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Employees' perceptions of deterrents to participation in an employer-provided educational assistance program

Frances Jeannine Fogerson

To the Graduate Council:

I am submitting herewith a dissertation written by Frances Jeannine Fogerson entitled "Employees' perceptions of deterrents to participation in an employer-provided educational assistance program." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Human Ecology.

Peter J. Dean, Major Professor

We have read this dissertation and recommend its acceptance:

Ernest W. Brewer, Vickie Stout, Ralph Brockett

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

To the Graduate Council:

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EMPLOYEES' PERCEPTIONS OF DETERRENTS TO PARTICIPATION IN AN EMPLOYER-PROVIDED EDUCATIONAL ASSISTANCE PROGRAM

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

Frances Jeannine Fogerson
May 2001

DEDICATION

This dissertation is dedicated to my mother

Mildred Hudson

who did not live to witness this effort

and to my husband

Dewey L. Fogerson

who, with enduring patience,

witnessed it day in and day out

ACKNOWLEDGEMENTS

Achieving an advanced degree requires not just personal effort, but the coordinated support of many persons. I would like to acknowledge those persons who were important to my success:

- Most directly, my committee provided structure and guidance. I appreciate the substantial efforts of Dr. Peter Dean, instructor and advisor, who chaired this process. Drs. Ernest Brewer, Vickie Stout, and Ralph Brockett contributed their unique talents and invested many hours in reading drafts. I thank each of you.
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- When classes have ended and all that remains is the dissertation, every graduate student learns how difficult and lonely the process becomes. I wish to thank those special friends whose Thursday lunches provided encouragement tempered with accountability: Janis Brickey, Lynn Hill, Marcia Kolvitz, and P. J. Snodgrass.
- I thank my children in West Virginia, Sarah Cooper and Jim Murphy, who patiently listened to over five years of weekly telephone calls as I chronicled my slow progress. If they thought I was crazy for doing this, they were infinitely polite.
- Lastly, I thank my greatest supporter, my husband Dewey. When I was discouraged, he urged me to persevere; when I said it wasn't worth such effort, he assured me it was. I am blessed by his presence in my life. Now, as he begins his own dissertation, may I return the favor with grace and freshness of memory.

ABSTRACT

This study investigated and identified perceived factors that deter eligible staff from participating in the educational assistance program provided by The University of Tennessee, Knoxville (UTK). The population consisted of 2,970 eligible staff. From this, a sample of 338 persons was randomly selected. Each was mailed a questionnaire consisting of a modified version of the Deterrents to Participation Scale – General (DPS-G) and a demographics section. With 196 returns, the response rate was 60.1%. Demographic data revealed that 55.1% of the respondents were participants.

The first research question sought to determine the perceived deterrents that prevented eligible staff from participating in the educational assistance program. A principal components factor analysis of responses identified four factors: Lack of Confidence, Low Personal Priority, Time Choices, and Lack of Support. Nonpartcipants assigned generally low importance to their reasons for not enrolling in college courses.

The second research question identified the deterrents to participation that staff continued to perceive while participating in the educational assistance program. Principal components factor analysis determined five deterrent factors: Lack of Confidence, Lack of Course Relevance, Time Choices, Personal Concerns, and Lack of Support. Persons in this group gave somewhat lower importance to the influences of these factors than did the nonparticipant group.

The third research question dealt with the effects of demographic variables on the identified deterrents of both groups. A MANOVA procedure found significance in only one area: educational level of participants. A post hoc test revealed that persons with high

school diplomas or some college credits perceived Lack of Confidence to a greater extent than employees with existing bachelor's or master's degrees. Additionally, Lack of Support was a significant deterrent for staff who had only high school diplomas.

The fourth research question sought the effect of demographic variables on participation status. Eight variables were found significant including number of classes taken using the benefit, use of the maximum benefit, job category, intention of employment regarding the tuition benefit, preference for alternative course delivery, age, educational level, and participation in staff development training courses.

This study confirmed that the deterrents construct is multidimensional in nature and that persons who participate in educational activities continue to perceive barriers similar to persons who elect not to participate. Additionally, both participants and nonparticipants ascribe comparatively greater importance to the choices they make about the use of time and the consequences of selecting one activity over another.

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CHAPTER I

INTRODUCTION

Study Background

The number of employees eligible for educational assistance from their employers is significant. Among full-time employees, the Bureau of Labor Statistics (BLS) reported that 27 million employees in medium and large private establishments (1997) and 17 million employees in small private establishments (1999) have this benefit available. Additionally, the BLS noted that two-thirds of all full-time employees in state and local governments are eligible for educational assistance (1994). In many instances, the assistance may also extend to part-time employees. This benefit is so common that the Institute for Research on Higher Education (1997) asserted that over 75% of employers provide some type of tuition benefit to workers.

While these data reflected the wide availability of educational assistance, they did not indicate the proportion of employees actually taking advantage of this benefit. Most studies place the participation rate rather low, usually no more than 10%. Morse (1984) described programs with rates of less than 4% to a high of 10%. Manion (1989) put the figure at only 3% to 5%, "despite the prevalence of tuition assistance programs in American corporations" (p. 3). Higgins (1993) stated that a 5-10% level of participation was "typical" (p. 15). The General Accounting Office (GAO), citing 1994-1996 data from the Internal Revenue Service, reported the percentage of eligible employees who actually received educational assistance ranged from 8.25% to 9.11% (1996).

The reasons for these low utilization rates remain largely undetermined. The GAO (1996) report stated that "data we reviewed did not provide information that explained the (low) level of participation" (p. 7). Research on reasons potential students choose not to participate in college or university courses has not focused on their status as employees and their opportunity to implement this financial benefit.

Need for the Study

The fact that employers value the educational advancement of employees is evidenced in their prolific inclusion of educational assistance in comprehensive benefit packages. However, the low utilization rate indicates that employers – and employees – may not achieve the potential advantages of college coursework and degree completion.

Although nonparticipation factors have been studied and reported in various adult education settings (Apt, 1978; Blais, Duquette, & Painchaud, 1989; Brown, 1998; Hayes, 1988; Martindale & Drake, 1989; Reed, 1994; Scanlan & Darkenwald, 1984; Shipp & McKenzie, 1980; Valentine & Darkenwald, 1990; Wood, 1994), there is little in the literature concerning the deterrents to participation or the relationship of demographic factors for employees who choose to forego educational assistance. Neutralizing these deterrents could lead to increased participation with consequent advances in workforce skills and credentials. There is, therefore, a need to identify employees' deterrents to participation in educational assistance programs.

The University of Tennessee, Knoxville (UTK), offers a tuition waiver opportunity as part of its benefit package for eligible employees. As an employer, the

university stands to gain much from an educated workforce with advanced skills. Knowing the reasons employees fail to participate in available courses could assist in formulating strategies to increase the level of educational attainment. Additionally, knowledge of the deterrents that participating employees continue to perceive could also make a positive contribution.

Currently, the Office of Human Resources at UTK does not maintain data concerning the number of employees or eligible family members who utilize this benefit.

Statement of the Problem

Comprehensive benefit packages typically include educational assistance, yet nationally, few employees actually participate in these programs (GAO, 1996; Higgins, 1993; Manion, 1989). Identifying the deterrents perceived by a specific population can assist program planners in designing remedial strategies. This study investigated and identified factors that university staff perceive as deterrents to participation in an employer-provided educational assistance program and examined the effects of demographic variables on perceived deterrents and participation status.

Purposes of the Study

The purposes of this study were: (a) to identify the factors that deter eligible staff from participating in the educational assistance program provided by UTK (nonparticipants); (b) to identify the factors that eligible staff continue to perceive as deterrents while participating in the educational assistance program provided by UTK

(participants); (c) to examine the effect of demographic variables on the identified deterrent factors of both groups; and (d) to examine the effect of demographic variables on participation status. Demographic variables included age, gender, race, marital status, number of children living at home, level of education, employment status, job category, years of employment, intention of employment regarding tuition benefit, number of classes taken using benefit, use of maximum benefit, family member use of benefit, preference for alternative course delivery, and participation in staff development courses.

Research Questions

Four research questions guided this study. To address the multiple demographic variables (listed above) incorporated in the final two questions, null hypotheses served as an organizing strategy. The research questions included:

1. What are the perceived deterrents that prevent eligible staff from participating in the educational assistance program provided by UTK?

2. What are the deterrents that eligible staff continue to perceive while participating in the educational assistance program provided by UTK?

3. What are the effects of demographic variables on the identified deterrents of both groups?

   Expressed as a null hypothesis, each demographic variable was hypothesized to have no effect on the identified deterrents of both groups.

4. What are the effects of demographic variables on participation status?

   Expressed as a null hypothesis, each demographic variable was hypothesized to have no effect on participation status.

Theoretical Framework

The models used to examine factors associated with nonparticipation in adult learning activities evolved from theories of participatory behavior (Scanlan, 1986). Early theories centered on the relationship of personal orientation to participation and the more objective arrangement of role, opportunities, and personal and environmental restraints (Knox & Videbeck, 1963). This view incorporated the belief that an individual's participation status could change in response to changing life circumstance.

Dhanidina and Griffith (1975) proposed an economic model, which stated that participation was more likely when perceived benefits outweighed costs. Their theory described participation as an investment in human capital where an individual balanced the costs of education (both money and time) with the perceived benefits such as increased skill level and subsequent increase in earnings.

Focus on cost in educational decision-making found support in later research. Smorynski and Parochka (1979) studied continuing education activities in healthcare workers and developed a model which emphasized the assessment of a course's usefulness, the convenience of the course, the relevance of the course to the current work situation, and a cost-benefit analysis of worth. They discovered that the cost of attending programs was a constraint factor, or a basis for electing not to participate. This identification of a potential deterrent to participation became foundational in the development of more contemporary models.

Cross (1981) drew on the common themes of previous theories to develop a composite Chain-of-Response model. The primary emphasis was that the individual's

decision about participation was not isolated, but was the result of a complex chain of responses, each based on a self-evaluation of the individual's position within his or her environment. This self-evaluation was moderated by the individual's attitudes about education. Cross saw these internal psychological variables as being influenced by antecedents such as the effect of prior participation on the self-concept. Thus, Cross supported the cognitivist orientation that educational decision-making could best be understood and expressed by the individual making the decision.

Cross (1981) included a "barriers to participation" construct in her model, identifying three categories. These included situational, institutional, and dispositional factors. The situational category consisted of those factors that originate from one's situation in life at a given point. Cross found that these factors were reported most frequently, usually in the form of time and cost deterrents to participation. Reviewing data from thirty previous Educational Testing Service surveys, Cross noted that 20-50% of adults reported situational barriers to learning.

Institutional barriers, those practices or procedures that discourage or prevent individuals from participating, usually focused on inconvenient locations, scheduling problems, or lack of relevant or interesting courses. Cross (1981) found that up to one-fourth of survey respondents cited institutional barriers.

Among the most infrequently reported barriers were those in the dispositional category, or those factors that dealt with lack of ability, lack of interest, or other issues of self-concept as a learner. Less than 2% of those sampled reported dispositional barriers,

although Cross (1981) noted that persons who did not participate in educational activities more frequently reported issues involving self-perception as learners.

Building on Cross' (1981) Chain-of-Response model, Darkenwald and Merriam (1982) theorized that the deterrent construct was even more complex than previously understood. They developed a psychosocial interaction model that emphasized socioeconomic status factors. These factors were mediated by a "learning press," or the extent to which the environment encouraged or required additional learning. Thus, when individuals perceived educational activities as having value, they were more favorably disposed to participation. Darkenwald and Merriam added a fourth category to Cross' (1981) three types of deterrents to include informational barriers. This psychosocial barrier recognized the individual's possible negative attitudes about the usefulness, appropriateness, and enjoyment of learning activities.

Further refinement resulted from development of a Deterrents to Participation Scale (Scanlan & Darkenwald, 1984). Surveying a large sample of healthcare workers about their participation in continuing education, Scanlan and Darkenwald determined six major deterrent factors: disengagement, lack of quality, family constraints, cost, lack of benefit, and work constraints. An important finding of this work was that the previous "situational" category of barriers factored into three distinct sources (family constraints, work constraints, and cost). They also found that judgments of benefit were conceptually distinct from both cost and program quality.

While previous studies were descriptive in nature, the Deterrents to Participation Scale (DPS) offered evidence of validity to the deterrents construct. Through hierarchial

regression analysis, Scanlan and Darkenwald (1984) demonstrated that the six factors accounted for 40% of the variance in participation status.

To increase the generalizability of the instrument, Darkenwald and Valentine (1985) developed a more universal form, the Deterrents to Participation – General (DPS-G). Using a sample of 2,000 persons from the general adult population, the results indicated a factor structure of six components that differed from the original instrument. While cost remained a constant factor, analysis identified new components of lack of confidence, lack of course relevance, time constraints, low personal priority, and personal problems. Correlated with demographic factors of gender, age, educational attainment, total family income, and employment status, the findings brought empirical support to the hypothesis that demographic variables impact the individual's perception of deterrents.

Reviewing several theories of deterrents to participation in a synthesis study, Scanlan (1986) summarized that deterrents "is a multidimensional concept encompassing clusters of variables; the variables are influenced by the prospective learner's perceptions of their perceived magnitude; and the impact of these variables varies according to the individual's characteristics and life circumstances" (p. 39).

From this we can conclude that working adults, offered the opportunity to enroll in college courses, face multiple deterrents that vary individually in strength and impact. Each employee's particular attitudes, experiences, responsibilities, and environment contribute to his or her perception of these deterrents and to their degree of influence. Consequently, educational decision-making becomes a highly personalized process or event centering on self-evaluation of complex variables.

In a practical sense, however, individual characteristics and perceived deterrents must be categorized in a more general manner in order to facilitate their identification and interpretation. Research establishing the deterrents construct provides that means through instrumentation to identify deterrent factors and to empirically measure the contributing effects of individual characteristics and life circumstances.

Conceptual Framework of the Study

To illustrate the conceptual framework of this study, the researcher developed a graphic depiction (Figure 1). This framework incorporated elements from the established deterrents construct and applied them to the local setting.

Employment at UTK, noted in the first block of the illustration, results in a package of benefits that varies according to the employee's classification. However, all employees who work at least 50% time are eligible for educational assistance in the form of a fee waiver (second block). For part-time employees the fee waiver is prorated according to the number of hours worked, while full-time regular employees may take up to nine semester hours per term without payment. Unlike certain student employee classifications such as graduate assistant, regular employees also receive an exemption from a mandated student technology fee. The only financial obligation for enrollment in nine or less hours per term involves associated expenses such as books, transportation, and supplies.

As a result, eligible employees have minimal financial obligation for coursework. Additionally, since the worksite and the educational location are the same institution,

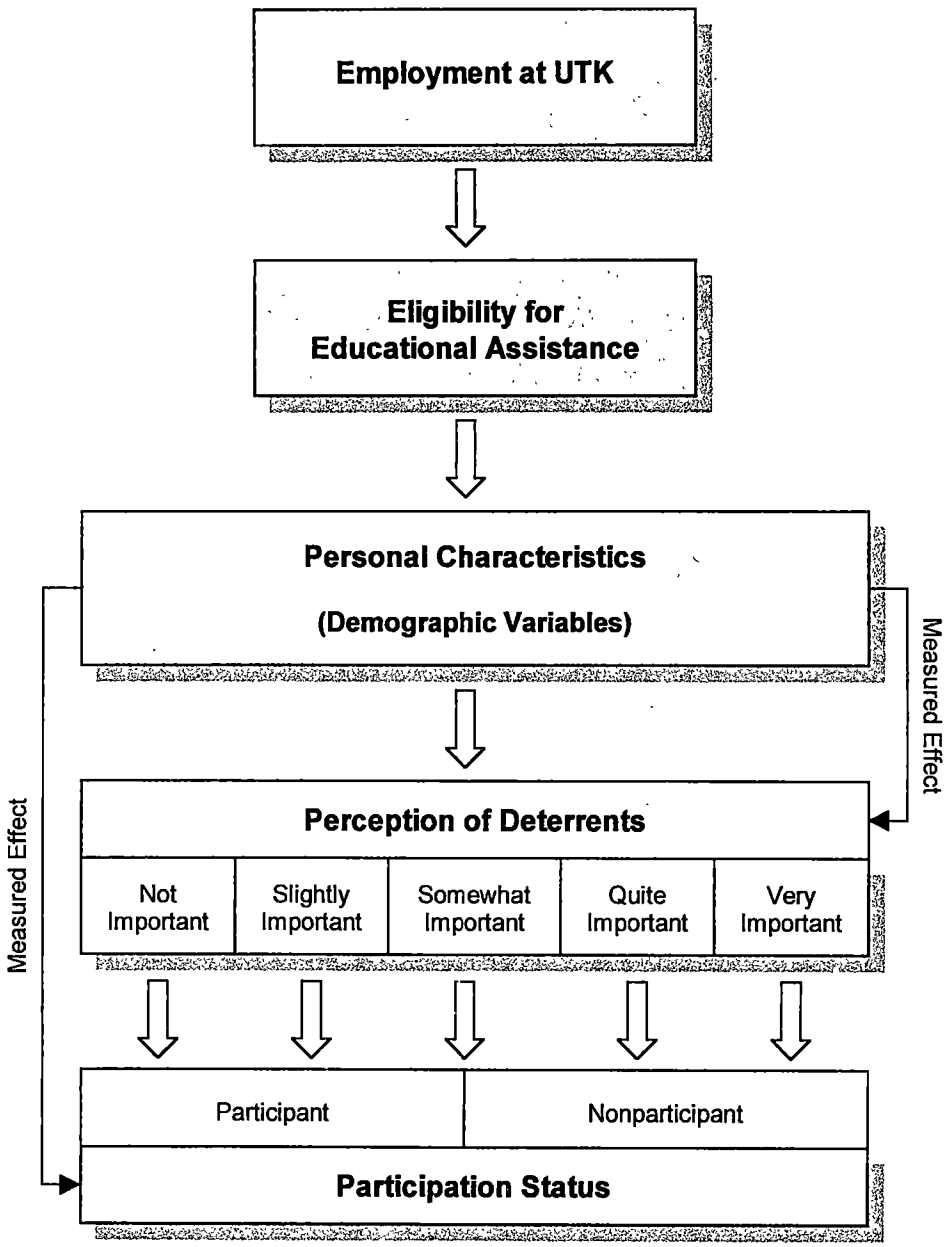

Figure 1

Conceptual Framework for Employees' Perceptions of Deterrents in UTK's Educational Assistance Program

UTK employment facilitates enhanced accessibility to class location. The area of the conceptual framework noted as "Eligibility for Educational Assistance," therefore, represents an employee benefit encompassing both financial and convenience advantages.

While every employee has the opportunity to take classes, the actual decision to enroll has multiple and complex influences that vary with each individual (Scanlan, 1986). One of these influences is personal characteristics, those traits and life circumstances that define the uniqueness of the individual, depicted in the third block. Previous research demonstrated that these characteristics, also called demographic variables, impact the individual's perception of deterrents (Darkenwald & Valentine, 1985), conveyed in the fourth block. Since one research question in this study examined the effect of demographic variables on perceived deterrents, an arrow noting an empirical measurement links those two areas on the conceptual framework.

The DPS-G instrument measures the perception of deterrents with a Likert-scale of five descriptive response categories (Darkenwald & Valentine, 1985). Those categories are arranged within the deterrents block of the framework beginning with the self-evaluation of "not important" and concluding with "very important."

The result of employment at UTK and consequent educational opportunity, mediated by personal characteristics and perceptions of deterrents, is a decision about college course participation (final block). Each employee's status may be defined as participant (those who opted to enroll) or nonparticipant (those who did not). Because the final research question examined the effect of personal characteristics on employee participation status, an additional arrow indicates that measurement.

Significance of the Study

The significance of this study was that it attempted to identify the reasons staff at a large state university forego college courses for which they are eligible to receive a tuition waiver and the deterrents staff continued to perceive while enrolled in courses.

Identifying the factors of deterrence for both participants and nonparticipants adds to the research on professional development, adult education, and compensation and benefits. Further, it provides university administration with information to improve program offerings, instructional methodologies, scheduling, and a variety of student services.

Professionals in higher education need to understand the importance of deterrents to adult students. Knowing which deterrents have the greatest impact can lead to more effective planning. For human resource administrators, understanding the utility of an offered benefit can contribute to structuring an effective package of benefits to increase competitiveness, enhance recruitment, and complement other training activities.

From a deterrents research perspective, this study contributed to developing a general theory and to advancing the construct from theory to practice. Valentine and Darkenwald (1990) believed that additional studies conducted in diverse settings were necessary for the development of a robust general theory, declaring, "Only by studying the ways in which deterrents manifest themselves in different populations can we ever hope to achieve a general theory" (p. 39). Additionally, they supported the operational use of the instrument in adult education settings and particularly encouraged the inclusion of more demographic variables in deterrents research, stating that collecting more

complete data would lead to deterrent profiles that were "more conceptually sophisticated and theoretically useful" (p. 39). By selecting a population of adults with opportunity and access to higher education and by expanding the number of demographic variables, this study supported those research recommendations.

The commitment to investing in education has significant potential impact for the employer and employee. The university, as an employer, stands to gain from a program that increases the educational level and work skills of its employees. Staff members with a desire to continue their education may enhance both personal and professional skills. However, impediments that curtail those advancements exist. The primary significance of this study was that it provided additional insight into those impediments.

Definitions of Terms

Terms are defined here for the purpose of clarification, and these definitions may be assumed throughout this study.

1. The University of Tennessee, Knoxville (UTK) – Use of this name or acronym implies a limitation to the Knoxville campus of The University of Tennessee.

2. The University of Tennessee (UT) – Use of this name or acronym implies a reference to the entire system-wide or multiple-campus institution. Campuses are located in Chattanooga, Martin, Memphis, Tulahoma, and Knoxville, all within the state of Tennessee.

