The relationship between readiness for, and involvement in self-directed learning

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The relationship between readiness for, and involvement in self-directed learning

by

Karen J. Hall-Johnsen

A Dissertation Submitted to the
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For the Graduate College

Iowa State University
Ames, Iowa
1985

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CHAPTER 1

INTRODUCTION

This introductory chapter summarizes the study and is intended to serve as an advance organizer for the detailed information in subsequent chapters. A discussion of what is known about self-directed learning explains the background from which the study was developed, followed by the problem statement, definition of terms, assumptions, hypotheses and rationale, design, limitations and significance of this research.

Background

Individuals living in today's world must be prepared to make learning a continuing lifelong activity. Lifelong learning is not a privilege or a right; it is simply a necessity for anyone, young or old, who must live with the escalating pace of change—in the family, on the job, in the community, and in the worldwide society (Cross, 1981, p. ix).

Lifelong learning is a complex concept that encompasses people of all ages and walks of life using society's resources to learn a variety of subject matter, knowledge, and skills. The emphasis on lifelong learning during the past two decades has continued to stimulate interest in self-directed learning, which may be explained by three factors. Self-directed learning: 1) is an underlying goal of education and considered to be the primary purpose of adult education, 2) enhances knowledge retention and transfer, and 3) is the predominant type of adult learning.
An extensive body of literature has accumulated that documents the quantitative aspects, motivation, content, and planning of self-directed learning activities. A synthesis of adult learning project research reveals that almost all adults participate in at least one major learning effort a year. The typical learner conducts five projects per year, spending an average of 100 hours per project. The higher the level of formal education, the greater the number of adult learning projects an individual is likely to conduct.

Most learning activities are initiated for the purpose of acquiring knowledge and skills related to one's job, home, family, sport, or hobby. Learning for credit or certification constitutes only a minor proportion of what motivates adults to learn. The majority of adult learning projects are planned by the learner.

The development of the Self-Directed Learning Readiness Scale (Guglielmino, 1977) launched numerous studies which have focused on assessment of factors relating to an individual's potential to assume responsibility for their own learning. Eight factors are reportedly related to an adult's readiness for self-directed learning (love of learning; self-concept as an effective, independent learner; tolerance of risk, ambiguity, and complexity in learning; creativity; view of learning as a lifelong, beneficial process; initiative in learning; self-understanding; acceptance of responsibility for one's own learning).

The literature also confirms that adults with a high level of readiness for self-direction in learning are likely to have the following characteristics when compared to adults with low levels of readiness: 1) conduct a greater number of learning projects per year, 2) spend more
hours learning, 3) have a higher self-concept, 4) have a higher internal locus of control, 5) experience greater success (i.e., higher grades) in programs requiring a degree of self-direction, and 6) have a higher level of formal education.

In conclusion, studies related to personal factors that facilitate self-directed learning have been limited to assessment of Guglielmino's eight readiness factors and the relationship between readiness and variables such as number of adult learning projects, total number of hours spent on learning projects, self-concept, locus of control, grades, and demographic data. These studies have addressed only a few selected components of adult learning projects. No comprehensive research effort has attempted to examine relationships between readiness for self-directed learning and each of the components of self-planned adult learning projects to verify if the Self-Directed Learning Readiness Scale is an indicator of actual involvement in self-directed learning.

Problem Statement

This study examined the relationship between readiness for, and actual involvement in self-directed learning.

The following general research question has guided the development of this study: What personal factors contribute most to an individual's self-direction in learning? Two specific research questions were addressed:

1. Are there predictive relationships between readiness (Self-Directed Learning Readiness Scale) and the extent to which adults are involved in self-directed learning (i.e., number of self-planned
projects, total number of hours spent in self-planned learning)?

2. Are all eight personal factors that comprise readiness necessary for involvement in self-directed learning? Which readiness factor(s) is(are) the best predictor(s) of high involvement in self-directed learning?

Definition of Terms

Self-directed learning

Self-directed learning . . . represents the ultimate state of learner autonomy, i.e., the learner exercises control over, and major responsibility for choosing both the goals and the means of learning . . .

Broadly, the definition suggests that the learner decides what and how to learn, but that other decisions, such as when and where to learn and how much to learn at any given time are implicit. The learner not only selects but may also reject, add or change resources at will, decide to continue or terminate the project, and finally determine the satisfaction or adequacy of the outcomes. (Mocker and Spear, 1982, p.11)

The term self-directed learning refers to a process in which the individual takes initiative for the day-to-day planning of what subject matter will be learned and how it will be learned. Therefore, only data from self-planned learning projects constitute involvement in self-directed learning in this study.

Learning project

A series of clearly related deliberate learning episodes adding up to at least seven hours of effort within a six-month period. The projects are designed to obtain new information, to develop new skills, or to reexamine existing attitudes or beliefs. (Tough, 1971, p.13)

Tough defines the learning episode as "a period of time devoted to a cluster or sequence of similar related activities" (1971, p.7). The
primary intention of the learner is to gain certain knowledge and skill and retain it for at least two days.

Readiness

Readiness refers to the state of preparedness, indicating a person's potential to assume responsibility for their own learning. Readiness level, as assessed by the Self-Directed Learning Readiness Scale, describes the degree to which an individual possesses preferences and attitudes towards learning that are necessary for self-directed learning. The following eight factors associated with readiness for self-directed learning were identified by Guglielmino (1977): 1) love of learning; 2) self-concept as an effective, independent learner; 3) tolerance of risk, ambiguity, and complexity in learning; 4) creativity; 5) view of learning as a lifelong, beneficial process; 6) initiative in learning; 7) self-understanding; and 8) acceptance of responsibility for one's own learning.

Assumptions

1. The adult learning project (Tough, 1971) is an appropriate construct to use in documenting information about the self-directed learning activities of adults.

2. The sample chosen for this study conducted learning projects during the twelve months prior to the interview, and can communicate the extent and nature of these projects to the interviewer.

3. The readiness levels of the subjects did not change during the twelve month period in which the learning projects were implemented.
Hypotheses and Rationale

Hypotheses related to research question 1

Are there predictive relationships between readiness and the extent to which adults are involved in self-directed learning? Two studies have examined the relationship between readiness and involvement in adult learning projects. Hassan (1981) found a significant, positive relationship between readiness and the total number of learning projects conducted in a year. Skaggs (1981) found a significant, positive relationship between readiness and the total number of hours devoted to learning projects in a year. Data analysis in both of these studies included learning projects in which all types of planners were utilized. Thus, the findings describe the relationship between readiness and all types of adult learning projects, ranging from formal to self-directed learning experiences.

The Self-Directed Learning Readiness Scale was developed to assess readiness for participation in self-directed learning. No research efforts have investigated whether a predictive relationship exists between readiness and involvement in self-planned learning projects. Therefore, the following hypotheses were developed to identify whether the SDLRS is an indicator of involvement in self-directed learning:

H₁ There is a significant (p < .05) positive, predictive relationship between readiness and the number of self-planned learning projects.
Hypotheses related to research question 2

No previous studies identified which factor(s) associated with readiness is(are) the best predictor(s) of high involvement in self-directed learning. However, a review of literature indicates that self-concept greatly affects learning.

The individual must have a positive view about him/herself as a learner in order to be able to deal successfully with tasks and problems. Without a positive self-concept, individuals may not be willing to try to learn, or to assume responsibility for planning and decision-making related to their learning. Knowles (1978) points out that as a person grows, their self-concept moves from dependence to independence. Tough (1968) found that the learner's desire to undertake a higher level of learning was closely related to self-concept. Sabbaghian (1979) found a significant, positive relationship between the self-image of adult students and their readiness for self-directed learning. Therefore, the following hypotheses were developed to identify which readiness factor(s) is(are) the best predictor(s) of high involvement in self-directed learning:

H2 There is a significant (p < .05) positive, predictive relationship between readiness and the total number of hours spent on self-planned learning projects.

H3 After self-concept is accounted for, none of the other seven readiness factors will have a significant (p < .01), predictive relationship to the number of self-planned learning projects.
After self-concept is accounted for, none of the other seven readiness factors will have a significant (p < .01), predictive relationship to the total number of hours spent on self-planned learning projects.

**Design**

**Subjects**

Seventy subjects were randomly selected from all Iowa Cooperative Extension Service professional staff with a .5 or greater full-time equivalent Extension appointment.

**Instrumentation and data gathering procedures**

Two instruments were used to collect data for this study: 1) Self-Directed Learning Readiness Scale (SDLRS) developed and revised by Lucy Guglielmino (1977), and 2) Adult Learning Projects Telephone Interview Schedule adapted from the Interview Schedule developed and revised by Allen Tough (1969, 1971).

The SDLRS is a self-report, fifty-eight item instrument that uses a five point Likert-type scale to assess an individual's potential in assuming responsibility for their own learning.

The subjects also participated in a telephone interview. The Adult Learning Projects Telephone Interview Schedule is a structured script that utilizes a probing technique to help the respondents recall learning activities during the twelve month period prior to the interview.
Data Analysis

A linear regression equation was calculated to examine if a positive, predictive relationship exists between readiness and $H_1$—the number of self-planned learning projects, as well as $H_2$—the total number of hours spent on self-planned learning projects.

Stepwise multiple regression was used to identify which readiness factor(s) is(are) the best predictor(s) of $H_3$—the number of self-planned learning projects conducted, and $H_4$—the total number of hours spent on self-planned learning projects during a year.

Limitations

1. This study is limited by the subjects' ability to recall learning activities undertaken during the twelve months prior to the interview.

2. It was not the researcher's intent to select a sample representative of all Cooperative Extension Service employees in the United States. The population of Iowa Cooperative Extension Service professional employees was selected for the following reasons: 1) homogeneous level of formal education, 2) lack of any previous study assessing readiness for or actual involvement in self-directed learning with this specific population, 3) potential staff development implications for the Iowa Cooperative Extension Service, and 4) accessibility of subjects to the researcher. Findings of the study can be inferred only to this population.
Significance

This study will contribute to the literature related to personal factors that facilitate self-directed learning. Findings obtained through this study should make these further contributions:

1. aid educational institutions and adult educators in understanding which readiness factor(s) is(are) necessary for high involvement in self-directed learning,

2. provide information to be used as a base for increasing an individual's ability in self-directed learning, and

3. provide means for an individual to assess personal learning strengths and weaknesses in self-direction.

The Self-Directed Learning Readiness Scale has potential use in screening and counseling persons for programs where skills in self-direction are necessary. It also has potential as an evaluation instrument for programs designed to develop self-direction in learning. This study will identify whether the SDLRS is an indicator of actual involvement in self-directed learning.
CHAPTER 2

REVIEW OF LITERATURE

The purpose of this chapter is to analyze literature related to adult self-directed learning which will provide information to be used as a basis for examining the question: What personal factors contribute to an individual's self-direction in learning? Investigation of this question requires an understanding of the nature of self-directed learning experiences as well as personal attributes that prepare an individual to assume responsibility for his or her own learning. Therefore, this review will focus on two general areas of adult self-directed learning research: 1) activities of self-directed learners, and 2) personal factors that facilitate self-directed learning.

A clear definition of lifelong learning and knowledge of its theoretical foundation will serve as a framework for analyzing studies pertaining to self-directed learning. Therefore, the intent of the first part of this chapter is to explore questions such as: What is lifelong learning? What is the relationship among lifelong learning, adult education, and self-directed learning?

Lifelong Learning

The term "lifelong education and learning" denotes an overall scheme aimed both at restructuring the existing educational system and at developing the entire educational potential outside the educational system; in such a scheme, men and women are the agents of their own education. (UNESCO General Conference, 1975, p. 2)
Lifelong learning covers the entire life span of an individual, including all stages of education—preprimary, primary, secondary, and adult. Thus, the concept of lifelong learning serves as a basis for, but is not confined to, adult education.

A distinctive characteristic of adulthood is the willingness of individuals to assume responsibility for decisions that affect their lives (Knowles, 1970; Brookfield, 1980). This unique quality of adulthood is one of the underlying assumptions of andragogy, a concept popularized by Malcolm Knowles in the 1960s. Knowles defines andragogy as "the art and science of helping adults learn" (1970, p. 38) and contrasts it with pedagogy, which is concerned with helping children learn. Andragogy is premised on four crucial assumptions about the characteristics of adult learners that are different from children:

As a person matures, (1) his self-concept moves from one of being a dependent personality toward one of being a self-directing human being, (2) he accumulates a growing reservoir of expertise that becomes an increasing resource for learning, (3) his readiness to learn becomes oriented increasingly to the developmental tasks of his social roles, and (4) his time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly his orientation toward learning shifts from one of subject centeredness to one of problem centeredness. (Knowles, 1970, p. 39)

Although initially formulated in dichotomous terms of andragogy versus pedagogy, Knowles now speaks of andragogy and pedagogy as points on a continuum of teaching and learning styles. Andragogy has value as a theoretical formulation in two ways: 1) it identifies characteristics of adult learners; and 2) it identifies the need to focus learning on the individual, considering his or her expertise as a resource for learning.
Given that lifelong learning encompasses the entire life span, and that learning should focus on an individual's needs, a couple of questions remain: What types of learning activities is a person likely to experience throughout their lifetime? What role does the learner have in deciding what is to be learned and how it should be learned?

**Relationship of self-directed learning to lifelong learning**

Mocker and Spear (1982) suggest that all types of deliberate lifelong learning can be viewed on a continuum. The location of different types of lifelong learning experiences on the continuum can be determined based on the locus of control for decision-making. Locus of control includes two major decisions that a learner can make about any learning activity: 1) identifying what should be learned, and 2) identifying how to learn.

Experiences in which the learner has little, if any, control are often referred to as formal types of learning. The decisions of what and how to learn are not made by the learner, resulting in dependence on the instructor to guide the learning process. Formal learning is prevalent in most elementary and secondary schools, many college and university degree programs, as well as structured training opportunities.

Learning activities in which adults and youth assume partial control of the decision-making responsibility are clustered toward the center of the lifelong learning continuum. Dave (1973) and Mocker and Spear (1982) have labeled the types of activities in which the learner maintains partial control as "nonformal" and "informal learning."
Self-directed learning is another type of lifelong learning in which:

The learner exercises control over and major responsibility for choosing both the goals and the means of the learning . . . .

Broadly, the definition suggests that the learner decides what and how to learn, but that other decisions, such as when and where to learn and how much to learn at any given time are implicit. The learner not only selects but may also reject, add or change resources at will, decide to continue or terminate the project, and finally determine the satisfaction or adequacy of the outcomes. (Mocker and Spear, 1982, p. 11)

The term self-directed learning refers to a process in which the individual takes initiative for the day-to-day planning of what subject matter will be learned and how it will be learned. Therefore, the term self-directed learning will be used in this study to represent learning projects which are self-planned.

Self-directed learning need not be independent, done in isolation, or mutually exclusive of formal types of learning activities. Structured learning opportunities, such as participation in an adult education class, may serve as a resource to the self-directed learner in meeting his or her goals. The self-directed learner decides what specific content areas and skills he or she will learn within the class. The same adult education class may be considered a formal learning experience for other participants because decisions regarding learning goals, subject matter, and methods of learning are controlled by the instructor.

Summary

In summary, lifelong learning is a broad concept which refers to all types of learning throughout an individual's lifetime. Lifelong learning experiences can be viewed on a continuum based on the locus of
control for deciding the goals and methods of learning. The continuum of learning experiences ranges from formal learning situations, in which the individual has little control, to self-directed learning, in which the individual assumes total responsibility for his or her learning.

The remainder of this chapter focuses on literature pertaining to self-directed learning pursuant to the question: What personal factors contribute to an individual's self-direction in learning? Related literature is organized into two areas for discussion: 1) activities of self-directed adult learners, and 2) personal factors that facilitate self-directed learning.

Background of Self-Directed Learning Research

The first research effort to focus on the individual learner was conducted by Cyril Houle (1961). He developed a theoretical typology comprised of three types of learners, designated according to their motivation or orientation to learning: 1) goal-oriented learners, 2) activity-oriented learners, and 3) learning-oriented learners.

Houle does not contend that his typology is a complete description of learner motivations, but it has stimulated many follow-up research efforts. Boshier (1976) critiqued Houle's methodology and reviewed findings of fourteen studies which attempted to verify the orientation to learning typology. Boshier concludes that:

Houle's typology is elegant and makes subjective sense, but until motivational orientation researchers develop a suitable psychometric procedure to test its validity, it cannot be accepted or rejected as an accurate description of adult learners. (1976, pp. 42-43)
In spite of Boshier's criticism, Houle's typology offers a useful framework for considering multiple motives for adult learning and implies that people are consistently motivated by varying orientations to learning throughout their lives. Houle identified the need to examine the exact nature of adult learning activities.

Emerging curiosity about adult learning activities in the mid to late 1960s can be attributed to a comprehensive national study conducted by Johnstone and Rivera (1965). This was the first research effort to document the extent of adult learning activities outside formal educational institutions. Nine million adults were estimated to have conducted at least one self-planned project in a year. Although the study did not directly focus on self-directed learning, it was detected in such quantity that the authors suggested it was the most neglected area of adult learning research.

Intrigued by findings of Houle (1961) and Johnstone and Rivera (1965), Allen Tough and colleagues at the Ontario Institute for Studies in Education conducted exploratory interviews in 1967 to discover benefits a person anticipates in undertaking a learning project. Following revision of the interview schedule, Tough (1968) administered intensive two-hour, semi-structured interviews to thirty-five Toronto area adults in an attempt to understand what motivates people to initiate and continue learning efforts. Adults were asked to think of something that they had spent at least seven hours trying to learn and then to state their reason for learning it. Learning motivated by the desire to obtain academic credit was excluded because Tough was primarily interested in self-planned learning efforts.
Tough found that the single, most common reason for adult learning is the desire to apply knowledge and skill (reported by 83 percent of the subjects). This was usually the result of the learner being assigned an action goal, such as being asked to assume a committee chairperson's duties. A sense of puzzlement or curiosity was identified as the second motivating reason for learning. Each of the adults Tough interviewed cited three or more reasons for beginning any learning activity. A reasonable conclusion, based on findings from Houle (1961) and Tough (1968), is that almost every adult learner has more than one incentive for learning.

Tough's 1968 study was a significant contribution to adult education research because it established a methodology for investigating self-directed learning. Tough set the parameters for studying adult learning activities with the definition of a learning project:

A series of clearly related deliberate learning episodes adding up to at least seven hours of effort within a six-month period. The projects are designed to obtain new information, to develop new skills, or to reexamine existing attitudes or beliefs. (1971, p. 13)

Tough defines a learning episode as "a period of time devoted to a cluster or sequence of similar related activities" (1971, p. 7). The activities during an episode include all the person's experiences (everything he or she does, thinks, feels, hears, and sees) during that period of time. The learner's primary intention is to gain certain knowledge and skill and retain it for at least two days. Most replications of Tough's work have used these same definitions for an adult learning project and learning episode.

The adult learning project concept was designed to represent the
entire continuum of different types of lifelong learning experiences, ranging from formal to self-directed learning. Any learning method can be used (reading, conversation, listening, observing, practicing, etc.) if the person's primary intention is to gain and retain certain definite knowledge or skill. Self-planned learning, classroom learning, learning guided by a friend or a group of peers, and learning via programmed instruction are also included.

Data for most self-directed learning research have been gathered through the use of the Interview Schedule, developed and revised by Allen Tough (1969, 1971). The structured interview schedule utilizes a probing technique to collect information about the respondent's major learning efforts during the twelve month period prior to the interview.

Activities of Self-Directed Adult Learners

A substantial number of research efforts related to self-directed learning has been conducted during the past two decades. Encouraging individuals to assume responsibility for their own learning has been experimented with and recognized as a major goal for all levels of education, from elementary school through graduate school (Beggs and Buffie, 1965; Dressel and Thompson, 1973; Rogers, 1969; Wood and McCurdy, 1974). However, the development of self-direction in learning is probably most widely advocated in adult education literature (Miller, 1964). Adult education research concentrates on the individual learner and seeks to understand self-direction as a process where learners regulate what and how they learn. In order to develop a general picture
of adult learning activities, the following questions will be pursued:
Are highly deliberate efforts to learn very common? How much time is
spent in learning? What do people learn?

Extent of involvement and content

The extent to which individuals are involved in learning has been
the most frequently researched area of adult learning. Extent of
involvement refers to the quantitative aspects of participation in
learning, such as the number of persons who engage in at least one major
learning effort per year, the number of learning projects conducted, and
the amount of time spent on learning. The first adult learning project
study found that:

Almost everyone undertakes at least one or two major learning
efforts a year, and some individuals undertake as many as 15
or 20. The median is eight learning projects a year,
involving eight distinct areas of knowledge and skill.

It is common for a man or woman to spend 700 hours a year at
learning projects. Some persons spend less than 100 hours,
but others spend more than 2000 hours. (Tough, 1971, p. 1)

These findings were reported by Tough from sixty-six interviews
with Canadian adults including: blue-collar workers, women and men in
jobs at the lower end of the white collar scale, beginning elementary
school teachers, municipal politicians, social science professors, and
upper-middle-class women with preschool children. Tough documented that
98 percent of the adults interviewed had conducted at least one learning
project during the year. The numbers indicating extent of involvement in
learning projects change somewhat in Tough's 1978 report. However, a
general trend representing a high percentage of adults engaged in
learning has emerged from the synthesis of findings throughout the past
decade and several thousand interviews.

Tough's research concerned itself primarily with adults who were college graduates or in professional occupations, frequently both. A study which surveyed a randomly selected group of adults of a similar socio-economic status, was McCatty's (1973) investigation of the learning activities of fifty-four professional men in Canada. The typical learner engaged in a mean of eleven projects in one year and devoted a total of 1,244 hours to learning. Job related learning was the most common (55 percent of all projects) and focused on keeping abreast of current literature, technologies, professional advances, and changing circumstances.

Several other studies of professional persons have reported a high percentage of job related learning efforts. Benson (1974) cited that 34 percent of the learning projects conducted by fifty Tennessee college and university administrators were job related. However, the administrators' average extent of involvement in learning projects (mean of 4.6 projects per year, total of 269 hours per year) was much more limited than McCatty's subjects. Zangari (1977) analyzed learning projects of forty-five adult educators in Nebraska postsecondary institutions. The educators were involved in an average of seven projects per year with 583 total hours invested. Learning projects related to improved job performance and professional growth in adult education accounted for 38 percent of the total.

The extent of involvement in learning by school teachers has been found to be consistent with other professionals. The average number of learning projects reported in various studies ranges from about five to
Forty teaching and management professionals in Ghana, Africa were studied by Denys (1973). The average number of projects undertaken was 4.8. Each subject devoted approximately 430 hours to learning per year. The time factor was a particular focus in this study. Denys used a learning activities diary with his respondents to check the validity of their time estimates. The subjects' time estimates were conservative when compared to the actual amount of time recorded in their diaries. The learning projects were primarily job related. Allerton (1974) used learning diaries with a sample of parish ministers and attributed 62 percent of the total number of learning projects to their vocation.

