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Awatif Mohamed Hassan
Iowa State University

HASSAN, AWATIF MOHAMED

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An investigation of the learning projects among adults of high and low readiness for self-direction in learning

by

Awatif Mohamed Hassan

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CHAPTER I. INTRODUCTION

Adult education as a field of study has a large body of research findings on participation. Most of the related studies, however, describe adults who participate in institutional programs. Adult educators, until quite recently, knew very little about participation in adult learning activities from the individual learner's standpoint--how much time is spent at learning, what is learned and why, how it is learned, where the majority of learning takes place, and what help is obtained to assist people in their learning.

However, since the 1960s the focus of the participation studies has begun to shift from institutional to individual learning. This new emphasis has been on self-teaching, independent study, self-directed learning and autonomous learning. What has been established is that important learning can occur outside of educational institutions as well as inside and that learning can be planned by either learner or by professional.

Data from these recent studies have resulted in observations and implications that are by no means trivial. One revealing part of these studies was the fact that almost 70 percent of the learning activities undertaken were self-planned and outside the institutional framework of most education agencies. The high incidence of self-planned

learning raises serious policy questions concerning the future of adult education (Coolican, 1974).

Analysis of factors influencing participation also has resulted in important discoveries. For example, in the last decade there have been attempts to establish national baseline and trend data regarding the magnitude of participation (Johnston & Rivera, 1965). In addition, other efforts have been made to assess participation in self-directed learning projects beyond the scope of institutional forms of adult education (Tough, 1971). Thus, the main thrust of participation research has shifted from an examination of socioeconomic correlates of participation to the study of the psychological and attitudinal variables influencing participation. Certain biographical and socioeconomic characteristics such as age, previous education, and occupation are now known to be associated with participation in adult education (Dickinson, 1971). Unfortunately, even these new efforts have been handicapped by deficiencies in theoretical and conceptual clarity with respect to the variables investigated and the concomitant lack of precision in the empirical indicators used to study participation.

Subsequently, a number of researchers have made efforts to clarify and to develop theoretical bases. Tough's (1971, 1979) research on learning projects clearly has had a

stimulating effect on the efforts to understand participation. Although the description of individual learning projects is quite new, the phenomenon has existed throughout the history of man. Tough (1967, p. 7) stated that twenty-four centuries ago Socrates, as a young man, followed his own course of reading and study. Kulich (1970) explained that Socrates called himself a self-learner who wished to learn from anyone around him.

Maslow (1968) asserted that 90 percent of existing "learning theory" dealt with learning which was not related to the intrinsic self. Most of those learning theories reflected the objectives of institutions and teachers; the values of the learner were neglected. Maslow believed that more actual learning in fact takes place outside the classroom. This learning comes from the experiences of life such as discovering life's work, getting married, and having children.

Illich (1973) even argues that schools serve to alienate people from learning and make them dependent on the authority of experts and institutions. Schools, he contends, have little to do with learning. "Teaching, it is true, may contribute to certain kinds of learning under certain circumstances, but most people acquire most of this knowledge outside school. . ." (1973, p. 18).

Freire (1970) supports this belief and suggests that traditional education is based on "the banking system" of education. The student in this system is an object into which knowledge can be placed. The learner is not a subject in the process of learning.

Most adult education programs are also based on institutional needs rather than individual learner's needs. Systematic research in the area of adult learning is increasing with regard to this visible contemporary gap. Houle (1961) was one of the first adult educators to recommend the need to investigate the individual learning undertaken by adults. He explained that "the decision to focus the present inquiry on the individual was reinforced by the perplexing fact that no such studies have been previously undertaken, a gap which has been independently noted by other summarizers of literature" (1961, p. 9). Houle (1961), in the Encyclopedia of Educational Research, explained that for a large group of researchers," the individual appears to be the proper focus for any study of adult education, for although social factors influence the goals, nature and results of learning, learning must ultimately be measured in the change of the individual who is the one enduring element amidst all the diversity of social change" (1969, p. 54).

Tough's systematic inquiry of the self-learner was a direct spin-off from the Houle influence. He was interested in investigating how learning proceeds in its natural form in every day life. Tough has pursued the study of self-planned learning more than any other adult educator. He defines self-planned learning as a person's deliberate attempt to learn some specific knowledge and/or skill. The individual assumes primary responsibility for planning not only the why, but also the what, how, when, and where of learning. The person may include a course as part of the total learning effort or seek materials or advice from an educational institution, but he or she retains the control of and responsibility for deciding what resources and activities to use each time (Tough, 1979, p. 78).

Additional studies have been completed on different adult populations using the probing techniques and the interview schedule developed by Tough. The combination of the findings of all these studies shows that the differences among several populations are not great. The findings in each study are roughly similar with findings in other studies. The large differences are not among populations; they are within the given populations. The findings, which have been summarized by Tough (1977), are as follows:

1. Approximately 90% of adults conduct at least one major learning effort during a year.

2. The average learner conducts five distinct learning projects per year.

3. A person spends an average of 100 hours per learning effort, a total of 500 hours a year.

4. About 75% of the learning projects are motivated by some anticipated use of the knowledge and skill; 20% of all learning projects are motivated by curiosity or puzzlement; 5% are motivated by credit toward certificate, degree, etc.

5. The question of who plans the learning efforts has a fairly standard answer, for "every study of adults finds a similar pattern, although the exact figures vary a little" (Tough, 1977, p. 6). The studies indicate that seventy-three percent of all learning projects are planned by the learner himself/herself, 10% by a professional who leads a group of peers, 7% by a professional in a one-to-one situation, 3% by a friend in a one-to-one situation, 3% by a professional indirectly through nonhuman resources such as programmed instruction.