3. Staff – According to The University of Tennessee Personnel Policies (UT, 1998b), "staff" is a category of employee for persons not primarily engaged in academic instruction, research, or service. Staff may work full-time or part-time hours.

4. Educational Assistance Program – Generally, this is an employee benefit consisting of provision of educational expenses, such as courses or tuition,

that are paid for either directly by the employer or indirectly through reimbursement to employees. At The University of Tennessee, this assistance consists of a waiver applied only to University maintenance fees and out-of-state tuition, and does not include payment for books or other course materials (UT, 2000).

5. Deterrent – A deterrent is an obstacle, constraint, or impediment which is perceived by an individual to restrict, hinder, or otherwise impede his or her participation (Kowalik, 1989). It is not an absolute blockage, but is dynamic and works in combination with other forces to affect the participation decision (Valentine & Darkenwald, 1990).

6. Participation – This term generally refers to the engagement by an individual in other-directed educational activities. For this study, participation is restricted to qualifying academic courses for which staff are currently enrolled or were previously enrolled. It does not include participation in employer-provided staff development activities or other courses not covered under the University's educational assistance policy.

7. Participant – A participant is a staff member who enrolled in one or more courses using the educational assistance program.

8. Nonparticipant – A nonparticipant is a staff member who elected not to utilize the educational assistance program.

9. Deterrents to Participation Scale – General – The DPS-G is a survey instrument developed for adult learning and designed to determine deterrents affecting participation in educational activities.

10. Demographics – These consist of characteristics of survey respondents, such as age, gender, race, marital status, number of children living at home, level of education, employment status, job category, years of employment, intention of employment regarding tuition benefit, number of classes taken using benefit, use of maximum benefit, family member use of benefit, preference for alternative course delivery, and participation in staff development courses.

Assumptions

There were several assumptions relative to the statement of the problem and subsequent data gathering:

1. Staff were motivated to respond to the survey.

2. Respondents to the survey provided accurate and honest information.

3. The Deterrents to Participation Scale – General (DPS-G) accurately identified the perceived deterrents to participation in the educational assistance program.

Limitations of the Study

Several limitations were imposed for this study:

1. The study was confined to one campus of a multiple-location state university.

2. The survey was the only method of collecting data.

3. All survey items were subject to the interpretation of the respondent.

4. The responses to each survey item were equally considered and none were weighted.

5. Educational activities were limited to college credit courses at The University of Tennessee, and other designated institutions within the direction of the Tennessee Board of Regents. Courses at other schools, community education courses, or other types of workforce training activities were not included, except for limited vocational-technical courses as designated by Personnel Policies (UT, 2000).

6. The population from which the sample was taken consisted solely of employees who were classified as "staff" and did not include any employees designated as "faculty" or "student."

Delimitations of the Study

The research design resulted in delimitations that defined the parameters of this study:

1. This study included only staff at UTK who were eligible to participate in the educational assistance program. Therefore, generalization to other populations within or outside UTK may not be appropriate.

2. This study examined only nonparticipation factors perceived by respondents. It did not determine motivational factors or other influences that led to a positive decision to enroll in sponsored courses.

Summary

The majority of American employers offer some type of tuition assistance to their employees, but research indicates that very few actually take advantage of this financial opportunity. The University of Tennessee, Knoxville recognizes that educational advancement can help employees perform their jobs more effectively and provides a tuition waiver of up to nine semester hours per term to full-time staff, and a proportionate amount to eligible part-time employees.

Professionals in higher education and human resources have an interest in understanding the reasons adults may elect to not participate in educational activities. Researchers continue to describe and measure those reasons, and have found empirical evidence for a framework embracing a construct of specific factors that deter participation. The Deterrents to Participation Scale – General (DPS-G) is a validated instrument designed for such inquiry.

The present study investigated and identified perceived factors that deter eligible staff from participating in the educational assistance program provided by UTK. It also determined deterrents staff who utilize this benefit continued to perceive. Lastly, it examined the effect of demographic variables on participation status and the perceived deterrents of both participants and nonparticipants.

CHAPTER II

REVIEW OF LITERATURE

Introduction

Since the mid 1980s, there has been a growing emphasis on establishing empirical data concerning deterrents to participation in general adult education activities (Darkenwald & Valentine, 1985; Ericksen, 1990; Hansen, 1999; Hayes, 1988; Johnson, 1993; King, 1998; Valentine & Darkenwald, 1990). Some researchers limited their studies to barriers associated with participating in accredited college programs (Brown, 1998; Grady, 1995; Henry & Basile, 1994; Malhotra, 1997; Wood, 1994; Zawislak, 1990), while others focused on the deterrents perceived by employees with regard to vocational training courses, staff development activities, or continuing education credentials (Blais, et al., 1989; Essman, 1994; Jackson, 1997; Kowalik, 1989; Land, 1994; Reed, 1994; Scanlan, 1982; Scanlan & Darkenwald, 1984; Sperry-Mauger, 1993). However, research which examines nonparticipation factors of employees eligible for tuition assistance programs provided by their employers is somewhat sparse and frequently limited to military service personnel (Carlson, 1992; Martindale & Drake, 1989; Smith, 1997).

To understand the relationship of deterrents to participation in college courses and employer-sponsored educational assistance programs, this review of literature explored overviews of: (a) research that identified and examined deterrents to participation in higher education, (b) research on educational assistance programs, and (c) studies that

explored the relationship of demographic variables to deterrent factors and participation status.

Deterrents to Participation

While many adults desire to continue their education to advance personal and professional skills, the barriers they experience can have a great impact on decisions to enroll and participate (Brown, 1998). To understand the factors that influence their decisions, it is necessary to identify and examine those perceived barriers.

Chapter 1 included a brief discussion of the theoretical framework supporting deterrent models and instrumentation. An elaboration of that discussion detailed studies which resulted in current approaches to understanding why adults elect not to continue their education or, as in this study's focus, understanding why employees elect to forego higher education courses that their employer is willing to sponsor monetarily.

Refinement of Deterrent Categories

Scanlan (1986) credited Johnstone and Rivera (1965) with the earliest descriptive profile of factors that deter adults from participating in educational activities. Their research addressed a comprehensive overview of the nature of adult education in the United States, with one section focusing on reasons given by nonparticipants for not attending courses.

Johnstone and Rivera (1965) used an interview technique in which they showed adults a list of 10 statements and asked if the statements applied to them. The researchers

divided the statements into two broad categories: those external to the individual, or beyond their control (environmental or situational deterrents), and those that were internal, or based on personal attitudes toward participation (dispositional deterrents). For both the total sample and persons categorized with "high participation readiness," the most frequently identified constraints were time, cost, and stamina. Overall, external influences were more commonly named.

Johnstone and Rivera (1965) explored the relationship of demographic variables to deterrent factors and reported significant differences in the number of barriers identified according to age, gender, and socioeconomic status of respondents. However, because the sample consisted solely of nonparticipants, the researchers could not explore the relationship between demographic variables and participation status.

Carp, Peterson, and Roelfs (1974) incorporated an expanded list of 24 reasons for nonparticipation in a national survey conducted for the Educational Testing Service. Three thousand persons labeled "would-be learners" completed this survey. As in the Johnstone and Rivera (1965) study, the reasons were categorized as situational or dispositional. This study advanced the research base in two important ways: (a) the inclusion of additional variables gave a more detailed depiction of the various factors in the deterrents construct, and (b) the sample composition of both participants and nonparticipants gave evidence that persons engaging in educational activities also face barriers to continuing their learning.

The most influential barriers named in this study were cost (identified by 53% of the respondents) and time (46%). Cost was specified to include tuition, books, childcare, and any other associated expenses.

Again, empirical data demonstrated a relationship between demographic variables and the frequency of positive responses to various deterrents. Significant differences were found for gender, age, race, and educational level.

Scanlan (1986) suggested that the Carp, et al. (1974) study and the earlier one by Johnstone and Rivera (1965) shared some weaknesses. Both utilized survey item statements intuitively generated by the researchers, which may have introduced social response bias. Both also elicited responses restricted to the dichotomous format of "important/not important." While favoring completion time, this format impeded statistical analysis and limited information about the relative degree of influence of the various deterrents.

Cross (1979, 1981) reviewed 30 statewide and regional replications of the Educational Testing Service Survey to synthesize data and develop a descriptive typology of barriers to participation. This typology became the basis of her Chain-of-Response model discussed in Chapter 1. Differing from the two previously cited studies, Cross' (1979) research identified three classifications of deterrent factors: situational, dispositional, and institutional.

Like the other studies, she found that situational factors were the most frequently cited constraints, with time and cost being named by 20% to 50% of individuals responding in the multiple surveys. She also found that persons who have the time for

education often lack the money and vice versa. The most common institutional barriers were inconvenient locations, scheduling problems, and lack of interesting or relevant courses. Approximately 25% of survey respondents named these institutional barriers. Few persons, however, cited dispositional barriers to learning. Less than 2% of the sample identified such factors as lack of ability or lack of interest.

Cross (1979) believed that the apparent low influence of dispositional barriers could be attributed to the sampling methodology of all previous surveys, including those from which she synthesized data. In each survey, respondents who indicated that they were not interested in furthering their education were eliminated from subsequent analysis, presenting sample attenuation. She theorized that dropping persons not interested in additional education could decrease the probability of responses in the dispositional category.

In addition, Cross (1979) also speculated that response bias might be present in each of the three major studies, including her own. She believed that claiming situational barriers like lack of time or money were more socially acceptable as reasons for nonparticipation than such dispositional factors as lack of interest or ability.

Darkenwald and Merriam (1982) suggested that Cross' typology of three major classification schemes be expanded to include a fourth: informational barriers. Their reasoning was that these barriers did not derive from the educational institution's failure to promote its offerings but came from communication problems between the student and institution, or from the student's failure to seek or use the available information. Additionally, Darkenwald and Merriam believed that Cross' (1979) dispositional barriers

could more properly be considered psychosocial in nature. Their study concluded that the multitude of reasons adults give for not participating in educational activities should be classified in four distinct categories: situational, institutional, informational, and psychosocial.

During this same time period, Shipp and McKenzie (1980) conducted a study that demonstrated the deterrent construct might be more complex than previously assumed, and may vary according to the characteristics of the population. Their research also advanced the sophistication level of deterrents analysis.

Shipp and McKenzie (1980) surveyed 1,278 adult members of the Roman Catholic Archdiocese in the Ohio Valley who were nonparticipants in their church-based adult education programs. The sample was stratified into three segments: urban, urban/rural, and rural, with a total of 678 responding (response rate of 53%). An inventory instrument consisting of 31 reasons for nonparticipation asked the respondents to agree or disagree with each of the items as a reason for not participating. The researchers reported an instrument coefficient of stability of .92 over a two week test-retest period.

Distinguishing this study from the previous ones was the use of factor analysis to derive related groupings of variables. Through principal components analysis and orthogonal rotation, the nonparticipation factors reduced to seven: resistance to change and education, alienation, marginality, social nonaffiliation, perplexity/confusion, program nonrelevance, and activity incompatibility. The researchers did not attempt to categorize these seven factors into a classification scheme.

Shipp and McKenzie (1980) did, however, address the relationship of demographic variables to deterrent factors and reported an association between some of the factors. For example, they found that rural church members were more likely than urban respondents to believe that programs were over their heads, and less educated persons more often claimed that work prevented their participation (p. 191).

In their conclusions, Shipp and McKenzie (1980) stated that "certain general patterns of non-participation exist in the adult non-participant population. The reasons for any individual not participating are complex, given the wide heterogeneity of the adult population" (p. 191).

Scanlan (1986) noted that the importance of this study was its use of a sophisticated statistical analysis that generated a more refined view of the multiple reasons for nonparticipation and, additionally, assisted in further reducing the impact of social response bias.

Deterrents to Participation Scales

Each of these early attempts to create a typology increased understanding of the construct and advanced the development of a reliable instrument. Cross (1979, 1981) addressed methodological weakness and suggested ways to reduce bias, Darkenwald and Merriam (1982) refined the classification scheme, and Shipp and McKenzie (1980) elevated statistical analysis and understanding of the complexity of the deterrent construct. Lacking, however, was a scale for deterrents to participation that was both reliable and valid. Two research projects subsequently addressed that need.

Deterrents to Participation Scale (DPS)

Scanlan and Darkenwald (1984) recognized that earlier research efforts employed intuitive typologies, and elected to approach their research from a strictly empirical, inductive position. They began by eliciting information on deterrents to participation from a sample of 21 volunteers matching the target population (allied health professionals in New Jersey) and through an extensive literature search. After eliminating duplications, 60 items comprised their Deterrents to Participation Scale (DPS). An additional 72 health professionals completed the prototype and reviewed it for clarity. Based on suggestions and statistical analysis, the researchers shortened the instrument to 40 items and reported a reliability coefficient of .91. Sections on respondent characteristics and extent of educational participation were added.

The DPS was mailed to 750 actively employed physical therapists, medical technologists, and respiratory therapists. After three follow-up mailings and subsequent adjustment for invalid returns, the response rate was 479 (69.8%).

Statistical analysis included exploratory factor analysis, followed by orthogonal rotation using the varimax procedure. Standardized factor scores were calculated for use in a regression analysis. Ten factors originally met the criterion for retention (an eigenvalue of 1.0 or greater), but the researchers preferred "a more parsimonious solution" (p. 159) and performed another varimax procedure to rotate the ten factors. Six factors emerged: disengagement, lack of quality, family constraints, cost, lack of benefit, and work constraints. Alpha reliability coefficients were .86, .81, .83, .78, .83, and .74 respectively.

Scanlan and Darkenwald (1984) noted that only six of the items loaded substantially on more that one factor, and only one item failed to load on any factor ("Because I was unaware of the availability of the programs").

The researchers described the six factors and the variables with substantial loadings on each:

1. Disengagement – These were mainly dispositional variables that related to a general level of activity and involvement, stamina, self-discipline and self-confidence.

2. Lack of Quality – Most variables in this factor were institutional in nature and dealt with the inadequacies of the programs.

3. Family Constraints – These situational variables concerned possible infringement on family time, guilt for leaving the family, problems with child care, and family or spousal objections.

4. Cost – The most substantial loading value in this category was "because my employer does not assist with the cost of attending." Other cost concerns were registration fees, indirect course costs, and loss of income while attending. Scanlan and Darkenwald (1984) noted that four of the six items in this factor were among the top ten for the entire survey.

5. Lack of Benefit – This dealt with perceptions of the relative worth of courses or the need for participating. Respondents attributed only a low to moderate influence for these variables.

6. Work Constraints – This category consisted of variables that described perceptions of conflict with work schedules, work demands, and difficulties in making necessary adjustments. Respondents rated these variables as having high influence on their decisions to participate in coursework.

The researchers examined the item means to determine the strength of their influence on participation. They explained that "individual item means were generally low. Thus the majority of items were related by respondents as having relatively little influence on their decision(s) not to participate in continuing education" (Scanlan &

Darkenwald, 1984, p. 159). However, a small number of items had mean scores that were relatively higher, indicating greater influence. Among these were (a) "because the program locations were often inconvenient" (4.33), (b) "because the programs were scheduled at inconvenient times" (4.10), (c) "because with all my other commitments, I just don't have the time" (3.68), (d) "because what's available tends not to fit my schedule" (3.62), and (e) "because the indirect costs (food, travel, etc.) tend to be excessive" (3.54).

To determine the predictive ability of the six deterrent factors, the researchers entered each factor score into a hierarchical regression equation, using participation/nonparticipation as the dependent variable. All factors, except work constraints, were highly predictive of participation. Disengagement showed the greatest predictive ability followed by cost, family constraints, lack of benefit, and lack of quality.

Scanlan (1986) judged the value of his and Darkenwald's (1984) work in several ways. First, he believed that the six deterrent factors provided empirical evidence of a multidimensional structure that could be identified and was more complex than revealed by previous intuitive approaches. Second, it established the "first convincing evidence of validity" (p. 34) for the deterrents concept when a hierarchical regression analysis demonstrated that the six factors accounted for 40% of the variance for participation. Third, three factors which had been subsumed within Cross' situational category were observed to be conceptually distinct. Those factors were work constraints, family constraints, and cost. Fourth, each deterrent factor (except for work constraints) was predictive in relation to participation or nonparticipation.

Deterrents to Participation Scale-General (DPS-G)

While the first Deterrents to Participation Scale (DPS) advanced research beyond earlier descriptive studies, its restriction to certain specific health professionals was a major limitation (Scanlan & Darkenwald, 1984). Results could not be generalized to broader groups of professionals, or to the general public.

To address this need, Darkenwald and Valentine (1985) devised a study using a large, heterogeneous sample of the general adult population. A commercial mailing firm assisted by using their computer to select a random sample of 2,000 households in Somerset County, New Jersey. While they received a very low response rate of 10.7%, the researchers stated that this "was of little import to the purposes of this study" (p. 179). They claimed that only a large random national sample could be accurately representative of the general adult population, and that stability across time and place could only be established by replication (p. 179).

Darkenwald and Valentine (1985) elected not to adapt the previously tested DPS, and created their generic Deterrents to Participation Scale (DPS-G) from a new effort. Interviewing 72 adults from diverse occupations and economic groups, reviewing the original DPS instrument, and conducting a review of literature, they developed a prototype instrument with 58 items. An additional 117 persons assessed and completed the prototype. Although it achieved a high reliability (alpha = .91), the analysis of respondent comments indicated that the scale could be both improved and shortened by eliminating or revising some items. The final version contained 34 items and had an alpha reliability coefficient of .86.

A total of 215 individuals responded to the one-time mailing. Because they contracted with a commercial firm for the actual research sample, there was no provision for follow-up mailings to nonrespondents.

The researchers employed a principal components analysis to extract the initial factors, and then an orthogonal rotation using the varimax procedure. Additionally, standardized factor scores were computed for a correlational analysis of the relationship between demographic characteristics and the deterrent factors.

The factor analysis indicated that six factors accounted for 53% of the scale variance. These were: lack of confidence, lack of course relevance, time constraints, low personal priority, cost, and personal problems. While Scanlan and Darkenwald's (1984) DPS also identified six factors, this new study differed substantially from the original. Only "cost" appeared as an identical component.

None of the items loaded on more than one factor and most loadings were substantial (.60 or higher). Only variable loadings of .45 or greater were used to define a factor. Alpha reliability coefficients for the six identified factors were .87, .83, .72, .64, .75, and .40 respectively.

Darkenwald and Valentine (1985) elaborated on the six factors and the scale items which loaded substantially on each:

1. Lack of Confidence – These variables were dispositional in nature and tended to convey self-doubt, low academic self-esteem, and lack of encouragement from family and friends. The researchers believed that the items relating to lack of encouragement were indirect sources of self-doubt. Respondents gave relatively low importance to these variables.

2. Lack of Course Relevance – Similar to the DPS's "lack of quality," most variables in this factor dealt with irrelevance or inappropriateness of courses

compared to perceived needs or interests. Respondents believed these institutional factors were moderately to highly important.

3. Time Constraints – This factor described both lack of time and the constraints of other responsibilities. Respondents assigned the greatest importance to these factors.

4. Low Personal Priority – The items that loaded on this factor dealt with lack of motivation and interest in educational courses and had a low importance. However, items that concerned willingness to give up leisure time or time with family had importance mean scores as high as those listed in "time constraints."

5. Cost – These moderately important items related to registration fees, indirect costs, and lack of employer contribution. Of interest was the fact that the item on financial assistance or reimbursement from employers was perceived to be much less important than in the original DPS survey, and ranked 23rd out of 34 items.

6. Personal Problems – These situational items dealt with child care, family problems, and health/handicap issues. Their importance ranged from high to low.

In ranking values for the 34 items on the DPS-G, the highest four items all loaded in the time constraints factor. The item describing an inconvenient course schedule was first, with an inconvenient location being second. Lack of time for studying and inability to attend regularly were third and fourth respectively.

One objective of Darkenwald and Valentine's (1985) study was to determine the relationships of demographic characteristics (termed "sociodemographic" by the researchers) and the identified deterrent factors. They found that age and income level related to lack of confidence, while cost was a significantly greater deterrent for women. Men were more likely to have a low personal priority. Quite logically, as Darkenwald and Valentine pointed out, time constraints were a greater deterrent to employed persons (p. 185).

The researchers concluded that the six deterrent factors revealed by this study provide additional support for a multidimensional deterrents construct, and that the underlying structure differs substantially from the earlier intuitive conceptualization. Like the Scanlan and Darkenwald study (1984), three distinct variables emerged from the situational category proposed by Cross (1981). These were time constraints, cost, and personal problems.

Darkenwald and Valentine (1985) recognized that their results were not definitive, and declared that the only way to establish the stability and universality of the DPS-G factor structure was "by replication of the present research with different populations in North America and elsewhere in the industrialized world" (p. 187). They specifically urged practitioners to use the DPS-G for purposes of program planning, calculating item means to "identify which deterrents negatively affect participation" and, therefore, to "identify problems to remedy in an attempt to increase participation" (p. 188). The DPS-G was, they believed, a useful tool with practical applications.

DPS-G Replication Studies in Higher Education

During the period 1989-1999, numerous researchers conducted replication studies using the DPS-G for general adult education nonparticipation (Cummings, 1995; Ericksen, 1990; Hansen, 1999; Johnson, 1993; Kowalik, 1989; Reed, 1994; Rogers, 1996; Vann, 1993). However, several focused specifically on deterrents to participation in college courses (Brown, 1998; Carlson, 1992; Grady, 1995; Wood, 1994). The latter have particular relevance to the current study.

Zawislak (1990) explored deterrents for adults who applied to an associate degree program at a community college in Delaware. Respondents were classified by specific categories typical for community colleges: first-time attendees, minority students, females, and adults with low socioeconomic status.