Miller and Botsman (1975) reported that 58 percent of the learning projects conducted by Cooperative Extension Service agents were related to their profession. The sample was not randomly selected and included only nine persons. Interviews with agents indicated the average number of learning projects per person to be about twelve, each lasting approximately fifty-eight hours for an average total investment of 696 hours per year.

Johns (1973) found that pharmacists in Atlanta, Georgia conducted approximately eight projects in a year and spent 1,046 hours on learning activities. Projects related to their job were selected most often, followed by hobby and recreation interests.

Coolican (1974) investigated the learning projects of forty-eight Syracuse, New York mothers of preschool age children. The mean number of learning projects was four per year with an average total of 244 hours invested in learning.
Johnson, Levine and Rosenthal (1977) examined the learning efforts of unemployed adults in New Jersey. They found "a fascinating and rich range of learning activity among those who are out of paid work" (1977, p. 16), with 86 of the 100 adults recalling at least one learning project from the previous twelve months. Learning activities concentrated on new coping skills resulting from unemployment, and efforts to find and prepare for a job, in addition to the usual range of learning topics.

A number of studies have focused on the learning activities of traditionally hard-to-reach adults. Hiemstra (1975) interviewed 214 older Nebraska adults, one-third of whom had not completed high school. Respondents completed an average of three learning projects involving an average total of 325 hours in a twelve month period.

Umoren (1977) studied sixty individuals from two socio-economic groups in Lincoln, Nebraska. The thirty-eight low income and twenty-two middle-to-high income adults were involved in an average of almost five projects per year. Higher income persons conducted more learning projects than their lower income counterparts.

A consistent picture of involvement in learning by adults with low levels of formal education has developed based on the findings of Field (1977), Baghi (1979), and Lee and Sisco (1981). The mean number of learning projects reported in these studies range from about four to 6.6. The mean total number of hours spent in learning per year range from approximately 400 to 500 hours. Family and home related subject matter was the most popular with Baghi's (1979) sample of Iowa ABE and GED adult students, followed by learning efforts pertaining to one's job.
Self-fulfillment topics were most frequently chosen by the rural Vermont adults with low educational attainment interviewed by Leesn and Sisco (1981).

Johnson (1973) studied the learning activities of adults who had just earned their high school diploma or equivalency certificate. The typical interviewee conducted approximately fourteen projects during the year, spending an average total of 877 hours on learning. The number of learning projects reported is much higher than most other studies. This may be a reflection of the sample's higher involvement in formal schooling during the twelve months prior to the interview than most other groups studied. Self-fulfillment types of learning activities were selected most often.

In a summary of research based on hard-to-reach samples, Brockett compares findings of these studies to those for adults in general:

While the frequency in these studies tend to be a bit lower than those for adults in general, they nonetheless serve to demonstrate that learning does take place among older, isolated adults of low socio-economic status. These findings by no means negate the "hard-to-reach" label associated with such groups. Nor do the data minimize the fact that hard-to-reach adults face numerous obstacles in their efforts to participate in learning. These studies do, however, support the view that when a more inclusive definition of participation is employed, a much greater cross-section of the adult population can be found to be involved in learning. (1983, p. 17)

Three learning project research efforts sampled the general adult population. Peters and Gordon's (1974) random sample survey of learning projects among 466 adults in urban and rural Tennessee documented that most adults (95 percent) are involved in some form of learning, which confirmed Tough's early speculations. Adults in this sample conducted
fewer learning projects (mean of 3.1 projects for rural, 4.1 urban, overall sample mean of 3.7) than adults interviewed in other studies which also sampled the general adult population. Urban adults spent an average of 206 hours on each major learning effort compared to an average of 105 hours by their rural counterparts. Job related and recreational projects were most popular in both the urban and rural samples.

Hassan (1981) collected data from a random sample of seventy-seven adults in Ames, Iowa. Participants in this study engaged in an average of almost ten projects. Approximately 25 percent of those interviewed reported twelve or more projects. Self-fulfillment topics represented 35 percent of the total number of projects, followed by family and personal related topics which constituted about 33 percent.

The most comprehensive work done to date, in terms of verifying Tough's conjectures on a national level, was by Penland (1978) which involved a national probability sample of 1,501 adults across the United States. All subjects were interviewed for one hour on the projects they had pursued during the previous year. Penland reported a participation rate of 79 percent, but he included learning efforts of less than seven hours. If the data from the shorter efforts are eliminated, the participation rate falls to 70 percent of American adults who conduct at least one major learning effort each year. Virtually all other studies report a much higher figure. Eliminating the shorter efforts, the mean number of learning projects was about four, with learners investing an average of 156 hours per project.

Findings of Penland's (1978) national study, as well as all the other previously cited studies, indicate that the majority of adults are
involved in learning activities. There does not seem to be any large imbalance or grossly underrepresented segment of the population.

Are findings from the numerous adult learning projects research efforts fundamentally comparable with respect to extent of involvement and content? Before this question is addressed, it should be noted that the studies discussed in this review vary in four ways which may affect the findings: 1) nature of the samples, 2) methodology, 3) learning project criterion for minimum number of hours, and 4) data coding of content of learning projects.

Nature of the samples. The extent of involvement and content of adult learning projects has been examined in various populations. One general participation trend has been verified in virtually every study. The majority of adults conduct at least one learning project per year. However, the extent of involvement varies within any given study as well as among studies. For example, the mean number of learning projects and mean amount of time devoted to learning reported in this literature review ranges from approximately three to fourteen projects, with 244 to 1,244 total number of hours spent on learning during a year. The findings may be affected by the diverse nature of the samples studied. Some surveys have sampled all men and women in a particular nation, state, or city. Other studies have narrowed the focus of adult learners to sample those with a given demographic characteristic such as occupation, level of formal educational attainment, age, gender, or socio-economic status. Level of formal educational attainment is the only demographic characteristic that has been consistently found to be related to the number of learning projects conducted. Adults with a
higher level of formal education report a greater number of learning projects than those with less formal schooling (Hiemstra, 1975; Hassan, 1981; Leean and Sisco, 1981; Peters and Gordon, 1974; Penland, 1978).

**Methodology.** The methodology in most studies has utilized or slightly adapted the Interview Schedule developed and revised by Tough (1969, 1971). However, the expertise of the interviewers, ability of the interviewee to recall learning activities, length of interviews and other factors may account for differences reported in the extent of involvement. Tough acknowledges that inconsistencies exist in utilizing interviews as the primary mode to gather data:

In general, the less training the interviewers have in understanding the concept of the learning project and in probing skillfully for additional projects, the fewer learning projects they uncover. Even interviewers trained in depth, however, tell me that they are probably missing some projects because people cannot recall them after several months. Also, one experiment with daily learning diaries yielded higher figures than the interview technique, and Hiemstra (1975) tells me that rambling 2 1/2-hour followup conversations with his interviewees yielded higher figures than his formal semi-structured interviews. (Tough, 1979, p. 172)

Differences in utilization of the Interview Schedule (Tough, 1969, 1971) can occur across studies as well as within a given study, particularly in those research efforts where more than one individual conducts interviews with the sample.

**Learning project criterion for minimum number of hours.** Variation in the criterion for the minimum number of hours to be considered a learning project may affect the number of projects reported. Most researchers have utilized Tough's definition of an adult learning project which specifies "seven hours of effort within a six-month period"
(Tough, 1971, p. 13). However, Hassan (1981) identified fourteen hours as the minimum time limit. Participants engaged in an average of almost ten projects during a twelve month period, which is higher than the mean number of projects reported in most other studies. If Hassan had utilized Tough's seven hour learning project criterion, the average number of projects reported might have been even greater than ten. This high involvement in learning was attributed to the nature of the sample taken from a university community which included an unusually large number of highly educated individuals, as well as full-time graduate and undergraduate students.

**Data coding of content of learning projects.** Coding of data gathered in the interviews may affect percentages reported regarding content of learning projects. Some studies categorized the subject matter content of the learning projects into four broad categories, while other studies utilized seven or even fifteen different groupings. For example, self-fulfillment topics in a given study may represent one of four broad content areas which includes the arts, religion, and all personal enrichment related learning. Another study may use a number of specific content categories in which self-fulfillment topics are limited to include only the arts and recreation. The self-fulfillment content area in the first example is more inclusive than the second study. Therefore, if the samples were similar, it could be expected that the number and percentage of self-fulfillment related projects in the first study would be greater than the second study.
Summary: Extent of involvement and content

Despite inconsistencies in populations sampled, interview methodologies, criterion for learning projects, and coding of data, the basic picture emerging from these studies is that the majority of adults are involved in learning activities. In summarizing the findings from more than twenty studies that replicated his 1971 research, Tough (1979) concluded that probably 90 percent of all adults conduct at least one learning project a year, though the range from one study to another is from 70 percent to 100 percent. Typical learners engage in five learning projects a year, and spend an average of 100 hours on each project (or a total of 500 hours a year, almost 10 hours per week).

Data regarding the content of learning projects are more difficult to compare across studies due to differences in categorizing the subject matter knowledge and skills learned. However, some patterns can be detected based on demographic characteristics of the samples. Job related learning seems to be the most common content area with adults who are currently employed in professional positions (McCatty, 1973; Benson, 1974; Zangari, 1977; Miller and Botsman, 1975; Allerton, 1974; Johns, 1973). Unemployed adults also concentrated their learning on job related endeavors, such as improvement of vocational competencies and job search activities. Self-fulfillment topics (including arts, recreation, and religion) and family related learning seem to be the most common for senior citizens, adults with a low level of formal education, and mothers of preschool children working in the home (Hiemstra, 1975; Baghi, 1979; Leean and Sisco, 1981; Johnson, 1973; Coolican, 1974).

Coolican stated that, "It appears the major question is no longer
participation vs. nonparticipation. Almost everyone undertakes learning projects to some degree" (1974, p. 13). Why do adults engage in learning projects?

**Motivation for learning**

In a review of research efforts from 1971-1978, Tough identified the most common motivation for a learning project as:

... some anticipated use or application of the knowledge and skill ... Less common is curiosity or puzzlement, or wanting to possess the knowledge for its own sake. Also rare is learning for credit toward a degree, certificate or (for example) driver's license. This kind of motive occurs in about 5 percent of all learning projects. (1978, p. 253)

Hiemstra (1975), in his study of older adults, discovered that their most dominant reason for learning in over two-thirds of all projects was for personal enjoyment. Most projects were of self-fulfillment nature (creative arts, recreation, and the liberal arts). This contrasts with adults interviewed by Tough (1971) who displayed a practical, action-goal orientation to learning.

Learning for credit is defined to encompass both academic credit and certification. Academic credit refers to efforts in which the learner receives credit toward a high school diploma, a certificate from a business or technical school, or a college degree. Certification includes learning projects undertaken to pass a test or examination toward some license or driving test, or toward some requirement or examination related to a job.

With a single exception, learning project research has confirmed that credit or certification has a minor effect in motivating adults to engage in adult learning projects. Johnson's (1973) sample of recent
high school graduates reported 23 percent of the learning projects undertaken were for credit. His subjects were involved in more formal schooling than the average adult—community college, full-time vocational programs, or job advancement training mandatory for employment or state licensing.

Few studies have sought to understand what motivates adults to become involved in learning projects, thus findings in this area of adult learning research are very limited. In a review of adult learning project literature, Tough identifies the need for future research which focuses on an adult's anticipated benefits for learning:

We know remarkably little about what motivates people to devote 100 hours to learn something. This is especially true when the main benefits are not highly practical and useful. Fascinating insights could emerge from an in-depth study of the adult's anticipated benefits from a major learning effort. We need to study the individual's significant goals and priorities as a context for our theory and practice. (Tough, 1979, p. 179)

Future research needs which focus on anticipated benefits for learning, suggest that the nature of adult learning activities should be investigated further. Who determines the learning goals and plans how learning will occur?

Planning projects and utilizing resources

The planning aspect of adult learning projects has been examined by nearly every study. The following type of question was discussed during most interviews: Who or what is responsible for the day-to-day planning and deciding of what subject matter will be learned and how (methods) it will be learned?
The planner of a learning project is the person or thing responsible for more than half of the day-to-day decisions about what is learned (detailed knowledge and skill) and how it is to be learned (activities and resources). The planner may also decide when to begin each learning episode, and the pace at which to proceed. Most studies have distinguished four different types of planners:

1. Self-planned. The learner has the major responsibility for the day-to-day planning and decision-making. He or she may receive advice or information from other people or resources, but retains control of and responsibility for the decisions.

2. Another individual. Someone other than the learner (instructor, expert, or friend) assumes the major responsibility for deciding what is learned and how it will be learned. This type of planner usually interacts with the learner in a face-to-face situation, although it could be by telephone or correspondence.

3. Group. A group of peers or other persons collectively decide what will be learned and the methods of learning. Group planned learning could occur in a formal class setting or in a small informal group.

4. Nonhuman planner. The decisions about what to learn and how to go about it are made for the learner by some material resource such as a programmed instruction book, a set of tape recordings, a video tape series, or a computer programmed instruction module.

Tough clarifies common misconceptions regarding the types of planners utilized in adult learning projects:

The four types of planners (or four types of learning projects) are based on who or what plans (directs, controls, influences, governs, manages, guides) the detailed content
and learning activities from one learning episode to the next. We are not looking at who provides the subject matter. We are classifying the sources of the plans and decisions, not the sources of subject matter or the methods of learning. (Tough, 1979, p. 80)

... only the majority of the planning, not 100% must be provided by the learner, object, person, or group in order to apply that label. ... do not call an episode or project self-planned just because the learner himself chooses the object, person, or group. If he then relies heavily on that object, person, or group for planning most of his learning episodes, the project is clearly not self-planned. (Tough, 1979, p. 81)

One finding has repeatedly surfaced from learning project research: The majority of adult learning efforts is self-planned. In a synthesis of research efforts, Tough concluded that the following pattern emerges in nearly every study, although the exact figures vary a little:

About 20% of all learning projects are planned by a professional (someone trained, paid or institutionally designated to facilitate the learning). The professional operates in a group (10%), in a one-to-one situation (7%), or indirectly through completely pre-programmed nonhuman resources such as programmed instruction or a television series (3%). In the other 80% of all learning projects, the detailed day-to-day planning is handled by an "amateur." This is usually the learner himself or herself (73%), but occasionally it is a friend (3%) or a democratic group of peers (4%). (Tough, 1979, p. 173)

Several exceptions to the pattern of predominantly self-planned learning projects can be found in the literature (Umoren, 1977; Field, 1977; Miller and Botsman, 1975). Only 20 percent of the learning projects reported by Jamaican adults in Field's (1977) study were self-planned. Field attributed this finding to the low literacy attainment of the sample and the subjects' high involvement in religion related projects directed by a group leader. Umoren (1977) found 40 percent of the learning projects of adults from two socio-economic groups
to be self-planned. Umorens finding is consistent with Miller and Botsman (1975), who studied the learning projects of a nonrandom sample of nine New York Cooperative Extension Service agents. Sixty percent of the Extension agents' learning projects were planned by a group or some other individual. The agents interviewed relied on in-service training workshops for many of their learning efforts. Miller and Botsman do not identify the definition of a learning project used in their study. However, the following comments by the authors imply that experiences of shorter duration than seven hours may have been considered a learning project:

Agents appear to pursue shorter projects (in relation to other studies) that are perhaps easier to fit into their schedules. Many projects undertaken by the agents are half-day and full-day workshops at Cornell or brief programs offered in the community. (Miller and Botsman, 1975, p. 16)

Findings from their ministudy point to a number of questions that need clarification in future studies with a similar population:
1) Should in-service training opportunities be considered deliberate efforts to learn, whether or not the participants are required to attend?
2) How should content areas of learning projects be distinguished for Cooperative Extension Service staff since the nature of their work includes topics related to their profession as well as other aspects of their life, i.e., personal, family and home; civic; and self-fulfillment?
3) Are Extension staff inclined towards planning their own learning?

McCatty (1973) explored the reasons for selecting different types of planners and found that self-planned learning was the most popular mode because it allowed for highly individualized subject matter. The learner wanted to gain specific knowledge or skills rather than a general
overview of a topic. The most common reason for choosing a group or private instruction was the capability of the instructor. In McCatty's study of professional men in Canada, the percentage of projects using each type of planner varied between content areas. A group planned learning project was common for religious efforts (47 percent of all religion related projects) and academic learning; one-to-one planned projects were common to personal development interests (29 percent of all personal development topics); and self-planned learning was most frequently utilized for current events (96 percent) and vocational learning (79 percent). Findings from other studies are consistent with McCatty's and indicate that the content of learning projects affects the choice of planner (Blackburn, 1967; Johnstone and Rivera, 1965; Baghi, 1979).

Penland (1978) examined the reasons people choose to learn on their own instead of taking a course. The top four responses in rank order directly relate to characteristics common in self-planned learning projects: 1) desire to set learning pace, 2) desire to select style of learning, 3) desire for flexibility in learning, and 4) desire to determine structure for the learning project.

Peters and Gordon (1974), in their study of rural and urban Tennessee adults, discovered that level of education had a significant relationship with the type of planner selected. Adults with the lowest level of formal educational attainment had the highest percentage of self-planned learning projects.

Several studies of adult learning efforts have found that self-planned, versus group learning or private instruction, is not a
lonely or isolated activity. There may be more interaction with people about the content and process in self-planned learning than there is in traditional courses. In self-planned learning efforts the individual decides what and how to learn, but simultaneously receives plenty of help, encouragement, advice, and information from other persons. Tough (1967) reported that the adult receives help from an average of ten individuals during each self-planned project. Every interviewee in that study used at least four helpers. Individuals who assisted the learners were largely acquaintances, friends, and family members. In a replication of Tough's study in the United Kingdom, Strong (1977) found that learners utilized seven persons in their self-planned activities. Building on previous studies, Luikart (1975) focused on assistance provided by persons who helped with self-planned learning projects. Almost two-thirds of the helpers provided sustained aid, giving information assistance three times or more. The amount, source, and type of help that the learners received was significantly associated with differences in the size, density, and composition of their personal social networks.

Tasks and assistance during self-planned learning projects were the foci of a study with forty Alabama adults conducted by Robinson (1983). Her study found that the mean number of persons who provided assistance to the learner in a self-planned project is 9.5, which verified results of Tough (1967), Strong (1977), and Luikart (1975). The forty subjects recruited help from a total of ninety-four intimates (friends, neighbors, or relatives) and eighty-nine business-relationship experts. Only 17 percent of the helpers were subject matter experts approached on a
personal basis, and 14 percent because they were fellow learners. "Many self-planners relied on intimates when their concern was money but turned to a business-relationship expert when considering resources" (Robinson, 1983, p. 1).

Approximately one-half of the adults interviewed by Peters and Gordon (1974) indicated that they needed help at some point in their learning projects. Such help usually required the knowledgeable assistance of an instructor or a technical expert, although adults also needed assistance in locating materials and information, arranging activities, and in evaluating their progress. The higher the level of education, the more likely adults were to ask for help.

Two additional recent studies examined the resources used by individuals engaged in learning activities and change endeavors. Penland (1979) found that while nearly 80 percent of the learning projects undertaken by a large United States national sample were self-planned, 60 percent of those interviewed indicated they never made use of the library as a learning resource. In an investigation of the broader issue of intentional change, Tough (1982) reported that books and other nonhuman resources contributed only three percent to the planning and implementation of major personal change. Findings from these two studies support the notion that books, viewed as traditional learning resources, are not used extensively by adults who conduct self-planned learning efforts. What types of resources do learners utilize?

A composite picture of the types of resources used by adults who plan their own learning has developed from the findings in previously discussed studies. Learners turn to other people most frequently for
assistance in learning—first to friends, relatives, or neighbors and then to paid experts. The third most common resource is books and pamphlets (Coolican, 1974; Penland, 1978, 1979; Tough, 1982), and classes are a distant fourth. Only two studies were found that differed from this trend, Hiemstra's (1975) sample of older adults and Peters and Gordon's (1974) sample of rural and urban Tennessee adults.

Hiemstra (1976) found that intimates (friends, neighbors, or relatives) were fairly insignificant resources to the older adults. Books, newspapers, and pamphlets were all cited as major learning resources. Adults in Peters and Gordon's (1974) study identified their most commonly used resources as books, experts, and magazines.

Morris (1977) examined how adults who conduct self-planned projects carry out the planning function. Canadian clergymen who engaged in self-directed learning projects related to their professional development served as the sample. He found that the first planning step was usually to clarify a general problem or issue, followed by an awareness of the need to learn or a decision to initiate a learning project. Next, general long-term objectives were developed, followed by identifying and obtaining resources. The subsequent steps varied greatly among learners. According to Morris, the most common difficulties that learners encountered were:

1. in knowing how to start their learning projects (setting objectives);
2. in finding or making time to learn (setting objectives and scheduling); and
3. in knowing whether or not they were progressing or had accomplished what they had set out to do. (1977, p. 195)

Adults have indicated need for assistance by utilizing a variety of resources to increase their competencies for self-directed

In conclusion, the majority of adult learning efforts are self-planned. Adults who engage in self-planned projects use a variety of learning resources, relying most frequently on friends, relatives, or neighbors, followed by paid experts, books and pamphlets, and classes.

It should not be assumed that self-planned learning is superior to learning planned by another individual, group, or nonhuman resource. For example, self-planned learning is seldom the most efficient type of learning and may result in the learner spending extra time, energy, and money pursuing diverse avenues of inquiry. Tough admitted that the process the learner plans "is often a zig-zag path which seems helter-skelter" (1967, p. 60).

A self-planned project is one in which the learner assumes major responsibility for the day-to-day decisions regarding the subject matter and methods of learning. Several studies have found that the content affects the type of planner selected for learning projects. These findings point to the need to investigate other related issues such as: Does the content also affect the learning methods employed by adults? What methods are most frequently used?
Methods of learning

Practice, reading, and discussion, in that order, are the three most common methods used in learning projects (Coolican, 1974, 1975). Listening, observation and instructors are also used but not as frequently. In a summary of the methods which typify self-planned learning activities, Cross cautions that:

The message should not be lost that the most frequently used methods in self-directed learning are all active, involving the learner directly; the least commonly used techniques are passive—watching or listening to someone else do something. (1981, p. 197)

Penland (1978) asked adults how they would prefer to learn. Approximately 45 percent of the respondents indicated that observing and reading were the best methods for them. Talking with someone else and asking questions, hearing or listening, and practice or trial and error were all three methods which received a middle ranking on a preference scale. Making notes and solving puzzles or playing games appealed to fewer than 3 percent of the respondents.

In a critical review of Penland's study, Cross notes that:

Interestingly, the most active modes of learning—asking questions, practicing, making notes, and solving puzzles—were rated lower when Penland asked people about preferences than when other researchers asked about actual behavior in ongoing learning projects. Whether this reflects differences in the research samples or differences between what people say and what they do awaits further investigation. I strongly suspect that what people say about learning presents the more stereotypical picture of school learning, whereas what they do may be quite different. (1981, p. 197)

Cross poses one other important consideration related to learning methods: "How people learn (method) is intricately related to what (subject matter)" (1981, p. 200). However, little analysis of the
relationship between content and methods for adult learning projects has been done to substantiate Cross' conjecture. The literature discussed thus far has alluded to the interrelationship among some components of adult learning projects such as content, type of planner, and learning methods. How do these components affect the satisfaction adults experience in learning? Are adults satisfied with their self-planned learning projects?