Looking at the above composite findings, Tough (1977) argues that until recently researchers looked only at the tip of the iceberg. In adult education, the visible portion of the iceberg is primarily learning in classrooms, workshops, auditoriums, or conferences, tutorial or correspondence

study, and programmed instruction. But what has been unnoticed until fairly recently, the invisible portion of the iceberg, is self-planned learning. Looking at adult education efforts in terms of the whole body of the iceberg, the conclusion can be made that adult education institutions could not possibly meet all the learning needs of adults through their traditional programming services. Therefore, adult education professionals must develop efficient and effective approaches for assisting adults with their deliberate self-planned learning efforts outside the traditional realm.

The implications of this new area of educational research are enormous when viewed in terms of "lifelong" education and the deemphasis on institutionalized education, which is being espoused by such writers as Illich (1973) and Reimer (1971). Ohlinger (1975) also has stressed that the time when obligatory schooling is starting to make some inroads into the lives of adults, it is essential to study the sorts of learning which can occur outside of formal structures. He outlines some dangers in the direction which adult education is pursuing by raising the issue that adult education may be becoming "an oppressive force that is beginning to take over people's lives in North America." Ohlinger considers that if people are forced to go to learning

institutions all their lives they may never overcome their feeling of inadequacy.

The great advantage which the study of adult learning projects offers is that the adults' learning may be described and assisted by augmenting the natural form rather than attempting to force it into a predetermined pattern. To date, learning project research has concentrated on various aspects of the process of learning, including factors which lie behind an adult's decision to learn something (Tough, 1965). The feasibility of examining the origins of adult learning efforts has already been demonstrated in studies other than the Tough (1971, 1979) study. In the "Inquiring Mind", Houle (1961) attempted to determine how continuing learners developed their approach to learning. He emphasized that his purpose was to mark off for exploration, a small part of what could become a larger, more fully developed study. His interviews revealed that many people do have definite ideas about continuing learning and in particular, why they are the way they are. The review of literature will summarize additional studies into adult learning origin.

The Problem

A basic assumption of this study is that a need exists for research into the influences that prompt adults to undertake learning efforts. A valid approach would be to examine the impact on the adult of current readiness for self-directed learning and to see if adults from different social classes and with different educational backgrounds conduct deliberate learning, including learning that might be formal or self-directed, indepth or superficial. The approach will be to investigate the extent of learning activity, the relationship of learning activity to one's readiness for self-directed learning, to identify the major planner of the learning, and to discover other pertinent learning characteristics of a general adult population in Ames, Iowa. Tough's definition and instrument will be utilized to explore the "learning projects" of the selected random sample. Guglielmino's (1977) "Self-Directed Learning Readiness Scale" (SDLRS), will be used to measure subjects' current readiness for self-direction in learning.

Since there is no accepted criterion of what constitutes readiness for self-directed learning, an arbitrary grouping will be made based on results from the Guglielmino's (1977) "Self-Directed Learning Readiness Scale". Guglielmino recommended that total readiness for self-direction scores of 209 and

below should be considered as low readiness for self-direction in learning, and scores of 239 and above as high readiness for self-direction in learning. The range between these two scores was considered as average self-direction in learning. For the purpose of this study, the same criteria were used to select adults who were highly self-directed learners versus those who were average or low. These subjects will then be interviewed using Tough's interview schedule (1971) and the results will be compared. This in turn will provide additional verification data on the SDLR scale.

In addition to verifying the SDLR scale, there are other questions of interest. Relationships between age, sex, race, educational level, marital status, number of children under 19, occupation, or other factors and the degree of self-direction in learning will be studied. Prior research on these questions (see the review of literature chapter) provides few clear answers.

Significance of the Study

This study will make an important contribution to the knowledge concerning self-direction in learning and important personal characteristics of self-directed learners, especially behavioral and attitudinal characteristics. The Self-Directed Learning Readiness Scale will provide a base from

which to seek information on further vital issues concerning self-direction in learning, such as the measured characteristics of self-directing learners, the suitability of self-directed learning formats for everyone, and ways in which self-direction in learning might affect such things as academic success, occupational choice, occupational success, and personal adjustment and mental health.

The findings of this study also will contribute to an understanding of why adult learners participate in learning which will facilitate the growth of theory and models to explain participation and help to illuminate possible means of increasing the quality and quantity of learning experiences of adults.

More specifically, information obtained through this study, in addition to providing a more stable base for research than is now available, should make these further contributions:

1. Aid educational institutions at all levels in developing programs suitable for highly self-directed learners or in modifying current programs.

2. Aid classroom teachers or facilitators in understanding self-direction in learning, in dealing with self-directed learners in classroom situations, and by providing an opportunity for practicing the required teaching skills.

3. Enable the self-directed learner to better understand himself or herself.

4. Influence the programs for preparation of teachers or facilitators.

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

In addition, the study will provide even more verification data on the SDLR scale. Such an instrument has a potential wide use in screening and counseling persons for programs where skills of self-direction are necessary, such as correspondence courses, independent study, a wide range of nontraditional programs, and individual classrooms. The instrument also has potential as an evaluative device in programs designed to develop self-direction in learning.

Hypotheses

The following research hypotheses in null format were tested:

Question I:

Is there a significant relationship between an adult readiness for self-direction in learning and the number of learning projects he/she had conducted in the twelve month period before the time of the interview?

HO I: There is no significant relationship between an adult readiness for self-direction in learning and the number of learning projects he/she had conducted in the twelve month period before the time of the interview.

To better understand such relationships, each of the eight variables of the Self-Directed Learning Readiness Scale (see the methodology chapter) was used as a sub-hypothesis as follows:

A: There is no significant relationship between love of learning and the total number of learning projects.

B: There is no significant relationship between an adult self-concept as an effective independent learner and the number of learning projects.

C: There is no significant relationship between tolerance of risk, ambiguity and complexity in learning and the number of learning projects.

D: There is no significant relationship between creativity and the total number of learning projects.

E: There is no significant relationship between view of learning as a lifelong, beneficial process and the total number of learning projects.

F: There is no significant relationship between initiative in learning and the total number of learning projects.