Results indicated that time and cost constraints were the primary deterrents for nonparticipants as a whole, while demographic variables related to participation status in several significant ways. Lack of confidence was significant for first-time applicants, and women reported personal problems as barriers. For those with annual family incomes less than $20,000, cost was a significant factor. However, Zawislak (1990) reported no primary deterrent factors for minority students.

Wood (1994) utilized the DPS-G as one of three instruments administered to a sample of 181 adults who had inquired about enrolling in the evening program at Maryville College, Maryville, Tennessee. Other instruments included the Self-Directed Learning Readiness Scale (Guglielmino, 1977) and a demographic questionnaire. The researcher did not ascertain subsequent enrollment during the study, resulting in a sample of undetermined participation status.

A total of 103 persons (57%) responded. Calculating item means and classifying according to Darkenwald and Valentine's (1985) six-factor scheme, Wood (1994) reported results consistent with the original study for all factors except "personal problems." Wood's respondents perceived those items to be stronger deterrents. The researcher speculated that Maryville College's lack of child care and health care facilities contributed to the strength of those perceived barriers.

Certain demographic variables were significantly related to deterrent factors. Females perceived personal problems to be a greater barrier than did males. Persons who had never previously attended college reported lack of confidence and cost to be more important deterrents than did those who had attended. Similarly, those who had not attended college for 20 years or longer perceived lack of confidence as a significant barrier. Data revealed no relationship between age and any of the six deterrent factors.

Overall, time and cost were the most frequently reported deterrents to college enrollment, with means of 2.63 and 2.55 respectively. Respondents rated each factor between "slightly important" and "somewhat important," giving them low to moderate importance. Darkenwald and Valentine's (1985) original study found time and lack of course relevance to be most important, with means of 2.78 and 1.85 respectively.

By not determining respondents' enrollment decision subsequent to inquiring about the college program, Wood (1994) was unable to explore a relationship between participation status and either deterrent factors or demographic variables.

Grady (1995) examined the deterrents construct by surveying 870 adults who had applied to Bristol Community College in Fall River, Massachusetts. The usable sample (39%) consisted of 100 persons who had applied but not enrolled, 116 who applied and continued for two consecutive semesters, and 100 who applied, enrolled, but dropped out before completing two semesters.

Respondents who had completed two semesters reported cost was a significant deterrent. This corroborates earlier findings of Carp, et al. (1974) that demonstrated individuals actually engaging in learning activities also face barriers to continuing their

learning. Cost was likewise an important deterrent in several other studies (Cross, 1981; Darkenwald & Valentine, 1985; Scanlan & Darkenwald, 1984).

Grady (1995) also reported a significant relationship between application status (participation) and previous education level. Persons with education levels higher than the mean were more likely to drop out than those individuals with education less than the mean. Grady concluded that lack of perceived need or benefit of additional education may contribute to the decision not to persist.

Demographic variables that significantly related to participation included age and race. Grady (1995) observed women aged 25-34 with children were more likely to discontinue their program than were men of the same age with children. Also, black and Hispanic adults more frequently dropped out than members of other ethnic groups.

Brown (1998) investigated deterrents to college by administering a slightly modified DPS-G to two different populations at the University of Mobile's Adult Degree Completion Program. The first group consisted of 522 adults who had either completed their degrees or were still enrolled (participants). The second group comprised 518 adults who had inquired about the program, but had not enrolled (nonparticipants). Usable returned surveys brought the sample size to 255 and 127, respectively, for a 37% return rate.

For the participant group, Brown (1998) extracted nine factors using a principal components analysis procedure. These factors were lack of confidence, cost, lack of course relevance, time, lack of support, personal concerns, low learning interest, attendance problems, and low personal priority. The same analysis procedure yielded

eight factors for the nonparticipant group: lack of confidence, lack of course relevance, time, cost, location, attendance problems, family concerns, and lack of support.

For both groups, Brown (1998) noted that lack of confidence represented the single greatest deterrent to college enrollment, accounting for 25.9% of the variance for participants and 27.5% for nonparticipants. These dispositional barriers described fears of competing with younger students, lack of self-confidence about abilities, and doubt about meeting course requirements. Both groups perceived lack of confidence as a greater deterrent than cost, time, or other factors.

Brown (1998) reported that two demographic variables had statistically significant effects on participation status: level of education and educational activity after inquiry (about enrollment). No other demographic variables related to participation status.

Fifteen deterrent factors distinguished the two groups significantly. Items dealing with cost and relevance of courses were more a concern for nonparticipants, while participants appeared to be more deterred by confidence and lack of support factors.

Following the advice of Darkenwald and Valentine (1985), Brown (1998) drew upon the DPS-G data to identify deterrents that potential and actual students at the University of Mobile perceived and to make recommendations to improve the quality of service to students. Because she found that cost had a very high importance rating for both participants and nonparticipants, the primary recommendation was to develop a competitive tuition rate.

In summary, researchers have articulated a deterrents to participation construct that is complex and multidimensional. Following numerous attempts to develop a typology of barriers, an instrument that is applicable for general use has emerged and been tested in a variety of educational settings, including colleges and universities. While several researchers indicated that populations had access to some form of tuition assistance, none examined the specific utilization of this benefit or its effect on participation status.

The next section presents an overview of research that focused on employer-provided educational assistance programs.

Educational Assistance Programs

An employee benefit that pays educational expenses may be referred to as an educational assistance program, tuition assistance plan, tuition reimbursement program, or tuition waiver program. In each case, the employer assumes partial or total cost of courses completed by employees.

For reimbursement programs, the employee pays the costs at the time of enrollment and receives a reimbursement according to company policy. In a tuition waiver program, the employer pays the cost initially with the employee having no out-of-pocket expenses except, perhaps, for certain nontuition fees or books. For the purposes of this review of literature, program terms will be used as described by individual research studies.

Historic Foundation of Educational Assistance Programs

From an historic perspective, the proliferation of educational assistance programs traces to the World War II era. During that time, corporations focused on training methodologies to quickly get unskilled workers – frequently women and older workers – into the productive workforce.

After the war, several events influenced workforce training: (a) the introduction of instructional system design technology, (b) construction of large corporate training facilities, (c) integration of training into comprehensive corporate strategies, (d) increased emphasis on management development, and (e) the emergence of the human resource development (HRD) concept (Manion, 1989).

Human resource development stresses the overall competence of the workforce, from entry-level workers to executive management. In this framework, organizations may offer training that includes basic job skills, remedial education, technology skills classes, or even post-secondary subjects. Manion (1989) cautioned against interpreting this expansion into education and training

> as a sign of corporate enlightenment. This training is done because corporations realize they must continuously educate their work force to remain competitive in a world economy requiring special knowledge and skills. It is in this context that corporations began to assist employees with the expenses of their education. (p. 20)

Employers may have motivations for extending educational assistance beyond those of increasing worker skills for global competitiveness. Higgins (1993) asserted that many employers believe these programs enhance recruitment, increase the loyalty of

existing employees, improve retention, and reduce turnover. These are distinct business advantages in themselves (Sladek, 1995).

It is evident that many employers believe educational assistance programs increase worker skill, loyalty, and retention and to decrease turnover. Empirical support for such belief exists to a limited degree in the literature. The next two sections review studies on employer-sponsored tuition programs in general, and deterrents to participation in such programs specifically.

Research on Educational Assistance Programs

Several researchers explored differences between students who attend college on employee tuition programs compared with those who self-pay. Giorgi's (1983) early study surveyed 489 students at an urban university who were full-time workers and part-time students. Results showed a significant relationship between persistence and corporate support.

Krejci (1984) found that undergraduate students were motivated by economic considerations more often than by psychological factors. Tuition reimbursement was a primary economic motivation.

Erickson (1986) also studied differences between college students who received company-sponsored tuition assistance and students who self-paid. She theorized that there were no differences in reasons for college participation between undergraduate students according to method of payment. However, data from 411 adult students enrolled in a nontraditional college program revealed significant differences. Those

reasons were complex, encompassing 11 separate factors. Among those factors were professional advancement, educational supplementation, external expectations, cognitive interest, stimulation, and social contact.

Students pursuing graduate degrees also indicate the importance of employers' tuition support. Sochor (1993) explored motivations of registered nurses returning to school for a master's degree in nursing. While the most important reasons were professional knowledge and acquisition of credentials, the availability of tuition reimbursement was also a significant motivation.

Klinger (1996) found that employees with disabilities have a unique need for employer tuition assistance. She observed that people with disabilities have a desire to improve the quality of their lives but may have to attain higher levels of education than people without disabilities in order to compete in the workplace. Her study of tuition assistance programs in large work organizations in one county of New York state revealed that tuition programs were widely available, but few people with disabilities were employed at those companies.

At the other end of the spectrum, Caldwell (1998) explored the perceptions of promotional opportunities of 500 women in executive-level positions across the United States. Those women considered their available tuition reimbursement benefits to positively enhance their promotional opportunities. Other resources also contributed to perceived opportunity for corporate advancement, including company-sponsored medical leaves and flextime.

Manion (1989) investigated the relationship between employer encouragement and employee participation in tuition assistance programs. Seventy-nine part-time students receiving tuition assistance from their employers completed a survey about their perceptions of five encouragement factors: (a) recognition of program completion by public announcement, (b) consideration of present employees first when filling vacancies, (c) provision of detailed information about local educational opportunities, (d) provision of educational counseling at the work site, and (e) promotion of employees who completed educational programs. Additionally, students indicated at what reduced level of assistance they would withdraw from classes.

Fifty-four tuition assistance administrators from the employing companies completed a second questionnaire about the five encouragement factors and the extent of utilization of tuition benefits. Manion (1989) calculated median encouragement scores and median participation rates, and then classified employers by "high" and "low" for both categories. Employee perception scores were paired with their employer's scores.

Results of this study showed that employers who encourage the use of tuition assistance have significantly higher participation rates than did employers who do not encourage use. While employees do respond to their employers' encouragement, Manion (1989) also found that employees believed they would not continue their education if employers lowered reimbursements.

Additionally, the mean rate for utilization of tuition assistance in this study was 13.67%, "a surprise considering that the national average is between 3% and 5%" (Manion, 1989, p. 70).

Research on Deterrents to Participation in Educational Assistance Programs

Studies that focus on educational assistance programs frequently utilize the framework of participation factors or motivations (Dougherty, 1991; Erickson, 1986; Shin, 1989; Sochor, 1993). Another approach involves researching the barriers or deterrents to participation. Empirical studies that combine eligibility for educational assistance programs with deterrents to participation are somewhat limited and often focus on military service personnel (Carlson, 1992; Martindale & Drake, 1989; Smith, 1997).

Martindale and Drake (1989) designed their study to validate the DPS-G instrument, and to investigate factors that deter Air Force enlisted personnel from participating in voluntary, off-duty education. The entire population (2,734 from Maxwell and Gunter Air Force Bases in Alabama) was eligible for tuition assistance through their military service. The stratified random sample consisted of 357 participants and 609 nonparticipants and had an adjusted response rate of 71.5%.

In this study, the DPS-G achieved an alpha reliability coefficient of .86, identical to the coefficient Darkenwald and Valentine (1985) found in their original use of the instrument. Item responses also closely aligned to the original study, with item means and rankings being very similar. Martindale and Drake (1989) suggested this demonstrated the instrument "gave somewhat similar results with different populations," and "added evidence that the DPS-G is measuring the same deterrents" (p. 66). They further asserted that their findings supported the validity and reliability of the survey instrument.

Nine factors emerged after a principal components analysis with a varimax rotation. These included lack of course relevance, lack of confidence, cost, time

constraints, lack of convenience, lack of interest, family problems, and lack of encouragement. Two of the factors, lack of convenience and lack of encouragement, had not been previously identified in the deterrents to participation construct. The researchers noted that two other factors, lack of interest and lack of course relevance, were "more clearly separated than in previous studies" (Martindale & Drake, 1989, p. 73).

Demographic variables related with the factors in ways similar to the original study. For example, lack of confidence decreased with education and younger persons were more deterred by cost.

One distinctive element emerged from this study. While the entire population was eligible for tuition assistance due to their military status, respondents still considered cost to be a deterrent. The highest-ranking item for this factor was "because I couldn't afford miscellaneous expenses," a situation which occurs despite the tuition benefit. The researchers commented that the scale ranking for cost items was even greater than for the original study in Somerset County, New Jersey, possibly owing to the differences in income for the two populations.

Similar to Martindale and Drake's (1989) study of Air Force personnel, Smith (1997) investigated the perceived barriers to participation in college enrollment by enlisted personnel in the Navy. In this study, off-duty programs were available on base at the Naval Air Station in Jacksonville, Florida. Thus, courses were both accessible and tuition-free for the entire population.

A total of 270 persons returned questionnaires from 650 distributed, a return rate of 41.5%. Over two-thirds of the sample were nonparticipants (67.8%).

Eight factors emerged from the data: course relevance, family, finances, goal relevance, health, personal confidence, time constraints, and convenience. Smith (1997) found that a ninth factor, command support, was a significant barrier when combined with certain demographic variables.

For nonparticipants, significant barriers were command support, convenience, finances, and goal relevance. Because courses were both accessible and tuition-free, the factors of convenience and finances proved to be an interesting insight. Smith (1997) reported that finances as a barrier was related to Navy rating, number of years stationed in Jacksonville, and highest educational credential.

Participants perceived command support to be significant when related to Navy rate, number of dependent children, and number of years stationed at this particular base. Convenience related to number of children, while time constraints related to Navy rate. Financial considerations did not significantly relate to any demographic characteristics for the participant group.

Smith's (1997) study indicated that persons continue to perceive deterrents even after enrolling in higher education programs, a situation also described by Grady (1995) and Carp, et al. (1974).

Carlson (1992) also observed that, despite having an accessible and affordable college degree program, potential students still perceived significant barriers to participation. She surveyed 460 registered nurses who had either associate degrees or diploma credentials, but who lacked bachelor of nursing degrees. Each nurse worked within 20 miles of a college or university and was eligible for tuition reimbursement.

Results indicated that significant deterrent factors consisted of lack of confidence as a learner, lack of perceived need for a BSN degree, and low personal priority for the degree. Additionally, there was a significant relationship between nonparticipation and a negative impression of college credit courses for nursing.

While the DPS-G proved useful by providing a framework for viewing deterrent factors, Carlson (1992) reported no significant relationships for nonparticipation in a BSN degree program and certain demographic variables, namely educational level, initial type of nursing certification, or current job classification. There were, however, significant positive relationships between nonparticipation and age, marital status, and years of nursing experience.

Carlson's (1992) research has several similarities to the military studies. Each used populations of employed persons who were eligible for tuition assistance programs, and each measured the importance of perceived barriers to college enrollment. Carlson's population, however, was civilians with an identical job classification – all were registered nurses employed in the same acute care institution.

Findings in each of these studies demonstrated that significant deterrents to college participation exist despite the availability of tuition assistance and the accessibility of courses to the work location.

Variables Associated with Deterrents and Participation Status

From the earliest attempts to identify and describe deterrents to participation in adult educational activities, many researchers explored the relationship of demographic

variables (Brown, 1998; Carp, et al., 1974; Darkenwald & Valentine, 1985; Grady, 1995; Johnstone & Rivera, 1965; Martindale & Drake, 1989; Shipp & McKenzie, 1980; Valentine & Darkenwald, 1990; Wood, 1994; Zawislak, 1990). Thus, current knowledge of the relationship between demographic variables and participation status or deterrents to participation is based on at least 35 years of survey research.

Johnstone and Rivera (1965) developed the first descriptive profile of deterrent factors and included an examination of demographic variables. Their national survey found significant differences in the number of barriers identified according to age, gender, and socioeconomic status of respondents. Johnstone and Rivera reported that nonparticipants tended to be older, less well educated, and more likely to live in rural settings. Racial and ethnic differences significantly related to participation status, while gender, religious affiliation, and marital status did not.

The researchers concluded that there was a "great disparity" in educational participation for segments of the population that "occupy different levels of the social hierarchy" (Johnstone & Rivera, 1965, p. 231). This implied that demographic characteristics had predictive potential, a situation that prompted other researchers to make further inquiry.

Carp, et al. (1974) related that demographic characteristics appeared to be useful in predicting the study fields of learners, and the areas of study interest for would-be learners. Empirical data of this nature suggested applicability to program planning.

Carp, et al.'s (1974) demographic findings were generally consistent with Johnstone and Rivera's (1965). Those persons identified as "learners" were younger,

more educated, and held jobs of a professional/managerial level. They were less likely to be black or to live in a rural area. As in the previous study, gender did not relate to either participation category.

Valentine and Darkenwald (1990) designed a study to specifically impact the utility of the deterrents construct. While various researchers identified a reasonably consistent framework of deterrents, educational or human resource professionals gained little more than a checklist to guide their efforts. What was needed, according to Valentine and Darkenwald, was an explication of the deterrents construct that created a customer profile, or more thorough description of adults as defined by their perceived deterrents to participation in educational activities. Practitioners could then use this profile to strategically focus on identified subgroups of the population.

Using data collected from a sample of the general public in their previous inquiry, Valentine and Darkenwald (1990) used the original demographic variables and standard scores from the identified deterrent factors, collected with the DPS-G. A new cluster analysis segmented the sample into distinct subgroups and created a typology of persons deterred from participation. Demographic variables provided the means to describe each cluster in practical terms.

The following five types of adults emerged:

1. Type One: People Deterred by Personal Problems – This was the largest group, comprising nearly 30% of the sample. Issues that defined personal problems largely included child care and family responsibilities, and, to a lesser degree, health problems, handicaps, and concern about the safety of the course location. This group was 81% female, and was typically not employed outside the home. The researchers assumed that a probable description of adults in this group would be homemakers with many situational demands that made participation difficult.

2. Type Two: People Deterred by a Lack of Confidence – As the second largest group (27%), these persons had high scores for lack of confidence, but low scores for personal problems. Mean age was high, while educational attainment was low (high school or less). Males dominated this cluster and had the lowest unemployment rate. A description of a typical group member was a male of mature age who lacked confidence, but otherwise had the resources to attend courses.

3. Type Three: Persons Deterred by Educational Costs – This was the smallest group (almost 13%), and consisted of persons who scored high on cost constraints and low on lack of confidence. Group members were largely female, were much younger than the overall sample mean, and had both the lowest income and lowest educational attainment. The dominant profile of this cluster was a young woman of modest education and financial means, who had the confidence to attend, but could not afford the tuition or indirect costs.

4. Type Four: People Not Interested in Organized Education – The second smallest group (14%) consisted of mostly males and had the highest rate of full-time employment and a generally high income. Educational level was high, with 83% having college or graduate degrees. The Type Four profile was a well-educated, affluent, working male who placed a low value on additional education.

5. Type Five: People Not Interested in Available Courses – While persons in this group had high scores for lack of course relevance, they had low scores for low personal priority. This indicated that they tended to value continuing education, but did not think courses met their specific needs. The majority of people in this group were male, employed full-time, and highly educated (41% had graduate degrees). They were very similar to persons in Type Four, with the exception of having somewhat lower incomes. The profile for this group was a highly educated, middle-income, working male who considered education to be important, but found available courses to be personally irrelevant.

Valentine and Darkenwald (1990) believed these profiles contained important information for program planners and practitioners. First, they provided additional support of the diversity among adults regarding factors that impact participation in educational activities. Second, they emphasized the need for information about what impedes or prevents the enrollment of potential learners in order to facilitate their

attendance. Third, they underscored the fact that deterrent factors are multidimensional and all deserve attention in order to reach the needs of potential learners.

However, Valentine and Darkenwald (1990) stated that one deterrent factor deserved special focus. Time constraints, evident in nearly every previous study, failed to differentiate among subgroups of learners in this cluster analysis. These problems were representative of all. Addressing the magnitude of that deterrent, the researchers asserted, "On the broadest possible level, adult educators need to recognize that time constraints represent a serious and nearly universal deterrent to participation in adult education" (p. 39-40). They reported that items related to time had substantially higher importance scores than any other item and, therefore, should strongly influence planning initiatives. They listed flexible scheduling, distance learning, and self-paced programs as examples of recommended strategies to make education more available to adults.

Each section of this review of literature included summaries of studies in which demographic characteristics was an important component. An examination of these variables contributes to understanding whom is deterred from participating in educational activities and to what degree. Further, it facilitates formulating strategies to reduce or eliminate identified barriers. Demographic information becomes, therefore, the link between theory and practice.

Summary

Many working adults desire to continue their education, particularly at the college level, for personal and professional reasons. However, many face barriers that impact

their participation. Understanding those barriers, or deterrents, can assist professionals in higher education and human resources to plan more effective programs and increase enrollment.

Employers have business-related interests in the educational advancement of workers. One way in which employers encourage participation in education is by providing educational assistance programs. These are a widely available but little used employee benefit designed to facilitate educational pursuits through financial support. Occasionally, that support extends to provision of information, encouragement, or scheduling adjustments.

For the last 35 years, researchers have conducted studies that delineated a clear framework for understanding the broad dimensions that deter participation in educational activities. An instrument suitable for generalizing to diverse populations, the DPS-G, aided in data collection and interpretation. Replication studies in colleges and universities demonstrated its applicability to that population. The inclusion of demographic variables in such research expanded its utility by providing important descriptive information with practical implications.

Because employees and employers may mutually benefit from employees' completion of college courses, information about deterrents to course participation, use of tuition assistance programs, and demographic descriptions is important. In this study, the research collected and analyzed that information for one employer, The University of Tennessee, Knoxville.

CHAPTER III

METHOD

The review of literature demonstrated there is a need to know the factors that deter employees from participating in an employer-sponsored educational assistance program. Research suggested that, having identified perceived deterrents, program planners can target strategies to increase participation. Additionally, an examination of demographic variables contributes to understanding who is more likely to participate. Because college participation has benefit for both the employee and the employer, collecting and analyzing this information has the potential to positively impact many persons and to advance the organization's business interests.