Satisfaction experienced

In general, people appear to be well-satisfied with their self-planned learning efforts. Sixty-five percent of the participants in Penland's national study indicated that they were "very enthusiastic" about having the knowledge or skill gained as a result of their projects. Six percent admitted that they were not very enthusiastic about their learning. When asked how much knowledge, skill, or understanding they gained as a result of their learning projects, 57 percent indicated they had learned a great deal, while 10 percent felt they gained little knowledge, skill, or understanding (Penland, 1978, p. 34).
Table 1. Satisfaction of learning projects by type of planner
(Abbreviated from Tough, 1971, p. 90)

<table>
<thead>
<tr>
<th></th>
<th>Self</th>
<th>Group</th>
<th>One-to-One</th>
<th>Non-Human</th>
<th>Mixed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of knowledge/skill gained</td>
<td>7.0</td>
<td>5.4</td>
<td>7.0</td>
<td>7.5</td>
<td>6.9</td>
</tr>
<tr>
<td>Enthusiasm about new learning</td>
<td>7.2</td>
<td>6.0</td>
<td>7.4</td>
<td>5.9</td>
<td>7.3</td>
</tr>
<tr>
<td>Number of hours per project</td>
<td>119</td>
<td>47</td>
<td>63</td>
<td>33</td>
<td>141</td>
</tr>
</tbody>
</table>

The ratings in Table 1 were obtained by asking people to rate each of their learning projects on a scale of 1 to 10, with 10 indicating maximum satisfaction. Mean satisfaction indices for individuals were then averaged to arrive at the ratings shown in Table 1. Cross (1981) questioned how much credence should be given to the figures, due to the limited sample of sixty-six persons and the lack of information regarding statistical significance. However, if the data are confirmed in future studies, considerable implications could result.

The use of nonhuman planners (such as programmed instruction, audio and video cassettes, and television) appears very efficient in generating the highest amount of information learned in the fewest hours. However, the low enthusiasm rating for projects directed by a nonhuman resource may explain the short duration for these type of projects.

One-to-one planned learning in Tough's data represents the type of project that is planned by an individual other than the learner and
results in a one-to-one learning experience. This appears to be the most satisfactory of all because it offers expertise, personalization, and is rated quite adequately with respect to both amount and enthusiasm for what was learned.

Group learning, in which planning decisions are determined by the group, appears to be the least satisfactory. Learners feel that they gain a relatively low amount of knowledge or skill, and they are not especially enthusiastic about what they have learned. Perhaps that explains why so few learning projects involve group planning.

Findings from Tough (1971) and Penland (1978) indicate that adults experience satisfaction with their self-planned learning projects. Tough's findings also document that adults spend the greatest amount of time on projects that are self-planned and those using mixed planners. This could result from one or both of the following reasons: 1) learning projects planned and conducted in either of these ways are inefficient—that is, people invest a great deal of time in amateurish efforts to locate information; and/or 2) people find the projects basically satisfying, indicated by the high enthusiasm ratings.

What are the implications of these findings based on the examination of adults' satisfaction of learning projects with respect to type of planner? Cross (1981) outlines two implications: 1) Given that nonhuman resources provide maximum learning in minimal time, further study is needed to focus on what can be done to help learners feel positive about the skills and knowledge learned. Additional information is needed about the congruence between goals of the learning projects and the specific resources used; and 2) More learning exchange networks need
to be developed to meet the needs of one-to-one learning.

Future research is needed to: 1) explore satisfaction experienced as a function of other aspects of learning projects such as content, methods of learning, and the credit nature of projects; 2) examine the effect of variables on satisfaction such as complexity of subject matter, availability of resources, etc.; 3) develop valid measures of satisfaction experienced by learners; and 4) identify how satisfaction experienced in self-planned learning can be increased.

Status of learning projects

Tough discovered that: "about two-thirds of all learning projects were still current and active at the time of the interview; only one-third of the projects were completed or dormant" (Tough, 1971, p. 19). Many projects last much longer than twelve months (Tough, 1967). Therefore, Tough (1971) speculated that completed learning projects are generally much longer than the average number of hours reported for learning projects in most studies.

Few studies have analyzed the status of learning projects. Future research efforts are needed to investigate questions such as: What factors have the greatest effect on the completion rate of self-planned learning projects?

Summary

Numerous studies using Tough's interview methodology have examined the activities of self-directed learners in a variety of adult populations. Inconsistencies in the nature of the samples, interview methodologies, learning project criterion, and coding of data may account
for differences detected within studies, as well as across studies. The following broad conclusions regarding adult learning activities have been developed based on a synthesis of findings from learning project literature:

1. Almost all adults—regardless of age, gender, level of formal education, marital status, occupation, socio-economic status, race, or place of residence—are involved in learning activities. About 90 percent of all adults conduct at least one learning project per year. The typical learner engages in five distinct learning projects per year and spends an average of 100 hours per learning project, a total of 500 hours per year (Tough, 1979).

2. Some patterns regarding the content of learning projects can be detected based on demographic characteristics of the samples. Job related topics are the most common for adults in professional occupations as well as those who are seeking employment. Learning projects of a self-fulfillment or family nature are the most popular with older adults, learners who have a low level of formal education, and mothers of preschool age children.

3. Adults often have multiple reasons for learning. The single most common reason for adult learning is some anticipated use of knowledge or skill, followed by curiosity. Credit or certification has a minor effect in motivating adults to engage in learning projects.

4. The majority of adult learning projects is self-planned. The content of a learning project affects who or what assumes the planning responsibility for the day-to-day learning decisions.

5. Adults who engage in self-planned projects use a variety of
learning resources. In general, adult learners rely most frequently on friends, relatives, or neighbors followed by paid experts, books and pamphlets, and classes.

6. The most frequently used learning methods for self-planned projects (practice, reading, and discussion) are all active, involving the learner directly.

7. Adult learners experience the greatest sense of satisfaction from projects that are self-planned and those in which their learning is guided by another individual in a one-to-one learning situation.

8. Level of formal education is the only demographic characteristic that has been found to be directly related to extent of learning activities across studies, involving adults from a variety of populations. Educational level correlates with the number of projects conducted as well as the type of planner and assistance utilized by the learner. Adults with a higher level of education report a greater number of learning projects (Hiemstra, 1975; Hassan, 1981; Leean and Sisco, 1981; Peters and Gordon, 1974; Penland, 1978), conduct a lower percentage of self-planned projects (Peters and Gordon, 1974), and are more likely to ask for assistance than their counterparts with less formal education (Peters and Gordon, 1974).

Few questions remain unanswered concerning the extent, frequency, planning and content of self-directed learning projects. Further replications are likely to add little to the base of information at hand. (Mocker and Spear, 1982, p. 15)

New areas of interests are emerging that focus on personal skills, abilities, and attitudes necessary for self-direction in learning.
Personal Factors that Facilitate Self-Directed Learning

Educational theorists have stressed the importance of learning how to learn (Smith and Haverkamp, 1977). Lippitt (1979) identified learner readiness as a vital prerequisite for effective learning. Readiness has been well documented in the literature, but researchers have typically used the term to denote the mental and physiological maturity of children (Bruner, 1960; Blair and Jones, 1960). In this study, readiness refers to the state of preparedness, indicating the adult learner's potential to assume responsibility for their own learning. Lippitt refers to the readiness of an adult learner as:

... a product of prior experience, life stage, expectancies, and an existential state of the learner at the time of learning. (1979, p. 10)

Focusing on readiness, Guglielmino asserts that:

... if the encouragement of self-directed learning is an important goal ... and the literature indicates that it is, we must learn more about the highly self-directed learner. (1977, p. 3)

As a result, Guglielmino (1977) developed and revised the Self-Directed Learning Readiness Scale (SDLRS) to measure an individual's potential in assuming responsibility for their own learning.

Self-Directed Learning Readiness Scale

The SDLRS is a self-report instrument developed from a three-round Delphi survey of fourteen authorities on self-direction in learning. Factor analysis of the revised instrument indicates that the following eight factors contribute to an adult's readiness for self-directed learning: 1) love of learning; 2) self-concept as an effective,
independent learner; 3) tolerance of risk, ambiguity, and complexity in learning; 4) creativity; 5) view of learning as a lifelong, beneficial process; 6) initiative in learning; 7) self-understanding; and 8) acceptance of responsibility for one's own learning.

Guglielmino (1977) described learners with a high level of readiness for self-directed learning as those who: exhibit initiative, independence, and persistence in learning; are capable of accepting responsibility for their own learning; view problems as challenges rather than obstacles; possess self-discipline and a high degree of curiosity; have a strong desire to learn or change; are self-confident; can organize their time, set an appropriate pace for learning and develop a plan for completing work; derive pleasure from learning; and tend to be goal oriented.

As a result of her 1977 study, Guglielmino concluded that:

Self-direction in learning exists along a continuum; it is present in each person to some degree . . . . It is the personal characteristics of the learner—including his attitudes, his values, and his abilities—which ultimately determine whether self-directed learning will take place in a given learning situation. (1977, p. 34)

The development of the Self-Directed Learning Readiness Scale has sparked a number of studies during recent years which focus on personal factors that facilitate self-directed learning.

Related SDLRS studies

Sabbaghian (1979) examined the relationship of an individual's self-image and his or her readiness for self-directed learning. Seventy-seven adult undergraduate students enrolled in Iowa State University were selected for the stratified random sample. Each subject
completed the SDLRS and the Tennessee Self-Concept Scale. Findings of the study indicate a significant, positive relationship between adults' readiness for self-directed learning and their self-concepts. Adult students with a high level of readiness had more self-esteem and self-acceptance than adults with low levels of readiness for self-directed learning. The SDLRS means differed among levels of education, gender, and age. Higher levels of readiness were found among seniors as compared to freshmen, females versus males, and among older students in the second and fourth years of college.

Savoie (1979) and Box (1982) found a significant, positive relationship between readiness and success (grades) in programs requiring a degree of self-direction (nursing education courses).

Wiley (1981) examined the effects of preference for structure and a process oriented self-planned learning project on readiness of baccalaureate nursing students. An experimental design was utilized in which half of the sample was involved in a self-planned learning project. Faculty of the control group and faculty of the experimental group were similar in their preference for structure and in their own self-directed learning readiness. All students were pretested on their preference for structure, measured by Ginther's Reactions to Statements instrument, and their readiness, measured by the SDLRS. Students in the experimental and control groups were similar in their preference for structure, readiness level, and demographic characteristics. All students were posttested after the experimental group had completed their self-planned learning projects. Data were analyzed by multiple regression analysis of covariance with pretest SDLRS scores as the covariate.
Wiley found that: 1) a self-directed learning experience did not contribute significantly to variance in posttest SDLRS scores; 2) preference for structure did not contribute significantly to variance in posttest SDLRS scores; however, 3) the interaction between experiencing a self-directed learning project and preference for structure did contribute significantly to the variance in posttest readiness scores. Subjects who had experienced a self-directed learning project and preferred low structure had a higher readiness level than those who were in the control group. However, subjects who had experienced a self-directed learning project and preferred high structure had a lower level of readiness than those who were not involved in a self-directed learning experience. Findings of this study point to the need for further research which examines the effect of involvement in self-directed learning projects on an individual's readiness level.

Hassan (1981) used the SDLRS and the learning projects interview schedule to study the relationship between readiness and selected aspects of adult learning projects. A random sample of seventy-seven adults were selected from the population of Ames, Iowa. Hassan found a significant, positive relationship between the number of learning projects conducted in a year and readiness for self-directed learning. Level of formal education was the only demographic variable related to readiness. The following two findings related to level of education were reported: 1) A significant difference exists between high school graduates and those who have higher levels of education in terms of their readiness for self-directed learning; and 2) A significant, predictive statistical relationship exists between the number of learning projects and the
variables of readiness and educational level. However, Hassan cautions that:

An $R^2$ value of .15 was obtained when level of education was added to the equation. This $R^2$ value is low. Therefore, practically, we cannot use level of education to predict an adult's readiness for self-directed learning even though a significant statistical relationship did exist. (1981, p. 146)

Skaggs (1981) focused on the relationships between readiness, loci of control, and involvement of registered nurses in job related self-directed learning activities. Levenson's Internal, Powerful Other and Chance Scales were utilized to determine locus of control. Skaggs discovered a significant, positive relationship between readiness and:

1) the total number of hours devoted to adult learning projects, and
2) internal locus of control. An indirect relationship was found between readiness and an external (chance) locus of control. Future educational plans and level of education had a significant, positive relationship with the hours of involvement in learning projects.

Self-directed learning readiness characteristics exist within older adults (Brockett, 1982; Curry, 1983). Adults age 60 and older excelled on SDLRS scores when compared to 800 adults (age 20-40) of another population representing fields of education, business, and health (Curry, 1983). Curry's sample was composed of older adults who were actively engaged in learning, including volunteer subjects from elderhostel college and university programs, and community learning centers. In general, these older adults who were actively involved in learning possessed a higher level of readiness than individuals in Brockett's (1982) sample.
As a part of a study on life satisfaction and self-directedness in older adults, Brockett (1982) administered the SDLRS and the Salamon-Conte Life Satisfaction in the Elderly Scale to a sample of individuals age 60 and older with a mean of 10.5 years of formal education. A significant, positive relationship was found between life satisfaction and self-directed learning readiness. In general, the data suggest that the link between self-direction and life satisfaction may be associated with previous formal education, self-concept, and perceived health.

Leeb (1983) compared readiness (SDLRS) and the Perry Theory of Ethical and Cognitive Stage Development. No relationship was found between an individual's cognitive and ethical development and their overall self-directed learning readiness. However, one SDLRS factor, self-concept as an effective, independent learner, correlated significantly with cognitive stage development. Leeb's study was primarily descriptive in nature with limited sample size and variance. Further research is needed to explore the relationship between cognitive development and self-directed learning.

Kasworm (1982) studied thirty-six graduate students enrolled in two courses designed to examine the development of cognitive and affective competencies in self-directed learning. Participants were given pre and posttests with the Self-Directed Learning Readiness Scale (Guglielmino, 1977) to assess growth in readiness for self-direction in learning. Observational diaries kept by two students and the facilitator in each class, in addition to a final self-evaluation by all learners, gathered perceptual information on both the process and outcomes. The facilitator
observed that students who experienced the most difficulty with the self-directed learning approach used in the class appeared to lack self-confidence, had difficulty with risk-taking, and lacked a sense of curiosity about potential learning goals. Although a few students experienced negative gain scores on the SDLRS, Kasworm argued that in general, the evidence demonstrates that changes of attitude and action in learning how to learn did occur. Further research, including control and validation measures, is needed to investigate the impact of cognitive development and aspects of learning style on readiness for self-direction in learning.

Focusing on personal factors that facilitate self-directed learning will provide information for future research pertaining to increasing an individual's ability in self-directed learning.

**Summary**

The development of the Self-Directed Learning Readiness Scale (Guglielmino, 1977) launched numerous studies which have focused on assessment of personal factors relating to an individual's potential to assume responsibility for their own learning. The following summary identifies general findings pertaining to personal factors which facilitate self-directed learning:

1. Eight factors reportedly relate to an adult's readiness for self-directed learning (love of learning; self-concept as an effective, independent learner; tolerance of risk, ambiguity, and complexity in learning; creativity; view of learning as a lifelong, beneficial process; initiative in learning; self-understanding; acceptance of responsibility
for one's own learning).

2. The higher a person's level of readiness for self-direction in learning, the higher his or her self-concept is likely to be. Sabbaghian's (1979) finding of a positive, significant relationship between readiness and self-concept supports the consideration of self-concept as one of the personal factors that reportedly relates to readiness for self-directed learning.

3. The higher an individual's internal locus of control is, the higher the readiness level (Skaggs, 1981). This means that as individuals accept more responsibility for controlling the decisions of their life, readiness for self-direction in learning increases. Locus of control appears to affect at least two of the readiness factors: 1) initiative in learning, and 2) acceptance of responsibility for one's own learning.

4. Level of formal education is the only demographic variable that has been consistently identified to have a significant statistical relationship with personal factors which facilitate self-directed learning (Sabbaghian, 1979; Hassan, 1981; Brockett, 1982). Adults who have a higher level of formal education have a higher level of readiness than their counterparts with less schooling.

In conclusion, studies focusing on personal factors that facilitate self-directed learning have been limited to assessment of Guglielmino's (1977) eight readiness factors and the relationship between readiness and other variables such as number of learning projects, number of hours spent in learning projects, demographic data, success in programs requiring a degree of self-direction, preference for structure, locus of
control, and degree of life satisfaction. Two findings that describe the relationship between readiness and the quantitative aspects of adult learning projects can be found in the literature:

1. Adults with a high level of readiness for self-directed learning conduct a greater number of adult learning projects per year than adults with a lower level of readiness (Hassan, 1981).

2. Individuals with a high level of readiness are more likely to be involved in learning projects for a greater number of hours than adults with a lower level of readiness (Sabbaghian, 1979).

Studies to date have addressed only a few selected aspects of adult learning projects. No comprehensive research effort has attempted to examine relationships between readiness for self-directed learning and each of the components of adult learning projects to verify if the Self-Directed Learning Readiness Scale is an indicator of actual involvement in self-directed learning. Several of the questions that remain unanswered will be the focus of this study: Are all eight personal factors that comprise readiness necessary for involvement in self-directed learning? Which factor(s) associated with readiness is(are) the best predictor(s) of high involvement in self-directed learning?
The review of literature suggests that almost all adults are involved in learning projects and the majority of learning projects is self-planned. Eight personal factors are reportedly related to readiness for self-directed learning. The level of readiness varies with the extent of involvement in learning activities. Learners with a high readiness level conduct a greater number of learning projects and spend more hours learning than adults with a low readiness level. However, several questions related to readiness and involvement in self-directed learning remain unanswered:

1. Are there predictive relationships between readiness and the extent to which adults are involved in self-directed learning (i.e., number of self-planned projects, total number of hours spent in self-planned learning)?

2. Are all eight personal factors that comprise readiness necessary for involvement in self-directed learning? Which readiness factor(s) is(are) the best predictor(s) of high involvement in self-directed learning?

These questions have guided the development of this study, which examines the personal factors that contribute to an individual's self-direction in learning. This chapter describes the hypotheses,
design, population and sample, instrumentation, data collection, data coding, and data analysis procedures utilized in this research.

Hypotheses

Hypotheses related to research question 1

Are there predictive relationships between readiness and the extent to which adults are involved in self-directed learning? Two studies have examined the relationship between readiness and involvement in adult learning projects. Hassan (1981) found a significant, positive relationship between readiness and the number of learning projects conducted in a year. Skaggs (1981) found a significant, positive relationship between readiness and the total number of hours devoted to learning projects in a year. Data analysis in both of these studies included learning projects in which all types of planners were utilized. Thus, the findings describe the relationship between readiness and all types of adult learning projects, ranging from formal to self-directed learning experiences.

The Self-Directed Learning Readiness Scale was developed to assess readiness for participation in self-directed learning. No research efforts have investigated whether a predictive relationship exists between readiness and involvement in self-planned learning projects. Therefore, the following hypotheses were developed to identify whether the SDLRS is an indicator of involvement in self-directed learning:
There is a significant ($p < .05$) positive, predictive relationship between readiness and the number of self-planned learning projects.

$H_1$ There is a significant ($p < .05$) positive, predictive relationship between readiness and the total number of hours spent on self-planned learning projects.

Hypotheses related to research question 2

No previous studies identified which factor(s) associated with readiness is(are) the best predictor(s) of high involvement in self-directed learning. However, a review of literature indicates that a relationship exists between self-concept and learning (Tough, 1963; Sabbaghian, 1979).

The individual must have a positive view about him/herself as a learner in order to be able to deal successfully with tasks and problems. Without a positive self-concept, individuals may not be willing to try to learn, or to assume responsibility for planning and decision-making related to their learning. Knowles (1978) points out that as a person grows, their self-concept moves from dependence to independence. Tough (1968) found that the learner's desire to undertake a higher level of learning was closely related to self-concept. Sabbaghian (1979) found a significant, positive relationship between the self-image of adult students and their readiness for self-directed learning. Therefore, the following hypotheses were developed to identify which readiness factor(s) is(are) the best predictor(s) of high involvement in self-directed learning:
After self-concept is accounted for, none of the other seven readiness factors will have a significant (p < .01), predictive relationship to the number of self-planned learning projects.

After self-concept is accounted for, none of the other seven readiness factors will have a significant (p < .01), predictive relationship to the total number of hours spent on self-planned learning projects.

Design

This research effort is primarily a prediction study which examines the relationship between readiness for, and involvement in self-directed learning. The basic design is a survey that involves collecting varied data from the same group of subjects.

Population and Sample

The population for this study included all professional staff employed by the Iowa Cooperative Extension Service with a .5 or greater full-time equivalent Extension appointment. A total of 441 persons comprised the population encompassing administrators, administrative support staff, and Extension educators in the disciplines of agriculture and natural resources, home economics, 4-H youth development, and community resource development.

The population of Iowa Cooperative Extension Service professional employees was selected for the following reasons: 1) homogeneous level of formal education, 2) lack of any previous study assessing readiness for and involvement in self-directed learning with Extension professionals, 3) potential staff development implications for the Iowa
Cooperative Extension Service, and 4) accessibility of subjects to the researcher. Level of formal education is the only demographic variable that has been consistently found to be related to the number of adult learning projects conducted (Hiemstra, 1975; Hassan, 1981; Leean and Sisco, 1981; Peters and Gordon, 1974; Penland, 1978), as well as readiness level for self-directed learning (Sabbaghian, 1979; Hassan, 1981; Brockett, 1982). Hiemstra (1975) found a significant difference between the number of learning projects undertaken by those who had at least an undergraduate degree and those who were not college graduates. All persons in the population of the current study are college graduates, which serves to control for this demographic variable.

A computer printout of professional staff with at least a half-time Extension appointment was obtained from the personnel office of the Iowa Cooperative Extension Service. Information such as gender, percent of Extension appointment, program area, and level of position was also provided for each individual in the population. Demographic data regarding highest level of formal education and tenure with the Iowa Cooperative Extension required manual checking. Therefore, data for these two demographic variables were provided for only the sample subjects.

Sample selection

A final sample size of forty or more subjects was desired so that the study would be inferential, rather than limited to being descriptive in nature. Seventy subjects were randomly selected from the population to ensure a minimum return of forty. All individuals on the population
list provided by the personnel office were assigned numbers. A table of random numbers was utilized to identify the subjects for the sample.

The return rate was very high, approximately 93 percent of the original sample. Only five persons did not participate in the study. One subject resigned from Extension prior to administration of the first instrument. The other four individuals did not return the first instrument which was administered by mail. Since the return rate far exceeded the minimum sample size of forty, the researcher did not follow up with these five subjects or attempt to replace them in the sample. The final number of respondents in the sample was sixty-five, representing approximately 15 percent of the population.