G: There is no significant relationship between self-understanding and the total number of learning projects.

H: There is no significant relationship between acceptance of responsibility for one's own learning and the total number of learning projects.

Question II:

Knowing of the variables of readiness for self-directed learning, level of formal education, age, and sex, is it possible to establish a meaningful prediction equation of the number of learning projects the adult learner will conduct in a year?

Some of the existing literature regarding participation shows that people who participate most actively in learning activities are more highly educated (Hiemstra, 1976; Guglielmino, 1977; Johnstone & Rivera, 1965; Knox, 1965; London, Wenkert & Hagstrom, 1963). Some also suggest that adults with higher educational levels are more able to establish and maintain a major share of the responsibility for initiative and motivation in planning and carrying out their own learning activities. On the other hand, less educated adults often turn to a variety of human resources for planning and directing their learning activities and are less willing to accept responsibility for their own learning. A review of literature also revealed that some differences in sex, race, family background, and age exist in terms of self-directed learning (Gibb, 1966; Hiemstra, 1976; Maxwell, 1967; Redmond, 1966).

HO II: Knowing of the variables of readiness for self-directed learning, level of formal education, age, and sex it is impossible to establish a meaningful prediction equation of the number of learning projects the adult learner will conduct in a year.

Question III:

Is there a significant difference between the type of the planner used for learning by individuals who are high, average or low self-directed learners?

As was mentioned earlier, Tough (1979, p. 93) suggested that the self-reliant, independent type of person is likely to prefer self-planning as the primary learning mode. Knowles (1975) also believes that self-directed learners are motivated by internal incentives such as a need for self-esteem, a desire to achieve, and the satisfaction that will come from accomplishing something. Sabbaghian (1979) reported that highly self-directed adults have more self-acceptance, self-esteem and are more productive in different aspects of life than low self-directed adult (see literature review chapter).

HO III: There is no significant difference between the type of the planner used by individuals who are high, average or low self-directed learners.

Question IV:

Is there a significant relationship between the total number of self-fulfillment learning projects an adult learner carries out and his/her readiness for self-directed learning?

Existing self-directed learning literature suggests that self-directed adult learners are persons who continue their learning by selecting objectives that have high priority, by selecting the type of learning activities, and by planning and carrying out personal learning activities (Smith, 1976; Knox, 1973). Thus, the researcher was interested in determining whether a relationship exists between the total number of self-fulfillment projects completed (those of a high personal nature) and personal readiness for self-directed learning.

HO IV: There is no significant relationship between the number of self-fulfillment learning projects the adult learner had pursued during the twelve month period prior to the time of the interview and his/her readiness for self-directed learning.

Each of the eight factors of the Self-Directed Learning readiness scale also was used as a subhypothesis:

A: There is no significant relationship between love of learning and the total number of self-fulfillment projects.

B: There is no significant relationship between adult's self-concept as an effective independent learner and the total number of self-fulfillment projects.

C: There is no significant relationship between tolerance of risk, ambiguity and complexity in learning and the total number of self-fulfillment projects.

D: There is no significant relationship between creativity and the total number of self-fulfillment projects.

E: There is no significant relationship between view of learning as a lifelong, beneficial process and the total number of self-fulfillment projects.

F: There is no significant relationship between initiative in learning and the total number of self-fulfillment projects.

G: There is no significant relationship between self-understanding and the total number of self-fulfillment projects.

H: There is no significant relationship between acceptance of responsibility for one's own learning and the total number of self-fulfillment projects.

Question V:

Is there a significant difference between the number of self-fulfillment projects conducted by individuals who are high, average or low self-directed learners when initial differences between the three groups have been adjusted with respect to age?

As was mentioned earlier, self-direction in learning exists along a continuum; it is present in each person to some degree. The highly self-directed learning person often

spends more energy than the other directed learners. Besides, the highly self-directed learner more often influences the learning objectives, activities, resources, priorities, and the type of planner (Guglielmino, 1977, p. 34). The researcher noticed that there are minor differences between various age groups in terms of their readiness for self-directed learning. Interviewees who were 65 years and older rated themselves low on the Self-Directed Learning Readiness Scale. However, some of those older people who rated themselves low on the Self-Directed Learning Readiness Scale were high activity learners who conducted more than 9 projects in a year. Besides, a review of literature revealed that older adults conducted more self-fulfillment projects than younger adults (Hiemstra, 1975).

The researcher decided that if she analyzes only group differences with respect to the dependent variable (number of self-fulfillment projects), without taking into consideration the apparently trivial differences between groups in terms of their readiness for self-directed learning, she will obtain a misleading picture of the true differences between groups. The following null hypothesis was tested:

HO V: There will be no significant difference in the total number of self-fulfillment projects conducted by individuals who are high, average or low self-directed learners when initial differences between the three groups have been adjusted with respect to age.

The literature suggests that people who participate more than others in adult education are younger, higher educated, middle class, urban residents, positive in their attitude toward education and the educational agency, highly motivated to learn, involved with broad and diverse leisure activities, highly skilled in social relationships, and oriented in terms of personal role of service to others (Hiemstra, 1976, pp. 84-85). People who participate less in adult education activities have been found to have lower incomes and socioeconomic levels, to maintain a fairly restricted social circle of friendships, to engage passively in sports and to limit most of their activities to fairly immediate surroundings (Hiemstra, 1976, p. 85).

In order to understand the relationship among various demographic/biographic variables and readiness for self-direction in learning, the relationships between sex, age, education, marital status, number of children under 19, and occupation were tested. The relationships between various demographic/biographic variables and the total number of

the learning projects conducted by the adult learner in one year were tested as well.

Assumptions of the Study

Assumptions relating to the research under investigation are as follows:

1. The definition of learning project as stated by Tough (1971) and used in this study is valid.
2. The interview schedule developed and revised by Tough and other researchers (1971) is reliable.
3. The Self-Directed Learning Readiness Scale developed by Guglielmino (1977) is reliable.
4. The adult learning projects explained by Tough is an appropriate framework to gather the information about the learning activities of adults.
5. The sample chosen for this study conducted self-planned projects in the past twelve months and can communicate the extent and nature of these projects to the interviewer.