Research Questions

Four research questions guided this study. To address the multiple demographic variables incorporated in the final two questions, null hypotheses served as an organizing strategy. The research questions included:

1. What are the perceived deterrents that prevent eligible staff from participating in the educational assistance program provided by UTK?

2. What are the deterrents that eligible staff continue to perceive while participating in the educational assistance program provided by UTK?

3. What are the effects of demographic variables on the identified deterrents of both groups?

   Expressed as a null hypothesis, each demographic variable was hypothesized to have no effect on the identified deterrents of both groups.

4. What are the effects of demographic variables on participation status?

Expressed as a null hypothesis, each demographic variable was hypothesized to have no effect on participation status.

Demographic variables included age, gender, race, marital status, number of children living at home, level of education, employment status, job category, years of employment, intention of employment regarding tuition benefit, number of classes taken using the benefit, use of maximum benefit, family member use of benefit, preference for alternative course delivery, and participation in staff development courses.

Educational Assistance at The University of Tennessee

The University of Tennessee views the objective of the educational assistance program as "to enable regular faculty and staff to perform their present duties more effectively and to assist them in preparing for future opportunities" (UT, 2000, p. 1).

This policy states that full-time regular faculty and staff may enroll for up to a maximum of nine semester hours per term without payment of fees (UT, 2000). These courses may be for either undergraduate or graduate credit. Part-time faculty and staff who work at least 50% time or more may also participate, with the fee waiver being prorated to the percent of time worked.

The policy (UT, 2000) also stipulates that fee waivers are subject to several conditions:

1. The employee must meet all eligibility requirements for admission, complete all prerequisite courses, and follow established registration procedures.

2. The employee must work the full number of hours for which employed and hours spent in class during working hours must be made up. Both the supervisor and the department head must be consulted in devising a plan for making up the time spent in class attendance, with the needs of the office

being considered. Wherever possible, courses should be taken at times that do not conflict with the normal working day.

3. The department head and the Director of Personnel (or their designees) must approve all requests for courses.

4. Employees who register for more than nine semester hours will be charged the difference between the fee waiver and the cost of the total number of hours of enrollment.

Additionally, the policy (UT, 2000) advises that fees are not waived for non-credit courses, correspondence courses, or special credit courses with workshop fees (with certain stated exceptions).

While a tuition waiver covers classes at UT, an employee can receive a fee waiver for one course per semester at any State supported college, university, or area vocational-technical school. However, these waivers cannot be combined.

A related educational benefit provides a 50% student fee discount for spouses and dependent children of regular full-time employees (UT, 1998a). While the tuition waiver for employees applies to both undergraduate and graduate enrollment, the student fee discount for spouses and dependent children is limited to undergraduate courses.

Population and Sample

The population for the study consisted of the 2,970 employees of UTK who were classified as "staff" and were eligible for the educational assistance program at the time of the study. Employees designated as faculty or students (i.e., student assistants, graduate assistants, or teaching assistants) were not included. Eligible employees consisted of all full-time regular staff members and part-time staff who worked at least 50% time.

Random sampling was utilized to gather a sample of 338 university employees from among those eligible for the educational assistance program. According to the research division of the National Education Association Research Bulletin (1960), a sample of 338 ensured a 95% confidence level for this size population.

Research Design

The design of the study was descriptive. Gay (1996) stated that "descriptive research involves collecting data in order to test hypotheses or to answer questions concerning the current status of the subject of the study. A descriptive study determines and reports the way things are" (p. 249). Isaac and Michael (1995) indicated the term "survey studies" is frequently used for many descriptive studies. The purpose of this type study is "to collect detailed factual information that describes existing phenomena, to identify problems..., and to make comparisons and evaluations" (p. 50).

This design appeared appropriate to answer the research questions since they involved identifying staff's current perceptions of deterrents to course participation. Additionally, a survey was used to collect that information, to make comparisons between the two groups, and to evaluate the effects of demographic variables.

Variables

For this study, the dependent variable was the respondents' participation status in the UTK educational assistance program, noted as "participant" or "nonparticipant." The independent variables were (a) the deterrent factors which emerged from a statistical

analysis of the completed survey instruments and (b) the individual demographic variables.

Instrumentation

The survey instrument, labeled "Adult Learning Questionnaire" by Darkenwald and Valentine (1985), consisted of two separate scales: the Deterrents to Participation Scale – General (DPS-G) and a demographics section (see Appendix A). Each portion measured one of the two independent variables.

The DPS-G has been used in deterrents research for 15 years and represents the only major validated instrument within this field of study. Other researchers have made minor modifications to adapt the instrument to specific populations (Brown, 1998; Grady, 1995; Hansen, 1999; Reed, 1994), but retained the format, measuring scale, and fundamental content of the original. Because of its extensive validation and acceptance within the field, the researcher selected the DPS-G for the current study.

To secure permission to use the DPS-G, the researcher mailed a letter of request to the originators, Thomas Valentine and Gerald Darkenwald. Mailing addresses were located by conducting a search through the Internet sites of their respective universities. Darkenwald responded and granted permission to use the instrument and to make minor modifications. A second request was sent by electronic mail to Valentine. When no response was received, the researcher recontacted Darkenwald to ask if his individual permission was sufficient. He replied by electronic mail and stated that, since he was the

principal instrument designer, no other permission was needed. Copies of all correspondence are located in Appendix B.

Deterrents to Participation Scale – General (DPS-G)

The first independent variable was perceived deterrents to participation in educational courses sponsored by the employer, as measured by the DPS-G. Darkenwald and Valentine (1985) developed this instrument to amend the limitations associated with an earlier instrument, the Deterrents to Participation Scale (DPS) designed by Scanlan and Darkenwald (1984). Since this work addressed the deterrents of specific health professionals, it could not be generalized to other groups of professionals or to the general public. The DPS-G, however, gained broader generalizability through its design and testing with the general public.

Two research projects were specifically designed to determine the reliability and validity of the DPS-G instrument. Martindale and Drake (1989) used a sample of 966 Air Force enlisted personnel and achieved an alpha reliability coefficient of .86. This was identical to the coefficient Darkenwald and Valentine (1985) found in their original use of the instrument. Item responses for the Martindale and Drake research also closely aligned to the original study, with very similar item means and rankings. The researchers stated that the instrument delivered consistent results among different populations and thus supported "the universality of the DPS-G instrument" (p. 74).

Kowalik (1989) surveyed 1,000 alumni of a large public university in the Northeast United States and found an alpha coefficient of .83. Like Martindale and Drake

(1989), he believed his data "showed that the DPS-G elicited quite similar results with different populations" (p. 142). Because the two validation studies identified very similar deterrent factor structures, Kowalik asserted that the instrument had "generalizability" (p. 142). He further stated, "The findings from this study add construct validity to the Deterrents to Participation Scale - General" (p. 146).

The DPS-G has been used with low-literate adults (Hayes, 1988), with military enlisted personnel (Martindale & Drake, 1989; Smith, 1997), in a food-processing plant's workplace GED program (Vann, 1993), in adult education programs for small business managers (Ericksen, 1990) and for African-Americans (Cummings, 1995), in a university's staff development program (Reed, 1994), with farmers in Michigan (Hansen, 1999), with college admission for the general public (Brown, 1998; Grady, 1995; Wood, 1994; Zawislak, 1990), and with other populations. Because of the successful application of the instrument to those research efforts, this study elected to use the DPS-G to identify deterrent factors for participation in the employer-sponsored educational assistance program at UTK.

The instrument designers encouraged additional studies "with different populations in North America and elsewhere in the industrialized world" (Darkenwald & Valentine, 1985, p. 187). In administering the DPS-G to diverse populations, many subsequent researchers made slight modifications to the wording of directions and selected survey items to make the instrument more appropriate to their individual setting or population.

Brown (1998) found it useful to modify the directions and item formats to obtain responses from both participants and nonparticipants with one survey instrument, and gained the written support of both Darkenwald and Valentine for these changes. Because the proposed study had a similar purpose, comparable modifications were made. Tables 1 and 2 illustrate those changes.

In addition to modifying the items from a clause format to a declarative statement, the unique environment of the proposed study required making changes to two specific survey items. The situations described in the original DPS-G items were not applicable to the work setting or to the characteristics of a tuition waiver program. Table 3 depicts those reworded survey items.

Two items that had no counterpart in the original DPS-G were added to the modified instrument in this study. The first, caring for an adult family member, represented a contemporary life situation; the second, encouragement or support by a work supervisor, acknowledged the cooperation required by university policy (UT, 2000). Table 4 contains the two additional items.

The instrument's original Likert-scale with five response categories remained. The five numbered response choices were additionally labeled as: (1) "not important," (2) "slightly important," (3) "somewhat important," (4) "quite important," and (5) "very important." Directions on the instrument advised that if a reason was not applicable for the respondent, the number one, "not important," should be selected.

Table 1

Modifications to the Directions of the DPS-G

Original DPS-G Directions
Every year, more and more adults participate in some kind of educational activity. Examples include courses, workshops, seminars, and training programs offered by schools, colleges, and other organizations or community groups. However, adults sometimes find it hard to participate in these activities even when they want to. Try to think of something – *anything at all* – that you wanted to learn in the past year or two, but never did. Then look at the reasons below and decide *how important each one was* in your decision not to participate in an educational activity.
Modified DPS-G Directions
Every year, many working adults consider participating in college. However, barriers may make participation difficult and sometimes prevent it entirely. This questionnaire examines the barriers you may have experienced. Look at each statement below and identify one response that indicates its importance to your decision to take (or not take) courses using the UTK employee tuition waiver.

Table 2

Examples of Modifications to the DPS-G Items

Original DPS-G Items
Because I felt I was too old to take the course.
Because I didn't know what courses were available for adults.
Because of family problems.
Because the course was scheduled at an inconvenient time.
Because participation would take away from time with my family.
Modified DPS-G Items
I felt I was too old to take courses.
I did not know what courses were available.
I was experiencing family problems.
The courses were offered at inconvenient times.
Participation in courses would take me away from my family.

Table 3

Modifications to Specific DPS-G Items

Original DPS-G Items	Modified DPS-G Items
Because I couldn't afford the registration or course fees.	I could not afford the tuition for taking more than nine hours.
Because my employer would not provide financial assistance or reimbursement.	My employer did not provide enough financial support.

Table 4

Items Added to the DPS-G

Items Added to the DPS-G
I had trouble arranging care for an adult family member.
My supervisor did not encourage or support my participation.

Selected Demographic Variables

The second independent variable for this study consisted of selected demographic characteristics, including age, gender, race, marital status, number of children living at home, level of education, employment status, job category, years of employment, intention of employment regarding tuition benefit, number of classes taken using benefit, use of maximum benefit, family member use of benefit, preference for alternative course delivery, and participation in staff development courses.

The inclusion of demographic variables appears to be universal in all replications of the original Darkenwald and Valentine (1985) study. There may be two reasons for this: (a) a stated purpose of the original study was to determine the relationship between demographic variables and the factors identified as deterring participation, and (b) the instrument designers emphasized in their subsequent analysis that creating a demographic profile increased the instrument's utility (Valentine & Darkenwald, 1990).

Darkenwald and Valentine's (1985) instrument included six demographic variables: gender, age, educational level, income, employment status, and hometown. Because their target population consisted of the general public in one county of New Jersey, the determination of hometown held some relevance. For the proposed study, however, such information would not prove as useful since the population is work-centered and the studied courses are available at that location.

This study included a question for job category (in lieu of income) because of the work-centered location and because such classification would provide the university's Office of Human Resources with an effective means to segment the population for

targeting improvement strategies. Determining family income might have lesser utility since it frequently includes a spouse's income and, being a work-centered study, the income of nonemployees would, generally, not be accessible or relevant to this employer.

The characteristics of age, gender, race, marital status, number of children living at home, level of education, employment status, and years of employment are frequently-studied demographic variables and appeared to have relevance to the study's local utility and to its contribution to the general understanding of the deterrents construct.

Collecting additional information on characteristics specific to this study topic intended to establish baseline data and to focus program planning efforts. Topic-specific characteristics included intention of employment regarding the tuition benefit, number of classes taken using the benefit, use of maximum benefit, family member use of benefit, preference for alternative course delivery, and participation in staff development courses.

Pilot Testing

As recommended by Gay (1996) and by Isaac and Michael (1995), the modified instrument and an accompanying cover letter were tested with a small group of persons similar to the target population. This group included both persons classified as current participants in college courses and those who were not enrolled in courses. The researcher distributed the materials to 25 staff at two UTK work units: one within the College of Human Ecology and the other employed on one floor of the university's major administrative building.

Gay (1996) advised that "pretesting [a] questionnaire yields data concerning instrument deficiencies as well as suggestions for improvement" (p. 258). Twenty-one questionnaires were returned and feedback focused on three areas: (a) Shortened or simplified directions would make the questionnaire more "inviting." (b) Testers found it difficult to remember that the responses asked for the *importance* of the statement to the decision about enrolling. (c) In the demographic section, several testers left an item blank when their answer was actually "O." All respondents noted that the questionnaire took less than 20 minutes to complete, with the majority listing between five and ten minutes.

To address the suggestions from the pretest, the researcher made the following changes: (a) Directions were shortened and simplified. (b) At the beginning of each page in the DPS-G section, this statement was added: "How important was this to your decision?" (c) In the demographic questions about number of children and hours of staff development training, this statement was added: "If none, write O."

Distribution Procedure and Data Collection

A team leader at the UTK Office of Human Resources met with the researcher to determine how the proposed study could be coordinated with that office's efforts to administer and promote the employee educational assistance program. The Office of Human Resources recently designed an initiative, entitled "Earn and Learn," to promote participation in the program to enhance retention and recruitment. However, that initiative lacked baseline data and had no means to identify deterrents to participation.

The current study could provide both. The team leader expressed support and agreed to cooperate in gaining access to population and sampling information.

Additionally, the Director of the UTK Office of Human Resources asked the researcher to meet and summarize the study's purposes, procedures, and expected outcomes. He, too, pledged support and agreed to facilitate access to any required information.

The Office of Human Resources provided as an electronic mail attachment the list of 2,970 full- and part-time employees eligible for the educational assistance program. The researcher imported the attachment to Microsoft Excel and used that software's random selection function to identify a sample of 338 persons.

The instrument, a cover letter, and addressed return envelope were distributed by campus mail to the work location of the 338 employees in the sample. The letter described assurances of confidentiality, but also explained that the return envelope was coded with a number solely to facilitate contacting nonrespondents. Neither the tracking numbers nor the names of employees were recorded with the returned questionnaires. Additionally, the letter indicated that individual surveys would not be used for any purpose other than to gather data, and results would be reported only in aggregate form.

Approximately two weeks after the initial mailing, a follow-up letter was sent to nonrespondents and included a second copy of the instrument and another return envelope. Two weeks later, a reminder postcard was mailed to all remaining nonrespondents, for a total of three contacts. Copies of the letters and postcard are located in Appendix C.

Data from the completed surveys were coded by the researcher on a Microsoft Excel spreadsheet and submitted to a university statistical consultant available for student research. Using the computer software, Statistical Package for the Social Sciences (SPSS), the consultant performed the statistical analysis outlined by the researcher.

Overview of Statistical Analysis

Statistical procedures used to analyze the data included descriptive statistics, factor analysis, multivariate analysis of variance (MANOVA) with follow-up tests where indicated, and chi-square statistics. This section reviews the reasons for selecting those procedures and details criteria that guided their execution.

Descriptive Statistics

Descriptive statistics are statistical procedures used in describing the properties of samples (Ferguson & Takane, 1989). As noted by Ott (1992), a common presentation involves the calculation of numeric statistics such as frequencies and percentages that are displayed in tabular format. Gay (1996) stated, "The first step in data analysis is to describe, or summarize, the data using descriptive statistics" (p. 432).

In this study, respondents completed a demographics section that served two purposes: to describe the characteristics of the sample and to address the final two research questions. The researcher employed descriptive statistics to present the results for the former purpose.

Factor Analysis

Factor analysis refers to statistical techniques that represent a number of variables in terms of a smaller set (Kim & Mueller, 1978). According to Bryman and Cramer (1994), there are three major reasons to use factor analysis: (a) to assess the degree to which the variables are tapping the same concept, (b) to determine the degree to which they can be reduced to a smaller set, and (c) to provide meaning to the complexities of the variables.

Principal components analysis is a related variable reduction procedure usually accessed through the same statistical computer functions as factor analysis. It is the more appropriate procedure when the researcher wants to develop a smaller number of variables and there is assumed redundancy among the variables, "possibly because they are measuring the same construct" (Hatcher, 1994, p. 2). Since research questions one and two sought to identify the shared constructs among perceived deterrents, a general factor analysis using the principal components procedure was selected.

The first step in conducting factor analysis is to examine the interrelationships among the variables (Kim & Mueller, 1978). This is accomplished by conducting an initial extraction of the factors in which

> the first factor can be expected to account for a fairly large amount of the common variance. Each succeeding factor will account for progressively smaller amounts of variance. Although a large number of factors may be extracted in this way, only the first few factors will be important enough to be retained for interpretation. (Hatcher, 1994, p. 79)

The second major step involves determining which of the factors should be retained. The most commonly used procedure is a rule known as the Kaiser, or

eigenvalue, criterion in which only those components with an eigenvalue of at least 1.0 are retained (Hatcher, 1994; Kim & Mueller, 1978; Rummel, 1970). From this list of initial factors, the researcher can plot the eigenvalues associated with each factor, placing the factor numbers on the horizontal axis and the eigenvalues on the vertical axis. This "scree test" enables the researcher to identify the point at which the eigenvalues break between those with relatively larger values and those with smaller eigenvalues. Those factors before the break are assumed to be meaningful and are retained for rotation; those after the break are assumed to be less meaningful and are not retained (Bryman & Cramer, 1994; Hatcher, 1994).

The third step consists of rotating the factors with an orthogonal, or uncorrelated, varimax procedure. The resulting matrix lists the number of factors and the factor loadings of each variable. Hatcher (1994) noted the researcher "should rely most heavily on this rotated factor pattern matrix to interpret the meaning of each factor" (p. 90).

In the case of the 36 variables in the modified DPS-G used in this study, factor analysis followed the described steps. Using the rotated component matrix, the researcher employed several criteria to determine the most simple and meaningful structure:

1. Only variables with meaningful loadings were retained. Hatcher (1994) suggested using a loading value of .40, but retaining that variable only if it did not load on more than one component at that value or greater. Therefore, variables that loaded at this minimum value on more than one component were dropped since they appeared to be measuring more than one factor. However, because Darkenwald and Valentine (1985) used a criterion loading value of .45 for their analysis of the DPS-G, that more stringent criterion was adopted for this study.

2. Only factors that contained at least three significantly loading variables were retained. Hatcher (1994) stated that a solution measured by fewer variables was less satisfactory.

3. The variables that loaded on factors according to the first two criteria were retained only if they shared some substantive conceptual meaning. Kowalik (1989) noted this criterion determined his final solution, as did Darkenwald and Valentine (1985). Other researchers also believed that it was essential that variables loading on a given factor share sufficient interpretable conceptual meaning (Hatcher, 1994; Kim & Mueller, 1978; Rummel, 1970).

Using these criteria, the factor analysis procedure employed in the current study identified a factor solution of deterrents for both participants and nonparticipants in the UTK educational assistance program. The variables within each identified factor, when examined for meaningfulness, suggested a conceptual label.

The factor analysis of both groups also yielded information about the rank order of DPS-G items by mean, with standard deviations noted. This facilitated an analysis of importance ratings for each item. Each separate factor was also described in terms of the variable loadings, item means, and scale ranks. Additionally, alpha reliability coefficients were determined for the factor analysis of each group.

Multivariate Analysis of Variance

Research question three asked the effect of the demographic variables on the identified deterrent factors of participants and nonparticipants. The demographic variables were scored as follows: age (number of years), gender (female=1, male=2), race (African-American=1, Caucasian=2, Hispanic=3, other=4), marital status (single=1, married=2, previously married=3), number of children living at home (stated number), educational level (1-7, 7=highest), employment status (full-time=1, part-time=2), years of employment (number of years), and job category (1-9, by categories). Topic-specific

variables were coded as: intention of employment regarding tuition benefit (no=1, yes=2), number of classes taken using benefit (1-6, by categories), use of maximum benefit (no=1, yes=2), family member use of benefit (no=1, yes=2), preference for alternative course delivery (no=1, yes=2), and participation in staff development courses (number of course hours).

Multivariate analysis of variance, or MANOVA, is the extension of analysis of variance (ANOVA) that considers several related random variables simultaneously (Barker & Barker, 1984; Manly, 1994). In this study, MANOVA measured the effect of demographic variables on the identified deterrent factors of both participants and nonparticipants. The statistical package employed, SPSS, calculated four multivariate tests including Pillai's Trace, Wilk's Lambda, Hotelling's Trace, and Roy's Largest Root. While each test was examined individually, the researcher considered their overall identification of significance when determining the need for post hoc tests. Where significance was indicated at the .05 level, univariate comparisons of the deterrent factors were tested, then the post hoc Tukey Honestly Significant Difference (HSD) was run to identify in which subset the significance occurred.

Chi-Square Statistics

According to Gay (1996), chi-square is a nonparametric test of significance used when the data are in the form of frequency counts and occur in two or more mutually exclusive categories. To test for significant difference, a chi-square test compares frequencies actually observed with expected proportions. In this study, the computer

statistical program created crosstabulations of the demographic variables and participation status, and reported a chi-square value and significance score. For findings of significance at the .05 level, the individual cells were examined to identify the subset(s) where observations differed from expectations.

