter barriers that their younger colleagues do not? Since you are an adult student at the University of Tennessee at Chattanooga, I would like to solicit your answers to this question through a survey.

Several national researchers have concluded that there are three main types of barriers with which mature students must contend when they enter college. These are defined as situational (associated with the additional responsibilities of adults), institutional (associated with the college or university) and dispositional (associated with life experiences). The enclosed survey contains a list of these barriers. Would you please take a few minutes to indicate on a scale of 1 (lowest) to 10 (highest) your perception of how each barrier relates to your attendance at UTC. A low rating should be given to those barriers which you think have a negligible impact on you, while those barriers which most affect you should be given a high rating.

Local barriers were not included in the national research, but these may be important to UTC adult students. To overcome this problem a part on the second page has been reserved so that you can add, and rate, barriers which affect your UTC experiences. Also, it would be helpful if you would add comments in the designated area.

A stamped, self-addressed envelope is enclosed for your convenience. Please return your completed survey by February 29. All responses will be kept confidential. Your answers will be compiled so that individual responses can not be identified.

In case you would like to confirm the validity of this survey, feel free to contact either Dr. Dan Quarles, Director of the UTK/UTC Graduate Center (755-4113), or Dr. Robert March, Director of Adult and Special Credit Programs (755-4346). If you would like to talk to me about the survey, I can be contacted at 892-5001.

I hope you will participate in this survey as I am looking forward to finding which barriers you indicate are most important to you. The compiled results and my report on the survey will be available in the UTC Adult Center later this spring.

Sincerely,

Beth Craig
UTK Doctorate Program

Adult Student Survey
February 1988

Demographic Information:

1. What is your age? ____ 25 to 34 ____ 35 to 44 ____ over 45
2. Were you a first-time freshman when you entered UTC? ____ Yes ____ No
3. How many years elapsed from high school graduation to entry at UTC? ____
4. Have you transferred college credits from other institutions to UTC? ____
5. When was your first semester at UTC ? ____ 19 ____

Directions: Please rate each of the following items by placing a circle around one of the numbers. Use a scale of 1 through 10, where 10 indicates that you consider the item is a very strong barrier and where 1 indicates that the item is a negligible barrier on your decision to remain at UTC.

Negligible **Very Strong**

Situational Barriers:

Cost, including tuition, books, etc.	1	2	3	4	5	6	7	8	9	10
Not enough time	1	2	3	4	5	6	7	8	9	10
Home responsibilities	1	2	3	4	5	6	7	8	9	10
Job responsibilities	1	2	3	4	5	6	7	8	9	10
No child care	1	2	3	4	5	6	7	8	9	10
No transportation	1	2	3	4	5	6	7	8	9	10
No place to study or practice	1	2	3	4	5	6	7	8	9	10
Friends, family don't like idea	1	2	3	4	5	6	7	8	9	10

Institutional Barriers:

Don't want to go full time	1	2	3	4	5	6	7	8	9	10
Amount of time to complete program	1	2	3	4	5	6	7	8	9	10
Courses aren't scheduled when can attend	1	2	3	4	5	6	7	8	9	10
No information about course offerings	1	2	3	4	5	6	7	8	9	10
Strict attendance requirements	1	2	3	4	5	6	7	8	9	10
Courses needed not available	1	2	3	4	5	6	7	8	9	10
Too much red tape in enrolling	1	2	3	4	5	6	7	8	9	10
Don't meet program requirements	1	2	3	4	5	6	7	8	9	10
No way to get credit or a degree	1	2	3	4	5	6	7	8	9	10

Dispositional Barriers:

Negligible

Very Strong

Afraid too old to begin 1 2 3 4 5 6 7 8 9 10

Low grades in past, not confident of ability 1 2 3 4 5 6 7 8 9 10

Not enough energy or stamina 1 2 3 4 5 6 7 8 9 10

Don't enjoy studying 1 2 3 4 5 6 7 8 9 10

Tired of school, tired of classroom 1 2 3 4 5 6 7 8 9 10

Don't know what to learn or what it would lead to 1 2 3 4 5 6 7 8 9 10

Hesitate to seem too ambitious 1 2 3 4 5 6 7 8 9 10

Other Barriers (please specify):

_____ 1 2 3 4 5 6 7 8 9 10

_____ 1 2 3 4 5 6 7 8 9 10

_____ 1 2 3 4 5 6 7 8 9 10

Comments: Please feel free to make comments about these barriers:

Thank you for participating in this survey. Please return it to:
 Beth Craig, 7112 Saratoga Lane, Chattanooga, TN 37421

Appendix B

Cover Letter and Instrument Used in Survey of UTC Students in Autopsy Study

7112 Saratoga Lane
Chattanooga, TN 37421
March 11, 1988

Dear Mrs. Smith,

Do undergraduate students who enter college after age 25 encounter barriers that their younger colleagues do not? Since you were an adult student at the University of Tennessee at Chattanooga during the late 70s, I would like to solicit your answers to this question through the enclosed survey. Your answers are important regardless of whether you took a few courses, or you completed enough courses to graduate. I would appreciate your willingness to complete this survey, as indicated in our recent telephone conversation.

Several national researchers have concluded that there are three main types of barriers with which mature students must contend when they enter college. These are defined as situational (associated with the additional responsibilities of adults), institutional (associated with the college or university) and dispositional (associated with life experiences). The enclosed survey contains a list of these barriers. Would you please take a few minutes to indicate on a scale of 1 (lowest) to 10 (highest) your perception of how each barrier related to your attendance at UTC. A low rating should be given to those barriers which you think had a negligible impact on you, while those barriers which most affected you should be given a high rating.