Definition of Terms

Following is a list of terms used in this investigation. Subsequent use of the terms relate to the definitions which follow.

Adult education

Relationship between a student and an educational agent in which the agent provides, facilitates, and/or supervises a series of related learning experiences for the student.

Continuing education

"That idealistic and timeless conceptual thread that connects all deliberate efforts to help the human organism learn through life" . . . it has become common for adult educators who function within the (formal) context of colleges and universities to refer to their activities as continuing education.

Course

This is the term used to designate a specific type of adult learning which has identifiable purpose, content, structure, and time period.

Educational level

This refers to the level of formal education completed by the person previous to the interview.

Knowledge and skill

This is the entire range of behavioral change; cognitive, attitudinal, perceptive, feeling, and psychomotor.

Learning episode

Learning episode is the activity in which an individual engaged during a learning project. Learning projects usually consist of several learning episodes. Tough defines the learning episode as "a period of time devoted to a cluster or sequence of similar related activity" (Tough, 1971, p. 7). In this period of time, the primary intention of the learner should be to gain knowledge and skill and retain it for at least two days.

Learning for self-fulfillment

The projects to be included here are efforts at learning for leisure, arts and crafts, hobbies, and recreation; included also, would be learning related to music, art, dance, theatre, religion, ethics, or moral behavior.

Learning project

A series of clearly related learning episodes adding up to at least seven hours of efforts within a six month period. The last twelve months from the day of the interview will be the time period in which projects will be examined. Deciding and planning, traveling time to learning activity, and evaluating personal progress will also be considered as part of the learning project time.

Learning

The acquisition of knowledge, attitude, or skills and the mastery of behavior in which facts, ideas, or concepts are made available for individual use.

Lifelong learning

A process of learning that continues throughout life. It is usually thought of in connection with the need to learn throughout one's lifetime in order to cope with a constantly changing society.

Major planner of the learning projects

Tough describes the planner as "the person or thing responsible for more than half of the detailed day-to-day planning and deciding in a learning project" (1979, p. 77). Tough distinguishes among four types of planners:

1. Self-planned learning is conducted by the individual in planning and assuming responsibility in daily decisions. Other resources could be used but the individual retains the control of the learning activities from one learning session to the next.

2. In group planned learning, the adult attends a group where the group itself or the group's professional leader does the actual planning.

3. Individual planned learning is guided by one person. This person can be an instructor or friend. The learner

receives individualized instruction.

4. In material resources planned learning, the source of direction for the adult's learning comes from nonhuman resources such as programmed instruction, a book or several television programs.

Noncredit adult education

An educational process which does not grant academic credit for application to a specific academic degree.

Occupational, vocational, and professional competence

This includes learning related to preparing to enter the labor market, on-the-job training, retraining for a shift in occupation, and also basic literacy education. Graduate courses taken by a teacher to meet state requirements would be counted here.

Personal or family competence

This includes learning for the individual's role as parent, spouse, and homemaker. It also includes learning related to mental and physical health. An extensive counseling session on estate planning or family finances would be included here.

Program

An activity which is planned and organized with specific objectives is a program.

Social and civic competence

This area covers the individual's role as a responsible citizen including voting and politics, current events, community government and development, pollution, and ecology.

Organization of the Study

Chapter II provides the theoretical and research background for the present study by reviewing the relevant literature related to self-directed learning.

Chapter III describes the methodology used in the study: sample selection, instrumentation, procedures for gathering the data, and data analysis.

Chapter IV contains the presentation and discussion of the findings.

Chapter V summarizes the findings, presents the general conclusion of the study, and describes further research related to the learning projects and self-directed learning phenomenon that is needed.

CHAPTER II. REVIEW OF LITERATURE

Overview

The purpose of this study is to explore the nature and extent of the major learning efforts undertaken by adults. The literature which has been selected by the investigator is reviewed in three sections: 1) self-directed learning, 2) research focused on the individual learner, and 3) participation theory. Self-directed learning, after a general introduction, is discussed in detail under the following subheadings: incident of self-directed learning, importance of cherishing self-directed learning and practicability of developing self-directed learning.

Self-directed Learning

The current interest in studying self-directed learning and the adult's learning projects through the use of in-depth surveys of learning activities began with Houle's (1961) study, which was reported in The Inquiring Mind. Tough (1967, 1979) developed and refined the in-depth interview probing technique, exploring overall planning, reasons for beginning and continuing a learning project, sources from which aid is sought, and methods of study.

Knowles (1975) suggests that self-directed learners are motivated by internal incentives such as a need for self-

esteem, a desire to achieve, and the satisfaction that will come from accomplishing something. Tough (1979) suggests something similar in his list of reasons why self-planned learning is popular and why it is selected by certain individuals:

1. Efficiency,
2. Confidence in individual ability,
3. Freedom to pursue learning at own pace,
4. Reliance on self as a resource,
5. Ability to find resources,
6. Insight into personal learning abilities,
7. Self-reliance and independence, and
8. Proud of individual accomplishment (pp. 92-93).

Guglielmino (1977) developed a Self-Directed Learning Readiness Scale. Through a factor analysis procedure, she isolated eight factors in 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 (p. 1).

References to self-directed learning can be found under many labels, such as independent learning, self-planned learning, self-instruction, autonomous learning, self-teaching, self-study, self-education, discovery learning, and the inquiry method. But the different labels are often mistakenly associated with the belief that learning is in isolation and the learner carries out all his/her activity on an entirely independent basis.

The term "self-directed learning" has been used to describe behaviors which range from participation in programmed learning (Campbell, 1963) to the self-initiated, self-planned activities of such highly self-directed learners as Maslow's self-actualizing individuals (Maslow, 1969, 1970).