Summary

Four research questions guided this study. They consisted of inquiries into identification of deterrent factors for both participants and nonparticipants in the UTK educational assistance program (questions one and two), and determining the effects of selected demographic variables on identified deterrent factors and participation status (questions three and four).

The instrument for the study consisted of a modified 36-item DPS-G with a demographic section. A pilot test was conducted to gain feedback on clarity and other appropriate suggestions. As a result, three minor changes were made.

The population for the study consisted of the 2,970 employees of UTK who were classified as "staff" and were eligible for the educational assistance program. To ensure a confidence level of 95%, a sample of 338 was randomly selected by computer. Each person in the sample received a cover letter, the instrument, and a return envelope. Two additional mailings were made to nonrespondents.

Data were tallied on a computer spreadsheet and analyzed using SPSS. Statistical testing involved descriptive statistics, principal components factor analysis, MANOVA, and chi-square analysis.

CHAPTER IV

ANALYSIS OF DATA AND RESULTS

Introduction

Seeking to identify the deterrents to participation in UTK's employer-provided educational assistance program, this study submitted a questionnaire to 338 randomly selected staff. Responses were analyzed to address four research questions.

This chapter is divided into the following sections: (a) Introduction, (b) Response Rate, (c) Demographic Data of Respondents, (d) Research Question One – Deterrents of Nonparticipants, (e) Research Question Two – Deterrents of Participants, (f) Research Question Three – Effects of Demographic Variables on Deterrent Factors, (g) Research Question Four – Effects of Demographic Variables on Participation Status, and (h) Summary.

Response Rate

An "Adult Learning Questionnaire," consisting of a version of the DPS-G and a demographics section, was sent by campus mail to 338 UTK staff. Ten envelopes were returned as undeliverable, marked as no longer employed, transferred with new address unregistered, or otherwise unknown. Two recipients returned questionnaires in an unusable condition. Of the resulting adjusted total of 326 questionnaires, 115 were returned after the initial mailing. The second mailing resulted in 63 additional responses,

while the last mailing yielded 18 returns. The final total of returned questionnaires was 196 after three contacts.

Response rate is determined by dividing the number of returns by the number in the sample, subtracting for those who were unreachable or otherwise ineligible (Dillman, 1978). For this study the overall response rate was 60.1 %.

Demographic Data of Respondents

Because each research question required the grouping of respondents into participation status, that demographic was analyzed first. Table 5 displays the results of that analysis.

Those persons who never took courses using the tuition waiver benefit accounted for 44.9% of the respondents. Participants, or persons who took at least one class, comprised 55.1% of the respondents. This result contrasted with previous participation findings. Data from the Internal Revenue Service (GAO, 1996) listed national usage of educational assistance at 8.25% to 9.11%, while Manion (1989) described his 13.67% finding of participation in a tuition program as a "surprise" (p.70).

For programs with tuition fully provided and courses held at or near the work location, participation rates are typically higher. Martindale and Drake (1989) found that 39.9% of Air Force personnel participated in college courses, while Smith (1997) determined a participation rate of 32.2% for Navy personnel. The current study's rate of 55.1% for employees' usage of a tuition program appeared distinguished among educational benefits research.

Table 5

Participation Status of Respondents

Participation Status	Frequency	Percentage
Nonparticipant	88	44.9
Participant	108	55.1
Total	196	100.0

Additional analysis of demographic variables provided insight into the characteristics of respondents, including specific benefit data, employment information, and personal characteristics. Table 6 presents that data.

For the 108 persons who took courses using the tuition waiver benefit, the majority (51.9%) completed no more than four classes, while 20.4% took from five to nine classes. This represented a majority with low to moderate use of the benefit. However, 13% completed 20 or more courses. A related question determined that nearly 40% of participants used the maximum limit of tuition-free courses during a semester at least one time.

Both nonparticipants and participants were equally likely to use the reduced tuition benefit for a family member. Just over one-fourth of each group responded that a family member took classes with reduced tuition.

Full-time was by far the employment status for both nonparticipants and participants, each reporting just over 95%. For job category, administrative/professional and office/clerical were the most frequent categories for both groups. Technical and office/clerical jobs were represented more frequently among participants, while persons with service/maintenance positions were more often nonparticipants. Other categories were more evenly represented between the two groups.

Regarding number of years of employment at UTK, new employees (1-5 years) were more often nonparticipants. In groupings that represented longer employment, both nonparticipants and participants were more equitably distributed.

Table 6

Demographic Data of Respondents

Variable and Response Level	Nonparticipants	Participants	Total
Total Classes Taken with Waiver			
None	88 (100.0)	0 (0.0)	88 (44.9)
1-4 classes	0 (0.0)	56 (51.9)	56 (28.6)
5-9 classes	0 (0.0)	22 (20.4)	22 (11.2)
10-14 classes	0 (0.0)	14 (13.0)	14 (7.1)
15-19 classes	0 (0.0)	2 (1.9)	2 (1.0)
20 or more classes	0 (0.0)	14 (13.0)	14 (7.1)
Total	88 (100.0)	108 (100.0)	196 (100.0)
Used Full Tuition Waiver Limit			
No	88 (100.0)	65 (60.2)	153 (78.1)
Yes	0 (0.0)	43 (39.8)	43 (21.9)
Total	88 (100.0)	108 (100.0)	196 (100.0)
Family Member Used Reduced Tuition			
No	65 (73.9)	79 (73.1)	144 (73.5)
Yes	23 (26.1)	29 (26.9)	52 (26.5)
Total	88 (100.0)	108 (100.0)	196 (100.0)
Employment Status			
Full-time	84 (95.5)	103 (95.4)	187 (95.4)
Part-time	4 (4.5)	5 (4.6)	9 (4.6)
Total	88 (100.0)	108 (100.0)	196 (100.0)
Job Category			
Admin/Professional	29 (33.0)	37 (34.3)	66 (33.7)
Supervisory	7 (8.0)	8 (7.4)	15 (7.7)
Sales	0 (0.0)	0 (0.0)	0 (0.0)
Technical	6 (6.8)	17 (15.7)	23 (11.7)
Office/Clerical	28 (31.8)	40 (37.0)	68 (34.7)
Crafts	6 (6.8)	4 (3.7)	10 (5.1)
Laborer	1 (1.1)	0 (0.0)	1 (0.5)
Service/Maintenance	11 (12.5)	2 (1.9)	13 (6.6)
Total	88 (100.0)	108 (100.0)	196 (100.0)

(table continues)

Table 6 ***(continued)***

Variable and Response Level	Nonparticipants	Participants	Total
Years of Employment at UTK			
1-5 years	30 (34.1)	28 (25.9)	58 (29.6)
6-10 years	18 (20.5)	28 (26.0)	46 (23.5)
11-15 years	16 (18.2)	27 (25.0)	43 (21.9)
16-20 years	8 (9.0)	14 (12.9)	22 (11.2)
21-25 years	9 (10.2)	7 (6.5)	16 (8.2)
26-30 years	3 (3.5)	3 (2.8)	6 (3.1)
31 years or greater	3 (3.4)	1 (0.9)	4 (2.0)
Missing Values	1 (1.1)	0 (0.0)	1 (0.5)
Total	88 (100.0)	108 (100.0)	196 (100.0)
Sought Employment for Tuition Waiver			
No	82 (93.2)	85 (78.7)	167 (85.2)
Yes	6 (6.8)	23 (21.3)	29 (14.8)
Total	88 (100.0)	108 (100.0)	196 (100.0)
Alternative Course Delivery Would Help			
No	45 (51.1)	30 (27.8)	75 (38.3)
Yes	43 (48.9)	78 (72.2)	121 (61.7)
Total	88 (100.0)	108 (100.0)	196 (100.0)
Gender			
Female	50 (56.8)	73 (67.6)	123 (62.8)
Male	38 (43.2)	35 (32.4)	73 (37.2)
Total	88 (100.0)	108 (100.0)	196 (100.0)
Age			
20-29 years	4 (4.5)	21 (19.5)	25 (12.8)
30-39 years	18 (20.5)	28 (25.9)	46 (23.4)
40-49 years	20 (22.7)	31 (28.7)	51 (26.0)
50-59 years	29 (33.0)	18 (16.7)	47 (24.0)
60 years or greater	4 (4.5)	1 (0.9)	5 (2.6)
Missing Values	13 (14.8)	9 (8.3)	22 (11.2)
Total	88 (100.0)	108 (100.0)	196 (100.0)

(table continues)

Table 6 *(continued)*

Variable and Response Level	Nonparticipants	Participants	Total
Number of Children at Home			
0	55 (62.5)	59 (54.6)	114 (58.2)
1	15 (17.0)	31 (28.7)	46 (23.5)
2	16 (18.2)	15 (13.9)	31 (15.8)
3	2 (2.3)	2 (1.9)	4 (2.0)
4	0 (0.0)	1 (0.9)	1 (0.5)
Total	88 (100.0)	108 (100.0)	196 (100.0)
Race			
African-American	10 (11.4)	5 (4.6)	15 (7.7)
Caucasian	74 (84.1)	98 (90.7)	172 (87.8)
Hispanic	1 (1.1)	1 (0.9)	2 (1.0)
Other	3 (3.4)	4 (3.7)	7 (3.6)
Total	88 (100.0)	108 (100.0)	196 (100.0)
Marital Status			
Single	12 (13.6)	20 (18.5)	32 (16.3)
Married	44 (50.0)	46 (42.6)	90 (45.9)
Sep, Widowed, Divorced	7 (8.0)	8 (7.4)	15 (7.7)
Missing Values	25 (28.4)	34 (31.5)	59 (30.1)
Total	88 (100.0)	108 (100.0)	196 (100.0)
Educational Level			
Less than High School	0 (0.0)	0 (0.0)	0 (0.0)
High School	31 (35.2)	5 (4.6)	36 (18.4)
Some College	26 (29.5)	38 (35.2)	64 (32.7)
Associate Degree	2 (2.3)	11 (10.2)	13 (6.6)
Bachelor's Degree	14 (15.9)	26 (24.1)	40 (20.4)
Master's Degree	9 (10.2)	26 (24.1)	35 (17.9)
Doctoral Degree	6 (6.8)	2 (1.9)	8 (4.1)
Total	88 (100.0)	108 (100.0)	196 (100.0)

(table continues)

Table 6 ***(continued)***

Variable and Response Level	Nonparticipants	Participants	Total
Hours of Staff Development Training			
0 hours	55 (62.5)	63 (58.3)	118 (60.2)
1-9 hours	12 (13.6)	28 (25.9)	40 (20.4)
10-19 hours	6 (6.8)	11 (10.2)	17 (8.7)
20-29 hours	3 (3.4)	2 (1.9)	5 (2.5)
30-39 hours	7 (8.0)	0 (0.0)	7 (3.6)
40 hours	3 (3.4)	0 (0.0)	3 (1.5)
Missing Values	2 (2.3)	4 (3.7)	6 (3.1)
Total	88 (100.0)	108 (100.0)	196 (100.0)

Note: The numbers outside the parentheses are observed frequencies. The numbers within the parentheses are percentages.

As a recruitment tool, the educational assistance program encouraged employment at UTK for 15% of the total respondents. However, 21.3% of those who were course participants said they sought employment for the purpose of using the tuition waiver benefit. While only a small segment (6.8%), some persons who had not yet enrolled for courses indicated they sought employment for that express purpose.

Regarding programmatic changes that would facilitate enrollment, nearly 62% of all respondents said an alternative course delivery (on-line, etc.) would make it easier for them to participate in courses. Participants, however, more frequently believed on-line courses would help (72.2%), while nonparticipants were nearly equally divided on the topic.

In the more traditional demographic categories, gender was unequally represented for total respondents and participants, with females being in the majority at 63% and 68% respectively. For nonparticipants, males comprised 43% of the total with females at 57%. Younger employees, those age 20-29 years, were more likely to be participants, while persons age 50-59 were more often nonparticipants. Other age groupings were more equally represented for both participants and nonparticipants. The mean age of all respondents was 42.3 years.

The most frequent number of children living at home was "0," and the most frequent marital status for all respondents was "married." Racially, the category of Caucasian was the majority (88% overall). African-Americans were somewhat more frequently among the nonparticipants, while Caucasians were more often participants. There were very few cases of Hispanic or other races among the respondents.

Not surprisingly, nonparticipants were more likely to have only a high school diploma while participants more frequently completed some college or held degrees. All levels of educational attainment were represented in both groups.

Regarding number of hours of staff development courses completed during the past year, most persons took none. Participants more often completed lower numbers of course hours, while nonparticipants were represented in all groupings of staff development hours. The greatest number of staff development hours taken during the year was 40, a number achieved by three nonparticipants.

Research Question One: Deterrent Factors of Nonparticipants

The first research question was: What are the perceived deterrents that prevent eligible staff from participating in the educational assistance program provided by UTK? To answer this question, a factor analysis using the principal components procedure was conducted on the 36 items of the DPS-G for all persons who indicated they had never taken courses using the educational assistance program (nonparticipants). Of the 196 returned questionnaires, 88 were classified as nonparticipants.

One output of the procedure was a descriptive analysis of the DPS-G variable items, giving mean importance scores, standard deviations, and rank order. Table 7 displays those results for nonparticipants.

Item 13 ("I did not think I would have time to study") ranked first with a mean importance score of 2.92 on a scale of one to five. The next most important variable conveyed similar concern with time (Item 21 – "I was fearful of the amount of time

Table 7

Mean Rank Order of DPS-G Variable Items for Nonparticipants

Variable Item	Rank	Mean	Std. Dev.
13. Did not think I would have time to study	1	2.92	1.48
21. Fearful of amount of time required	2	2.59	1.55
29. Would take me away from my family	3	2.43	1.47
8. Could not afford miscellaneous expenses	4	2.39	1.50
30. Could not attend regularly	5	2.38	1.74
4. Not willing to give up leisure time	6	2.36	1.33
22. Courses scheduled at inconvenient time	7	2.35	1.40
28. Not interested in taking courses	8	2.26	1.36
6. Felt more education would not help	9	2.19	1.32
10. Did not enjoy studying	10	2.07	1.28
18. Could not afford tuition for more than 9 hrs	11	2.00	1.57
7. Felt unprepared for the courses	12	1.94	1.29
19. Felt I was too old	13	1.92	1.40
12. Did not think I would be able to finish	14 (tie)	1.91	1.31
26. Not confident of my learning ability	14 (tie)	1.91	1.27
34. Supervisor did not encourage or support	16	1.81	1.36
9. Courses not at right level	17	1.75	1.20
31. Employer's financial support not enough	18	1.72	1.41

(table continues)

Table 7 ***(continued)***

Variable Item	Rank	Mean	Std. Dev.
14. Courses were too general	19	1.69	1.10
15. Felt I did not meet requirements	20	1.67	1.22
20. Did not know what courses were available	21	1.64	1.07
35. Courses not useful or practical	22	1.63	1.00
32. Courses would not meet my needs	23	1.61	0.99
33. Prefer to learn on my own	24	1.59	1.04
17. Courses were at inconvenient location	25	1.56	0.97
16. Courses did not seem interesting	26	1.53	0.92
27. Experiencing family problems	27	1.49	1.06
1. Could not compete with younger	28 (tie)	1.44	0.96
2. Trouble arranging for child care	28 (tie)	1.44	1.02
11. Had personal health problem or handicap	30 (tie)	1.42	1.06
23. Family did not encourage or support	30 (tie)	1.42	0.97
24. Friends did not encourage or support	32	1.40	0.97
5. Felt campus was unsafe	33	1.35	0.84
36. Experienced transportation problems	34	1.33	0.94
3. Trouble arranging care for adult	35	1.28	0.96
25. Courses were poor quality	36	1.27	0.67

required to complete the courses"). The variable considered least important dealt with concern for course quality.

Generally, importance scores for nonparticipants ranged within a description of "slightly important" to "somewhat important." This result is similar to Wood's (1994) study of deterrents for students and potential students at a nearby college. Brown (1998) also reported importance scores for nonparticipants were in the "slightly important" range.

The initial principal components analysis of the DPS-G items for nonparticipants extracted 10 factors with an eigenvalue of 1.0 or greater, the theoretical criterion for retention. However, an examination of the scree test suggested a four-factor solution would be more meaningful. The components were then rotated using a varimax procedure, with the resulting four-factor solution accounting for 48.5% of the scale variance. The overall scale reliabilities (alpha) for the four factors were .85, .63, .65, and .53 respectively. Table 8 displays the eigenvalues and percent of variance of factors for the nonparticipant group.

A rotated components matrix, derived from the orthogonal varimax procedure, displayed the factor loading values for each variable. Only one variable failed to load on any factor, an item indicating feelings that more education would not help on the job. Twenty-one of the 36 items loaded on only one factor, 12 loaded on two factors, while two loaded on three factors. Sixteen of the items loaded substantially, having values of .60 or greater. Table 9 presents the factor loadings of each DPS-G variable item for nonparticipants.

Table 8

Eigenvalues and Percent of Variance of Factors for Nonparticipants

Factor	Eigenvalue	Percent of Variance	Cumulative Percentage
One	10.61	29.74	29.74
Two	2.61	7.25	36.99
Three	2.25	6.24	43.23
Four	2.01	5.57	48.80

Table 9

Factor Loadings of DPS-G Variable Items for Nonparticipants

Variable Item	Factor 1	Factor 2	Factor 3	Factor 4
1. Could not compete with younger	.72			
2. Trouble arranging for child care				.60
3. Trouble arranging care for adult		.53		
4. Not willing to give up leisure time			.78	
5. Felt campus was unsafe				.33
6. Felt more education would not help	--	--	--	--
7. Felt unprepared for the courses	.79			
8. Could not afford miscellaneous expenses	.52			.53
9. Courses not at right level	.81			
10. Did not enjoy studying	.38		.62	
11. Had personal health problem or handicap		.32		.42
12. Did not think I would be able to finish	.52		.37	
13. Did not think I would have time to study	.45		.61	
14. Courses were too general	.33	.36		
15. Felt I did not meet requirements	.67	.41		
16. Courses did not seem interesting	.41	.53		
17. Courses were at inconvenient location	.33	.35	.41	
18. Could not afford tuition for more than 9 hrs	.54			

(table continues)

Table 9 ***(continued)***

Variable Item	Factor 1	Factor 2	Factor 3	Factor 4
19. Felt I was too old	.77			
20. Did not know what courses were available	.45	.33		.43
21. Fearful of amount of time required	.40		.60	
22. Courses scheduled at inconvenient time			.55	
23. Family did not encourage or support	.51	.59		
24. Friends did not encourage or support	.50	.61		
25. Courses were poor quality		.55		
26. Not confident of my learning ability	.72			
27. Experiencing family problems				.55
28. Not interested in taking courses		.52	.34	
29. Would take me away from my family			.78	
30. Could not attend regularly			.41	
31. Employer's financial support not enough				.73
32. Courses would not meet my needs		.41		
33. Prefer to learn on my own		.63		
34. Supervisor did not encourage or support				.69
35. Courses not useful or practical			.51	
36. Experienced transportation problems				.44

Factor loadings for each variable were inspected for retention using the following criteria: (a) Loading values were at least .45 and any additional loading for that variable was less than .45, (b) each factor contained at least three retained variables, and (c) the variables shared substantive conceptual meaning.

Using the first criterion, Factor One reduced to nine variables, Factor Two reduced to six variables, Factor Three to five variables, and Factor Four to four variables. Because each factor contained at least three significantly loading variables, the second criterion was also met.

All retained variables in each factor were then examined for conceptual meaning and labeled accordingly. Tables 10-13 present the four deterrent factors for nonparticipants with each retained variable's loading value, item mean (mean importance score), and scale rank.

The factors identified in the factor analysis of nonparticipants can be interpreted as follows:

1. Lack of Confidence – Nine variables met the criteria for retention in the first factor and conveyed a sense of self-doubt and low self-esteem in regard to academic participation. Generally, the items expressed fears of not fitting in with traditional students or of courses not tailored to persons of the individual's academic level. The items concerning not affording tuition for additional classes and not knowing what courses were available may be related forms of low confidence. Identifying Lack of Confidence as the first factor is consistent with other deterrents research (Brown, 1998; Darkenwald & Valentine, 1985).

2. Low Personal Priority – These items generally described a lack of interest in taking college courses. While four of the items dealt specifically with course attributes, the researcher believed that, taken as a whole, the factor conveyed a stronger sense of low personal priority than of low course relevance. The preference to learn on one's own (the highest loading variable), lack of

Table 10

Variable Loadings, Item Means, and Scale Ranks for Factor 1 of Nonparticipants: LACK OF CONFIDENCE

Variable Item	Loading Value	Item Mean	Scale Rank
9. Courses not at right level	.81	1.75	17
7. Felt unprepared for the courses	.79	1.94	12
19. Felt I was too old	.77	1.92	13
1. Could not compete with younger	.72	1.44	28 (tie)
26. Not confident of my learning ability	.72	1.91	14 (tie)
15. Felt I did not meet requirements	.67	1.67	20
18. Could not afford tuition for more than 9 hrs	.54	2.00	11
12. Did not think I would be able to finish	.52	1.91	14 (tie)
20. Did not know what courses were available	.45	1.64	21

Table 11

Variable Loadings, Item Means, and Scale Ranks for Factor 2 of Nonparticipants: LOW PERSONAL PRIORITY

Variable Item	Loading Value	Item Mean	Scale Rank
33. Prefer to learn on my own	.63	1.59	24
25. Courses were poor quality	.53	1.27	36
3. Trouble arranging care for adult	.53	1.28	35
16. Courses did not seem interesting	.53	1.53	26
28. Not interested in taking courses	.52	2.26	8
35. Courses not useful or practical	.51	1.63	22

Table 12

Variable Loadings, Item Means, and Scale Ranks for Factor 3 of Nonparticipants: TIME CHOICES

Variable Item	Loading Value	Item Mean	Scale Rank
4. Not willing to give up leisure time	.78	2.36	6
29. Would take me away from my family	.78	2.43	3
10. Did not enjoy studying	.62	2.07	10
21. Fearful of amount of time required	.60	2.59	2
22. Courses scheduled at inconvenient time	.55	2.35	7

Table 13

Variable Loadings, Item Means, and Scale Ranks for Factor 4 of Nonparticipants: LACK OF SUPPORT

Variable Item	Loading Value	Item Mean	Scale Rank
31. Employer's financial support not enough	.73	1.72	18
34. Supervisor did not encourage or support	.69	1.81	16
2. Trouble arranging for child care	.60	1.44	28 (tie)
27. Experiencing family problems	.55	1.49	27

interest, and difficulty in arranging care for an adult family member appeared to more accurately describe personal rather than institutional issues.