Characteristics of sample

Table 2 displays a variety of demographic data describing the sample and the population. Approximately 68 percent of the respondents were male. Almost 32 percent were female. Over 92 percent of the sample had a full-time appointment with the Cooperative Extension Service. Nearly 8 percent were employed part-time, ranging from .5 to .8 full-time equivalent appointment. The majority of the sample worked in the agriculture and natural resources program area (nearly 54 percent), followed by home economics (approximately 19 percent), 4-H youth programs (almost 15 percent), and community resource development (about 2 percent). Nearly 11 percent of the sample were employed in administrative positions or support functions such as training, personnel, business services, other special services, or information service. County-based staff represented over 55 percent of the sample,
followed by 23 percent state level staff, and almost 22 percent area positions.

All sample subjects were college graduates. Information provided by the Extension personnel office reported the highest degree attained by the individuals in the sample. The highest degree held by almost 57 percent of those interviewed was a master's degree. Nearly 30 percent of the sample had only a bachelor's degree. And approximately 14 percent had completed a doctorate degree.

Tenure with the Iowa Cooperative Extension Service ranged from one month to over 30 years. Tenure data were grouped into five categories. The largest tenure group (26 percent) was comprised of subjects who had been employed from eleven through twenty years, followed closely by the two through five year group (23 percent), those with twenty-one or more years (20 percent), and staff with six through ten years of service (nearly 19 percent). Individuals with tenure of less than two years represented only 12 percent of the sample.

The sample closely resembles the population with respect to gender, percent of appointment, program area, and level of position. The greatest difference (8 percent) between the composition of the sample and that of the population occurs in level of position. Thirty-one percent of the population is state level staff as compared to 23 percent in the sample.
Table 2. Demographic characteristics of the sample and population

| Demographic Variable | Sample data | | | Population data | | |
|----------------------|-------------|--------------------------|----------------|----------------|----------------|
|                      | Frequency   | Percent                 | Frequency       | Percent        | Frequency       | Percent        |
| Gender               |             |                         |                |                |                |                |
| Male                 | 44          | 67.7                    | 278            | 63.0           |                |                |
| Female               | 21          | 32.3                    | 163            | 37.0           |                |                |
| TOTAL                | 65          | 100.0                   | 441            | 100.0          |                |                |
| Appointment          |             |                         |                |                |                |                |
| Full-time            | 60          | 92.3                    | 408            | 92.5           |                |                |
| Part-time            | 5           | 7.7                     | 33             | 7.5            |                |                |
| TOTAL                | 65          | 100.0                   | 441            | 100.0          |                |                |
| Program area         |             |                         |                |                |                |                |
| Agriculture          | 35          | 53.8                    | 212            | 48.1           |                |                |
| Home economics       | 12          | 18.5                    | 103            | 23.3           |                |                |
| 4-H                  | 10          | 15.4                    | 65             | 14.7           |                |                |
| CRD®                 | 1           | 1.5                     | 18             | 4.0            |                |                |
| Admin & supportb     | 7           | 10.8                    | 43             | 9.8            |                |                |
| TOTAL                | 65          | 100.0                   | 441            | 99.9^           |                |                |
| Level of position    |             |                         |                |                |                |                |
| County               | 36          | 55.4                    | 216            | 49.0           |                |                |
| Area                 | 14          | 21.5                    | 88             | 20.0           |                |                |
| State                | 15          | 23.1                    | 137            | 31.0           |                |                |
| TOTAL                | 65          | 100.0                   | 441            | 100.0          |                |                |
| Level of education   |             |                         |                |                |                |                |
| BS or BA             | 19          | 29.2                    |                | Not available  |                |                |
| MS or MA             | 37          | 56.9                    |                |                |                |                |
| PhD                  | 9           | 13.8                    |                |                |                |                |
| TOTAL                | 65          | 99.9^                   |                |                |                |                |
| Tenure               |             |                         |                |                |                |                |
| Less than 2 years    | 8           | 12.3                    |                | Not available  |                |                |
| 2-5 years            | 15          | 23.1                    |                |                |                |                |
| 6-10 years           | 12          | 18.5                    |                |                |                |                |
| 11-20 years          | 17          | 26.2                    |                |                |                |                |
| 21 or more years     | 13          | 20.0                    |                |                |                |                |
| TOTAL                | 65          | 100.1^                  |                |                |                |                |

^CRD=Community resource development.

bAdmin & support=administration and other support services.

^Rounding error.
Instrumentation

Two instruments were used to collect data for this study:
1) Self-Directed Learning Readiness Scale (SDLRS) developed and revised by Lucy Guglielmino (1977), and 2) Adult Learning Projects Telephone Interview Schedule adapted from the Interview Schedule developed and revised by Allen Tough (1969, 1971).

Self-Directed Learning Readiness Scale

The SDLRS is a self-report questionnaire with Likert-type items that assess the degree to which an individual is ready to participate in self-directed learning (refer to Appendix A). The title of the instrument is not used during its administration in an effort to avoid response bias. The SDLRS is described to subjects as "a questionnaire designed to gather data on learning preferences and attitudes toward learning" (Guglielmino, 1977, p.41). The content of the instrument was developed through a three-round Delphi survey of fourteen authorities on self-directed learning. The survey involved identifying and rating characteristics considered by these authorities as important for self-direction in learning, including such things as skills, abilities, and attitudes.

The Delphi survey resulted in the creation of fifty-eight items. Subjects were asked to circle one of five options on a Likert-type scale for each statement. Response choices include: 1) "Almost never true of me; I hardly ever feel this way."; 2) "Not often true of me; I feel this way less than half of the time."; 3) "Sometimes true of me; I feel this way about half the time."; 4) "Usually true of me; I feel this way more
than half the time."; or 5) "Almost always true of me; there are very few times when I do not feel this way."

Reliability and validity

Guglielmino (1977) administered the instrument to 307 subjects in Georgia, Canada, and Virginia, and reported a reliability coefficient of .87. Following an item analysis, Guglielmino revised the original instrument. Factor analysis of the revised SDLRS indicated the presence of eight factors which relate to readiness for self-direction in learning (love of learning; self-concept as an effective, independent learner; tolerance of risk, ambiguity, and complexity in learning; creativity; a view of learning as a lifelong, beneficial process; initiative in learning; self-understanding; acceptance of responsibility for one's own learning).

Torrance and Mourad (1978) examined the construct validity of the Self-Directed Learning Readiness Scale with eleven criterion measures dealing with originality, ability to produce analogies, creative achievements and experiences, and right and left hemisphere styles of learning. Table 3 reports the Pearson product moment correlation coefficients that were computed between the total SDLRS score and each of the eleven measures. Torrance and Mourad found that:

... all three of the measures of originality correlate with scores on Self-Directed Learning Readiness at rather high levels of significance, so do both of the personality measures. The relationship between the autobiographical measure (SAM) of .71 is especially encouraging insofar as construct validity is concerned, suggesting that creative experiences and achievements are associated with self-directed readiness for learning. The ability to produce analogies in describing photographs is also correlated with scores on the learning readiness scale (p < .001).
The significant positive relationship (.43) between test scores and the right hemisphere style of learning . . . suggest that the specialized cerebral functions of the right hemisphere are important in the development of readiness for self-directed learning. Associated with the right hemisphere style of learning are preferences for subjectively processing information, dealing simultaneously with several problems at the same time, grasping new and uncertain truths, intuitive problem solving, playfulness in solving problems, using metaphors and analogies, and improvising. (Torrance and Mourad, 1978, p.1170)

Table 3. Product moment correlations between the Self-Directed Learning Readiness Scale scores and selected creativity and style of learning and thinking measures (Torrance and Mourad, 1978, p.1170)

<table>
<thead>
<tr>
<th>Measures</th>
<th>r</th>
<th>p</th>
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<tbody>
<tr>
<td>Originality (Sound and Images)</td>
<td>.52</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Fluency (Thinking Creatively about the Future)</td>
<td>.29</td>
<td>&lt;.06</td>
</tr>
<tr>
<td>Originality (Thinking Creatively about the Future)</td>
<td>.38</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Similes Originality (Schaefer)</td>
<td>.52</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Photoanalogies (Templeton)</td>
<td>.48</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Possible Jobs (Gershon and Guilford)</td>
<td>.29</td>
<td>&lt;.06</td>
</tr>
<tr>
<td>Creative Personality (What Kind of Person Are You?)</td>
<td>.38</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Creative Achievements (Something About Myself)</td>
<td>.71</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Right Hemisphere Specialization (Style of Learning and Thinking)</td>
<td>.43</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Left Hemisphere Specialization (Style of Learning and Thinking)</td>
<td>- .34</td>
<td>&lt;.03</td>
</tr>
<tr>
<td>Integrated Style of Learning and Thinking</td>
<td>- .05</td>
<td></td>
</tr>
</tbody>
</table>
Torrance and Mourad concluded that their findings support the construct validity of the Self-Directed Learning Readiness Scale.

Sabbaghian's (1979) findings support the internal validity of the SDLRS and one measure of construct validity. A highly significant relationship was found to exist between the total readiness score and all factors except one, acceptance of responsibility for one's own learning. A highly significant correlation of .43 was obtained between the Tennessee Self-Concept instrument and the self-concept factor score of the Self-Directed Learning Readiness Scale.

Hassan (1981), Brockett (1982), and Leeb (1983) also examined the SDLRS for internal validity by correlating the total score with the eight factor scores. Correlation coefficients for all eight factors were significant (p < .05).

Long and Agyekum (1983) used a multitrait-multimethod procedure for investigating the validity of the SDLRS. Correlations were computed between total SDLRS scores and three other measures: Rokeach's Dogmatism Scale, Agreement Response Scale, and faculty ratings of college students' self-direction in learning. Long and Agyekum concluded that their findings support the validity of the SDLRS despite the absence of a relationship between faculty ratings and SDLRS scores. Significant differences were found in the faculty ratings according to racial composition and SDLRS scores. Black students had higher SDLRS scores, but received lower faculty ratings on self-direction in learning than whites. Significant positive relationships were found to exist between SDLRS scores and variables such as age, educational level and the ARS (Agreement Response Scale).
Assuming that the SDLRS does measure self-direction in learning, it is easy to suggest that older students have learned to be more self-directed in their college work, or conversely, more self-directed students continue to take college course work. These observations are strengthened by the association of faculty ratings on self-direction with both age and educational achievement level. It would appear that this finding . . . is consistent with the theoretical base of the SDLRS and supports assumption of validity. (Long and Agyekum, 1983, p. 86)

Although the validity of the SDLRS has been supported by Torrance and Mourad (1978), Sabbaghian (1979), Hassan (1981), Brockett (1982), Leeb (1983), and Long and Agyekum (1983), its appropriateness as a measure of self-directedness for older adults has been questioned. As a part of a study on life satisfaction and self-directedness in older adults, Brockett (1982) administered the SDLRS to a sample of individuals age sixty and older who had completed a mean of approximately 10.5 years of formal education. A statistical analysis of responses to the instrument led Brockett to conclude that:

... the SDLRS defines self-directed learning from a highly school—and book—oriented perspective, which could be inappropriate when studying a sample of adults who have had relatively few years of schooling. (Brockett, 1983, p. 17)

Therefore, the SDLRS may not be a valid measure of readiness for self-directed learning among older adults who have a low level of formal education.

Adult Learning Projects
Telephone Interview Schedule

The Adult Learning Projects Telephone Interview Schedule utilized in this study is an adaptation of the Interview Schedule developed and revised by Tough (1969, 1971). The structured interview schedule employs a probing technique to collect information about the respondent's major
learning efforts during the year prior to the interview.

The schedule familiarizes the interviewee with the concept of a learning project and attempts to dispel the notion of learning as only that which takes place in a formal school setting.

When I say "learn" I don't just mean learning the types of things that people learn in formal classes. I mean any sort of deliberate attempt to learn something, or to learn how to do something. Perhaps you tried to get some information or knowledge—or to improve skills or gain new ones—or to increase your understanding about something. (Excerpt from Adult Learning Projects Telephone Interview Schedule. Refer to Appendix B.)

The first task of the interview was to create a complete list of learning projects the individual engaged in during the twelve month period prior to the interview. This list provided data regarding the number and content of learning projects conducted. The researcher used three or more probes to help the subject remember his or her learning activities. One type of probe included asking the respondent to review a written list of topics that people learn (refer to Sheet No. 1, Appendix B) and a list of different ways that adults learn (refer to Sheet No. 2, Appendix B). These probe sheets were sent to each subject prior to the interview with instructions to keep this information handy by the phone for reference during the interview.

After the list of learning projects was compiled, each project was discussed in depth to gather the following data: estimated number of hours spent, type of planner, major method(s) of learning, current status of the project, credit nature of the project, and degree of satisfaction experienced.
Reliability and validity. Tough's learning project approach with a probing interview schedule has been utilized in numerous studies as a conceptual model and tool for facilitating the documentation of learning activities. The instrument can be assumed to be valid since it has been used with a variety of populations and a consistent picture has emerged which indicates the majority of adults are involved in learning activities. Findings regarding extent of involvement in learning projects, content, etc., have been consistent among studies with populations having similar demographic characteristics.

Several efforts were made to maximize reliability of the telephone interview schedule. The researcher reviewed the schedule developed by Allen Tough (1969, 1971) which clarified definitions to be used in learning project research and described proper use of probing strategies to help the interviewee recall learning activities. The interview schedules utilized by six researchers that replicated Tough's study were examined to identify similarities and differences in wording of questions, type of data collected, and the order in which the questions were asked. The researcher also consulted with Dr. Penny Ralston, who had conducted previous adult learning project research. The purpose of the consultation was to clarify interview procedures, identify the types of questions that were the most difficult for the subjects, and discuss the data recording process. The telephone interview schedule was pilot tested with three adults who were former members of the population. All questions were checked for clarity, ambiguity, and the interviewee's understanding of what was being asked. As a result of these efforts, several questions were revised and an example explaining whether or not
Data Collection

Three types of data were collected for each subject in the sample: 1) demographic data supplied by the Extension personnel office; 2) data from the Self-Directed Learning Readiness Scale, a written self-report instrument that assesses an individual's readiness for self-direction in learning; and 3) data from the Adult Learning Projects Telephone Interview Schedule, a structured interview script that utilizes a probing technique to help the subjects recall learning activities during the twelve month period prior to the interview.

A telephone interview methodology was employed to enable the researcher to collect data from a random sample of professional Cooperative Extension Service staff located throughout Iowa. Members of the population are familiar with communicating via the telephone since it is utilized in their daily work for individual consultation with clientele, participation in conference calls with colleagues, and teleconference in-service education.

Data collection from the subjects involved three phases: 1) an initial mailing, 2) an interview confirmation mailing, and 3) the telephone interview.
**Initial mailing.** The initial mailing sent to all seventy persons in the random sample included a personalized cover letter that was prepared on a word processor, Self-Directed Learning Readiness Scale described as a questionnaire, a calendar for scheduling interviews, and a stamped addressed return envelope. The cover letter (refer to Appendix C) explained the purpose of the research, indicated approval and support by the Director of the Cooperative Extension Service, and encouraged the subject's involvement in two ways: 1) to complete the enclosed questionnaire (SDLRS)—estimated to take 10-15 minutes, and 2) to participate in an individual telephone interview—approximately one hour in length. The letter also contained an assurance that responses to the questionnaire (SDLRS) and the interview would be kept confidential, and that cross reference between individuals and their responses would be destroyed following analysis of data. At the end of the letter, the subjects were thanked for their time and participation in the study.

A subject identification number was placed on the front of the questionnaire (SDLRS). A section near the top of the instrument was blocked out which requested name, sex, birthdate, date of testing, and location of testing. The calendar (refer to Appendix C) instructed the respondent to indicate available dates, time of day or evening, and the telephone number to call for the interview. The subjects were requested to return the questionnaire and calendar in the stamped, addressed envelope by a specified date. Sixty-five of the seventy individuals from the original random sample returned the SDLRS and calendar. These sixty-five persons comprised the final sample and received the interview confirmation mailing.
Interview confirmation mailing. As the respondents' questionnaires and calendars were received, the researcher scheduled interviews at seventy-five minute intervals on a master calendar. Approximately ten days prior to their scheduled telephone interview, each subject was sent a personalized letter (refer to Appendix C) confirming the day, date, and time he or she would be called. The letter explained the focus of the interview and indicated that no preparation was necessary prior to the interview. Enclosed with the letter was a bright yellow and a bright orange handout that the subject was requested to keep handy by the phone for reference during the interview.

The handouts (refer to Appendix B) were labeled on each side for ease of reference. Sheet No. 1, "Some Things People Learn," listed specific examples of subject matter topics related to each of the following categories: 1) professional competence, 2) personal, family, and home, 3) civic, and 4) self-fulfillment (i.e., arts, hobbies, recreation, religion). Sheet No. 2, "Some Ways that Adults Learn," enumerated a variety of methods and locations people utilize for learning. Both of these sheets were used as probes during the interview to assist subjects in recalling their learning activities.

Sheet No. 3, "Estimating Time Spent on Learning," served as a worksheet to help the interviewee estimate the total amount of time devoted to each learning project. This sheet identified three ways in which time is spent in learning: 1) deciding and planning, 2) traveling and arranging, and 3) actual learning—gaining certain knowledge, skill, or understanding. Sheet No. 4 defined the four types of planners used in learning projects: 1) self-planned, 2) another individual, 3) group, and
4) nonhuman planner. Seven major methods of learning were listed on the bottom of Sheet No. 4.

Telephone interview. Permission to use Iowa State University's WATS line for the interviews was granted by the researcher's department chair. All interviews were conducted by the researcher utilizing the Adult Learning Projects Telephone Interview Schedule and began with the following:

Hello. This is Karen Hall-Johnsen calling to interview you about your learning experiences. We'll be referring to the materials I sent you recently. Do you have them handy?—If not, go ahead and take time now to get them . . . . (Excerpt from Adult Learning Projects Telephone Interview Schedule. Refer to Appendix B).

Almost all individuals had the handouts near the phone. A few persons took several minutes to locate them, and two subjects were unable to find the handouts which necessitated the researcher rescheduling the interview. Before discussing learning projects, the subjects were thanked for "returning the questionnaire about learning" (SDLRS) and assured that their responses to the questionnaire and the interview would be kept confidential.

The interview proceeded with the creation of a list of the learning projects conducted during the twelve month period prior to the interview. The following data were collected for each learning project: estimated number of hours spent on the project, type of planner, major method(s) of learning, current status of the project, credit nature of the project, and degree of satisfaction experienced. The interviewee was then given the opportunity to add to the list of projects if he or she had recalled any other major learning efforts during the previous discussion. Upon
completion of the interview, the respondents were thanked for their participation in this research effort.

The length of the telephone interviews ranged from 27 to 90 minutes, with a mean length of 55 minutes.

Data Coding

Following the interviews, all data were reviewed and coded to be keypunched at the Iowa State University computer facilities.

Demographic data

The nominal data obtained from the demographic variables of gender, program area, level of position, and highest level of formal education were assigned numerical codes. Two continuous demographic variables, percent of full-time equivalent appointment and tenure with Iowa State University Cooperative Extension Service, were grouped and assigned numerical codes for data analysis purposes. Percent of appointment data were divided into two groups: 1) full-time, and 2) part-time. Part-time appointments ranged from .5 through .8 full-time equivalent.

Tenure ranged from one month to over thirty years, and was subsequently grouped and coded based on clusters in the distribution of the data representing staff with: 1) less than two years, 2) two through five years, 3) six through ten years, 4) eleven through twenty years, and 5) twenty-one or more years.

Self-Directed Learning Readiness Scale

No additional coding of data was necessary for the SDLRS. Response values for each of the fifty-eight items ranged from one through five on
a Likert-type scale. The data were keypunched directly from the instrument. Seventeen items on the SDLRS are reverse items. Response values to these items were reversed during data analysis procedures using the Statistical Package for Social Science (SPSS\textsuperscript*).

**Adult Learning Projects**

**Telephone Interview Schedule**

The researcher developed a data form (refer to Appendix B) to record adult learning project information collected during the telephone interview. Each data form included the subject's identification number, total number of learning projects conducted, total number of hours spent on adult learning projects, and space for recording specific information for eleven projects. The number of self-planned projects and number of hours spent on self-planned projects were totaled and added to the form following the interview. Two forms were used for individuals who had engaged in more than eleven projects. The data form listed possible response categories for each of the seven questions asked about a learning project. For example, the subject was asked to indicate which type of planner (self-planned, another individual, group or nonhuman planner) was utilized for a given project. The researcher recorded the response by placing a check mark beside the appropriate predetermined response category on the data form.

Only one open-ended question was included in the interview schedule. If the subject responded that a given project was noncredit (not for academic certification or credit) in nature, he or she was asked "What motivated you to become involved in this learning effort?"

Following data collection, all responses to this question were summarized
and grouped in the following categories for coding:

1. Desire to continue an ongoing interest developed in a previous year, i.e., politics, current events
2. Desire to gain new knowledge or skills related to
   a. professional development
   b. personal, family, home, or religion
   c. health, dieting, fitness
   d. assuming a volunteer role
   c. hobbies or travel
   f. training for a different job, job seeking, personal business enterprise
3. Major change in personal or family life, i.e., death, divorce, new baby, change in religion, moving, change in job
4. Stimulated by need for a major purchase, i.e., computer, freezer, home, car, photography equipment, microwave, camping, or other recreational equipment
5. Result of some immediate problem, i.e., lawn, automobile accident, health problem, home repair
6. Encouraged by family, friend, or peers
7. Curiosity, seeking sense of adventure
8. To save money, i.e., financial investments

Data Analysis

Data from this study were analyzed by using the Statistical Package for Social Science (SPSS\(^x\)). Some data manipulation was necessary prior to calculation of statistical procedures. Eight readiness
factor scores were generated by adding the response values of all items loading on a given factor. Refer to Appendix A for a listing of items loading on each readiness factor (Guglielmino, 1977). An initial analysis of descriptive statistical procedures (frequencies subprogram) revealed several items of missing data on the Self-Directed Learning Readiness Scale. Since each item on the SDLRS loads with other similar items to form a factor score, the mean value for items on a given factor was computed and used for the item with missing data.

An analysis of variance procedure was used to examine whether differences in mean readiness scores, mean number of projects, and average number of hours spent learning existed among groups in any demographic variable. For example, a one-way ANOVA was done to identify if there was a significant difference in mean number of learning projects conducted between males and females. The test statistic for ANOVA is the F-ratio of the two variance estimates (Hinkle, Wiersma, and Jurs, 1979):

\[ F = \frac{MS_B}{MS_W} \]

A linear regression equation was calculated to identify whether the SDLRS is an indicator of involvement in self-directed learning. The following regression equation was used to test for a positive, predictive relationship between readiness and \( H_1 \)--the number of self-planned learning projects, as well as \( H_2 \)--the total number of hours spent on self-planned learning projects: \( Y = bX + a \) (where \( Y \) = the predicted number of projects or hours; \( b \) = regression coefficient, slope; \( X \) = predictor variable, SDLRS total score; and \( a \) = regression constant, \( Y \)-intercept). The same analysis was replicated using the total number of
adult learning projects and total number of hours spent on all learning projects.