Although the extent of interest in self-direction in learning is rather current, the practice is certainly not a new phenomenon. Tough (1967) cites persons such as Socrates, John Stuart, Abraham Lincoln, and Benjamin Franklin who are widely recognized as having been self-directed learners. Undoubtedly, the reader can think of many more individuals who share this characteristic.

Knowles refers to self-directed learning as "a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material

resources for learning outcome" (1975, p. 18).

Tough (1979), in his explanation of self-planned learning, points out that different labels such as self-education, self-instruction, self-teaching, independent study, self-directed learning and individual learning" are somewhat similar to self-planned learning projects, but not identical" (1979, p. 42). He agrees that even though the learner may obtain help from a variety of human and material resources, the key to being a self-planned learner is carrying out the responsibility for the detailed decisions and arrangements associated with the learning activities. Hiemstra defines self-planned learning as "a learning activity that is self-directed, self-initiated and frequently carried out alone" (1975, p. 39).

Smith (1976) describes self-directed learning as having a special orientation to learning that "emphasizes the learner establishing and maintaining the major share of the responsibility for initiative and motivation in planning and carrying out his own learning activities" (1976, p. 3). The process includes diagnosing needs, formulating goals and choosing resources and methods. He further states that when the learner accepts this responsibility, the major consequences for him will be learning how to learn on his own or with a little assistance from others.

Knox (1973) suggests that a self-directed learner is the person who continues his learning "reflected in his selection of objectives that have high priority, followed by his selection from a range of learning activities that are most appropriate for the specific circumstances he confronts". For self-directed learning he suggests the following resources: printed media, electronic media, informal groups, formal groups, and tutorial schedules.

The following statement explains Guglielmino's assumptions concerning self-direction in learning and provides a descriptive statement about highly self-directed learners. Guglielmino (1977) assumed that self-direction in learning exists along a continuum; it is present in each person to some degree. In addition, it is assumed that self-direction in learning can occur in a wide variety of situations, ranging from a teacher-directed classroom to self-planned and self-conducting learning. 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. The highly self-directed learner more often chooses or influences the learning objectives, activities, resources, priorities, and levels of energy expenditure than does the other-directed learner (Guglielmino, 1977, p. 34).

The self-directed learning concept has been explained in the above statements. Now it is necessary to look at the theoretical basis for self-directed learning, developed by Knowles.

Knowles (1975) points out that adults are not adequately prepared for self-planned learning, although the nature of self-planned learning is consistent with a basic characteristic of adults as self-directing human beings. Then, he cites Kidd and suggests that the purpose of education should be producing "a continuing inner-directed, self-operating learner" (Kidd, 1975, p. 47).

To Knowles, self-directed learning is based on a new, coherent, comprehensive body of theory which includes certain assumptions about adults as learners. This theory is going under the label "andragogy". This is not a new word; it was used in Germany as early as 1833 and has been used extensively during the last decade in Yugoslavia, France and Holland (1973a, p. 43).

Knowles (1970) defines andragogy as the art and science of helping adults (or even better, maturing human beings learn (1970, p. 73). The concept of andragogy is intended to replace the use of pedagogy in adult education. He is not talking about a clear-cut differentiating between the assumptions about learners that have traditionally been made by those who practice pedagogy in contrast to the assumptions

made in andragogy. Knowles believes that "the assumptions of andragogy applies to children and youth as they mature and that they, too, will come to be taught more and more andragogically" (1973a, p. 43).

Knowles formulated his theory of andragogy on the basis of the theory and research of Erikson (1950); Bruner (1961); Getzels and Jackson (1962) and Bower and Hollister (1967): "as an individual matures his need and capacity to be self-directed, to utilize his experience in learning, to identify his own readiness to learn, and to organize his learning around life problems, increases steadily from infancy to pre-adolescence, and then increases rapidly during adolescence" (1973a, p. 43). The assumptions which have been made about learners in andragogical practice area: First "as a person matures and grows his self-concept moves from one of total dependency (as in the reality of the infant) to one of increasing self-directedness" (1973a, p. 45). According to this assumption, the most important difference between adults and youth is in their self-concept. The child regards himself as essentially a dependent personality for whom the adult world makes most of the important decisions affecting his life--where he will live, where he will go to school, what he will study, how he will spend his time. In adolescence, this self-concept starts

changing, as the youth starts testing his own wings and asserting increasing independence. By adulthood most people think of themselves as taking full responsibility for making their decisions and facing the consequences. In fact, a person becomes psychologically an adult at the point at which he/she accepts responsibility for managing his/her own life.

When this point is reached, there develops within the human being a deep need to be treated as a self-responsible, self-respecting self-directing organism. When an adult finds himself/herself in a situation in which there is a feeling of being treated like a child-being talked down to, being told what to do, being disrespected, or sensing the situation to be in conflict with personal self-concept, the adult seeks to flee from it or resist it. For example, how many adults are there who have left the church, left jobs, left fraternal orders, even left marriages, because they felt they were being treated like children? How many others merely withdrew into apathy In most modern cultures the ultimate test of adultness is the ability of people to run their own lives. Each of us wants to pass that test.

The second assumption is that "as an individual matures he accumulates an expanding reservoir of experience that causes him to become an increasingly rich source for learning and at the same time provides him with a broadening base to

which he relates new learnings" (Knowles, 1973a, p. 45). In andragogical techniques the emphasis has been changed from the traditional content transmission approach to the experience approach in which learners are involved in analyzing their experience.

The third assumption is that "as an individual matures his readiness to learn is decreasingly the product of his biological development and academic pressure and is increasingly the product of the developmental tasks required for the performance of his evolving social roles" (1973a, p. 46). The developmental task phenomenon, which is explained by Havighurst (1972), suggests that individuals learn those things that they have to learn in order to move from one phase of a developmental task to the next phase. In pedagogy, the assumption is that developmental tasks of children are the product of physiological and mental maturation. But in andragogy the assumption is that in adulthood, developmental tasks, and as a result, readiness to learn, are primarily the product of individuals' social roles such as worker adult, parent, organizational member, and the like.