3. Time Choices – This factor contained five items, generally dealing with decisions about time. The two highest-loading items expressed preferences for the use of time as, somewhat indirectly, did the third. The final two items concerned the length of time to complete courses and the impact of the courses' scheduled times. One stipulation of using the tuition waiver program is that, wherever possible, courses should be taken at times that do not conflict with the normal working day (UT, 2000). This requirement may contribute to considering scheduled course times to be inconvenient.

4. Lack of Support – This factor conveyed that lack of support from both the employer and family deterred participation in college courses. Interestingly, the highest loading item described the employer's financial support as insufficient although tuition was free for up to nine credit hours per term. The second item described a lack of support from the work supervisor. At UTK, policy requires that the supervisor approve plans for making up any work hours missed because of class attendance (UT, 2000). The final two items described family concerns including trouble arranging for child care, a situation that may reflect lack of support from family or others.

In order to determine the level of importance nonparticipants ascribed to the identified deterrent factors, the researcher calculated overall mean importance scores. This involved summing the item means for variables loading on each factor and then dividing by the number of variables. Table 14 presents the results of that procedure.

Three of the four factors had relatively low overall mean importance scores, ranging from 1.59 to 1.80 on a scale of one to five. The factor considered most important, Time Choices, achieved an importance score of 2.36. While this score was somewhat higher than the others, all scores were roughly equivalent to the descriptor of "slightly important." The overall mean importance score for the combined factors was 1.82, indicating that nonparticipants gave generally low importance to their reasons for not participating in UTK's educational assistance program.

Table 14

Overall Mean Importance Scores of Factors for Nonparticipants

Factor	Overall Mean Importance Score
1. Lack of Confidence	1.80
2. Low Personal Priority	1.59
3. Time Choices	2.36
4. Lack of Support	1.62
Total DPS-G Scale Items	1.82

Research Question Two: Deterrent Factors of Participants

The second research question was: What are the deterrents that eligible staff continue to perceive while participating in the educational assistance program provided by UTK? A principal components factor analysis procedure was employed for the 36 DPS-G item responses of those persons who indicated they took at least one course using the educational assistance program (participants). Of the 196 returned instruments, 108 were attributed to participants.

The principal components procedure additionally produced a descriptive analysis of the DPS-G items, giving item means (mean importance scores), standard deviations, and rank order. Table 15 presents those results for participants.

Item 13 ("I did not think I would have time to study") ranked first with a mean importance score of 2.67 on a scale of one to five. This item also ranked first for nonparticipants. The next most important variable, Item 29 ("Participation in courses would take me away from my family"), described a reluctance to choose college courses over family. Last in importance was arranging care for an adult family member.

Importance scores were slightly lower for participants than for nonparticipants. In terms of descriptors, however, item means for both groups were within the "slightly important" to "somewhat important" range.

The initial principal components analysis of the DPS-G items for participants extracted 11 factors with an eigenvalue of 1.0 or greater. Seeking a more parsimonious structure, the scree test was examined and indicated a five-factor structure would be more meaningful. The components were then rotated using a varimax procedure, resulting in a

Table 15

Mean Rank Order of DPS-G Variable Items for Participants

Variable Item	Rank	Mean	Std. Dev.
13. Did not think I would have time to study	1	2.67	1.23
29. Would take me away from my family	2	2.64	1.38
22. Courses scheduled at inconvenient time	3	2.42	1.30
21. Fearful of amount of time required	4	2.40	2.24
4. Not willing to give up leisure time	5 (tie)	2.09	1.05
8. Could not afford miscellaneous expenses	5 (tie)	2.09	1.34
30. Could not attend regularly	7	2.01	1.18
18. Could not afford tuition for more than 9 hrs	8	1.95	1.46
2. Trouble arranging for child care	9	1.75	1.35
12. Did not think I would be able to finish	10	1.74	1.14
6. Felt more education would not help	11	1.67	1.17
14. Courses were too general	12	1.66	0.99
7. Felt unprepared for the courses	13	1.64	1.08
10. Did not enjoy studying	14	1.61	1.02
17. Courses were at inconvenient location	15 (tie)	1.60	1.02
26. Not confident of my learning ability	15 (tie)	1.60	1.04
34. Supervisor did not encourage or support	15 (tie)	1.60	1.20
9. Courses not at right level	18 (tie)	1.56	0.96

(table continues)

Table 15 ***(continued)***

Variable Item	Rank	Mean	Std. Dev.
32. Courses would not meet my needs	18 (tie)	1.56	0.97
28. Not interested in taking courses	20 (tie)	1.55	0.92
31. Employer's financial support not enough	20 (tie)	1.55	1.09
27. Experiencing family problems	22	1.54	1.04
16. Courses did not seem interesting	23 (tie)	1.46	0.79
33. Prefer to learn on my own	23 (tie)	1.46	1.00
35. Courses not useful or practical	25	1.40	0.71
15. Felt I did not meet requirements	26 (tie)	1.39	0.93
23. Family did not encourage or support	26 (tie)	1.39	0.91
1. Could not compete with younger	28	1.32	0.72
19. Felt I was too old	29	1.31	0.68
11. Had personal health problem or handicap	30	1.30	0.82
20. Did not know what courses were available	31	1.29	0.74
25. Courses were poor quality	32	1.24	0.65
5. Felt campus was unsafe	33	1.19	0.52
24. Friends did not encourage or support	34	1.17	0.57
36. Experienced transportation problems	35	1.15	0.61
3. Trouble arranging care for adult	36	1.12	0.56

solution accounting for 47.35% of the scale variance. The overall scale reliabilities (alpha) for the five participant factors were .86, .77, .67, .51, and .63 respectively. Table 16 presents the eigenvalues and percent of variance of factors for the participant group.

A rotated components matrix, a product of the varimax procedure, indicated the variables which loaded on each factor and the value of each loading. One variable, Item 11 ("I had a personal health problem or handicap"), failed to load on any factor. Twenty-two of the 36 items loaded on only one factor, nine loaded on two factors, while four loaded on three factors.

Eleven of the items loaded substantially, having values of .60 or greater. Item 1 ("I felt I could not compete with younger students") was the single strongest loading variable with a value of .79. Table 17 displays the factor loadings of each DPS-G variable item for participants.

Factor loadings for each variable were examined for retention using these criteria: (a) Loading values were at least .45 and any additional loading for that variable was less than .45, (b) each factor contained at least three retained variables, and (c) the variables shared some substantive conceptual meaning.

Using the first criterion, the loading values dictated the following changes: Factor One reduced to six variables, Factor Two reduced to seven variables, Factor Three to five variables, Factor Four to four variables, and Factor Five to three variables. Since each factor retained at least three significantly loading variables, the second criterion was also met.

Table 16

Eigenvalues and Percent of Variance of Factors for Participants

Factor	Eigenvalue	Percent of Variance	Cumulative Percentage
One	7.18	19.94	19.94
Two	3.39	9.42	29.36
Three	2.41	6.69	36.05
Four	2.16	5.99	42.04
Five	1.91	5.31	47.35

Table 17

Factor Loadings of DPS-G Variable Items for Participants

Variable Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1. Could not compete with younger	.79				
2. Trouble arranging for child care			.51	.45	
3. Trouble arranging care for adult				.47	
4. Not willing to give up leisure time			.68		
5. Felt campus was unsafe				.45	
6. Felt more education would not help		.55			
7. Felt unprepared for the courses	.76				
8. Could not afford miscellaneous expenses	.31			.58	.31
9. Courses not at right level	.45				
10. Did not enjoy studying			.54		
11. Had personal health problem or handicap	--	--	--	--	--
12. Did not think I would be able to finish	.56		.33		.46
13. Did not think I would have time to study			.63		.46
14. Courses were too general		.64			
15. Felt I did not meet requirements	.72				
16. Courses did not seem interesting		.75			
17. Courses were at inconvenient location		.33			.55
18. Could not afford tuition for more than 9 hrs				.41	

(table continues)

Table 17 ***(continued)***

Variable Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
19. Felt I was too old	.57				
20. Did not know what courses were available	.36	.44			
21. Fearful of amount of time required			.42		
22. Courses scheduled at inconvenient time		.45			.47
23. Family did not encourage or support	.38		.45	.38	
24. Friends did not encourage or support	.64				-.36
25. Courses were poor quality		.54			
26. Not confident of my learning ability	.76				
27. Experiencing family problems				.65	
28. Not interested in taking courses		.43	.43		
29. Would take me away from my family			.73	.40	
30. Could not attend regularly			.41		
31. Employer's financial support not enough					.51
32. Courses would not meet my needs		.72			
33. Prefer to learn on my own	.38			-.43	.34
34. Supervisor did not encourage or support		.40			.49
35. Courses not useful or practical		.73			
36. Experienced transportation problems					.42

The variables within each factor were then examined for conceptual meaning and a descriptive label was assigned. Tables 18-22 present the five deterrent factors for participants with each retained variable's loading value, item mean (mean importance score), and scale rank.

The factors identified in the factor analysis of participants can be interpreted as follows:

1. Lack of Confidence – Six variables met the criteria for retention in the first factor and conveyed a sense of self-doubt and personal inadequacy for participation in college courses. Lack of Confidence was also the first deterrent factor for the nonparticipant group. Similarly, the items expressed feelings of low self-esteem about competing with younger students, learning ability, course preparation, and meeting course requirements. One item concerned lack of encouragement from friends and, in this context, indicated self-doubt reinforced by the influence of others. Five of the six items loaded substantially with values greater than .60.

2. Lack of Course Relevance – Seven items comprised this factor and generally conveyed a sense that available classes did not fit the perceived need, interest, or level of the individual. The two highest loading variables expressed opinions that the courses seemed neither interesting nor useful. While six of the items directly addressed the university's selection of courses, one expressed a more personal feeling that additional education would not be helpful on the job.

3. Time Choices – These items dealt with priority decisions about time and differed somewhat from Darkenwald and Valentine's (1985) factor of "time constraints." In this study, the highest loading items concerned personal priorities about the use of time rather than external demands. Constraints on time and lack of time were represented in the weaker loading items. Because of the focus on time-related decisions, the more descriptive label of "time choices" was selected. The items in this factor held relatively high mean importance scores, affirming that participants make difficult choices about time in order to facilitate course enrollment.

4. Personal Concerns – This four-item factor conveyed that participants viewed certain personal situations as deterrents. These situations included family and financial difficulties, as well as concern for personal safety. Since UTK's

Table 18

Variable Loadings, Item Means, and Scale Ranks for Factor 1 of Participants:

LACK OF CONFIDENCE

Variable Item	Loading Value	Item Mean	Scale Rank
1. Could not compete with younger	.79	1.32	28
26. Not confident of my learning ability	.76	1.60	15 (tie)
7. Felt unprepared for the courses	.76	1.64	13
15. Felt I did not meet requirements	.72	1.39	26 (tie)
24. Friends did not encourage or support	.64	1.17	34
19. Felt I was too old	.57	1.31	29

Table 19

Variable Loadings, Item Means, and Scale Ranks for Factor 2 of Participants:

LACK OF COURSE RELEVANCE

Variable Item	Loading Value	Item Mean	Scale Rank
16. Courses did not seem interesting	.75	1.46	23 (tie)
35. Courses not useful or practical	.73	1.40	25
32. Courses would not meet my needs	.72	1.56	18 (tie)
14. Courses were too general	.64	1.66	12
6. Felt more education would not help	.55	1.67	11
25. Courses were poor quality	.54	1.24	32
9. Courses not at right level	.45	1.56	18 (tie)

Table 20

Variable Loadings, Item Means, and Scale Ranks for Factor 3 of Participants: TIME CHOICES

Variable Item	Loading Value	Item Mean	Scale Rank
29. Would take me away from my family	.73	2.64	2
4. Not willing to give up leisure time	.68	2.09	5 (tie)
10. Did not enjoy studying	.54	1.61	14
21. Fearful of amount of time required	.42	2.40	4
30. Could not attend regularly	.41	2.01	7

Table 21

Variable Loadings, Item Means, and Scale Ranks for Factor 4 of Participants: PERSONAL CONCERNS

Variable Item	Loading Value	Item Mean	Scale Rank
27. Experiencing family problems	.65	1.54	22
8. Could not afford miscellaneous expenses	.58	2.09	5 (tie)
3. Trouble arranging care for adult	.47	1.12	36
5. Felt campus was unsafe	.45	1.19	33

Table 22

Variable Loadings, Item Means, and Scale Ranks for Factor 5 of Participants:

LACK OF SUPPORT

Variable Item	Loading Value	Item Mean	Scale Rank
17. Courses were at inconvenient location	.55	1.60	15 (tie)
31. Employer's financial support not enough	.51	1.55	20 (tie)
34. Supervisor did not encourage or support	.42	1.15	15 (tie)

educational benefit is restricted to a tuition waiver, participants still must personally assume responsibility for miscellaneous expenses such as transportation, books, and supplies. Affording these miscellaneous expenses ranked highest in importance among the variables in this factor. The inclusion of an item about arranging care for an adult family member gave insight that contemporary life situations are emerging as deterrents to participation in adult learning.

5. Lack of Support – This factor consisted of three items that described lack of institutional support or encouragement. Two items expressed inadequate support from the employer, one with the inadequacy of financial support and the other with the supervisor. Policy requires supervisors to approve requests for participation and revised work schedules due to class attendance during work hours (UT, 2000). Consequently, staff viewed lack of supervisory encouragement as a deterrent. The highest loading variable in this factor, "Courses were offered at an inconvenient location," conveyed that the university's location of instructional buildings discouraged enrollment. For courses that occur during work hours, the large campus may impede timely movement between work and class locations.

To determine the level of importance participants gave to the identified deterrent factors, the researcher calculated overall mean importance scores. This consisted of totaling the item means for variables loading on each factor and dividing by the number of variables contained in that factor. Table 23 displays the results of that calculation.

Each of the five factors had relatively low overall mean importance scores, ranging just below to slightly above the descriptor labeled "slightly important." The most important factor for participants was Time Choices, with a score of 2.15 on a scale of one to five. A similar factor also achieved the highest importance scores for the nonparticipant group. The factor considered least important was Lack of Confidence. In contrast, nonparticipants placed Lack of Confidence as second highest in importance.

Table 23

Overall Mean Importance Scores of Factors for Participants

Factor	Overall Mean Importance Score
1. Lack of Confidence	1.41
2. Lack of Course Relevance	1.51
3. Time Choices	2.15
4. Personal Concerns	1.49
5. Lack of Support	1.43
Total DPS-G Scale Items	1.64

The overall mean importance score of the participants' combined factors was 1.64, compared to 1.82 for nonparticipants. This indicated that nonparticipants perceived the influence of deterrent factors to be of greater importance in their decisions about enrollment.

Research Question Three: Effects of Demographic Variables on Deterrent Factors

The third research question was: What are the effects of demographic variables on the identified deterrents of both groups? To answer this question, a multiple analysis of variance (MANOVA) procedure was employed using the demographic variables as independent variables and the identified deterrent factors as dependent variables.

The demographic section of the instrument provided information on 15 separate variables. With four deterrent factors identified for the nonparticipant group and five deterrent factors for the participant group, the number of tests required was 60 and 75 respectively. This created a statistical concern. According to Manly (1994), the repeated use of significance tests on the same sample leads to an increase in the probability of falsely finding significance Type I error, also called experiment-wise error. He stated, "The more tests that are made, the higher the probability of obtaining at least one significant result by chance" (p.43).

The error is magnified to such degree that recommended significance becomes the selected alpha level divided by the number of multiple comparisons to be performed (Barker & Barker, 1984). Choosing an alpha level of .05 in this study meant that results would have to be significant at the .00083 level for nonparticipants and at the .00066

level for participants. While certainly stringent, these levels nearly guaranteed that significance could not be found.

Both sample size and number of variables influence MANOVA's compensating effect on experiment-wise error (Stevens, 1986). Because the sample size of the study was fixed, reducing the number of variables became the sole option. Seeking a solution that was both compact and relevant, the researcher examined the instrument's demographic variables to determine those most important to the study.

First, traditional demographic variables were considered. These included age, gender, race, marital status, number of children living at home, level of education, employment status, and years of employment. Because 95% of respondents in this study were full-time workers, the researcher determined that employment status had limited practical importance. Additionally, years of employment appeared less relevant since a significance of the study was to assess the benefit's use as a recruitment tool. Therefore, those two demographic characteristics were not retained.

Second, the researcher examined topic-specific characteristics including intention of employment regarding the tuition benefit, number of classes taken using the benefit, use of the maximum benefit, family member use of the benefit, preference for alternative course delivery, and participation in staff development courses. One purpose for the inclusion of these items was to establish baseline data. The collection and display of descriptive statistics accomplished that purpose. Additionally, these variables were examined in the final research question. As a result, the topic-specific characteristics were not retained for the MANOVA procedure.

The remaining seven demographic characteristics comprised the variables tested for effect on the identified deterrent factors. These included age, gender, race, educational level, job category, marital status, and number of children living at home.

To answer Research Question Three, seven null hypotheses were developed. The null hypotheses were:

H_o1: Age has no significant effect on the identified deterrents of both groups.

H_o2: Gender has no significant effect on the identified deterrents of both groups.

H_o3: Race has no significant effect on the identified deterrents of both groups.

H_o4: Educational level has no significant effect on the identified deterrents of both groups.

H_o5: Job category has no significant effect on the identified deterrents of both groups.

H_o6: Marital status has no significant effect on the identified deterrents of both groups.

H_o7: Number of children living at home has no significant effect on the identified deterrents of both groups.

Null Hypothesis One

H_o1: Age has no significant effect on the identified deterrents of both groups.

Analysis of data pertaining to Null Hypothesis One was performed using age to determine if there was an effect on the identified deterrent factors of both groups. A multivariate analysis of variance (MANOVA) procedure was employed to test this

hypothesis with age as the independent variable and the identified deterrents as dependent variables.

SPSS calculated four multivariate test statistics for the MANOVA procedure. These included Pillai's Trace, Wilk's Lambda, Hotelling's Trace, and Roy's Largest Root. According to Stevens (1986), any of the first three provide robustness with respect to experiment-wise error. For simplicity, the researcher selected one test, Pillai's Trace, for the MANOVA summary. Table 24 presents that summary.

As reported in Table 24, this analysis revealed no significant effect at the .05 level for the independent variable of age. Therefore, no follow-up post hoc test was necessary and H_o1 was not rejected.

Null Hypothesis Two

H_o2: Gender has no significant effect on the identified deterrents of both groups.

Analysis of data pertaining to Null Hypothesis Two was performed using gender to determine if there was an effect on the identified deterrent factors of both groups. A multivariate analysis of variance (MANOVA) procedure was employed to test this hypothesis with gender as the independent variable and the identified deterrents as dependent variables.

As reported in Table 24, this analysis revealed no significant effect at the .05 level for the independent variable of gender. Therefore, no follow-up post hoc test was necessary and H_o2 was not rejected.

Table 24

Multivariate Analysis of Variance for Demographic Variables by Participation Status

Status and Demographic Variable	Pillai's Trace	F	df	Error df	Sig.
Nonparticipants					
Age	.519	1.043	16.000	112.000	.418
Gender	.062	.414	4.000	25.000	.797
Race	.285	1.078	8.000	52.000	.393
Educational Level	.564	1.149	16.000	112.000	.320
Job Category	.566	.924	20.000	112.000	.559
Marital Status	.267	1.001	8.000	52.000	.446
No. of Children	.344	.875	12.000	81.000	.575
Participants					
Age	.526	1.423	20.000	188.000	.116
Gender	.013	.117	5.000	44.000	.988
Race	.082	.383	10.000	90.000	.951
Educational Level	.781	2.279	20.000	188.000	.002*
Job Category	.522	1.119	25.000	240.000	.321
Marital Status	.348	1.897	10.000	90.000	.056
No. of Children	.531	1.440	20.000	188.000	.108

* $p < .05$

Null Hypothesis Three

H_o3: Race has no significant effect on the identified deterrents of both groups.

Analysis of data pertaining to Null Hypothesis Three was performed using race to determine if there was an effect on the identified deterrent factors of both groups. Using a multivariate analysis of variance (MANOVA) procedure, this hypothesis was tested with race as the independent variable and the identified deterrents as dependent variables.

As reported in Table 24, this analysis revealed no significant effect at the .05 level for the independent variable of race. Consequently, no follow-up post hoc test was necessary and H_o3 was not rejected.

Null Hypothesis Four

H_o4: Educational level has no significant effect on the identified deterrents of both groups.

Null Hypothesis Four was analyzed using educational level to determine if there was an effect on the identified deterrent factors of both groups. A multivariate analysis of variance (MANOVA) procedure tested this hypothesis with educational level as the independent variable and the identified deterrents as dependent variables.

The procedure, displayed in Table 24, found a significant multivariate effect for educational level in the participant group, Pillai's Trace = .781, $\underline{F}$ (20, 180.000) = 2.279; $p = .002$. Since the multivariate comparison was significant at the .05 level, univariate comparisons of the deterrent factors (dependent variables) as they affected the independent variable of educational level were tested. According to that analysis, shown

in Table 25, the deterrent factors of Lack of Confidence and Lack of Support were significantly different from the other deterrent factors.