Stepwise multiple regression was used to identify which readiness factor(s) is(are) the best predictor(s) of $H_3$—the number of self-planned learning projects conducted, and $H_4$—the total number of hours spent on self-planned learning projects during a year. The following regression equation was calculated for $H_3$, $H_4$, the total number of adult learning projects, and total number of hours spent on all learning projects: 

$$Y = b_1X_1 + \ldots + b_kX_k + a$$

(where $Y$ = the predicted number of projects or hours; $b$ = regression coefficient, slope of the line; $X$ = predictor variable, SDLRS factor score or item; and $a$ = regression constant, $Y$-intercept.)

Stepwise multiple regression was also utilized to identify which individual item(s) on the SDLRS is(are) the best predictor(s) of the number of self-planned projects, total number of projects, number of hours spent on self-planned learning, and total number of hours spent on all learning projects.

Results of these data analysis procedures are reported in the next chapter.
CHAPTER 4

PRESENTATION AND DISCUSSION OF DATA

The focus of this study is to examine whether a predictive relationship exists between readiness for, and involvement in self-directed learning. This chapter presents the data collected via the Adult Learning Projects Telephone Interview Schedule and the Self-Directed Learning Readiness Scale, followed by findings related to the hypotheses.

Adult Learning Projects

Data were collected about all learning projects the subjects engaged in during the twelve month period prior to the interview. These data include projects that were planned by the learner (self-planned), another individual, a group, and nonhuman resources. Only data from self-planned projects constitute involvement in self-directed learning in this study. Therefore, much of the learning project data are presented according to the type of planner utilized.

Number of learning projects

Each of the sixty-five individuals in this study reported involvement in at least one learning project during the year preceding the interview. The 100 percent participation rate supports previous research findings which indicate almost all adults are involved in learning activities (Tough, 1979). Participation rates in other studies
range from 70 percent (Penland, 1978) to 100 percent (Zangari, 1977; Hassan, 1981).

Table 4 illustrates the distribution of learning projects among the respondents. A total of 646 learning projects were conducted by the sample during the twelve month period prior to the interview. The number of learning projects per person ranged from 4 to 17 with a mean of 9.94, a median of 10, and standard deviation of 2.92.

Table 4. Number of learning projects conducted in a year

<table>
<thead>
<tr>
<th>Number of Projects</th>
<th>Number of Persons</th>
<th>Percent of Persons</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>4.6</td>
<td>6.2</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>3.1</td>
<td>9.2</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>12.3</td>
<td>21.5</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>12.3</td>
<td>33.8</td>
</tr>
<tr>
<td>9</td>
<td>7</td>
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</tr>
<tr>
<td>10</td>
<td>10</td>
<td>15.4</td>
<td>60.0</td>
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<td>11</td>
<td>8</td>
<td>12.3</td>
<td>72.3</td>
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<td>12</td>
<td>7</td>
<td>10.8</td>
<td>83.1</td>
</tr>
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<td>13</td>
<td>4</td>
<td>6.2</td>
<td>89.2</td>
</tr>
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<td>14</td>
<td>3</td>
<td>4.6</td>
<td>93.8</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
<td>1.5</td>
<td>95.4</td>
</tr>
<tr>
<td>17</td>
<td>3</td>
<td>4.6</td>
<td>100.0</td>
</tr>
</tbody>
</table>

TOTAL 65 100.0 100.0

Mean = 9.94 projects/person
Standard deviation = 2.92
Median = 10 projects/person
Range = 13 (from 4 to 17 projects/person)
Sum = 646 projects/sample (n=65)
The mean number of projects in this study is higher than findings reported in studies which sampled the adult population in general and most other studies of professional educators including Benson (1974), Zangari (1977), Fair (1973), Kelley (1976), Miller (1977), McCatty (1973), and Denys (1973). In a nonrandomly selected sample of nine New York Cooperative Extension Service agents, Miller and Botsman (1975) found the average number of learning projects per person to be about twelve. However, many of the projects undertaken by the agents included half-day or full-day workshops at Cornell or brief programs offered in the community which were much shorter in duration than those in the current study.

Does the number of learning projects differ among groups within a given demographic variable? Although this question was not a major focus of the study, a single classification analysis of variance procedure was employed to identify whether there were significant differences in the average number of learning projects among groups in each demographic variable (gender, full-time equivalent appointment, program area, level of position, level of education, and tenure). The analysis produced no significant differences (F values) among groups on any demographic variable. However, additional analysis using the Duncan Multiple Range Test revealed that staff with less than two years tenure conducted a greater mean number of learning projects than those with 21 or more years tenure. There were no differences in mean number of learning projects among other tenure groupings. The mean number of learning projects and standard deviations by tenure are shown in Table 5 and the results of the analysis of variance are presented in Table 6.
Table 5. Means and standard deviations of number of learning projects by tenure with Iowa State University Cooperative Extension Service

<table>
<thead>
<tr>
<th>Tenure</th>
<th>N</th>
<th>Mean # Projects</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 2 years</td>
<td>8</td>
<td>12.13</td>
<td>2.75</td>
</tr>
<tr>
<td>2-5 years</td>
<td>15</td>
<td>10.33</td>
<td>4.20</td>
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<tr>
<td>6-10 years</td>
<td>12</td>
<td>9.75</td>
<td>1.22</td>
</tr>
<tr>
<td>11-20 years</td>
<td>17</td>
<td>9.47</td>
<td>2.40</td>
</tr>
<tr>
<td>21 or more years</td>
<td>13</td>
<td>8.92</td>
<td>2.56</td>
</tr>
<tr>
<td>TOTAL</td>
<td>65</td>
<td>9.94</td>
<td>2.92</td>
</tr>
</tbody>
</table>

Table 6. Analysis of variance of numbers of learning projects by tenure with Iowa State University Cooperative Extension Service

<table>
<thead>
<tr>
<th>Sources of Variations</th>
<th>df</th>
<th>Mean Squares</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between tenure groups</td>
<td>4</td>
<td>14.53</td>
<td>1.79^a</td>
</tr>
<tr>
<td>Residual</td>
<td>60</td>
<td>8.13</td>
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</tbody>
</table>

^aDuncan Multiple Range Test showed differences in mean number of projects between individuals with less than two years tenure and those with 21 or more years tenure. However, the F value was not statistically significant at the .05 level.

The 646 total number of learning projects conducted by the sample included 471 projects which were self-planned. Each individual undertook
at least one self-planned project during the twelve month period prior to
the interview. The number of self-planned projects per person ranged
from 1 to 14 with a mean of 7.25, a median of 7, and a standard deviation
of 2.94. The distribution of the number of self-planned projects is
presented in Table 7, which closely resembles the distribution of all
adult learning projects in Table 4.

Table 7. Number of self-planned learning projects conducted in a year

<table>
<thead>
<tr>
<th>Number of Projects</th>
<th>Number of Persons</th>
<th>Percent of Persons</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>1.5</td>
<td>3.1</td>
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<tr>
<td>3</td>
<td>4</td>
<td>6.2</td>
<td>9.2</td>
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<td>4</td>
<td>3</td>
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</tr>
<tr>
<td>14</td>
<td>1</td>
<td>1.5</td>
<td>100.0</td>
</tr>
</tbody>
</table>

TOTAL 65 100.0 100.0

Mean = 7.25 projects/person
Standard deviation = 2.94
Median = 7 projects/person
Range = 13 (from 1 to 14 projects/person)
Sum = 471 projects/sample (n=65)
Tenure with Iowa State University Cooperative Extension Service was the only demographic variable in which differences in the mean number of self-planned projects were detected among groups (F {4, 60} = 2.92, p < .05). The Duncan Multiple Range Test indicated that individuals with less than two years tenure engaged in significantly more self-planned learning projects than staff with tenure of 2-5 years, 11-20 years, and 21 or more years. There was no significant difference in the number of self-planned projects among staff with less than two years tenure and those who had 6-10 years tenure. However, caution should be taken in interpreting these findings due to the small n (n = 8) for the tenure group of less than two years. Table 8 displays means and standard deviations of the number of self-planned projects by tenure. Results of the analysis of variance are reported in Table 9.

Table 8. Means and standard deviations of number of self-planned learning projects by tenure with Iowa State University Cooperative Extension Service

<table>
<thead>
<tr>
<th>Tenure</th>
<th>N</th>
<th>Mean # Self-Planned Projects</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 2 years</td>
<td>8</td>
<td>10.00</td>
<td>3.02</td>
</tr>
<tr>
<td>2-5 years</td>
<td>15</td>
<td>7.33</td>
<td>3.89</td>
</tr>
<tr>
<td>6-10 years</td>
<td>12</td>
<td>7.67</td>
<td>1.87</td>
</tr>
<tr>
<td>11-20 years</td>
<td>17</td>
<td>6.41</td>
<td>2.15</td>
</tr>
<tr>
<td>21 or more years</td>
<td>13</td>
<td>6.15</td>
<td>2.51</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>65</td>
<td><strong>7.25</strong></td>
<td><strong>2.94</strong></td>
</tr>
</tbody>
</table>
Table 9. Analysis of variance of number of self-planned projects by tenure with Iowa State University Cooperative Extension Service

<table>
<thead>
<tr>
<th>Sources of Variations</th>
<th>df</th>
<th>Mean Squares</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between tenure groups</td>
<td>4</td>
<td>22.56</td>
<td>2.92*</td>
</tr>
<tr>
<td>Residual</td>
<td>60</td>
<td>7.73</td>
<td></td>
</tr>
</tbody>
</table>

*Duncan Multiple Range Test showed differences in mean number of self-planned projects between individuals with less than two years tenure and those with two to five years tenure, 11-20 years tenure, and 21 or more years tenure.

*Significance < .05.

Time spent on learning projects

A total of 55,424 hours was spent on learning projects by the respondents during the year prior to the interview. The time invested in self-planned learning (42,375 hours) represents almost 77 percent of the total hours devoted to learning. Table 10 summarizes the time spent on learning projects according to the type of planner.

The total amount of time each individual reported ranged from 220 to 3,421 hours with a mean of 852.68 hours per year (over 16 hours per week), and a standard deviation of 561.41. The average number of hours spent on self-planned learning (651.92) throughout the year was considerably higher than learning planned by another individual (161.09), a group (130.90), or a nonhuman resource (57.57).

The amount of time devoted to a single learning project ranged from a minimum of 7 hours to a maximum of 900 hours. The mean was 85.80 hours and the median length of time per project was 51 hours. The standard
deviation was 107.11. The mean number of hours per project varied with the type of planner utilized. Self-planned projects averaged 89.97 hours which is higher than projects planned by someone other than the learner.

Table 10. Time spent on learning projects by type of planner

<table>
<thead>
<tr>
<th>Type of Planner</th>
<th># Hours^a (Percent)</th>
<th>Mean # Hours Per Person</th>
<th>Mean # Hours Per Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Planned</td>
<td>42,375 (76.5)</td>
<td>651.92</td>
<td>89.97</td>
</tr>
<tr>
<td>Another Individual</td>
<td>7,410 (13.4)</td>
<td>161.09</td>
<td>81.43</td>
</tr>
<tr>
<td>Group</td>
<td>5,236 (9.5)</td>
<td>130.90</td>
<td>68.90</td>
</tr>
<tr>
<td>Nonhuman</td>
<td>403 (0.7)</td>
<td>57.57</td>
<td>50.38</td>
</tr>
<tr>
<td>TOTAL</td>
<td>55,424 (100.1)^b</td>
<td>852.68</td>
<td>85.80</td>
</tr>
</tbody>
</table>

Number hours per person
Mean = 852.68
Standard deviation = 561.41
Median = 716
Range = 3,201 (from 220 to 3,421)

Number hours per project
Mean = 85.80
Standard deviation = 107.11
Median = 51
Range = 893 (from 7 to 900)

^aRepresents total number of hours of all projects conducted by sample.

^bRounding error.
In summarizing the findings from more than twenty studies that replicated his 1971 research, Tough (1979) reported that typical learners engage in five learning projects a year, and spend an average of 100 hours on each project (or a total of 500 hours a year, almost 10 hours per week). The findings regarding time spent on learning in this study exceed the general trends identified by Tough.

Demographic differences

The single classification analysis of variance procedure was again utilized to detect differences in the mean amount of time spent learning among groups on each demographic variable. Differences in means were identified among tenure groups and levels of position.

**Tenure.** Significant differences were found in the average number of hours spent on all adult learning projects \( (F\{4, 60\} = 2.87, p < .05) \) and self-planned projects \( (F\{4, 60\} = 2.72, p < .05) \) among the five tenure groups. The Duncan Multiple Range Test identified that staff employed less than two years devote significantly more hours to all learning projects and self-planned projects than any other tenure group. There were no significant differences in the average amount of time spent on learning among other tenure groups. However, caution should be taken in interpreting these findings due to the small \( n (n = 8) \) for the less than two years tenure group. The findings are presented in Tables 11-14.
Table 11. Means and standard deviations of total time spent on all learning projects by tenure with Iowa State University Cooperative Extension Service

<table>
<thead>
<tr>
<th>Tenure</th>
<th>N</th>
<th>Mean Total Hours Spent Learning</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 2 years</td>
<td>8</td>
<td>1,432.88</td>
<td>965.84</td>
</tr>
<tr>
<td>2-5 years</td>
<td>15</td>
<td>696.20</td>
<td>386.64</td>
</tr>
<tr>
<td>6-10 years</td>
<td>12</td>
<td>741.92</td>
<td>370.00</td>
</tr>
<tr>
<td>11-20 years</td>
<td>17</td>
<td>823.82</td>
<td>570.21</td>
</tr>
<tr>
<td>21 or more years</td>
<td>13</td>
<td>816.15</td>
<td>365.31</td>
</tr>
<tr>
<td>TOTAL</td>
<td>65</td>
<td>852.68</td>
<td>561.41</td>
</tr>
</tbody>
</table>

Table 12. Analysis of variance of total time spent on all learning projects by tenure with Iowa State University Cooperative Extension Service

<table>
<thead>
<tr>
<th>Sources of Variations</th>
<th>df</th>
<th>Mean Squares</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between tenure groups</td>
<td>4</td>
<td>809,755.47</td>
<td>2.87*</td>
</tr>
<tr>
<td>Residual</td>
<td>60</td>
<td>282,203.84</td>
<td></td>
</tr>
</tbody>
</table>

*Duncan Multiple Range Test showed differences in mean total amount of time spent on learning projects between those with less than two years tenure and all other tenure groups.

*Significance < .05.
Table 13. Means and standard deviations of total time spent on self-planned learning projects by tenure with Iowa State University Cooperative Extension Service

<table>
<thead>
<tr>
<th>Tenure</th>
<th>N</th>
<th>Mean Total # Hours Spent on Self-Planned Learning</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 2 years</td>
<td>8</td>
<td>1,209.00</td>
<td>882.99</td>
</tr>
<tr>
<td>2-5 years</td>
<td>15</td>
<td>509.87</td>
<td>417.28</td>
</tr>
<tr>
<td>6-10 years</td>
<td>12</td>
<td>569.00</td>
<td>296.60</td>
</tr>
<tr>
<td>11-20 years</td>
<td>17</td>
<td>630.00</td>
<td>614.59</td>
</tr>
<tr>
<td>21 or more years</td>
<td>13</td>
<td>577.00</td>
<td>333.14</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>65</td>
<td>651.92</td>
<td>547.53</td>
</tr>
</tbody>
</table>

Table 14. Analysis of variance of total time spent on self-planned learning projects by tenure with Iowa State University Cooperative Extension Service

<table>
<thead>
<tr>
<th>Sources of Variations</th>
<th>df</th>
<th>Mean Squares</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between tenure groups</td>
<td>4</td>
<td>737,087.99</td>
<td>2.72*</td>
</tr>
<tr>
<td>Residual</td>
<td>60</td>
<td>270,639.58</td>
<td></td>
</tr>
</tbody>
</table>

*aDuncan Multiple Range Test showed differences in mean total amount of time spent on self-planned projects between those with less than two years tenure and all other tenure groups.

*Significance < .05.
Level of position. Significant differences were found in the mean number of hours spent on all adult learning projects ($F_{2, 62} = 3.25, p < .05$) and self-planned projects ($F_{2, 62} = 4.68, p < .05$) among levels of positions. Persons in state level positions spent significantly more hours on all learning projects and self-planned projects than county and area staff. There was no significant difference in average time spent learning among county or area level positions.

Means, standard deviations, and results of the analyses of variance are summarized in Tables 15-18.

Table 15. Means and standard deviations of total time spent on all learning projects by level of position

<table>
<thead>
<tr>
<th>Level of Position</th>
<th>N</th>
<th>Mean Total # Hours Spent Learning</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>County</td>
<td>36</td>
<td>767.08</td>
<td>424.07</td>
</tr>
<tr>
<td>Area</td>
<td>14</td>
<td>736.93</td>
<td>299.06</td>
</tr>
<tr>
<td>State</td>
<td>15</td>
<td>1,166.13</td>
<td>877.87</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>65</td>
<td><strong>852.68</strong></td>
<td><strong>561.41</strong></td>
</tr>
</tbody>
</table>
Table 16. Analysis of variance of total time spent on all learning projects by level of position

<table>
<thead>
<tr>
<th>Sources of Variations</th>
<th>df</th>
<th>Mean Squares</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between levels(^a)</td>
<td>2</td>
<td>962,568.40</td>
<td>3.27*</td>
</tr>
<tr>
<td>Residual</td>
<td>62</td>
<td>294,292.18</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\)Duncan Multiple Range test showed differences in mean total number of hours spent on learning projects between individuals in state level positions and those in county or area level positions.

*Significance < .5.

Table 17. Means and standard deviations of total time spent on self-planned learning projects by level of position

<table>
<thead>
<tr>
<th>Level of Position</th>
<th>N</th>
<th>Mean Total # Hours Spent on Self-Planned Learning</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>County</td>
<td>36</td>
<td>525.17</td>
<td>373.90</td>
</tr>
<tr>
<td>Area</td>
<td>14</td>
<td>597.07</td>
<td>336.10</td>
</tr>
<tr>
<td>State</td>
<td>15</td>
<td>1,007.33</td>
<td>858.15</td>
</tr>
<tr>
<td>TOTAL</td>
<td>65</td>
<td>651.92</td>
<td>547.53</td>
</tr>
</tbody>
</table>
Table 18. Analysis of variance of total time spent on self-planned learning projects by level of position

<table>
<thead>
<tr>
<th>Sources of Variations</th>
<th>df</th>
<th>Mean Squares</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between levels&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2</td>
<td>1,257,643.68</td>
<td>4.68*</td>
</tr>
<tr>
<td>Residual</td>
<td>62</td>
<td>268,894.18</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>Duncan Multiple Range Test showed differences in mean total number of hours spent on self-planned learning between individuals in state level positions and those in county or area level positions.

*Significance < .05.

Content of learning projects

The learning project data illustrated in Table 19 are classified into four content categories: professional; personal, family, and home; civic; and self-fulfillment.

Learning activities related to the respondents' profession were the most popular, representing 275 (nearly 43 percent) of the 646 total number of projects. Topics reported in this content category included technical subject matter skills and knowledge, as well as process skills such as learning about group facilitation or teaching methods.

Personal, family, and home related topics were the second highest content category (222 projects), accounting for almost 34 percent of all projects. Examples included family finances, home remodeling, gardening, learning related to the individual's role as a parent or spouse, as well as physical and mental health.
Ninety-two projects were of self-fulfillment nature (i.e., arts, hobbies, recreation, religion), representing approximately 14 percent of all learning projects. The least popular content area was civic related learning activities (57 projects), accounting for nearly 9 percent of projects reported by the sample. Examples included politics, community development, and government.

Table 19. Content of learning projects by type of planner

<table>
<thead>
<tr>
<th>Type of Planner</th>
<th>Number of Projects by Content</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prof. a</td>
</tr>
<tr>
<td>Self-Planned</td>
<td>192</td>
</tr>
<tr>
<td>(Percent)</td>
<td>(40.8)</td>
</tr>
<tr>
<td>Another Ind.</td>
<td>49</td>
</tr>
<tr>
<td>(Percent)</td>
<td>(53.8)</td>
</tr>
<tr>
<td>Group</td>
<td>32</td>
</tr>
<tr>
<td>(Percent)</td>
<td>(42.1)</td>
</tr>
<tr>
<td>Nonhuman</td>
<td>2</td>
</tr>
<tr>
<td>(Percent)</td>
<td>(25.0)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>275</td>
</tr>
<tr>
<td>(Percent)</td>
<td>(42.6)</td>
</tr>
</tbody>
</table>

^aProfessional content.
^bPersonal, family, and home content.
^cSelf-fulfillment content.
^dRounding error.

These data support a trend detected in findings of previous studies with samples having similar demographic characteristics. Job related
learning seems to be the most common content area with adults who are currently employed in professional positions (McCatty, 1973; Benson, 1974; Zangari, 1977; Miller and Botsman, 1975; Allerton, 1974; Johns, 1973), and those who are unemployed (Johnson, Levine and Rosenthal, 1977).

Types of planner

The interviewees were asked to identify who or what was responsible for more than half of the day-to-day decisions for each project. Respondents could select one of four types of planners: self-planned, another individual, group, or nonhuman resource. Table 20 displays the number of learning projects by type of planner.

Nearly 73 percent of the projects were self-planned which supports the findings of previous studies summarized by Tough in 1979.

Another individual was utilized as the major planner for 14 percent of the projects, followed by nearly 12 percent of the projects planned by a group and 1 percent of the projects planned by a nonhuman resource.

These findings are in contrast with those reported by Miller and Botsman (1975), who studied the learning projects of a nonrandom sample of nine New York Cooperative Extension Service agents. Only 40 percent of the Extension agents' projects were self-planned. Sixty percent of the projects were planned by another individual or a group.

Miller and Botsman offer the following explanation why the majority of projects were not self-planned. "Many projects undertaken by the agents are half-day and full-day workshops at Cornell or brief programs offered in the community" (Miller and Botsman, 1975, p. 16). Most
in-service workshops are planned by someone other than the learner. Respondents in the current study often reported participation in in-service workshops to be one learning episode within a broader learning project. For example, a number of persons interviewed indicated that attendance at a computer in-service education session represented a minor portion of a learning project to gain skills in utilizing the Apple // computer. Therefore, the majority of responsibility for the day-to-day planning for the project was often assumed by the learner.

Table 20. Number of learning projects by type of planner

<table>
<thead>
<tr>
<th>Type of Planner</th>
<th># Projects (Percent)</th>
<th># Persons/Planner(^a) (Percent)</th>
<th>Mean # Projects/Person(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Planned</td>
<td>471 (72.9)</td>
<td>65 (100.0)</td>
<td>7.25</td>
</tr>
<tr>
<td>Another Individual</td>
<td>91 (14.1)</td>
<td>46 (70.8)</td>
<td>1.90</td>
</tr>
<tr>
<td>Group</td>
<td>76 (11.8)</td>
<td>40 (61.5)</td>
<td>1.90</td>
</tr>
<tr>
<td>Nonhuman</td>
<td>8 (1.2)</td>
<td>7 (10.8)</td>
<td>1.14</td>
</tr>
<tr>
<td>TOTAL</td>
<td>646 (100.0)</td>
<td>65 (100.0)</td>
<td>9.94</td>
</tr>
</tbody>
</table>

\(^a\)Number of subjects who utilized designated type of planner for at least one of their learning projects.