Knowles further argues that "it is by no means assumed that one has to sit passively by and wait for readiness to develop naturally. There are ways to stimulate it through exposure to better models of performance, higher levels of aspiration and self-diagnostic procedures" (1973a, p. 47).

The fourth assumption is that "children have been conditioned to have a subject-centered orientation to learning" Knowles (1973a, p. 47). He further argues that the difference between andragogy and pedagogy is the result of a difference in time perspective and their view of learning. Children learn to acquire knowledge and skills which will be useful later in their lives. Adults engage in the learning process to learn about how to cope with their current life problems so they become involved in educational activities which are problem-centered.

To Knowles, the responsibility of adult educators in the andragogical process is to provide educational techniques which enable adults to diagnose their own needs for learning, formulate their objectives which satisfy these needs, design learning experiences, conduct learning experiences with adequate materials and evaluate their own programs. The role of the adult educator is to help adults achieve their goals by provding educational opportunities, developing their full potentials and providing opportunities that help them to learn.

The theoretical basis for self-directed learning, developed by Knowles, has been explained in the previous section. Now it is important to look at some of the non-traditional degree programs.

Some programs planned to allow a greater degree of self-directed learning have existed for a long time. Kidd emphasizes that, "correspondence or independent instruction is such a necessary form of instruction that it has been invented time and time again in different cultures and different eras" (1972 p. 1). The nontraditional degree programs which are becoming much more widespread allow greater freedom for the self-directed learner who desires to earn credit for his learning. For example, the Union for Experimenting Colleges and Universities (UECU) is a consortium of institutions of higher education seeking to stimulate nontraditional alternatives on the campuses throughout the country. In 1969, the staff of the UECU proposed that the members of this consortium put into action the concept of the University Without Walls. Essentially, University Without Walls is an individualized program of study in which the world is the students' campus. Students assume responsibility for their programs and eventually must demonstrate the knowledge and competency required for the bachelor's degree (Union for Experimenting Colleges and Universities, 1972). Oklahoma University offers a Bachelor of Liberal Studies degree which is earned through independent study, with brief residential seminars (Trout, 1971). The Empire State College in New York requires a high degree of self-direction in the learner. Students assume responsibility for planning their

programs. In a "Note to Prospective Students", the institution cautions that it is unlike most other colleges and universities:

> To obtain an Empire State degree requires, first, the ability to participate actively in developing one's own study plan, for there are no prescribed curricula or programs of study that, of necessity, apply to all students; and second, the ability to work independently, for there are no classrooms, dormitories, or attendance requirements (Empire State College Bulletin, 1976-78, n.p.).

In these programs, the learner has an opportunity to present for evaluation the knowledge he or she may have required through such nontraditional means as independent study, intensive reading, life/work experience, and other unusual learning experience. Most degree granting institutions still maintain a residence requirement, but a few number of these institutions simply provide the learner with a list of requirements for the various degrees and a guide to approaches to earning credit. The learner is then free to choose the paths most suitable to him or her. In the areas where a great deal of self-directed study has been completed, for example, the learner may simply take a college proficiency examination to receive credit. If he or she has studied independently in an area for which there is no available examination, a portfolio documenting the learning may be prepared and presented to a review committee.

These are only a few examples of the numerous

nontraditional degree programs in the United States. Apparently, a certain degree of self-directed learning is essential to maintaining success in a program of this type. In a study of a sample of nontraditional degree programs in the United States, a great majority of the nontraditional students rated themselves above average in drive to achieve self-motivation, independence, and persistence; and the staff members of the institutions agreed with this assessment (Medsker et al., 1975, pp. 41-44).

Since the nontraditional programs require a high degree of self-direction in their students, heavily involving them even in the planning of the degree programs, it is essential that the students be prepared for more self-directing roles in their own learning. As Dressel and Thompson point out, the "ultimate success" of the rapidly increasing nontraditional forms of education depends on "whether students are capable of self-direction or independent study" (1973, p. viii).

Incident of self-directed learning

Based on the information from the Johnstone and Rivera survey (1965), it was estimated that approximately 25 million adults, more than one person in every five at that time, had been engaged in one or another form of educational endeavor. A great deal of that activity, nearly one-third, was in self-

directed or independent study of some nature. About one-third of the endeavors were of a vocational nature and another one-fifth in the recreational sphere. Johnstone and Rivera, in reporting the data, described this finding as "surprising" and suggested that "self-instruction is probably the most overlooked avenue of activity in the whole field of adult education" (1965, p. 37).

Tough (1967, 1979) feels that the information reported by Johnston and Rivera is a gross underestimate due to the method of questioning. Tough's study revealed a need for the probing interview technique in order to make clear to the interviewee the nature of self-directed learning and the range of topics which it might encompass. His findings indicated 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 or skill (1979, p. 1).

Approximately 70% of these learning projects are self-planned, Tough reports (1979, p. 1). Additional studies have been completed on different adult populations using the probing techniques and the interview schedule developed by Tough with similar results.

A survey conducted by Cross and Valley (1974) in a manner similar to the Johnstone and Rivera survey indicates that 31% of the adult population is engaged in some form of

learning. Of those reporting themselves to be engaged in learning, 17% are studying independently and 5% are involved in correspondence study.

Importance of cherishing self-directed learning

Kidd recites that "It has often been said that the purpose of adult education, or of any kind of education, is to make of the subject a continuing 'inner-directed', self-operating learner" (1975, p. 47). Rogers points out that the educated man is "the man who has realized that no knowledge is secure, that only the process of seeking knowledge gives a basis for security" (1969, p. 104). Consequently, Rogers sees teaching as "a relatively unimportant and vastly overrated activity" (1969, p. 94) which is only suitable to an essentially unchanging society. "If we have to have citizens who can live constructively in this kaleidoscopically changing world, we can only have them if we are willing for them to become self-starting, self-initiating learners" (1969, p. 126).