For the univariate analysis in which a significant F was found, Tukey's Honestly Significant Difference (HSD) was performed to identify the specific areas of difference. In computing that post hoc test for educational level, SPSS required that the category "doctoral degree" be omitted due to its extremely limited size. Therefore, calculated categories included high school diploma, some college, associate degree, bachelor's degree, and master's degree. Table 26 displays the post-hoc test.

Factor 1, Lack of Confidence, was significant in mean difference scores among persons with high school diplomas and those with bachelor's degrees, persons with high school diplomas and those with master's degrees, persons with some college credits and those with bachelor's degrees, and persons with some college credits and those with master's degrees. Thus, employees with high school diplomas and those with some college credits perceived Lack of Confidence as a deterrent to a greater extent than employees with existing bachelor's or master's degrees.

Factor 5, Lack of Support, was significant among persons with high school diplomas and those with some college credits, associate degrees, bachelor's degrees, or master's degrees. This indicated persons with high school diplomas found Lack of Support to be a greater deterrent to participation than persons with higher levels of education.

Table 25

Tests of Between Subjects Effects for Educational Level of Participants

Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Lack of Confidence	219.050	4	54.762	5.440	.001*
Lack of Course Relevance	84.339	4	21.085	1.080	.377
Time Issues	10.218	4	2.555	0.138	.967
Personal Concerns	51.834	4	12.959	2.337	.069
Lack of Support	138.165	4	34.541	6.266	.000*

* $p < .05$

Table 26

Tukey's Honestly Significant Difference (HSD) for Multiple Comparisons of the Demographic Variable "Educational Level" for Participants

Factor and Variable Subscale	Mean Difference	Std. Error	Sig.
Participant Factor 1 (Lack of Confidence)			
High School – Some College	2.50	1.73	.599
High School – Associate Degree	4.00	1.99	.276
High School – Bachelor's Degree	5.85	1.74	.013*
High School – Master's Degree	6.78	1.75	.003*
Some College – Associate Degree	1.50	1.38	.811
Some College – Bachelor's Degree	3.35	0.98	.011*
Some College – Master's Degree	4.28	1.01	.001*
Associate Degree – Bachelor's	1.85	1.39	.676
Associate Degree – Master's	2.78	1.41	.298
Bachelor's Degree – Master's	0.93	1.03	.895
Participant Factor 5 (Lack of Support)			
High School – Some College	5.16	1.28	.002*
High School – Associate Degree	5.39	1.47	.005*
High School – Bachelor's Degree	5.90	1.29	.000*
High School – Master's Degree	5.47	1.30	.001*
Some College – Associate Degree	0.23	1.02	.999
Some College – Bachelor's Degree	0.74	0.73	.844
Some College – Master's Degree	0.31	0.75	.993
Associate Degree – Bachelor's	0.51	1.03	.988
Associate Degree – Master's	0.07	1.05	1.000
Bachelor's Degree – Master's	-0.43	0.76	.980

* $p < .05$

Null Hypothesis Five

H_o5: Job category has no significant effect on the identified deterrents of both groups.

Analysis of data pertaining to Null Hypothesis Five was performed using job category to determine if there was an effect on the identified deterrent factors of both groups. A multivariate analysis of variance (MANOVA) procedure was employed to test this hypothesis with job category as the independent variable and the identified deterrents as dependent variables.

As reported in Table 24, this analysis revealed no significant effect at the .05 level for the independent variable of job category. Therefore, no follow-up post hoc test was necessary and H_o5 was not rejected.

Null Hypothesis Six

H_o6: Marital status has no significant effect on the identified deterrents of both groups.

Null Hypothesis Six was tested using marital status to determine if there was an effect on the identified deterrent factors of both groups. The multivariate analysis of variance (MANOVA) procedure considered marital status as the independent variable and the identified deterrents as dependent variables.

This analysis, presented in Table 24, found no significant effect at the .05 level for the independent variable of marital status. Therefore, no follow-up post hoc test was necessary and H_o6 was not rejected.

Null Hypothesis Seven

H_o7: Number of children living at home has no significant effect on the identified deterrents of both groups.

Analysis of data pertaining to Null Hypothesis Seven was performed using number of children living at home to determine if there was an effect on the identified deterrent factors of both groups. A multivariate analysis of variance (MANOVA) procedure was employed to test this hypothesis with number of children living at home as the independent variable and the identified deterrents as dependent variables.

As reported in Table 24, this analysis revealed no significant effect at the .05 level for the independent variable of number of children living at home. Therefore, no follow-up post hoc test was necessary and H_o7 was not rejected.

Research Question Four:

Effects of Demographic Variables on Participation Status

The fourth research question was: What are the effects of demographic variables on participation status? Chi-square statistics were calculated to identify the effects of the demographic variables on participating or not participating in UTK's tuition program.

Fifteen items comprised the demographics section including number of classes taken using the benefit, use of the maximum benefit, family member use of the benefit, employment status, job category, years of employment, intention of employment regarding tuition benefit, preference for alternative course delivery, gender, age, number of children living at home, race, marital status, level of education, and participation in

staff development. Since the number of variables was not a limiting factor in calculating chi-square statistics, all demographic variables were used for the analysis.

To answer Research Question Four, 15 null hypotheses were developed. The null hypotheses were:

H_o1: Number of classes taken using the tuition benefit has no significant effect on participation status.

H_o2: Use of the maximum benefit has no significant effect on participation status.

H_o3: Family member use of the benefit has no significant effect on participation status.

H_o4: Employment status has no significant effect on participation status.

H_o5: Job category has no significant effect on participation status.

H_o6: Years of employment have no significant effect on participation status.

H_o7: Intention of employment regarding the tuition benefit has no significant effect on participation status.

H_o8: Preference for alternative course delivery has no significant effect on participation status.

H_o9: Gender has no significant effect on participation status.

H_o10: Age has no significant effect on participation status.

H_o11: Number of children living at home has no significant effect on participation status.

H_o12: Race has no significant effect on participation status.

H_o13: Marital status has no significant effect on participation status.

H_o14: Educational level has no significant effect on participation status.

H_o15: Participation in staff development has no significant effect on participation status.

Each null hypothesis was analyzed using a chi-square procedure. Where the chi-square value was equal to or greater than the critical value required at the .05 level of significance, the null hypothesis was rejected. The individual cells of the crosstabulations were then examined to determine where the significance occurred. Table 27 displays the crosstabulations, chi-square values, and significance rates.

Null Hypothesis One

H_o1: Number of classes taken using the tuition benefit has no significant effect on participation status.

As presented in Table 27, the chi-square procedure revealed that the number of classes taken using the tuition waiver benefit had a significant effect on participation status, and H_o1 was rejected.

This finding was both anticipated and irrelevant. Since nonparticipants are persons who have never used the tuition waiver program, they should not indicate enrollment or completion of any courses. Likewise, every participant should list a minimum of one course. The crosstabulation's expected frequencies, therefore, were actually impossible to achieve.

Table 27

Chi-Square of Demographic Variables for Nonparticipants and Participants

Variable and Response Level	Nonparticipants Actual Count	Nonparticipants Expected Count	Participants Actual Count	Participants Expected Count	χ^2	df	Sig.
Total Classes Taken with Waiver					196.000	5	.000*
None	88	39.5	0	48.5			
1-4 classes	0	25.1	56	30.9			
5-9 classes	0	9.9	22	12.1			
10-14 classes	0	6.3	14	7.7			
15-19 classes	0	0.9	2	1.1			
20 or more classes	0	6.3	14	7.7			
Used Full Tuition Waiver Limit					44.884	1	.000*
No	88	68.7	65	84.3			
Yes	0	19.3	43	23.7			
Family Member Used Reduced Tuition					0.013	1	.910
No	65	64.7	79	79.3			
Yes	23	23.3	29	28.7			
Employment Status					0.001	1	.978
Full-time	84	84.0	103	103.0			
Part-time	4	4.0	5	5.0			
Job Category					14.152	6	.028*
Admin/Professional	29	29.6	37	36.4			
Supervisory	7	6.7	8	8.3			
Technical	6	10.3	17	12.7			
Office/Clerical	28	30.5	40	37.5			
Crafts	6	4.5	4	5.5			
Laborer	1	0.4	0	0.6			
Service/Maintenance	11	5.8	2	7.2			

(table continues)

Table 27 ***(continued)***

Variable and Response Level	Nonparticipants Actual Count	Nonparticipants Expected Count	Participants Actual Count	Participants Expected Count	χ^2	df	Sig.
Years of Employment					5.748	6	.452
1-5 years	30	25.9	28	32.1			
6-10 years	18	20.5	28	25.5			
11-15 years	16	19.2	27	23.8			
16-20 years	8	9.8	14	12.2			
21-25 years	9	7.1	7	8.9			
26-30 years	3	2.7	3	3.3			
31 years or greater	3	1.8	1	2.2			
Sought Employment for Tuition Waiver					8.063	1	.005*
No	82	75.0	85	92.0			
Yes	6	13.0	23	16.0			
Alternative Course Delivery Would Help					11.200	1	.001*
No	45	33.7	30	41.3			
Yes	43	54.3	78	66.7			
Gender					2.408	1	.121
Female	50	55.2	73	67.8			
Male	38	32.8	35	40.2			
Age					17.504	4	.002*
20-29 years	4	10.8	21	14.2			
30-39 years	18	19.8	28	26.2			
40-49 years	20	22.0	31	29.0			
50-59 years	29	20.3	18	26.7			
60 years or greater	4	2.2	1	2.8			

(table continues)

Table 26 *(continued)*

Variable and Response Level	Nonparticipants Actual Count	Nonparticipants Expected Count	Participants Actual Count	Participants Expected Count	χ^2	df	Sig.
Number of Children at Home					4.746	4	.314
0	55	51.2	59	62.8			
1	15	20.7	31	25.3			
2	16	13.9	15	17.1			
3	2	1.8	2	2.2			
4	0	0.4	1	0.6			
Race					3.150	3	.369
African-American	10	6.7	5	8.3			
Caucasian	74	77.2	98	94.8			
Hispanic	1	0.9	1	1.1			
Other	3	3.1	4	3.9			
Marital Status					1.236	2	.539
Single	12	14.7	20	17.3			
Married	44	41.4	46	48.6			
Sep, Widowed, Div	7	6.9	8	8.1			
Educational Level					39.486	5	.000*
High School	31	16.2	5	19.8			
Some College	26	28.7	38	35.3			
Associate Degree	2	5.8	11	7.2			
Bachelor's Degree	14	18.0	26	22.0			
Master's Degree	9	15.7	26	19.3			
Doctoral Degree	6	3.6	2	4.4			
Hrs of Staff Development					17.061	5	.004*
0 hours	55	53.4	63	64.6			
1-9 hours	12	18.1	28	21.9			
10-19 hours	6	7.7	11	9.3			
20-29 hours	3	2.3	2	2.7			
30-39 hours	7	3.2	0	3.8			
40 hours	3	1.4	0	1.6			

Null Hypothesis Two

H_o2: Use of the maximum benefit has no significant effect on participation status.

As presented in Table 27, the chi-square procedure revealed that the use of the maximum tuition limit permitted during a term had a significant effect on participation status. Consequently, H_o2 was rejected.

Like the first finding, no one in the nonparticipant group should indicate an affirmative answer. However, an examination of the frequency distribution of the participant group noted that considerably more persons used the maximum benefit than expected. This indicated that a significant portion of participants take nine credit hours of classes while simultaneously employed at the university.

Null Hypothesis Three

H_o3: Family member use of the benefit has no significant effect on participation status.

The chi-square analysis, presented in Table 27, indicated that family members' use of reduced tuition had no significant effect on participation status. Therefore, H_o3 was not rejected.

Null Hypothesis Four

H_o4: Employment status has no significant effect on participation status.

The chi-square procedure, displayed in Table 27, revealed that employment status had no significant effect on participation status. H_o4 was not rejected.

Null Hypothesis Five

H_o5: Job category has no significant effect on participation status.

As presented in Table 27, the chi-square procedure showed that the job category of respondents had a significant effect on participation status. As a result, H_o5 was rejected.

An examination of job types revealed that persons with technical jobs were significantly more often participants, while service/maintenance staff were more frequently nonparticipants. Other job categories were consistent with expected frequencies.

Null Hypothesis Six

H_o6: Years of employment has no significant effect on participation status.

The chi-square analysis in Table 27 indicated that respondents' years of employment had no significant effect on participation status. Consequently, H_o6 was not rejected.

Null Hypothesis Seven

H_o7: Intention of employment regarding the tuition benefit has no significant effect on participation status.

The chi-square analysis displayed in Table 27 revealed that respondents' intention of employment regarding the benefit had a significant effect on participation status. Consequently, H_o7 was rejected.

An examination of the crosstabulations showed that more participants answered affirmatively than expected, indicating the educational assistance program served as a positive recruitment tool. Interestingly, several nonparticipants also noted they sought employment to secure a tuition waiver although they had yet to utilize this benefit.

Null Hypothesis Eight

H_o8: Preference for alternative course delivery has no significant effect on participation status.

As shown in Table 27, the chi-square analysis indicated that respondents' preference for alternative course delivery systems had a significant effect on participation status. As a result, H_o8 was rejected.

More nonparticipants than expected indicated that offering on-line courses or similar innovations would have no impact on their decisions. However, a significant number of participants believed an alternative delivery system would facilitate their course enrollment.

Null Hypothesis Nine

H_o9: Gender has no significant effect on participation status.

The chi-square procedure displayed in Table 27 revealed that the gender of respondents had no significant effect on participation status. Therefore, H_o9 was not rejected.

Null Hypothesis Ten

H_o10: Age has no significant effect on participation status.

As presented in Table 27, the chi-square analysis revealed that the age of respondents had a significant effect on participation status. Consequently, H_o10 was rejected.

An examination of the crosstabulations indicated that persons age 20-29 years were significantly more likely to be participants, while persons age 50-59 years were more often nonparticipants. Other age groupings attained expected frequencies.

Null Hypothesis Eleven

H_o11: Number of children living at home has no significant effect on participation status.

The chi-square analysis displayed in Table 27 indicated that the number of children living at home had no significant effect on participation status. Therefore, H_o11 was not rejected.

Null Hypothesis Twelve

H_o12: Race has no significant effect on participation status.

As shown in Table 27, the chi-square analysis revealed that the race of respondents had no significant effect on participation status. Therefore, H_o12 was not rejected.

Null Hypothesis Thirteen

H_o13: Marital status has no significant effect on participation status.

As presented in Table 27, the chi-square analysis indicated that marital status of respondents had no significant effect on their participation status. As a result, H_o13 was not rejected.

Null Hypothesis Fourteen

H_o14: Educational level has no significant effect on participation status.

The chi-square analysis presented in Table 27 revealed that the educational level of respondents had a significant effect on participation status. Consequently, H_o14 was rejected.

Quite expectedly, employees with high school diplomas were significantly among the nonparticipant group. While few in number, persons with doctoral degrees were also more likely to not take courses. Employees with master's degrees were more often among the participant group.

Null Hypothesis Fifteen

H_o15: Participation in staff development has no significant effect on participation status.

The chi-square analysis displayed in Table 27 indicated that participation in staff development courses during the past 12 months had a significant effect on participation in the educational assistance program. As a result, H_o15 was rejected.

For persons who took no staff development courses, actual frequencies met expectations for both participants and nonparticipants. However, completing certain numbers of courses had significant impact. Employees who took 1-9 hours of staff development were more frequently participants, while persons taking 30 or more hours were more often nonparticipants. Staff development credits ranging between 10-29 hours did not significantly effect participation status. Thus, low levels of staff development courses were significantly associated with participation in traditional college courses, while high levels of staff development courses were significantly associated with not enrolling in traditional college courses.

Summary

An instrument consisting of a modified version of the DPS-G and a demographic section was mailed to 338 randomly selected staff at UTK. After two additional contacts, returns totaled 196 for an overall response rate of 60.1%.

Calculations of demographic data determined that 55.1% of the respondents participated in the educational assistance program, a rate that substantially exceeded nationwide usage statistics.

The first research question sought to determine the perceived deterrents that prevented eligible staff from participating in the educational assistance program. A factor analysis of responses identified four factors: Lack of Confidence, Low Personal Priority, Time Choices, and Lack of Support. Nonparticipants assigned generally low importance to their reasons for not enrolling in college courses.

The second research question identified the deterrents to participation that staff continued to perceive while participating in the educational assistance program at UTK. Factor analysis determined five deterrent factors: Lack of Confidence, Lack of Course Relevance, Time Choices, Personal Concerns, and Lack of Support. Persons in this group gave somewhat lower importance to the influence of these factors than did the nonparticipant group.

The third research question dealt with the effects of demographic variables on the identified deterrents of both groups. A MANOVA procedure found significance in only one area: educational level of participants. A post hoc test revealed that persons with high school diplomas or some college credits perceived Lack of Confidence to a greater extent than employees with existing bachelor's or master's degrees. Additionally, Lack of Support was a significant deterrent for staff who had only high school diplomas.

The fourth research question sought the effect of demographic variables on participation status. Eight variables were found significant including number of classes taken using the benefit, use of the maximum benefit, job category, intention of employment regarding the tuition benefit, preference for alternative course delivery, age, educational level, and participation in staff development.

CHAPTER V

SUMMARY AND CONCLUSIONS

This chapter presents a general summary of the study of deterrents to participation in UTK's employer-provided educational assistance program. Chapter sections include: (a) Summary of the Study, (b) Major Findings, (c) Implications and Discussion of the Results, (d) Recommendations, and (e) Concluding Remarks.

Summary of the Study

The primary purpose of this study was to identify the factors that deter eligible staff from participating in the educational assistance program provided by UTK and to identify the factors that eligible staff continue to perceive while participating in that program. Additionally, it examined the effect of demographic variables on participation status and the perceived deterrents of both participants and nonparticipants.

Identifying UTK's deterrents to participation has local significance because it provides university administration with information to improve program offerings, instructional methodologies, and a variety of student services; it provides human resource administrators with information to increase competitiveness, enhance recruitment, and complement other training activities. It also contributes more broadly by supporting the development of a general deterrents theory and the advancement of the construct from theory to practice.

To achieve these purposes, a questionnaire consisting of 36 slightly modified items from the DPS-G and a demographics section was sent by campus mail to the work

locations of 338 randomly selected staff at UTK. The mailing also included a cover letter and a pre-addressed return envelope. Nonrespondents were sent a follow-up letter, second copy of the questionnaire, and return envelope approximately two weeks after the initial mailing. Postcards were sent to the remaining nonrespondents two weeks later. Adjusting for undeliverable and unusable questionnaires, the overall response rate was 60.1%.

After the data were collected and compiled, analysis was performed by computer using the SPSS program. Descriptive statistics were derived from the 15 demographic items, while deterrent factors were identified through principal components factor analysis. MANOVA was used to determine the effect of demographic variables on the deterrent factors with a follow-up univariate comparison and post hoc Tukey's HSD test where significance was found. Chi-square statistics examined the effect of demographic variables on participation status.

Major Findings

This section includes major findings based on analyses of the demographic variables and the four research questions.

1. The study revealed that 55% of the respondents used the educational assistance program to take at least one course. Those persons comprised the participant group.

2. Nonparticipants, those persons who never utilized the tuition benefit, were deterred by four factors. These were Lack of Confidence, Low Personal Priority, Time Choices, and Lack of Support. The first factor, Lack of Confidence, accounted for 30% of the variance; the remaining factors accounted for 7%, 6%, and 6% respectively.

3. Participants were deterred by five factors. These included Lack of Confidence, Lack of Course Relevance, Time Choices, Personal Concerns,

and Lack of Support. The first factor, Lack of Confidence, accounted for 20% of the variance, while the remaining factors accounted for 9%, 7%, 6%, and 5% respectively.

4. Nonparticipants assigned a higher level of importance to their deterrent factors than participants. The overall mean importance score for nonparticipants was 1.82, while participants had an overall mean importance score of 1.64.

5. Both participants and nonparticipants considered Time Choices to be the most important single deterrent to participation.

6. Educational level was found to have a significant effect on the deterrent factor of Lack of Confidence among participants. Specifically, employees with high school diplomas and those with some college credits perceived Lack of Confidence as a deterrent to a significantly greater extent than employees with existing bachelor's or master's degrees.

7. Educational level was also found to have a significant effect on the deterrent factor of Lack of Support among participants. Persons with high school diplomas perceived Lack of Support to be a greater deterrent to participation than persons with higher levels of education.

8. The total number of classes taken with the tuition waiver had a significant effect on participation status. This finding was entirely expected since participation status could only be defined in terms of class enrollment or completion.

9. The demographic variable indicating use of the maximum tuition-waived courses per term was significant for persons who utilized the educational benefit. This meant that a significant number of employees enrolled in the full limit of courses while maintaining full-time employment.

10. Job category had a significant effect on participation status for two types of jobs. A significant number of persons with technical jobs used the tuition benefit, while a significant number of service/maintenance staff elected not to participate.

11. Intention of employment regarding the tuition benefit was found to have a significant effect on participation status. Specifically, a significant number of participants sought employment at UTK for the purpose of using the educational assistance program.

12. The perception that an alternative form of course delivery would facilitate enrollment was significant to participation status. A significant number of nonparticipants indicated that offering on-line courses or similar innovations would have no impact on their decisions. However, a significant number of participants believed an alternative delivery system would facilitate their continued enrollment.

13. Age was also found to have a significant effect on participation status. Persons age 20-29 years were significantly more likely to be participants, while a significant number of persons age 50-59 years were nonparticipants.

14. Educational level was significant to participation status. Naturally, a significant number of employees who never took college courses indicated they did not participate in the educational assistance program. Employees with some college credits, associate degrees, bachelor's degrees, and master's degrees were significantly more likely to be participants. However, those employees with doctoral degrees were significantly among the nonparticipants.