Local barriers were not included in the national research, but adult students currently enrolled at UTC have indicated some they have encountered. A part on the second page has been reserved so that you can rate these local barriers. Also, it would be helpful if you would add comments in the designated area.

A stamped, self-addressed envelope is enclosed for your convenience. Please return your completed survey by March 20. All responses will be kept confidential. Your answers will be compiled so that individual responses can not be identified.

In case you would like to confirm the validity of this survey, feel free to contact either Dr. Dan Quarles, Director of the UTK/UTC Graduate Center (755-4113), or Dr. Robert March, Director of Adult and Special Credit Programs (755-4346). If you would like to talk to me about the survey, I can be contacted at 892-5001.

I hope you will participate in this survey as I am looking forward to finding which barriers you indicate are most important to you. The compiled results and my report on the survey will be available in the UTC Adult Center later this spring.

Sincerely,

Beth Craig
UTK Doctorate Program

Adult Student Survey
March 1988

Demographic Information:

1. What was your age when you entered UTC? ____ 25 to 34 ____ 35 to 44 ____ over 44
2. Were you a first-time freshman when you entered UTC? ____ Yes ____ No
3. How many years elapsed from high school graduation to entry at UTC? _____
4. Did you transferred college credits from other institutions to UTC? _____
5. When was your first semester at UTC ? _____ 19 _____
6. Did you receive an undergraduate degree from UTC ? ____ Yes ____ No

Directions: Please rate each of the following items by placing a circle around one of the numbers. Use a scale of 1 through 10, where 10 indicates that you consider the item was a very strong barrier and where 1 indicates that the item was a negligible barrier on your decision to remain at UTC.

Situational Barriers:	Negligible	Very Strong
Cost, including tuition, books, etc.	1 2 3 4 5 6 7 8 9 10	
Not enough time	1 2 3 4 5 6 7 8 9 10	
Home responsibilities	1 2 3 4 5 6 7 8 9 10	
Job responsibilities	1 2 3 4 5 6 7 8 9 10	
No child care	1 2 3 4 5 6 7 8 9 10	
No transportation	1 2 3 4 5 6 7 8 9 10	
No place to study or practice	1 2 3 4 5 6 7 8 9 10	
Friends, family don't like idea	1 2 3 4 5 6 7 8 9 10	

Institutional Barriers:

Don't want to go full time	1 2 3 4 5 6 7 8 9 10
Amount of time to complete program	1 2 3 4 5 6 7 8 9 10
Courses aren't scheduled when can attend	1 2 3 4 5 6 7 8 9 10
No information about course offerings	1 2 3 4 5 6 7 8 9 10
Strict attendance requirements	1 2 3 4 5 6 7 8 9 10
Courses needed not available	1 2 3 4 5 6 7 8 9 10
Too much red tape in enrolling	1 2 3 4 5 6 7 8 9 10
Don't meet program requirements	1 2 3 4 5 6 7 8 9 10
No way to get credit or a degree	1 2 3 4 5 6 7 8 9 10

	Negligible					Very Strong				
Dispositional Barriers:										
Afraid too old to begin	1	2	3	4	5	6	7	8	9	10
Low grades in past, not confident of ability	1	2	3	4	5	6	7	8	9	10
Not enough energy or stamina	1	2	3	4	5	6	7	8	9	10
Don't enjoy studying	1	2	3	4	5	6	7	8	9	10
Tired of school, tired of classroom	1	2	3	4	5	6	7	8	9	10
Don't know what to learn or what it would lead to	1	2	3	4	5	6	7	8	9	10
Hesitate to seem too ambitious	1	2	3	4	5	6	7	8	9	10

Local Barriers (specified by current UTC adult students):

Cost of campus food	1	2	3	4	5	6	7	8	9	10
Parking facilities on campus	1	2	3	4	5	6	7	8	9	10
Library facilities	1	2	3	4	5	6	7	8	9	10
Lack of part-time child care	1	2	3	4	5	6	7	8	9	10
Course credits not given for experience	1	2	3	4	5	6	7	8	9	10
Advisement/Registration process	1	2	3	4	5	6	7	8	9	10
Pre-requisites for courses	1	2	3	4	5	6	7	8	9	10
Core courses (including languages)	1	2	3	4	5	6	7	8	9	10
Insufficient offerings evenings/summer	1	2	3	4	5	6	7	8	9	10
Lab requirements for sciences	1	2	3	4	5	6	7	8	9	10

Comments: Please feel free to make comments about these barriers:

Thank you for participating in this survey. Please return it to:

Beth Craig, 7112 Saratoga Lane, Chattanooga, TN 37421

VITA

Elisabeth Welter Craig was born in Northampton, England, and attended schools in England, the United States, and Canada. She graduated from Sherbrooke High School in Quebec, Canada. Her undergraduate degree in English and History was awarded by Bishop's University, Lennoxville, Quebec. After graduation she worked for seven years in Montreal, first as insurance underwriter for the Sun Life Assurance Company, then as an engineering assistant and technical writer for Bell of Canada.

She accompanied her husband during his USAF tour of duty in Texas and Maine and while he completed degree work in Boston. In 1968 she moved, with her family, to Chattanooga, Tennessee. The author received an Associate of Science degree in Data Processing from Chattanooga State Technical Community College in 1974. In the same year she joined the professional staff at the University of Tennessee at Chattanooga as a programmer in Computer Center. In 1977 she accepted a position of programmer analyst in the newly created department of Academic Computing and remained with this department until 1987 when it was affiliated with the Center of Excellence for Computer Applications (CECA). Her present position is Supervisor of User Services in CECA.

She obtained her M.Ed. in 1983 with a major in Curriculum and Instruction. In June 1988 she received an Ed.D. degree with a major in Educational Administration and Supervision. Both graduate degrees were awarded by The University of Tennessee.