Bruner's opinion of the purpose of education coincides with Rogers' opinion (Bruner, 1960, 1961, 1966a). Bruner defines teaching as "the provisional state that has as its object to make the learner or problem solver self-sufficient" (1966a, p. 53). Dressel and Thompson emphasized that "the ability to carry on independent study alone

or with peers should be a major goal of education" (1973, p. 2). They see independent study as "the student's self-directed pursuit of academic competence in as autonomous a manner as he is able to exercise at any particular time" (1973, p. 1).

In the opening chapters of Self-Directed Learning Knowles declares his bias: "Self-directed learning is the best way to learn. . . every act of teaching should have built into it some provision for helping the learner become more self-directing" (1975, p. 10). His reasons for this position succinctly summarize the justifications for advocacy of self-direction in learning which appear elsewhere in the literature:

1. There is convincing evidence that people who take the initiative in learning. . . learn more things . . . (and) tend to retain and make use of what they learn better and longer than do reactive learners.

2. Self-directed learning is more in tune with our natural processes of psychological development. . . . As we grow and mature we develop an increasingly deep psychological need to be independent, first of parental control, and then, later of control by teachers and other adults.

3. Many of the new developments in education . . . put heavy responsibility on the learners to take a good deal of initiative in their own learning. Students entering into these programs without having learned the skills of self-directed inquiry will experience anxiety, frustration, and often failure. . . .

4. We are entering into a strange new world in which rapid change will be the only stable characteristic. . . . It is no longer realistic to define the

> purpose of education as transmitting what is known. . . . The main purpose of education must now be to develop the skills of inquiry (1975, pp. 14-15).

Knowles concludes his argument by reciting, "The 'why' of self-directed learning is survival--your own survival as an individual, and also the survival of the human race" (p. 16).

McDonald indicates three sources of concern for more independent learning: First, the growth of Dewey's philosophy (1915), which emphasizes the importance of problem-solving, reflecting thinking, and development of the whole child; second, the American cultural value system, which attributes high worth to the integrity of the individual, equality of opportunity, and the rights of life, liberty, and the pursuit of happiness; and finally, recent findings in psychoanalysis and the mental health movement which point out that the effect of the emotional states on learning and the social conditions for mental health point out the advisability of more self-direction in learning (McDonald, 1967).

There is a concern that individuality should be maintained and developed by the institutions of the United States, especially the educational institutions (Alf, 1970; National Education Association, 1938). Lerner views individuality as "the most vaunted and celebrated of

American attitudes" (1957, p. 49). There is a concern, however, that individualism is being "squeezed out" in modern society (Lerner, 1957, p. 49; Russell, 1949). Riesman views the modern American as other-directed - "conformist putty" unable to function sufficiency without guidance from others (1950, p. 9).

Margarones indicates the contradiction:

> The individual, raised to a standard of living never before equaled in the history of the world, and now hold(ing) within his grasp power and wealth unprecedented in human existence, is in reality one who is becoming less rather than more significant. Subordinated to the group, he is fearful of his security and skeptical of his purpose in life and hope for the future (1961, p. 7).

Margarones believes that this situation can be changed, and that a major part of the solution lies in the encouragement of self-directed learning. Education U.S.A. reports a recent unpublished study which indicated that schools have a "generally debilitating effect" on student attitudes toward learning. Students that participated in this study showed a consistent decline in their views of subject matter as desirable as they progressed through the six elementary grades (1977, p. 349).

Schools as they are, at least the majority of them, seem not only to encourage conformity and passivity, but also to limit the desire to learn. Biven, Campbell and Terry (1963, p. 4) charge the loss of student self-direction

in learning to school attendance. They report that "By the time students reach the ninth grade, they have developed a strong habit of linear study methods that conflicts with self-direction in learning". The linear study methods result from a student's dependence on an authority figure to tell what is worth learning and a personal anxiousness to prepare for teacher-made tests which measure "success" in learning, as opposed to an exploration of areas of knowledge based on personal interests for their intrinsic reward.

Results of Koeing and Mckeachie's study (1959) support the idea that students who have learned to expect authoritarianism in a teacher tend to do poorly in independent study (1959, p. 134). Buckman and Illich, among others, share the view that compulsory education often stands in the way of education in its wider sense (Buckman, 1973, p. 2). In place of the compulsory schooling system, Illich proposes an educational program built on the self-education concept (1970).

Granting that the development of self-directed learning is probably most widely advocated in the literature of adult education (Miller, 1964, p. 203), it has been recognized as a major goal for all levels of education (Beggs & Buffie, 1965; Dressel & Thompson, 1973; Rogers, 1969; Wood & McCurdy, 1974). Besides, there is evidence that self-direction in learning can be more effective than traditional forms of

teaching with learners of widely varied intellectual ability (Gruber & Weitman, 1962; Hatch & Bennett, 1960; Rogers, 1969).

Practibility of developing self-directed learning

Experience has indicated, however, that not everyone is able to adjust to highly self-directed learning situations, and most people who have not previously been self-directed learners to a high degree benefit from training in self-direction before attempting a project requiring a high degree of self-direction in learning (Brown, 1968, p. 23; Rogers, 1969, pp. 15 & 47). Carlow (1967) states that students who are dutiful and have low conceptual level sources do poorly under the discovery approach (1967); Cronbach feels that "pupils who are anxiously dependent may be paralyzed by demands for self-reliance" (1967, p. 90).

Dressel and Thompson (1973) believe that one reason that colleges have done so little to prepare their students for more self-directed learning is "a failure to discriminate between independent study as merely a "learning experience and as a developable capability" (1973, p. viii). However, impressive success has been reported by teachers in the facilitation of self-directed learning at all educational levels (Knowles, 1975; Rogers, 1969).