\(^b\)Mean number of projects conducted by persons who utilized the designated type of planner.
Major method(s) of learning

Participants were asked to identify one or more of the following major methods of learning for each learning project: reading, conversation (two-way discussion), listening (primarily one-way communication), observation, TV and radio, doing (actual application of skill), and/or other method of learning. Table 21 displays the method(s) of learning data by the type of planner.

Table 21. Major method(s) of learning by type of planner

<table>
<thead>
<tr>
<th>Major Method(s) of Learning</th>
<th>Self-Planned (N=471)</th>
<th>Another Individual (N=91)</th>
<th>Group (N=76)</th>
<th>Nonhuman (N=8)</th>
<th>Total (N=646)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>399 (84.7)</td>
<td>53 (58.2)</td>
<td>45 (59.2)</td>
<td>6 (75.0)</td>
<td>503 (77.9)</td>
</tr>
<tr>
<td>Conversation</td>
<td>281 (59.7)</td>
<td>36 (39.6)</td>
<td>58 (76.3)</td>
<td>1 (12.5)</td>
<td>376 (58.2)</td>
</tr>
<tr>
<td>Doing</td>
<td>232 (49.3)</td>
<td>63 (69.2)</td>
<td>45 (59.2)</td>
<td>3 (37.5)</td>
<td>343 (53.1)</td>
</tr>
<tr>
<td>Listening</td>
<td>204 (43.3)</td>
<td>71 (78.0)</td>
<td>50 (65.8)</td>
<td>2 (25.0)</td>
<td>200 (31.0)</td>
</tr>
<tr>
<td>Observation</td>
<td>138 (29.3)</td>
<td>32 (35.2)</td>
<td>28 (36.8)</td>
<td>2 (25.0)</td>
<td>200 (31.0)</td>
</tr>
<tr>
<td>TV &amp; Radio</td>
<td>74 (15.7)</td>
<td>4 (4.4)</td>
<td>5 (6.6)</td>
<td>1 (12.5)</td>
<td>84 (13.0)</td>
</tr>
<tr>
<td>Other</td>
<td>2 (0.4)</td>
<td>2 (2.6)</td>
<td>1 (12.5)</td>
<td>5 (8.2)</td>
<td></td>
</tr>
</tbody>
</table>

^Respondents could identify one or more major method(s) of learning for each project.

bRepresents percent of learning projects in specified type of planner that used the method.
Reading, the most common method of learning, was utilized in 503 projects, representing nearly 78 percent of all learning projects. Conversation, doing, and listening, in that order, were also used in the majority of projects. The same three most frequently used methods (practice/doing, reading, discussion/conversation) were reported in a different order by mothers of preschool children in Coolican's study (1974, 1975).

Some patterns appear when analyzing learning methods with respect to type of planner. Reading was identified as a major method of learning in at least 58 percent of all projects, regardless of the type of planner. Conversation was used in over 76 percent of all group planned projects, substantially more than projects with other types of planners. Projects planned by another individual or group were most likely to employ doing as a major method of learning. Listening (primarily one-way communication) was used for 78 percent of all projects planned by another individual and in nearly 66 percent of group planned learning. Observation seems fairly stable across types of planners. Respondents in this study reported TV and radio as a major method of learning in nearly 16 percent of self-planned projects and in 13 percent of the projects planned by a nonhuman resource.

Current status of projects

The learners were requested to identify the status of each learning project as definitely active, not very active (dropped it or set it aside for awhile), or completed at the time of the interview. Table 22 is a summary of the learning projects found in each category according to the
type of planner.

Nearly 70 percent of the projects conducted during the year were active at the time of the interview. The number of projects that were not very active was almost identical to the number of completed projects.

Table 22. Current status of projects by type of planner

<table>
<thead>
<tr>
<th>Type of Planner</th>
<th>Active</th>
<th>Not Very Active</th>
<th>Completed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Planned</td>
<td>353</td>
<td>62</td>
<td>56</td>
<td>471</td>
</tr>
<tr>
<td>(Percent)</td>
<td>(74.9)</td>
<td>(13.2)</td>
<td>(11.9)</td>
<td>(100.0)</td>
</tr>
<tr>
<td>Another Individual</td>
<td>39</td>
<td>24</td>
<td>28</td>
<td>91</td>
</tr>
<tr>
<td>(Percent)</td>
<td>(42.9)</td>
<td>(26.4)</td>
<td>(30.8)</td>
<td>(100.1)</td>
</tr>
<tr>
<td>Group</td>
<td>55</td>
<td>10</td>
<td>11</td>
<td>76</td>
</tr>
<tr>
<td>(Percent)</td>
<td>(72.4)</td>
<td>(13.2)</td>
<td>(14.5)</td>
<td>(100.1)</td>
</tr>
<tr>
<td>Nonhuman</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>(Percent)</td>
<td>(37.5)</td>
<td>(37.5)</td>
<td>(25.0)</td>
<td>(100.0)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>450</td>
<td>99</td>
<td>97</td>
<td>646</td>
</tr>
<tr>
<td>(Percent)</td>
<td>(69.7)</td>
<td>(15.3)</td>
<td>(15.0)</td>
<td>(100.0)</td>
</tr>
</tbody>
</table>

^Represents current status of projects at the time of the interview.

bRounding error.

These findings support Tough's earliest learning project study which reported that "about two-thirds of all learning projects were still current and active at the time of the interview; only one-third of the projects were completed or dormant" (1971, p. 19). The status percentages for the total number of learning projects presented in Table
are also similar to the findings of Zangari (1977), Coolican (1974), and Johns (1973). These authors cited that approximately 75 percent of the total number of learning projects were active at the time of the interview.

Self-planned and group planned projects were comparable with respect to the percentage of projects in each status category. Fewer than half of the projects planned by another individual were active at the time of the interview. However, nearly 31 percent of the projects which utilized this type of planner were completed. Almost two-thirds of the projects directed by a nonhuman resource were dormant or completed at the time of the interview, which contrasts with data from the total number of learning projects.

Perhaps the differences in status of projects with respect to type of planner can partially be explained by the time spent on learning projects. The mean number of hours spent on a self-planned project is approximately 90 compared to 81 hours for another individual, 69 hours for group, and 50 hours for projects planned by a nonhuman resource. Since more time is spent on self-planned projects, a greater number of them may be active at any given time than projects planned by someone other than the learner.

Credit nature of projects

Participants identified whether each learning project was for academic credit, certification, or noncredit in nature. If the subject responded that a given project was noncredit in nature, he or she was asked an open-ended question, "What motivated you to become involved in
this learning effort?" The credit nature of learning projects by type of planner is reported in Table 23.

Learning for credit or certification accounted for nearly 8 percent of the total number of learning projects. In a review of studies from 1971-1978, Tough (1978) cited that approximately 5 percent of learning projects were undertaken for credit or certification. The slightly higher percentage in the current study may be explained by a policy of the Iowa Cooperative Extension Service which requires professional field staff to complete a specified amount of academic credit coursework on an ongoing basis.

Table 23. Credit nature of projects by type of planner

<table>
<thead>
<tr>
<th>Type of Planner</th>
<th>Credit</th>
<th>Certification</th>
<th>Noncredit</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Planned</td>
<td>23</td>
<td>448</td>
<td>471</td>
<td></td>
</tr>
<tr>
<td>(Percent)</td>
<td>(4.9)</td>
<td>(95.1)</td>
<td>(100.0)</td>
<td></td>
</tr>
<tr>
<td>Another Individual</td>
<td>24</td>
<td>1</td>
<td>66</td>
<td>91</td>
</tr>
<tr>
<td>(Percent)</td>
<td>(26.4)</td>
<td>(1.1)</td>
<td>(72.5)</td>
<td>(100.0)</td>
</tr>
<tr>
<td>Group</td>
<td>1</td>
<td>1</td>
<td>74</td>
<td>76</td>
</tr>
<tr>
<td>(Percent)</td>
<td>(1.3)</td>
<td>(1.3)</td>
<td>(97.4)</td>
<td>(100.0)</td>
</tr>
<tr>
<td>Nonhuman</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>(Percent)</td>
<td>(100.0)</td>
<td>(100.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>48</td>
<td>2</td>
<td>596</td>
<td>646</td>
</tr>
<tr>
<td>(Percent)</td>
<td>(7.4)</td>
<td>(0.3)</td>
<td>(92.3)</td>
<td>(100.0)</td>
</tr>
</tbody>
</table>

Academic credit was obtained in nearly the same number of self-planned projects as in learning planned by another individual.
However, learning for academic credit or certification represents less than 5 percent of all self-planned projects. This finding supports the notion that self-planned learning is not typically directed towards credit.

Over 92 percent of all learning projects were noncredit in nature. Table 24 summarizes the major source of motivation or incentive for each noncredit project.

The desire to gain some type of new knowledge or skill was the most frequently cited motivation or incentive, representing 65 percent of all noncredit learning. Desired knowledge and skill reported by the interviewees included specific topics related to: professional development; personal, family, home, or religion; health, dieting, fitness; assuming a new volunteer responsibility; hobbies or travel; training for a different job, job seeking, and personal business enterprise. These findings are consistent with those of Tough who identified the most common motivation for a learning project as "some anticipated use or application of the knowledge and skill" (1978, p. 253).

The second most common motivation or incentive for becoming involved in noncredit learning was the desire to continue an ongoing interest which was initiated in a previous year. Examples of ongoing learning efforts included politics and current events.

The desire to save money or need to solve an immediate problem were the third and fourth most popular incentives for learning. Other motivations or incentives for noncredit learning included: a major change in personal or family life, need for a major purchase, encouraged by friend or family, and curiosity.
<table>
<thead>
<tr>
<th>Motivation/Incentive</th>
<th>Self-Planned</th>
<th>Another Ind. Group</th>
<th>Group</th>
<th>Nonhuman Total</th>
<th>Total Total(^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Percent)</td>
<td>(Percent)</td>
<td>(Percent)</td>
<td>(Percent)</td>
<td>(Percent)</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------</td>
<td>--------------------</td>
<td>-------</td>
<td>--------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Gain new knowledge and skills</td>
<td>270 (60.3)</td>
<td>49 (74.2)</td>
<td>63 (85.1)</td>
<td>5 (62.5)</td>
<td>387 (65.0)</td>
</tr>
<tr>
<td>Ongoing interest(^b)</td>
<td>65 (14.5)</td>
<td>3 (4.5)</td>
<td>4 (5.4)</td>
<td>2 (25.0)</td>
<td>74 (12.4)</td>
</tr>
<tr>
<td>Save money</td>
<td>32 (7.1)</td>
<td>2 (3.0)</td>
<td>-</td>
<td>-</td>
<td>34 (5.7)</td>
</tr>
<tr>
<td>Immediate problem(^c)</td>
<td>29 (6.5)</td>
<td>4 (6.1)</td>
<td>-</td>
<td>-</td>
<td>33 (5.5)</td>
</tr>
<tr>
<td>Major life change(^d)</td>
<td>20 (4.5)</td>
<td>3 (4.5)</td>
<td>1 (1.4)</td>
<td>-</td>
<td>24 (4.0)</td>
</tr>
<tr>
<td>Major purchase(^e)</td>
<td>20 (4.5)</td>
<td>-</td>
<td>1 (12.5)</td>
<td>-</td>
<td>21 (3.5)</td>
</tr>
<tr>
<td>Encouraged by friend or family</td>
<td>9 (2.0)</td>
<td>4 (6.1)</td>
<td>6 (8.1)</td>
<td>-</td>
<td>19 (3.2)</td>
</tr>
<tr>
<td>Curiosity</td>
<td>3 (0.7)</td>
<td>1 (1.5)</td>
<td>-</td>
<td>-</td>
<td>4 (0.7)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>448 (100.1)(^f)</td>
<td>66 (99.9)(^f)</td>
<td>74 (100.0)</td>
<td>8 (100.0)</td>
<td>596 (100.0)</td>
</tr>
</tbody>
</table>

\(^a\)Percent of total number of noncredit learning projects.

\(^b\)Desire to continue an ongoing interest developed in a previous year.

\(^c\)Result of some immediate problem, i.e., lawn, health, home repair.

\(^d\)Major change in personal or family life, i.e., death, divorce, new baby, change in religion, moving, change in job.

\(^e\)Stimulated by need for a major purchase, i.e., computer, freezer, home, car, photography equipment, microwave, camping.

\(^f\)Rounding error.
Satisfaction experienced

Respondents were asked to consider their degree of satisfaction with each learning project and indicate whether they were "very satisfied," "somewhat satisfied," or "not very satisfied." Persons in the sample appear to be satisfied with their learning efforts. Data regarding the degree of satisfaction experienced in learning projects are summarized in Table 25.

Table 25. Degree of satisfaction experienced by type of planner

<table>
<thead>
<tr>
<th>Type of Planner</th>
<th>Very Satisfied</th>
<th>Somewhat Satisfied</th>
<th>Not Very Satisfied</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Planned</td>
<td>262 (55.6)</td>
<td>194 (41.2)</td>
<td>15 (3.2)</td>
<td>471 (100.0)</td>
</tr>
<tr>
<td>Another Ind.</td>
<td>45 (49.4)</td>
<td>39 (42.9)</td>
<td>7 (7.7)</td>
<td>91 (100.0)</td>
</tr>
<tr>
<td>Group</td>
<td>38 (50.0)</td>
<td>35 (46.1)</td>
<td>3 (3.9)</td>
<td>76 (100.0)</td>
</tr>
<tr>
<td>Nonhuman</td>
<td>4 (50.0)</td>
<td>3 (37.5)</td>
<td>1 (12.5)</td>
<td>8 (100.0)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>349 (54.0)</td>
<td>271 (42.0)</td>
<td>26 (4.0)</td>
<td>646 (100.0)</td>
</tr>
</tbody>
</table>

The sample reported they were "very satisfied" with 54 percent of the learning projects, "somewhat satisfied" with 42 percent of the projects, and "not very satisfied" with 4 percent of the learning efforts.

Degree of satisfaction experienced appears to be relatively
constant across types of planners. Self-planned projects received slightly higher satisfaction ratings than learning directed by any other type of planner.

In general, the adult learning project data collected in this study support previous research findings from samples having similar demographic characteristics. All adult learning project data (i.e., number of projects, amount of time spent, content, major method(s) of learning, current status of projects, credit nature of projects, and satisfaction experienced) have been summarized with respect to type of planner. The focus of this study is to examine whether a predictive relationship exists between readiness for, and involvement in self-directed (self-planned) learning. Therefore, the data related to self-planned projects presented in this section will be analyzed with data from the Self-Directed Learning Readiness Scale.

**Self-Directed Learning Readiness Scale**

The Self-Directed Learning Readiness Scale (SDLRS) assesses an individual's potential to assume responsibility for their own learning. A total readiness score is calculated in addition to scores for each of the following eight factors: 1) love of learning; 2) self-concept as an effective, independent learner; 3) tolerance of risk, ambiguity, and complexity in learning; 4) creativity; 5) view of learning as a lifelong, beneficial process; 6) initiative in learning; 7) self-understanding; and 8) acceptance of responsibility for one's own learning.

Table 26 summarizes the distribution of SDLRS total scores for the 65 individuals in this study. The scores range from a minimum of 201 to a maximum of 273.
L. Guglielmino and P. Guglielmino (1982) identified five levels of readiness for self-directed learning based on a data bank collected from a variety of adult populations: 1) low—total SDLRS scores of 58-176; 2) below average—total SDLRS scores of 177-201; 3) average—total SDLRS scores of 202-226; 4) above average—total SDLRS scores of 227-251; and 5) high—total SDLRS scores of 252-290 (refer to Table 26).

Table 26. Summary of Self-Directed Learning Readiness Scale total scores

<table>
<thead>
<tr>
<th>Readiness Level</th>
<th>Total Score(s)</th>
<th>Number of Persons</th>
<th>Percent of Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Scores = 58-176</td>
<td>n=0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Below Average Scores = 177-201</td>
<td>201</td>
<td>n=2</td>
<td>3.1%</td>
</tr>
<tr>
<td>Average Scores = 202-226</td>
<td>207-226</td>
<td>n=19</td>
<td>29.2%</td>
</tr>
<tr>
<td>Above average Scores = 227-251</td>
<td>227-251</td>
<td>n=26</td>
<td>40.0%</td>
</tr>
<tr>
<td>High Scores = 252-290</td>
<td>252-273</td>
<td>n=18</td>
<td>27.7%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>65</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

*Readiness levels have been identified based on data from a variety of populations collected by L. Guglielmino and P. Guglielmino (1982).
Data in Table 26 indicate that two-thirds of the sample have above average or high levels of readiness as defined by L. Guglielmino and P. Guglielmino (1982). The greatest number of respondents (n = 26) have an above average readiness level. Nineteen persons scored in the average readiness level, followed by eighteen learners in the high level of readiness for self-direction in learning. Only two individuals' scores fell into the below average level of readiness. No participants in the current study had a low readiness level.

The readiness levels identified by L. Guglielmino and P. Guglielmino (1982) are based on an average total SDLRS score of 214 with a standard deviation of 25.59. However, the mean total score for the current study is 238.43 with a 19.44 standard deviation. The means, standard deviations, and ranges for the eight factor scores and the total score are reported in Table 27.

The mean total SDLRS score (238.43) of the sixty-five individuals in this study is higher than findings reported in two other studies conducted in Iowa. Sabbaghian (1979) examined the self-directed learning readiness of seventy-seven undergraduate adult students at Iowa State University and reported a mean total score of 229.1 with a standard deviation of 24.1. Hassan (1981) administered the SDLRS to seventy-seven adults randomly selected from the general adult population in Ames, Iowa and reported a mean readiness score of 227.9 with a standard deviation of 23.9.

Adults who have a higher level of formal education have a higher level of readiness for self-directed learning than their counterparts with less schooling (Sabbaghian, 1979; Hassan, 1981; Brockett, 1982).
This finding may explain why the mean total SDLRS score in the current study is higher than scores reported by Sabbaghian and Hassan. All persons in the Extension sample had obtained a minimum of a bachelor's degree. Over two-thirds had completed a graduate degree.

Table 27. Self-Directed Learning Readiness Scale scores

<table>
<thead>
<tr>
<th>Variables</th>
<th># of Items</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eight factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Love of learning</td>
<td>17</td>
<td>73.17</td>
<td>6.75</td>
<td>29.00</td>
</tr>
<tr>
<td>Self-concept as an effective, independent learner</td>
<td>12</td>
<td>46.65</td>
<td>4.89</td>
<td>20.00</td>
</tr>
<tr>
<td>Tolerance of risk, ambiguity, and complexity in learning</td>
<td>17</td>
<td>69.50</td>
<td>6.75</td>
<td>29.00</td>
</tr>
<tr>
<td>Creativity</td>
<td>10</td>
<td>40.72</td>
<td>4.79</td>
<td>20.00</td>
</tr>
<tr>
<td>View of learning as a lifelong, beneficial process</td>
<td>8</td>
<td>36.01</td>
<td>2.73</td>
<td>11.00</td>
</tr>
<tr>
<td>Initiative in learning</td>
<td>5</td>
<td>19.49</td>
<td>2.31</td>
<td>10.00</td>
</tr>
<tr>
<td>Self-understanding</td>
<td>9</td>
<td>37.46</td>
<td>3.31</td>
<td>13.00</td>
</tr>
<tr>
<td>Acceptance of responsibility for one's own learning</td>
<td>2</td>
<td>8.39</td>
<td>1.80</td>
<td>8.00</td>
</tr>
<tr>
<td>Total SDLRS score</td>
<td>58</td>
<td>238.43</td>
<td>19.44</td>
<td>72.00</td>
</tr>
</tbody>
</table>

A single classification analysis of variance procedure was utilized to identify whether there were significant differences in the average total readiness scores among groups in each demographic variable (gender,
full-time equivalent appointment, program area, level of position, level of education—minimum of bachelor's degree, and tenure). No significant differences were found among groups in any demographic variable.

Findings from previous studies indicate that the level of readiness for self-directed learning varies with the extent of involvement in learning activities. Learners with a high readiness level conduct a greater number of learning projects (Hassan, 1981) and spend more hours learning (Sabbaghian, 1979) than adults with a low readiness level. However, several questions related to readiness and involvement in self-directed learning remained unanswered, and served as the focus of this study:

1. Are there predictive relationships between readiness and the extent to which adults are involved in self-directed learning (i.e., number of self-planned projects, total number of hours spent in self-planned learning)?

2. Are all eight personal factors that comprise readiness necessary for involvement in self-directed learning? Which readiness factors is(are) the best predictor(s) of high involvement in self-directed learning?

The next section of this chapter discusses the findings related to the four major hypotheses of the study.

Hypothesis 1

$H_1$: There is a significant ($p < .05$) positive, predictive relationship between readiness and the number of self-planned learning projects.
This hypothesis was tested by using the forward stepwise multiple regression procedure in SPSS. On the basis of this analysis, the hypothesis was supported at the .05 level of significance ($F = 6.01$, $p < .05$). The prediction equation as indicated in Table 28 was: Number of self-planned learning projects = (-.111)(total SDLRS score) + 43.34. However, the total readiness score explained only 9 percent of the variance in the number of self-planned projects (range = 1-14).

Table 28. Summary of linear regression analyses for number of learning projects by readiness for self-directed learning (SDLRS)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Multiple $R$</th>
<th>$R^2$</th>
<th>$B$</th>
<th>$F$ Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of self-planned projects by readiness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total SDLRS</td>
<td>.30</td>
<td>.09</td>
<td>-.11</td>
<td>6.01*</td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td></td>
<td>43.34</td>
<td></td>
</tr>
<tr>
<td>Number of all learning projects by readiness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total SDLRS</td>
<td>.50</td>
<td>.25</td>
<td>.11</td>
<td>20.84**</td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td></td>
<td>26.87</td>
<td></td>
</tr>
</tbody>
</table>

*Significance $< .05$.

**Significance $< .01$.

Since the amount of explained variance in the number of self-planned projects was so low, the same analysis was performed for comparison purposes using the number of all learning projects as the
dependent variable. The results of this analysis are presented in the second section of Table 28. The total readiness score was found to be a statistical predictor of the number of learning projects conducted \((F = 20.84, p < .01)\). Twenty-five percent of the variance in the number of all learning projects (range = 4-17) can be explained by readiness for self-directed learning. The following prediction equation was calculated: \(\text{Number of adult learning projects} = (.11)(\text{total SDLRS score}) + 26.87\).

These findings suggest that readiness for self-directed learning, as measured by the SDLRS, is a better predictor of the number of all adult learning projects than the number of self-planned projects. The total readiness score explains nearly three times the amount of variance in the number of all learning projects \((R^2 = .25)\) as compared to the number of self-planned projects \((R^2 = .09)\).

Hypothesis 2

\(H_2\) There is a significant \((p < .05)\) positive, predictive relationship between readiness and the total number of hours spent on self-planned learning.