15. The number of hours of staff development courses during the past 12 months was also significant to participation status. Employees who took low levels of staff development training (1-9 hours) were significantly more likely to participate in college courses, while employees who took high levels of staff development training (30 or more hours) were significantly among the nonparticipants.

Implications and Discussion of the Results

Data analyses from responses to the DPS-G and the demographics section of the questionnaire were used to formulate the implications of this study. Those implications include:

1. UTK's 55% utilization rate for the educational assistance program substantially exceeded published national rates (GAO, 1996). Additionally, it substantially surpassed rates found for programs that, similarly, waive tuition and have classes at or near the work location (Martindale & Drake, 1989; Smith, 1997). Unfortunately, reasons for this distinguished rate remain undetermined since the current study focused solely on deterrents to participation rather than the conceptually distinct issue of motivations or reasons for participation.

2. The identification of four deterrent factors for nonparticipants and five factors for participants supported the multidimensional nature of the deterrents construct. Reasons for participating or not participating in UTK's educational assistance program encompassed clusters of variables and demonstrated that educational decision-making entails complex issues and life situations.

3. Each factor identified was well-defined and conceptually meaningful, and nearly all had previous identification in deterrents research. However, the deterrent of Time Choices appeared to differ from the commonly noted factor of Time Constraints. In this study, the variables that loaded on the factor dealt more with personal choices about the use of time and personal inconvenience regarding time, distinguished from external demands for time. Thus, one factor in this study appeared to be more clearly distinct than in previous studies.

4. While participants and nonparticipants made different decisions regarding enrolling in college classes during their employment, this study found they shared three deterrent factors: Lack of Confidence, Time Choices, and Lack of Support. This provided evidence that persons who participate in educational activities continue to perceive barriers similar to persons who elect not to participate.

5. Although Lack of Confidence accounted for the most variance in the factor analysis of both groups, Time Choices ranked highest in reported importance by respondents. For both groups, the highest loading items in this factor dealt with the concerns about trading leisure time and family time for class attendance and study. Clearly, employees ascribed comparatively greater importance to the choices they made about the use of time and the consequences of selecting one activity over another.

6. Among the demographic variables, only educational level was found to have a significant effect on deterrent factors and only for the participant group. Employees without college degrees perceived Lack of Confidence to a significantly greater extent than employees with existing bachelor's or master's degrees. This suggested that, even though they had some collegiate experience, persons with lower levels of education had not yet gained self-assurance about their learning abilities and about competing with younger students.

   Also, employees with high school diplomas perceived Lack of Support to be a greater deterrent than did persons with higher levels of education. In this study, each variable in the Lack of Support factor dealt exclusively with institutional supports: inadequacy of financial support from the employer, inadequacy of support from the work supervisor, and inconvenience in the

scheduled location of classes. This meant that participants with lower levels of education were deterred from continuing their education unless they perceived sufficient encouragement and support from their employer, their immediate supervisors, and/or the university administration.

7. Eight of the 15 demographic variables had significant effects on participation status. One of the variables, total number of classes taken with the tuition waiver benefit, merely defined the two groups and provided little insight. However, the remaining significant variables revealed that demographic variables have an effect on participation status in the following ways:

   a. A significant number of employees who participated in the educational assistance program enrolled in the full limit of tuition-waived courses during at least one term. This meant these employees took approximately three college courses while working full-time, a situation that may contribute to their perceptions of time as a continuing deterrent.

   b. Persons with technical jobs were more likely to be participants, while persons with service/maintenance jobs were more likely to be nonparticipants. Technical staff, being in a constantly progressive environment, may recognize on-going education as essential to their careers. Service/maintenance workers, however, may not see a connection between educational credentials and job performance.

   c. The educational assistance program served as a positive recruitment tool for a significant number of participants. Prospective employees with an interest in educational advancement clearly capitalized on the opportunity to enroll in tuition-free courses.

   d. Nonparticipants were more likely to believe that alternative forms of course delivery would have no effect on their enrollment, while participants were more likely to believe such innovations would facilitate their continued education. This disparity may indicate that participants have greater familiarity with alternative delivery systems and feel more confident about their ability to utilize such systems.

   e. Persons age 20-29 were more often participants, while persons age 50-59 were more frequently nonparticipants. Younger employees may perceive a greater confidence in their academic abilities since they have more recent educational experience. Older employees, in contrast, may view the longer gap in their educational experience as a stronger deterrent or may perceive less career benefit from additional education.

f. Employees with some college credits, associate degrees, bachelor's degrees, and master's degrees were more likely to be participants, while employees with doctoral degrees were more likely to be nonpartipants. Certainly, many participants attained their noted educational levels through UTK's educational assistance program, thus accounting for both their participation and educational status. Persons with terminal degrees may logically not pursue additional education.

g. Persons who took low levels of staff development training (1-9 hours) were more likely to also participate in college courses, while persons who took high levels of staff development training (30 hours or greater) were more likely to be nonparticipants. This suggested that employees perceive a threshold at which staff development training and traditional college courses become mutually exclusive educational activities.

Recommendations

Based on the findings and the implications of this study, the following recommendations are offered:

1. A future study should examine the motivations that influence employees at UTK to participate in the educational assistance program.

2. A further recommendation for future study is an investigation of the utilization rates and policy guidelines of educational assistance programs at other colleges and universities in the Southeast region of the United States. This would assist in determining if UTK's 55% rate, noted in the current study, is singular in nature or consistent with regional educational institutions.

3. A future study should measure the impact of UTK's educational assistance program in terms of career development for staff. For example, what proportion of participating staff actually graduate? Is participation associated with career advancement?

4. Further research should identify deterrents to participation in UTK's staff development program and other opportunities for professional development.

5. In order to expand the knowledge base about barriers adults perceive, deterrents to participation should be identified for specific populations such as employees in public-sector industries that offer tuition programs, prospective

reentry students, international students, or persons with no previous college experience.

6. The current study found that persons who participate in educational activities continue to perceive barriers similar to persons who elect not to participate. Consequently, any institutional responses to address identified deterrent factors should be comprehensive and focus on the total employee population.

7. Because both participants and nonparticipants ranked Time Choices highest in reported importance, UTK administration should give priority to initiatives that address completing programs more quickly or scheduling courses at times that lessen the impact on other responsibilities. Examples would include additional modular-style accelerated degree programs, expanded on-line course offerings, and classes offered at alternating times in consecutive semesters (i.e., daytime, evening, and weekend formats).

8. Lack of Confidence was identified as a deterrent to participation for both groups. Currently, the Evening School at UTK addresses that need through scheduled Open Houses that feature interaction with existing students. Recommendations to increase academic confidence include establishing mentoring programs, disseminating more broadly information about auditing classes, and permitting potential students to visit classes in session. Additionally, the Office of Human Resources could incorporate a segment in the orientation for new hires that featured a "testimonial" from an employee who successfully utilized the educational assistance program.

9. To address the concerns expressed in the deterrent Lack of Support, supervisors should receive training to ensure their understanding and consistent application of policy guidelines for the tuition waiver program. Additional routes by campus vans and trolleys may assist in alleviating concerns about inconvenient class locations.

10. Currently, the Office of Human Resources sponsors a series of staff development courses for employees with secretarial job classifications that results in a percentage salary increase upon successful completion. Similar incentives should be offered to employees who complete relevant degree programs.

Concluding Remarks

This study demonstrated that deterrents to participation in adult educational activities in general, and employer-provided tuition programs in particular, can be

identified and measured through the application of the DPS-G. The use of this study's unique population increased knowledge of the deterrents construct.

Based on the high utilization rate of UTK's educational assistance program, it is clear that both the employer and employees invested substantially in the program. This study identified information that can help to evaluate current practices and formulate strategies to nurture and leverage that investment.

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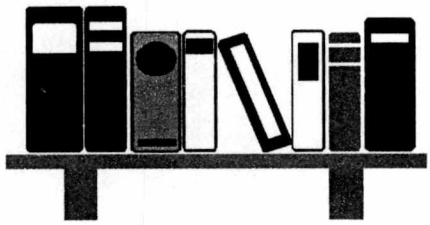
APPENDICES

APPENDIX A

Adult Learning Questionnaire



Adult Learning Questionnaire

Section A DIRECTIONS: Every year, many working adults consider participating in college. However, barriers may make participation difficult and sometimes prevent it entirely. This questionnaire examines the barriers you may have experienced. Look at each statement below and identify one response that indicates its importance to your decision to take (or not take) courses using the UTK employee tuition waiver.

Please circle only one response number for each statement. If a reason is not applicable for you, circle Number 1.

	How important was this to your decision?	Not Important	Slightly Important	Somewhat Important	Quite Important	Very Important
1.	I felt I could not compete with younger students.	1	2	3	4	5
2.	I had trouble arranging for child care.	1	2	3	4	5
3.	I had trouble arranging care for an adult family member.	1	2	3	4	5
4.	I was not willing to give up my leisure time.	1	2	3	4	5
5.	I felt the campus was unsafe.	1	2	3	4	5
6.	I felt more education would not help me in my job.	1	2	3	4	5
7.	I felt unprepared for the courses.	1	2	3	4	5
8.	I could not afford miscellaneous expenses such as travel, books, etc.	1	2	3	4	5
9.	I worried that the courses were not at the right level for me.	1	2	3	4	5
10.	I did not enjoy studying.	1	2	3	4	5

	How important was this to your decision?	Not Important	Slightly Important	Somewhat Important	Quite Important	Very Important
11.	I had a personal health problem or handicap.	1	2	3	4	5
12.	I did not think I would be able to finish college.	1	2	3	4	5
13.	I did not think I would have time for the studying involved.	1	2	3	4	5
14.	I wanted to learn something specific, but the courses were too general.	1	2	3	4	5
15.	I felt I did not meet the requirement for enrollment.	1	2	3	4	5
16.	The courses did not seem too interesting.	1	2	3	4	5
17.	The courses were offered at an inconvenient location.	1	2	3	4	5
18.	I could not afford the tuition for taking more than nine hours.	1	2	3	4	5
19.	I felt I was too old to take courses.	1	2	3	4	5
20.	I did not know what courses were available.	1	2	3	4	5
21.	I was fearful of the amount of time required to complete the courses.	1	2	3	4	5
22.	The courses were scheduled at an inconvenient time.	1	2	3	4	5
23.	My family did not encourage or support my participation.	1	2	3	4	5
24.	My friends did not encourage or support my participation.	1	2	3	4	5
25.	I felt the courses would be of poor quality.	1	2	3	4	5

How important was this to your decision?		Not Important	Slightly Important	Somewhat Important	Quite Important	Very Important
26.	I was not confident of my learning ability.	1	2	3	4	5
27.	I was experiencing family problems.	1	2	3	4	5
28.	I really was not interested in taking courses.	1	2	3	4	5
29.	Participation in courses would take me away from my family.	1	2	3	4	5
30.	I did not think I could attend regularly.	1	2	3	4	5
31.	My employer did not provide enough financial support.	1	2	3	4	5
32.	I did not think the courses would meet my needs.	1	2	3	4	5
33.	I prefer to learn on my own.	1	2	3	4	5
34.	My supervisor did not encourage or support my participation.	1	2	3	4	5
35.	I felt the courses might not be useful or practical.	1	2	3	4	5
36.	I experienced transportation problems.	1	2	3	4	5

Section B DIRECTIONS: Read each question and answer as it pertains to you. Please complete the appropriate blanks or indicate, by circling the appropriate number, the statement that most closely represents your current situation.

1. How many total classes have you taken using the UTK employee tuition waiver?
   1. None
   2. 1-4
   3. 5-9
   4. 10-14
   5. 15-19
   6. 20 or more

2. Have you ever used the full limit of tuition waiver classes in one semester?
   1. No
   2. Yes

3. Has an eligible family member taken courses using the reduced tuition benefit?
   1. No
   2. Yes

4. What is your current employment status?
   1. Full-time
   2. Part-time

5. What is your job category?
   1. Admin/Professional
   2. Supervisory
   3. Sales
   4. Technical
   5. Office & Clerical
   6. Crafts
   7. Operatives
   8. Laborer
   9. Service/Maintenance

6. How many years have you been employed at UTK? _____

7. Did you seek employment at UTK for the purpose of using the tuition waiver?
   1. No
   2. Yes

8. Would an alternative form of course delivery (on-line, etc.) make it easier for you to participate in courses?
   1. No
   2. Yes

9. What is your gender?
   1. Female
   2. Male

10. What is your age? _____

11. How many children do you have living at home? _____ (If none, write "O")

12. What is your race?
   1. African-American
   2. Caucasian
   3. Hispanic
   4. Other

13. What is your current marital status?
   1. Single
   2. Married
   3. Separated, widowed, or divorced

14. What is your highest level of educational attainment? (Circle only one)
   1. Less than high school
   2. High school or GED
   3. Some college
   4. Associate Degree
   5. Bachelor's Degree
   6. Master's Degree
   7. Doctoral Degree

15. How many hours of Staff Development training courses (from Human Resources, etc.) have you taken in the past 12 months? _____ (If none, write "O")

Thank you for taking the time to complete this questionnaire. Please use the self- addressed envelope to return it by Campus Mail.

APPENDIX B

Permission to Use DPS-G

Frances J. Fogerson

7054 Sage Lane • Knoxville, TN 37931

March 23, 2000

Dr. Gordon G. Darkenwald
Graduate School of Education
10 Seminary Place
New Brunswick, NJ 80901

Dear Dr. Darkenwald:

I am a doctoral student at The University of Tennessee, Knoxville and have selected a dissertation topic that explores deterrents to participation in the university's educational assistance program. Specifically, I will examine factors that deter eligible university staff from participating in college courses and factors that may continue to be an influence to those who elected to enroll.

I am requesting permission to use a slightly modified version of the DPS-G in my research. Some modification is necessary because the cost of tuition is provided, although participants must contribute associated costs such as books, etc. Also, to accommodate both employees who elected to enroll and those who did not, I will adopt a statement format rather than the original question structure. For example, while the original DPS-G item read "because of family problems," I will modify it to "I was experiencing family problems." The instrument's response categories will not change.

Statistical procedures will include factor analysis of the deterrent items and MANOVA and chi-square, respectively, to determine the effect of selected demographic variables on identified deterrents and participation status.

I appreciate your consideration of this request and look forward to your response.

Permission to adapt is granted. Good luck

Sincerely,

Frances J. Fogerson

Frances J. Fogerson

Frances J. Fogerson

7054 Sage Lane • Knoxville, TN 37931

March 23, 2000

Dr. Thomas Valentine
407 Rivers Crossing
Athens, GA 30602-4811

Dear Dr. Valentine:

I am a doctoral student at The University of Tennessee, Knoxville and have selected a dissertation topic that explores deterrents to participation in the university's educational assistance program. Specifically, I will examine factors that deter eligible university staff from participating in college courses and factors that may continue to be an influence to those who elected to enroll.

I am requesting permission to use a slightly modified version of the DPS-G in my research. Some modification is necessary because the cost of tuition is provided, although participants must contribute associated costs such as books, etc. Also, to accommodate both employees who elected to enroll and those who did not, I will adopt a statement format rather than the original question structure. For example, while the original DPS-G item read "because of family problems," I will modify it to "I was experiencing family problems." The instrument's response categories will not change.

Statistical procedures will include factor analysis of the deterrent items and MANOVA and chi-square, respectively, to determine the effect of selected demographic variables on identified deterrents and participation status.

I appreciate your consideration of this request and look forward to your response.

Sincerely,

Frances J. Fogerson

Frances J. Fogerson

To: tomv@arches.uga.edu
cc:
bcc:
Subject: Permission to use DPS-G

04/25/2000 03:51 PM

Dear Dr. Valentine:

I am a doctoral student at The University of Tennessee, Knoxville and have selected a dissertation topic that explores deterrents to participation in the university's educational assistance program.

Several weeks ago I wrote you (regular mail) to request permission to use the DPS-G in my research. Since I have not received a response, I decided to contact you by email.

Some slight modification of the instrument will be necessary because the cost of tuition is provided to employees at UTK. Also, to accommodate both employees who elected to enroll and those who did not, I will adopt a statement format rather than the original question structure. For example, while the original DPS-G item read "because of family problems," I will modify it to "I was experiencing family problems." The instrument's response categories will not change.

Dr. Darkenwald sent a letter of permission to use and modify the DPS-G.

I appreciate your consideration of this request and look forward to your response.

Sincerely,
Frances Fogerson

Gerry Darkenwald
<darkenwa@rci.rutgers.edu>

To: FrancesFogerson@ln.utk.edu
cc:
bcc:
Subject: Permission to Use DPS-G

05/10/2000 08:41 PM GMT

Dear Ms. Fogerson,

Since I was the principal author, my permission is sufficient.

Gordon Darkenwald, Professor

At 8:17 AM 5/8/00 –0400, you wrote:

Dear Dr. Darkenwald:

A number of weeks ago you granted permission to me to use the DPS-G in my dissertation at the University of Tennessee. Thank you for your written response.

I also sent a letter of request to Dr. Tom Valentine at the University of Georgia. When he did not respond, I sent a follow-up request by email. To date, I have had no answer from him.

Would your sole permission be sufficient? If you believe that Dr. Valentine's consent is essential, could you suggest a contact address?

Thank you for your assistance.

Sincerely,
Frances Fogerson
University of Tennessee-Knoxville

APPENDIX C

Correspondence to Sample

THE UNIVERSITY OF TENNESSEE
KNOXVILLE

Department of Human Resource Development
310 Jessie Harris Building
1215 West Cumberland Avenue
Knoxville, Tennessee 37996-1900
(865) 974-2574
FAX: (865) 974-2048

June 5, 2000

Dear UTK Staff:

I am heading a project designed to examine reasons UTK staff may decide not to take courses using their employee tuition waiver benefit. Knowing the reasons may help increase use of this valuable benefit and will increase understanding about adult learning.

You have been randomly selected to help gather this information. Enclosed is a questionnaire that asks the importance of certain reasons to your decision to take – or not take – courses. The questionnaire also asks for additional information that may relate to making such decisions. It should take approximately 10 minutes to complete. I need information from both persons who have used this benefit and those who have not.

Your individual responses will be anonymous and will not be shared with anyone. Only totals for all the collected data will be reported; individual scores will not be singled out. You do not need to mark your name on the questionnaire or identify yourself in any way. You may notice, however, that a number appears on the return address label. This will let me send you a follow-up letter, if needed. Be assured that this number will not identify your individual responses.

Participation in this project is entirely voluntary and there are no foreseeable risks. Return of the completed questionnaire constitutes your informed consent to participate.

The success of learning about using the employee tuition waiver benefit depends on your participation. Please take a few minutes to let me know the things you consider important when deciding about furthering your education.

Sincerely,

Frances Fogerson

Frances Fogerson
Project Director

THE UNIVERSITY OF TENNESSEE
KNOXVILLE

Department of Human Resource Development
310 Jessie Harris Building
1215 West Cumberland Avenue
Knoxville, Tennessee 37996-1900
(865) 974-2574
FAX: (865) 974-2048

June 20, 2000

Dear UTK Staff:

Two weeks ago, I sent you a questionnaire that examines reasons UTK staff may consider when deciding to take (or not take) courses using their employee tuition waiver benefit.

Your name was selected at random from those employees eligible for this benefit. Because the questionnaire was only sent to a small sample of eligible employees, your individual response is important.

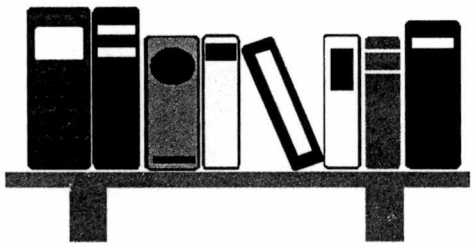
I am enclosing an additional copy of the questionnaire and a return envelope. You do not need to put your name on either, or identify yourself in any way. All individual responses will be kept confidential and only totals for all the collected data will be reported.

Please take a few minutes to complete and return the questionnaire. Remember, I need responses from both persons who have used this benefit and those who have not. Even if you are not interested in taking courses or have completed your degree, the things you consider important to your decision are valuable in understanding more about this employee benefit.

Sincerely,

Frances Fogerson

Frances Fogerson
Project Director



Our study about the use of the **Employee Tuition Waiver** at UTK is coming to a close.

We want to make sure that the things that are important to <u>you</u> are included in the results.

Please complete your questionnaire and, using the envelope you received in the last mailing, return it by Campus Mail this week.

Thanks so much for your help,

Frances Fogerson

Project Director

VITA

Frances Jeannine Fogerson was born March 3, 1946 in Charleston, West Virginia. She earned a bachelor's degree in psychology at West Virginia State College in 1968 and worked for several years as a statistician for the state Department of Human Services. After a 12-year break to raise two children, she enrolled at Marshall University in Huntington, West Virginia where she earned a master's degree in home economics and educational psychology. Her thesis dealt with measuring role strain in female reentry college students as they attempted to balance multiple responsibilities.

Next, she worked for eight years at a large community mental health center in Charleston, West Virginia. Initial job responsibilities centered on supervising several residential facilities for severely retarded adults. Later, she served as staff development coordinator and managed a training and development department that created and presented soft-skills training to a multi-state market.

At the age of 49, she decided to pursue a doctoral degree in human resource development and relocated to Knoxville, Tennessee. For the next five and a half years, she personally experienced the consequences of balancing multiple responsibilities while attending school full-time. During this period she remarried, worked several part-time jobs simultaneously, welcomed two new grandchildren, cared for her mother during her terminal illness, adopted every stray cat that wandered into her yard, and very slowly completed her doctoral studies.

Currently, she is the training coordinator for Knox County government in Knoxville, Tennessee and rejoices in the relative peace of holding only one job.