This hypothesis was analyzed using the same procedure as the first one. The second hypothesis was supported at the .01 level of significance \((F = 19.37, p < .01)\). Table 29 identifies the following prediction equation: \(\text{Total number of hours spent on self-planned learning projects} = (18.74)(\text{total SDLRS score}) + (-728.89)\). Readiness for self-directed learning was found to account for nearly 24 percent of
the variance in numbers of hours devoted to self-planned learning (range = 37-3,076 hours).

Table 29. Summary of linear regression analyses for number of hours spent on learning projects by readiness for self-directed learning (SDLRS)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Multiple R</th>
<th>R²</th>
<th>B</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of hours spent on self-planned projects by readiness</td>
<td>.49</td>
<td>.24</td>
<td>18.74</td>
<td>19.37**</td>
</tr>
<tr>
<td>Total SDLRS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td></td>
<td>-728.90</td>
<td></td>
</tr>
<tr>
<td>Number of hours spent on all learning projects by readiness</td>
<td>.50</td>
<td>.25</td>
<td>-20.66</td>
<td>21.09**</td>
</tr>
<tr>
<td>Total SDLRS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td></td>
<td>7,479.62</td>
<td></td>
</tr>
</tbody>
</table>

*Significance < .05.

**Significance < .01.

The same regression analysis was replicated with the number of hours spent on all learning projects. Findings closely resemble those for the second hypothesis. Readiness was found to be a statistical predictor of the number of hours spent on all adult learning projects (range = 220-3,421 hours), explaining 25 percent of the variance (F = 21.09, p < .01). The prediction equation was: Number of hours spent on all learning projects = (-20.66)(total SDLRS score) + 7,479.62.
Hypothesis 3

After self-concept is accounted for, none of the other seven readiness factors will have a significant (p < .01), predictive relationship to the number of self-planned learning projects.

This hypothesis was tested using the forward stepwise multiple regression procedure in SPSS*. On the basis of this analysis, the hypothesis was only partially supported at the .01 level of significance (F = 10.57, p < .01) because two factors were found to have a predictive relationship to the number of self-planned projects (refer to Table 30).

Table 30. Multiple (stepwise) regression for number of self-planned learning projects by personal readiness factors for self-directed learning (SDLRS)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Multiple R</th>
<th>R²</th>
<th>B</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-concept as an effective, independent learner (Factor 2)</td>
<td>.48</td>
<td>.20</td>
<td>-.85</td>
<td>15.73**</td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>View of learning as a lifelong, beneficial process (Factor 5)</td>
<td>.50</td>
<td>.25</td>
<td>-.70</td>
<td>10.57**</td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td></td>
<td></td>
<td>33.12</td>
</tr>
</tbody>
</table>

*No other personal readiness factors made an additional contribution, hence were not entered into the equation.

**Significance < .01.

The analysis revealed that self-concept as an effective, independent learner was the best predictor of the number of self-planned
learning projects, accounting for 20 percent of the variation (range = 1-14). View of learning as a lifelong, beneficial process also contributed to the prediction, accounting for an additional 5 percent. After these two personal readiness factors had been considered, none of the remaining factors made a significant contribution. The best prediction equation as indicated in Table 30 was: Number of self-planned projects = (-.85)(Factor 2 score) + (-.70)(Factor 5 score) + 3.12.

The regression analysis procedure utilized for the third hypothesis was replicated using the total number of adult learning projects. Love of learning had a predictive relationship at the .01 level of significance (F = 23.62, p < .01), explaining 27 percent of the variance in the number of projects (range = 1-17). After love of learning had been considered, none of the other readiness factors made a significant contribution. Table 31 presents the following prediction equation:

Number of adult learning projects = (.32)(Factor 1 score) + 28.75.

Table 31. Multiple (stepwise) regression for number of learning projects by personal readiness factors for self-directed learning (SDLRS)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Multiple R</th>
<th>R²</th>
<th>B</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Love of learning</td>
<td>.52</td>
<td>.27</td>
<td>.32</td>
<td>23.62**</td>
</tr>
<tr>
<td>(Factor 1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td></td>
<td></td>
<td>28.75</td>
</tr>
</tbody>
</table>

*aNo other personal readiness factors made an additional contribution, hence were not entered into the equation.

**Significance < .01.
Hypothesis 4

After self-concept is accounted for, none of the other seven readiness factors will have a significant (p < .01), predictive relationship to the total number of hours spent on self-planned learning projects.

The hypothesis was supported at the .01 level of significance (F = 44.67, p < .01). The analysis revealed that after self-concept as an effective, independent learner was considered, none of the other seven readiness factors made a significant contribution. This readiness factor accounts for nearly 42 percent of the variance in the number of hours (range = 37-3,076) devoted to self-planned learning projects. Table 32 illustrates the prediction equation: Number of hours spent on self-planned projects = (99.04)(Factor 2 score) + (-880.52).

Table 32. Multiple (stepwise) regression for number of hours spent on self-planned projects by personal readiness factors for self-directed learning (SDLRS)

<table>
<thead>
<tr>
<th>Variable^a</th>
<th>Multiple R</th>
<th>R^2</th>
<th>B</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-concept as an effective, independent learner (Factor 2)</td>
<td>.64</td>
<td>.42</td>
<td>99.04</td>
<td>44.67**</td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td></td>
<td>-880.52</td>
<td></td>
</tr>
</tbody>
</table>

^aNo other personal readiness factors made an additional contribution, hence were not entered into the equation.

**Significance < .01.
The stepwise multiple regression procedure was also employed to analyze the number of hours spent on all adult learning projects. Findings of this analysis differed from those for the fourth hypothesis and are presented in Table 33. Tolerance of risk, ambiguity, and complexity in learning was the best predictor of number of hours spent on all adult learning projects (range = 220-3,421), accounting for 45 percent of the variation. View of learning as a lifelong, beneficial process also contributed to the prediction, accounting for an additional 5 percent. These two factors combine to explain 50 percent of the variance. After these two personal factors had been considered, none of the remaining factors made a significant contribution.

Table 33. Multiple (stepwise) regression for number of hours spent on all learning projects by personal readiness factors for self-directed learning (SDLRS)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Multiple R</th>
<th>$R^2$</th>
<th>B</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tolerance of risk, ambiguity, and complexity</td>
<td>.67</td>
<td>.45</td>
<td>-93.60</td>
<td>49.85**</td>
</tr>
<tr>
<td>in learning (Factor 3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>View of learning as a lifelong, beneficial</td>
<td>.71</td>
<td>.50</td>
<td>74.75</td>
<td>30.13**</td>
</tr>
<tr>
<td>process (Factor 5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td></td>
<td>6,361.82</td>
<td></td>
</tr>
</tbody>
</table>

*No other personal readiness factors made an additional contribution, hence were not entered into the equation.

**Significance < .01.
The best prediction equation was: Number of hours spent on adult learning projects = (-93.60)(Factor 3 score) + (74.75)(Factor 5 score) + 6,361.82.

Post Hoc Analyses

Although self-concept as an effective, independent learner was the best readiness predictor of the number of self-planned projects and time spent on them, it accounted for only 20 and 42 percent of the variance, respectively. Love of learning was the best readiness predictor of the number of all adult learning projects, explaining 27 percent of the variance. Tolerance of risk, ambiguity, and complexity in learning was the best predictor of the number of hours spent on all learning projects, accounting for 45 percent of the variance.

Different personal readiness factors were identified as the best predictors for: 1) the number of self-planned projects and the number of all learning projects, as well as 2) the number of all learning projects and the amount of time spent on all learning projects. In an effort to explain why these best predictor factors differ, individual items on the SDLRS were analyzed to identify which ones have a predictive relationship to the number of projects and time spent on learning. Each factor score is a sum of individual items which load on one or more factors.

The forward stepwise multiple regression procedure was utilized with the same dependent variables reported in the hypotheses section (number of self-planned projects, number of all learning projects, number of hours spent on self-planned learning, number of hours spent on all learning projects).
Number of self-planned projects

Item 9, "I don't work very well on my own" (a reverse item), was the best predictor, accounting for over 99 percent of the variance in the number of self-planned projects (range = 1-14). Item 10, "If I discover a need for information that I don't have, I know where to go to get it," also contributed to the prediction. These two items combined to explain 100 percent of the variance. The best prediction equation as indicated on Table 34 was: Number of self-planned projects = (-10.00)(Item 9) + (1.00)(Item 10) + 60.00.

Table 34. Multiple (stepwise) regression for number of self-planned learning projects by items on the SDLRS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Multiple R</th>
<th>R²</th>
<th>B</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. I don't work very well on my own. (Factor 3--Tolerance of risk; and Factor 2--Self-Concept)ᵃ</td>
<td>.99⁺</td>
<td>.99</td>
<td>-10.00</td>
<td>10,010.65**</td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. If I discover a need for information that I don't have, I know where to go to get it. (Factor 2--Self-Concept)</td>
<td>1.00ᵇ</td>
<td>1.00</td>
<td>1.00</td>
<td>1.88**</td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Significance < .01.

ᵃReverse item.

ᵇSPSS message--Multiple R = 1.0, no variance remains in dependent variable (number of self-planned learning projects). Therefore, no additional steps were performed.
Items 9 and 10 load on self-concept as an effective, independent learner, the factor which best predicted the number of self-planned learning projects.

**Number of all learning projects**

Item 1, "I'm looking forward to learning as long as I'm living," was the best predictor, accounting for 98 percent of the variance in the number of all learning projects (range = 4-17). Item 2, "I know what I want to learn," also contributed to the prediction to explain 100 percent of the variance. Table 35 reports that the best prediction equation was:

Number of learning projects = (10.00)(Item 1) + (1.00)(Item 2) + 2.29.

Table 35. Multiple (stepwise) regression for number of all learning projects by items on the SDLRS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Multiple R</th>
<th>R²</th>
<th>B</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. I'm looking forward to learning as long as I'm living. (Factor 1--Love of learning)</td>
<td>.99</td>
<td>.98</td>
<td>10.00</td>
<td>2,558.62**</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I know what I want to learn. (Factor 2--Self-Concept and Factor 7--Self-Understanding)</td>
<td>1.00³</td>
<td>1.00</td>
<td>1.00</td>
<td>1.46**</td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td></td>
<td></td>
<td>2.29</td>
</tr>
</tbody>
</table>

**Significance < .01.**

³SPSS message--Multiple R = 1.0, no variance remains in dependent variable (number of learning projects). Therefore, no additional steps were performed.
Item 1 loads on love of learning, which was the only readiness factor found to predict the number of all learning projects.

**Number of hours spent on self-planned learning**

The analysis revealed that item 11, "I can learn things on my own better than most people," was the best predictor of the time spent on self-planned learning and accounted for 99 percent of the variance (range = 37-3,039 hours). Reverse item 12, "Even if I have a great idea, I can't seem to develop a plan for making it work," was the second best predictor which contributed almost one percent to the variation. The addition of item 13, "In a learning experience, I prefer to take part in deciding what will be learned and how," to the prediction explained 100 percent of the variance. The best prediction equation as indicated in Table 36 was:

Number of hours spent on self-planned learning = 
(1,000.22)(Item 11) + (-100.10)(Item 12) + (10.42)(Item 13) + 602.55.

Items 11 and 13 load on self-concept as an effective, independent learner, the only readiness factor identified to predict the number of hours spent on self-planned learning projects.

**Number of hours spent on all learning projects**

Three items also combined to explain the variance in the number of hours spent on all learning projects (range = 220-3,201 hours). Reverse item 3, "When I see something I don't understand, I stay away from it," was the best predictor accounting for 99 percent of the variance. Item 4, "If there is something I want to learn, I can figure out a way to learn it," was the next best predictor which contributed almost one
percent to the variation. The addition of item 5, "I love to learn," to the prediction explained 100 percent of the variance. Table 37 reports the best prediction equation: Number of hours spent on all learning projects = (-1,000.32)(Item 3) + (99.67)(Item 4) + (9.86)(Item 5) = 6,005.90.

Table 36. Multiple (stepwise) regression for number of hours spent on self-planned learning projects by items on the SDLRS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Multiple R</th>
<th>R²</th>
<th>B</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. I can learn things on my own better than most people. (Factor 2—Self-Concept)</td>
<td>.99+</td>
<td>.99</td>
<td>1,000.22</td>
<td>10,416.50**</td>
</tr>
<tr>
<td>12. Even if I have a great idea, I can't seem to develop a plan for making it work. (Factor 3—Tolerance of risk, ambiguity, and complexity in learning)</td>
<td>.99+</td>
<td>.99+</td>
<td>-100.10</td>
<td>150,492.41**</td>
</tr>
<tr>
<td>13. In a learning experience, I prefer to take part in deciding what will be learned and how. (Factor 2—Self-Concept)</td>
<td>1.00</td>
<td>1.00</td>
<td>10.42</td>
<td>38,346,563.37**</td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td></td>
<td></td>
<td>602.55</td>
</tr>
</tbody>
</table>

**Significance < .01.

Reverse item.

SPSS message—proportion of unexplained variance remaining for the dependent variable (number of hours spent on self-planned learning) will be less than 1.0E-30. Therefore, no additional steps were performed.
Table 37. Multiple (stepwise) regression for number of hours spent on all learning projects by items on the SDLRS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Multiple R</th>
<th>$R^2$</th>
<th>B</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. When I see something I don't understand, I stay away from it. (Factor 3—Tolerance of risk, ambiguity, and complexity in learning)</td>
<td>.99+</td>
<td>.99</td>
<td>-1,000.32</td>
<td>11,021.28**</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. If there is something I want to learn, I can figure out a way to learn it. (Factor 2—Self-Concept)</td>
<td>.99+</td>
<td>.99+</td>
<td>99.67</td>
<td>639,727.12**</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I love to learn. (Factor 1—Love of learning)</td>
<td>1.00</td>
<td>1.00</td>
<td>9.86</td>
<td>15,958,351.72**</td>
</tr>
<tr>
<td>Constant</td>
<td>6,005.90</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Significance < .01.

a Reverse item.

b SPSSX message—proportion of unexplained variance remaining for the dependent variable (number of hours spent) will be less than 1.0E-30. Therefore, no additional steps were performed.

Findings from the post hoc analyses suggest that: 1) Selected items on the SDLRS are statistical predictors of involvement in adult learning projects, accounting for nearly 100 percent of the variance in the number of projects conducted and the time spent learning; 2) The items which are best predictors of involvement in self-planned learning are not the best predictors of involvement in all learning projects; and
3) Not all items found to be the best predictors of involvement in learning projects are consistent with the personal readiness factors that were identified as predictors of involvement.

Additional discussion of the research findings and recommendations for further research will be presented in the next chapter.
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Questions which guided the development of the study will be discussed in this chapter. The chapter is organized into four sections, beginning with a synopsis of the focus and methodology of the study. The second section summarizes the major findings, followed by conclusions and discussion relative to the findings. The final section presents some recommendations for further research.

Summary of Study

This research was primarily a prediction study which examined the relationship between readiness for, and involvement in self-directed learning. A review of literature which focused on adult self-directed learning activities and personal factors that facilitate self-directed learning, resulted in development of the following research questions:

1. Are there predictive relationships between readiness and the extent to which adults are involved in self-directed learning?

2. Which readiness factor(s) is(are) the best predictor(s) of high involvement in self-directed learning?

Two instruments were used to collect data for this study. The Self-Directed Learning Readiness Scale (SDLRS), developed and revised by Guglielmino (1977), was utilized to assess the degree to which an individual is prepared to assume responsibility for his or her own
learning. The Adult Learning Projects Telephone Interview Schedule was adapted from the Interview Schedule developed and revised by Tough (1969, 1971). The structured interview script utilizes a probing technique to help subjects recall specific information about learning activities during the twelve month period prior to the interview.

The sample included sixty-five persons, randomly selected from the population of Iowa State University Cooperative Extension Service professional staff with a .5 or greater full-time equivalent appointment. Data collection involved three phases: 1) an initial mailing—cover letter, SDLRS, calendar to indicate availability for interview, and a stamped, return envelope; 2) an interview confirmation mailing—cover letter and written materials for use during interview; and 3) the telephone interview. Demographic data were obtained from the Extension personnel office.

Descriptive statistics were calculated from the Self-Directed Learning Readiness Scale data, adult learning project data, and demographic data. Each demographic variable was examined using a one-way analysis of variance to identify whether differences existed among groups in the variable with respect to readiness scores, number of projects, and time spent on projects.

A linear regression analysis was used to identify whether readiness (SDLRS) is a predictor of the number of self-planned projects, time spent on self-planned learning, the number of all learning projects, and total time spent on all learning projects.

Multiple stepwise regression was utilized to identify which personal readiness factor(s) is(are) the best predictor(s) of the number
of self-planned projects, time spent on self-planned learning, the number of all learning projects, and total time spent on all learning projects. The same type of analysis was repeated using individual items in place of the personal readiness factors.

Summary of Findings

The major findings are as follows:

There is a significant ($p < .05$) positive, predictive relationship between readiness and the number of self-planned projects, as well as the total number of adult learning projects ($p < .01$).

There is a significant ($p < .01$) positive, predictive relationship between readiness and the total number of hours spent on self-planned learning, as well as the total number of hours spent on all learning projects ($p < .01$).

Self-concept as an effective, independent learner has a significant ($p < .01$), predictive relationship to the number of projects and time spent in self-planned learning. Only one other readiness factor, view of learning as a lifelong, beneficial process, contributed to the prediction of the number of self-planned projects.

Three of the eight personal factors predict extent of involvement in all adult learning projects. Love of learning has a significant ($p < .01$), predictive relationship to the total number of adult learning projects. Both of the following factors have a significant ($p < .01$), predictive relationship to the total number of hours spent on all learning projects: tolerance of risk, ambiguity and complexity in learning; view of learning as a lifelong, beneficial process.
There were no significant (p < .05) differences in the mean total readiness scores between groups within any of the following demographic variables: gender, percent of full-time equivalent appointment, program area, level of position, level of education, or tenure with Iowa State University Cooperative Extension Service.

However, there was a significant (p < .05) difference in the mean number of self-planned projects among tenure groups. Staff with less than 2 years tenure and those with 6-10 years tenure engaged in significantly more self-planned learning projects than staff with tenure of 2-5 years, 11-20 years, and 21 or more years. There was also a significant (p < .05) difference in the mean number of hours spent on self-planned projects among tenure categories, as well as level of position. Staff employed by the Iowa Cooperative Extension Service for less than two years devoted significantly more hours to self-planned projects than individuals in all other tenure groups. Persons in state level positions spent significantly more hours on self-planned projects than county and area level staff.

In general, the findings related to readiness for self-directed learning and adult learning projects are consistent with those reported in previous studies of populations with similar demographic characteristics. As a group, the Extension sample possesses the skills, abilities, and attitudes which facilitate self-direction in learning. The mean total score of 238.43 denotes a higher level of readiness than Guglielmino's normed mean value (214.40). Nearly 82 percent of the Extension sample scored above the normed mean value. This finding may be explained by the sample's high level of education. All individuals had a
minimum of a bachelor's degree.

The typical learner in this study engaged in a total of ten projects per year, seven of which were self-planned. He or she spent an average of 86 hours per learning project, for a total of 853 hours per year. Self-planned learning projects averaged 90 hours in length, for a total of 652 hours annually. Respondents devoted more time to self-planned projects than those planned by someone other than the learner.

Learning activities related to the respondents' profession were the most popular, followed by personal, family, and home topics, self-fulfillment projects, and civic related learning. Reading, the most frequently cited major method of learning, was utilized in nearly 78 percent of all learning projects and 85 percent of self-planned projects. Conversation, doing, and listening, in that order, were also used in the majority of projects.

Approximately 70 percent of all learning projects and 75 percent of self-planned projects were active at the time of the interview. Adults seem to be satisfied with their learning efforts. The degree of satisfaction experienced by learners is slightly higher for self-planned projects than learning directed by someone other than the learner.

Conclusions and Discussion

The Self-Directed Learning Readiness Scale was developed to assess readiness for participation in self-directed learning. Findings reported in the previous section show that the SDLRS can predict involvement in self-directed adult learning activities. However, its predictive
ability is limited, accounting for 25 percent or less of the variance in number of projects, and time spent on these projects. The SDLRS is a better predictor of the number of all learning projects \( (R^2 = .25) \) and the time spent on them \( (R^2 = .25) \), as well as the time spent on self-planned projects \( (R^2 = .24) \), than it is for the number of self-planned projects \( (R^2 = .09) \).

An instrument like the SDLRS has potential use as a diagnostic tool to assess the readiness level of adults for programs, responsibilities, and perhaps jobs in which skills, abilities, and attitudes for self-direction in learning are necessary. Educational institutions or employers could use a specified minimum readiness level as a criterion for participation in programs or employment. The instrument could also serve to identify an individual's strengths and weaknesses related to self-direction in learning, which has staff development implications for pre-service and in-service education. The SDLRS also has potential as an evaluation instrument for experiences designed to increase readiness for self-direction in learning. For example, the instrument could be used as a pre and posttest to assess growth in readiness level. Further research is needed to evaluate potential uses of the SDLRS. Such research recommendations are discussed in the following section.

Self-concept as an effective, independent learner was the best of eight factors in predicting the number of self-planned projects \( (R^2 = .20) \) and amount of time spent on them \( (R^2 = .42) \). This is consistent with the literature, which shows that adults with high self-concepts are more likely to assume responsibility for deciding what they want to learn and how they will approach their learning experiences. Educators must
understand how self-concept influences learning and how to assist learners with their personal growth. This implies the need to design learning opportunities which employ strategies that reinforce the learner's self-concept. Since self-concept as an effective, independent learner has been identified as the best readiness predictor of involvement in self-planned learning, it may provide the basis for future examination of how to increase an individual's ability in self-directed learning.

Further support for the need to explore self-concept as a key to increasing a person's ability in self-directed learning was found when examining the predictive relationship between items on the SDLRS and involvement in learning projects. Certain individual items are better predictors of self-planned learning than readiness factors. At least five items on the SDLRS appear to be very effective ($R^2 = 1.00$) in predicting extent of involvement in self-planned projects. Four of the five items load on self-concept as an effective, independent learner. These items assess the learner's confidence in planning, conducting their own learning, and in knowing where to seek resources, as well as assessing the individual's desire to assume responsibility for deciding what will be learned and how. They also provide specific information about self-concept of the learner which may be investigated in further research which focuses on increasing ability for self-direction in learning.

Personal factors that predict involvement in all learning projects differ from predictors of self-planned projects. Love of learning predicts the total number of all learning projects, while tolerance of
risk, ambiguity, and complexity in learning; and view of learning as a lifelong, beneficial process combine as predictors of time spent on all learning projects.

Since self-planned learning was found to represent 73 percent of all learning projects and 77 percent of the total time spent on these projects, it would seem that the factors which predict involvement in self-planned projects would also predict involvement in all learning projects. Further analysis may be needed to explain why factors which predict involvement in self-planned projects are different from factors predictive of all types of adult learning projects.

This study examined the predictive relationship between readiness and involvement in self-planned projects as well as involvement in all learning projects. Self-planned projects were included as a part of all learning projects. An alternative analysis would be to explore the predictive relationship between readiness and involvement in self-planned learning as compared to the predictive relationship between readiness and involvement in projects planned by someone other than the learner. This would be a more precise comparative analysis which might provide more accurate information regarding the differences between self-planned and other planned projects.

A couple of conclusions can be drawn based on findings from analysis of the SDLRS and learning project data with demographic variables. Readiness level did not differ with respect to gender, full versus part-time employment, program area, level of professional position, academic degrees beyond a bachelor's degree, or tenure. Perhaps this finding can be explained by the literature pertaining to
readiness. Level of formal education is the only demographic variable that has been consistently identified in the literature to have a significant, statistical relationship with personal factors which facilitate self-directed learning. Adults who have a higher level of formal education have a higher level of readiness than their counterparts with less schooling. This study controlled for level of education by selecting a sample which had a minimum of an undergraduate degree. This finding suggests that there may be some type of "ceiling" on increase in readiness with level of education beyond a college degree.

Extent of involvement in self-planned projects was found to differ with respect to tenure and level of position. Staff with less than two years tenure and those with 6-10 years tenure engaged in significantly more self-planned projects than their colleagues. Individuals with less than two years tenure also spent significantly more time on self-planned learning than staff in all other tenure groups.

In addition, job related topics were found to be the most popular content area of learning. Therefore, much of the high involvement in self-planned projects reported by staff with less than two years tenure may have been job related. Perhaps once an individual learns the knowledge and skills necessary for their job, the number of projects and time devoted to job related learning may decrease. This may be one possible explanation why staff with over two years tenure spend less time on self-planned and all learning projects than relatively new staff.

Explanation of the high number of self-planned projects conducted by staff with 6-10 years tenure is more speculative. It would be interesting to examine whether staff in the tenure groups which reported
the highest number of self-planned projects (less than two years, 6-10 years) engage in projects of a similar nature. This type of analysis could have implications for specific staff development needs with respect to tenure. It would also be interesting to investigate whether patterns of high involvement in self-planned learning among tenure groups correlate with high job turnover rates. This type of analysis might provide some clues to explain job turnover with respect to amount of time devoted to job related learning.

State level staff spent significantly more time on self-planned projects than county or area staff. Perhaps this finding can be explained by considering the nature of state level Extension positions. In most cases, professionals on the state level specialize in certain areas of expertise as compared to county staff who work primarily as generalists. Therefore, individuals in the state level positions may be more likely to pursue indepth learning experiences and research than persons in county or area level positions.

Recommendations for Further Research

This study examined the predictive relationship between readiness for, and involvement in self-directed learning which contributes to the literature regarding personal factors that facilitate self-directed learning. The recommendations which follow identify four broad areas of research needs related to readiness for self-direction in learning that may provide a basis for future research pertaining to increasing an individual's ability in self-directed learning.
The first area of research recommendations focuses on assessment of the Self-Directed Learning Readiness Scale. Additional research is needed to test the reliability and validity of the Self-Directed Learning Readiness Scale. The total readiness score, personal factors that comprise readiness, as well as the individual items on the SDLRS should be further examined. A large portion of the variance in the number of projects and time spent on these projects remains unexplained. This may restrict the confidence educators have for use of the instrument in research or as a diagnostic tool for decisions related to staff development, hiring of personnel, etc. Further analysis of the items is needed to increase the instrument's reliability, giving more credence to its use in a variety of settings. Future prediction studies should be conducted with a variety of populations having a range of educational levels to investigate whether educational level influences the instrument's predictive ability.

The SDLRS has been questioned as a valid measure of readiness for self-directed learning among older adults because it defines self-directed learning from a formal school and book oriented perspective which could be inappropriate for adults with few years of formal education (Brockett, 1982). The same concern could be identified for other populations. An alternate SDLRS should be developed that utilizes nonformal learning situations as examples to avoid the classroom educational bias in the present instrument. A revision of the instrument may lead to more accurate assessments of readiness for self-directed learning with varied populations.
What influences change in an individual's level of readiness for self-directed learning? A major assumption of this study was as follows: the readiness levels of subjects did not change during the twelve month period in which the learning projects were implemented. Part of the rationale for this assumption was based on findings reported by Wiley (1981). The SDLRS was used as a pre and posttest to identify whether change in readiness level occurred following a self-directed learning experience. A self-directed learning experience did not significantly contribute to variance in readiness level. However, the interaction between experiencing a self-planned learning project and preference for (high or low) structure did contribute significantly to the variance in posttest readiness scores. Wiley's findings point to the need for further research which examines the effect of involvement in self-planned learning projects on an individual's readiness level. Research in this area could provide clues to increasing an individual's ability for self-directed learning.

A third area of inquiry concerns the relationship of self-directed learning readiness to job tenure, performance, and satisfaction. In a 1981 study of management and nonmanagement employees in a major communications company, Paul Guglielmino found that:

Outstanding performers in jobs requiring a very high level of creativity, jobs requiring a high level of problem-solving skill and jobs involving a high degree of change, all scored significantly higher in self-directed learning readiness than others tested. (Zemke, 1982, p. 28)

Further research could identify whether there is a predictive relationship between readiness and tenure, performance, or satisfaction in professional positions requiring a high degree of self-direction in
carry out of job responsibilities. Findings from this type of study could have implications for using the SDLRS as a diagnostic tool for hiring, staff development, and management of personnel.

Numerous studies have examined the quantitative components of involvement in learning projects. However, little has been done to investigate the qualitative aspects of self-directed learning. Potential questions for future inquiry regarding the quality of learner involvement include: Is there a predictive relationship between readiness for, and quality of self-planned learning projects? (Indicators of quality for self-planned learning might include amount of knowledge or skills gained, retention, transfer of knowledge or skills learned, and learner satisfaction.) Is there a difference in the quality of self-planned learning experiences among adults with different levels of readiness for self-directed learning? Is there a difference between the quality of self-planned learning projects and those planned primarily by someone other than the learner? This area of research has implications for increasing knowledge gained, learner satisfaction, and perhaps the completion rate of self-planned projects.

In summary, this study provided data regarding involvement in adult learning projects and level of readiness for self-directed learning from a specific population, Iowa Cooperative Extension Service professional staff. Findings reported in the study suggest that the Self-Directed Learning Readiness Scale is a predictor of involvement in self-planned learning. However, its predictive ability is limited due to the large portion of unexplained variance in the number of projects and amount of time devoted to learning projects. Some recommendations for future
research were identified, including further study and possible revision of the Self-Directed Learning Readiness Scale.
BIBLIOGRAPHY


Hiemstra, Roger. The Older Adult and Learning. Lincoln, Nebraska: Department of Adult and Continuing Education, University of Nebraska, 1975.


UNESCO. *Recommendation on the Development of Adult Education.*


ACKNOWLEDGEMENTS

The author wishes to express appreciation to the Iowa Cooperative Extension Service for support of this study and to the staff who shared their perceptions and experiences in learning. Special thanks are extended to colleagues in the state 4-H staff. Their interest in this research and encouragement sustained the author.

The author is grateful to Dr. John Wilson for his guidance throughout the study and to the following committee members who shared their expertise during the development and implementation of the study: Dr. Robert Crom, Dr. Roger Lawrence, Dr. Anton Netusil, Dr. Penny Ralston, and Dr. Rex Thomas.

Sincere gratitude is extended to Janet for her dedication and assistance in preparation of numerous drafts of the text.

Finally, the author would like to recognize her husband and parents who provided a great deal of personal support and shared in her commitment to successful completion of this research. This study is dedicated to them—Lee, Jerry, and Helen.
APPENDIX A: SELF-DIRECTED LEARNING READINESS SCALE
AND ITEMS LOADING ON THE EIGHT FACTORS
PLEASE NOTE:

Copyrighted materials in this document have not been filmed at the request of the author. They are available for consultation, however, in the author's university library.

These consist of pages:

Appendix A, pages 146-155
APPENDIX B: ADULT LEARNING PROJECTS TELEPHONE INTERVIEW SCHEDULE, PROBE SHEETS, AND ADULT LEARNING PROJECTS DATA RECORD FORM
ADULT LEARNING PROJECTS TELEPHONE INTERVIEW SCHEDULE

Prior to Interview

(Subjects will receive a letter requesting their participation in this adult learning research project and two items to complete and return: 1) Self-Directed Learning Readiness Scale, and 2) a calendar indicating dates available for a telephone interview. Approximately one week prior to the interview, a letter will be sent to the subject confirming the date and time of the interview. Probe sheets will be enclosed for use during the interview.)

Introduction

Hello. This is Karen Hall-Johnsen calling to interview you about your learning experiences. We'll be referring to the materials I sent you recently. Do you have them handy?—If not, go ahead and take time now to get them.

Before we begin the interview, I want to thank you for completing and returning the questionnaire about learning. I assure you that your responses to the questionnaire and today's interview will be kept confidential. None of the participants will be identified by name.

My research is about people and the sorts of things they learn. Everyone learns, but different people learn different things—and in different ways.
List of Learning Projects (Number of learning projects and content)

There are two parts to this interview. The first part involves creating a list of things you set about learning during the past year. Then, I have a few questions about each learning effort on the list.

When I say "learn" I don't just mean learning the types of things that people learn in formal classes. I mean any sort of deliberate attempt to learn something, or to learn how to do something. Perhaps you tried to get some information or knowledge—or to improve skills or gain new ones—or to increase your understanding about something. For example, many Extension staff have been involved in learning how to use a computer during the past year. This learning may have occurred in a variety of ways—Independent study with a manual, participation in an in-service training session, watching someone else, etc. Think of the topics or skills that you have spent at least seven hours learning about during the past twelve months. I'll write the list as you recall the topics.

Probes

(Use one or more general or chronological probes, plus a content and method probe.)

• (General) Try to think over the past twelve months—back to August of last year. Any deliberate effort to learn can be included, regardless of whether it was easy or hard, big or little, important or trivial, serious or fun, or whether it is completed or not at this time.
• (General) It doesn't matter when you started the learning effort, as long as you spent at least a few hours at it sometime since last year.

• (General) I want to get as complete a list as possible, because I think that people make far more attempts to learn than anyone realizes. We can include any type of information, knowledge, skill, or understanding that you have tried to gain—just as long as you spent at least a few hours at it, sometime during the past twelve months. What else do you recall?

• (Chronological) Thinking about highlights in your life during the past year may help you to recall learning activities. (Examples: moving, new baby, building a house, change in job responsibilities, etc.)

• (Content) Take a look at Sheet No. 1 that I sent you. It is a list of different things that others have tried to learn. Take as long as you need to read each item listed and to think whether you have tried to learn something similar in the past twelve months.

• (Method) On the back of Sheet No. 1 I have listed some different ways adults learn. Please take time to review each of them. This information may help you to remember other learning efforts.

---

Criterion Questions

(If doubtful about learning projects listed, check criteria with following questions.)

• (Deliberate learning/retention for two days) How long did you want to retain what you were learning in this activity?
(Time spent = 7 hours in 6 months) During some six month period in the past year, did you spent at least a total of seven hours in learning? The seven hours may include the time you spent for planning your learning, traveling for your learning, and the learning itself. (At least five hours should be spent at the learning itself.)

Content

(If possible, record the content of the learning projects and classify in one of the following categories as the subject lists them. It may be necessary to refer to Sheet No. 1 which lists examples of learning projects in each category.)

• Professional Competence
• Personal, Family, and Home
• Civic
• Self-Fulfillment

Thank you. That gives us a fairly complete list. However, if you think of something else you have learned, please tell me at any time. Now, I would like to ask you a few questions about each of your learning topics. The questions are the same for each learning effort, so after the first one, we'll be able to move through them quickly.

Time (Number of hours spent)

Let's begin with (first learning effort listed). We need to estimate the number of hours you spent in learning this topic. Please refer to Sheet No. 3. There are three ways in which you may have spent time on learning: 1) deciding and planning, 2) traveling and
arranging, and 3) the actual learning—gaining knowledge or skill related to the topic.

How many hours do you estimate that you spent deciding and planning what you wanted to learn and how you were going to learn it? How many hours did you spend for traveling and arranging? How many hours did you spend for actual learning?  *
Let's see, that makes a total of ____________ hours for that learning effort. Does that sound about right?

* (If the total number of hours is less than 14 or less than 10 for the actual learning, ask the following question.) Within a six month period in the past year, did you spend at least seven hours at this altogether? Did you spend at least five hours in actual learning—the third item of your sheet? (If the answer is "no" to either of these questions, the effort cannot be considered as a learning project.)

**Type of Planner**

I want you to think about this learning effort and try to decide who or what was the planner—who decided the majority of what you would learn and how you would learn? Take a few moments to review Sheet No. 4 which lists four types of planners.
Which one of the four types of planners had the majority of responsibility for the day-to-day decisions about what and how you would learn?

- Self-Planned
- Another Individual
- Group
- Nonhuman Planner

Major Method(s) of Learning

I would like to find out the major method or methods you used for this learning activity. We can learn in a variety of ways—by reading, talking with someone else, observing, watching T.V. or listening to the radio, practice actually doing some skill, or a combination of these methods.

Look at the bottom of Sheet No. 4. Which one or more of the major methods listed did you use for this learning effort?

Current Status of Projects

Which of these three responses best describes this particular learning effort at the present time?

- Definitely active—that is, you are definitely continuing this learning right now, and you are spending about as much time as ever at it.
- Not very active—that is, you have dropped it or set it aside for awhile.
- Completed—that is, you have completed it.
Motivation/Credit Nature of Projects

Did you obtain academic credit for learning about this topic?

Was any of your learning for this topic directed toward passing an examination toward some type of certification or license? (If response to both preceding questions was "no," mark the noncredit category on the data form and continue with next question. If response is "yes," record on form and proceed to next section.)

What motivated you to become involved in this learning effort?

Degree of Satisfaction

Please think for a moment how satisfied you are with this learning effort. Would you say you are:

- Very satisfied
- Somewhat satisfied
- Not very satisfied

(Repeat questions about "Time" through "Degree of Satisfaction" for each learning project.)

Have you thought of any other topics or skills that you made a deliberate attempt to learn since last August? If so, I'll add them to the list. (Repeat questions about "Time" through "Degree of Satisfaction" for each project added to the list.)

That completes the interview. Thank you very much for your time and participation. Your efforts will help us to know more about adult learning.
SOME THINGS PEOPLE LEARN

People learn things for . . .

Professional Competence
This includes: Subject matter knowledge or skills related to job
"Process" skills related to job — leadership development
Retraining for a change in position or career

Personal, Family and Home
This includes: Personality development
Personal improvement — goal setting, personal time management
Physical fitness
Anything related to mental and physical health
Dieting
Role as a parent, spouse — family relations
Child care
Money management, investments
Home related skills — sewing, cooking, interior decorating,
refinishing furniture, gardening

Civic
This includes: Voting and politics
Current events
Community development and government

Self-fulfillment
This includes: Arts and crafts
Performing Arts — music, dance, theatre
Hobbies — collecting things, photography
Recreation — athletics
Religion — church activities, personal devotions
SOME WAYS THAT ADULTS LEARN

Can you recall any times you tried to learn something by . . .

_____ reading a book, pamphlet, newspaper or magazine?

_____ watching TV programs or news, listening to radio programs, or going to a theatre?

_____ asking a specialist or another professional such as a doctor, lawyer, counselor, teacher, or financial or tax advisor?

_____ attending in-service, a conference, discussion group, a weekend meeting, or other group meeting?

_____ asking questions of your relatives, neighbors, or friends?

_____ enrolling in a correspondence or TV course, or through tape recording, or a computer program?

_____ taking private lessons?

_____ asking your teacher in classes or learning centers, your husband, or wife, your father, mother, etc.?

Have you learned in a . . .

_____ church or synagogue?

_____ class for academic credit, or an informal class?

_____ community organization?

_____ government program?

_____ an exhibition, museum, library?
ESTIMATING TIME SPENT ON LEARNING

1. Deciding and Planning

Perhaps you spent some time deciding

____ what you wanted to learn
____ how you were going to go about the learning
____ where to get help or advice

2. Traveling and Arranging

Some of your time might have been spent

____ traveling to a meeting or library, finding the right book or persons
____ arranging appropriate conditions for learning

3. Learning

During some of the time, your main purpose was to gain certain knowledge,
skill or understanding.

That is, you spent time reading, listening, observing, discussing, or learning
in some other way -- and your motivation to gain and retain certain knowledge
and skill was stronger than all your other motives put together during that
time.

Of course, you may not be able to remember exactly how many hours, so just give
your best guess. If you wish, just choose the closest number from the following
list:

1  3  6  10  20  40  50  70  90  100  120  150  180 or more
TYPES OF PLANNERS

1. Self-planned

You have the major responsibility for the day-to-day planning and decision making. You may receive advice or information from other people or resources, but you retain the responsibility for deciding what to try next, what to read, etc.

2. Another Individual

One other person (instructor, expert or friend) has the major responsibility for planning and deciding what and how you learn. Usually a face-to-face situation, although it could be by telephone or correspondence.

3. Group

Some group of peers or other persons collectively decide what and how you learn. This could be in a formal class setting or a small informal group.

4. Non-human Planner

The decisions about what to learn and what to do next are made for the learner by some material resource ... a programmed instruction book, a set of tape recordings, a video tape series, or a computer programmed instruction module.

MAJOR METHODS OF LEARNING

- Reading
- Conversation
- Listening to someone else
- Observing
- TV and Radio
- Doing
- Other
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Project CONTENT
1. Professional
2. Pers., fam., & home
3. Civic
4. Self-fulfillment

TIME (6 hours)
1. Deciding & planning
2. Traveling & arr.
3. Learning (10 hours)
4. Total (16 hours)

PLANNER
1. Self-planned
2. Another individual
3. Group
4. Non-human

METHOD
1. Reading
2. Conversation
3. Listening
4. Observing
5. TV & radio
6. Doing
7. Other

STATUS
1. Definitely active
2. Not very active
3. Completed

MOTIVATION
1. Academic credit
2. Certification
3. Non-credit

SATISFACTION
1. Very satisfied
2. Somewhat satisfied
3. Not very satisfied
APPENDIX C: INITIAL COVER LETTER, CALENDAR FOR INTERVIEW,
AND INTERVIEW CONFIRMATION LETTER
July 25, 1984

Dear ____________:

Your involvement is needed in a research effort on adult learning. The study is being implemented with a selected group of Iowa Cooperative Extension Service professional employees and is being conducted in cooperation with the Adult and Extension Education section of Iowa State University. This project has been approved and is supported by Dean Crom, who serves on the advisory committee for this research. The results of the study will provide information about the type and scope of learning efforts in which adults are involved. This will help us gain a greater understanding of how our Extension clientele learn and may also have implications for in-service education.

We are seeking your input in two ways: 1) To complete and return the enclosed questionnaire—approximately 10 to 15 minutes, and 2) To participate in an individual telephone interview—approximately one hour. A calendar is enclosed for you to return so that the interview can be scheduled to avoid conflicts. Approximately a week prior to the interview you will receive a letter confirming the date and time you will be called with written materials to keep handy by the phone. You will not need to spend any additional time preparing for or following the interview.

All responses to the questionnaire and the interview will be kept confidential. Cross reference between individuals and information will be destroyed once the data have been analyzed so that no individual can be identified in reporting the results of the study.

We hope to finish the interviews by the first part of September. Your cooperation will help us to meet our deadline. Please complete the enclosed questionnaire prior to Friday, August 10, 1984 and return it with the calendar for interviews in the enclosed envelope.

Thank you, ____________, for your time and participation in this important research effort.

Sincerely,

Karen Hall-Johansen
Assistant State Leader
4-H and Youth Programs

Enclosure
Return with questionnaire in enclosed envelope by Friday, August 10, 1984

CALENDAR FOR INTERVIEW

It's a busy time of year so I would like to schedule a telephone interview to avoid conflicts in your calendar. The telephone interview will be approximately one hour in length and can be scheduled for almost any time of day, Mondays - Saturdays. See the calendar below. You can also select the location where you would like to be called (office, home, other location).

Please mark an X on the days/times you could NOT be available for an interview. I will notify you to confirm the date and time of the interview approximately a week before I am scheduled to call you.

Thank you!

AUGUST

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Special notes/preferences (i.e. best time to reach you)

Address to send materials for interview: ____________________________
__________________________
__________________________
__________________________

Name ________________________

Phone # to call for interview: ________________________
( )
July 31, 1984

Dear ______________:

Thank you for returning the questionnaire about adult learning! I reviewed the dates you indicated that you could be available for a telephone interview and will plan to call you at approximately...

8:30 a.m. on TUESDAY, AUGUST 7, 1984

If something prevents you from being interviewed at the above time, please contact me at the State 4-H office (515-294-1017) to reschedule the interview.

The interview will focus on your learning experiences and will take about one hour. You will not need to do any preparation prior to the interview. Enclosed are some sheets to keep handy by the phone. You will need to refer to them during the interview.

I'm looking forward to talking with you on August 7th!

Sincerely,

Karen Hall-Johnsen
Assistant State Leader
4-H and Youth Programs

Enclosures
APPENDIX D: IOWA STATE UNIVERSITY HUMAN
SUBJECTS COMMITTEE APPROVAL
INFORMATION ON THE USE OF HUMAN SUBJECTS IN RESEARCH
IOWA STATE UNIVERSITY

(Please follow the accompanying instructions for completing this form.)

1. Title of project (please type): THE RELATIONSHIP BETWEEN READINESS FOR SELF-DIRECTED LEARNING AND INVOLVEMENT IN SELF-DIRECTED LEARNING

2. I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are properly protected. Additions to or changes in procedures affecting the subjects after the project has been approved will be submitted to the committee for review.

Karen J. Hall-Johnsen 7/12/84
Typed Name of Principal Investigator Date Signature of Principal Investigator

32 Curtiss
Campus Address

294-1017
Campus Telephone

3. Signatures of others (if any) Date Relationship to Principal Investigator

7/12/84
Major Professor
Professional Studies-Adult & Ext. Ed.

4. ATTACH an additional page(s) (A) describing your proposed research and (B) the subjects to be used, (C) indicating any risks or discomforts to the subjects, and (D) covering any topics checked below. CHECK all boxes applicable.

☐ Medical clearance necessary before subjects can participate
☐ Samples (blood, tissue, etc.) from subjects
☐ Administration of substances (foods, drugs, etc.) to subjects
☐ Physical exercise or conditioning for subjects
☐ Deception of subjects
☐ Subjects under 14 years of age and (or) ☐ Subjects 14-17 years of age
☐ Subjects in institutions
☐ Research must be approved by another institution or agency

5. ATTACH an example of the material to be used to obtain informed consent and CHECK which type will be used.

☐ Signed informed consent will be obtained.
☐ Modified informed consent will be obtained.

6. Anticipated date on which subjects will be first contacted: Month Day Year
   Anticipated date for last contact with subjects: Month Day Year

7. If Applicable: Anticipated date on which audio or visual tapes will be erased and (or) identifiers will be removed from completed survey instruments: Not applicable

8. Signature of Head or Chairperson Date Department or Administrative Unit

9. Decision of the University Committee on the Use of Human Subjects in Research:
   ☑ Project Approved ☐ Project not approved ☐ No action required

George G. Karas 7/27/84
Name of Committee Chairperson Date Signature of Committee Chairperson

Revised 5/78