The literature indicates that the key to effective facilitation of self-directed learning is the provision of

an orientation to the learner. Certainly it is difficult for an individual who has his or her learning planned by a teacher and closely directed for many years in that learning to become a self-directed learner as soon as the opportunity is presented. The learner's expectations have not been fulfilled; the rules have changed and he or she has been given more responsibility. The natural result is confusion. Rogers points out the need for learners to be prepared for accepting the responsibility for their own learning by degrees, citing negative reactions, such as anxiety, which interferes with learning, when they are not allowed to do so (1969, p. 73). Dunbar and Dutton, in their report of an attempt to make a business school program a more self-directing experience, emphasize the negative results which can occur when self-directed learning formats are thrust upon unprepared students (1972).

Campbell also documents the benefits of practice in self-directed learning skills (1963, p. 10), and Margarones noted that the point of greatest agreement among instructors of independent study was that the students should participate in an orientation to independent study before undertaking it; the students also indicate the importance of preparation for independent study (1961, pp. 204-206).

Paschal (1960) emphasizes facilitating self-

directed learning when she recites, "above all, students at every grade of the school system should be taught how to learn more independently, so that we can make better use of the greatest of all educational resources, the capacity to learn" (1960). Hatch and Bennett recommend that independent study be open to "most if not all students" (1960, p. 8). Margarones found that the highest disagreement among the instructors of independent study surveyed was on a statement that independent study should be required of all students (1961, pp. 204 & 206).

Recognizing the need for preparation for self-directed learning, Hunkins developed a guide for increasing self-direction in learning which is based on the assumption of student competence to do so. This guide is Hunkins' Involving Student in Questioning (1972).

Research Focused on the Individual Learner

Tough (1979, p. 1) defined a learning project as a deliberate effort to gain certain knowledge or skill through a series of related episodes that add up to at least seven hours within a consecutive 6-month period. In each episode, more than half of the peoples total motivation is either to gain and retain certain fairly clear knowledge and skills, or to produce some other lasting change.

Tough included all deliberate learning efforts in a lifetime, both in and out of educational institutions. To gather information about learning projects, Tough devised a probing interview technique which stimulated recall of all the learning projects the interviewees conducted during the preceding six months.

The focus of this learning project phenomenon includes the following basic components:

1. The entire range of deliberate learning efforts. In the learning project any method can be used if the person's purpose in learning was to gain and retain knowledge and skills.

2. The major planner of a learning effort from one session to the next session can be the learner herself or himself, a group, an individual, or a nonhuman resource.

3. Noncredit learning and learning for degree or certificate is another component of the learning project.

4. Most common motivation and less common motivation is another component of a learning project. In addition to the basic component, various other aspects of learning projects have been explored by researchers. These aspects include: resources used, obstacles to learning, subject matter, areas of the learning project, reasons for beginning and continuing the learning project (Tough, 1968, 1979), learner planning of the task (Tough, 1979), origins

of current learning projects (Moorcroft, 1975), the learner planning steps in detail (Morris, 1977) and the source of help with the self-planned learning project (Luikart, 1977).

The first concentrated study of the individual's whole pattern of educational effort, regardless of its content or form, that took into account the individual's own report of motivation to become a high learner was carried out by Houle (1961). Houle was interested in finding what background experiences the learner believed were important in influencing him or her to become a continuing learner. Houle's sample was consciously biased. He selected a group of 22 adults "who engage to an outstanding degree in activities commonly thought to be educational" (1961, p. 4). He believed that the proper place to begin was with people who were most actively engaged. It should be noted that the Houle study was seen only as an exploratory one. However, it provided lots of preliminary but useful data. Apart from being similar in that they were high learners, the sample differed widely on age, sex, race, national origin, social status, religion, marital condition, and level of formal education. To determine why these adults placed such a heavy emphasis on continued learning, Houle had a list of 19 questions, but each interviewee was encouraged to talk frankly (1961, p. 13). Houle believed it was time to build conceptions of learners from observations and discover instead

their own self-conceptions.

From the interviews Houle located three learning orientations: goal oriented, activity oriented, and learning oriented, which provided valuable information about the ways learners perceive their motivations.

Goal oriented

Houle (1961) reported that the goal-oriented learners are the persons who use education as a means to achieve their specific objectives. The learners participate primarily to satisfy their needs. It is the learner's goal which initiates educational attempts and also influences the means selected for accomplishing the goal.

Activity oriented

Activity oriented people begin their sustained participation at a point when problems or needs become particularly pressing. "Some kind of self-recognition or personal stock-taking seems to occur among the activity oriented" (Houle, 1961, p. 59). These learners select the activity based on the kind of human relationship he or she thinks that it might provide.

Learning oriented

For this group education is a constant activity. "Each particular educational experience is an activity with a goal, but the continuity and range of such experience make the total pattern of participation far more than the sum of the parts" (Houle, 1961, p. 23). The learners usually think that their emphasis on learning goes back to childhood, but they also believe that environmental factors and heredity also had some importance.

Hiemstra (1976) suggests a fourth category to reflect learning projects findings: "Not in one of the Houle's originally conceived categories, the self-directed learner . . . is certainly becoming recognized by adult and continuing educators as highly active participant in the total domain of adult learning" (1976, p. 35).

Litchfield (1965) reported that "There no longer appears to be any validity in the belief long held by adult educators, that there are participants and nonparticipants in adult education. All men and women partake of adult education to some extent. The focus now must be upon the question of the degree and kind of that participation" (1965, p. 188). These findings support Houle's findings, and suggest that further research on the nature and extent of adult learning be done.

To this point in the discussion of adult learning

research, the learning of the individual was estimated by the extent of participation in formal adult education activities. The assumption underlying research in adult learning has been that when motivation and characteristics of adult participants in formal educational programs were understood, the adult educators could use those findings to aid in the planning of appropriate programs. Therefore, most of the research in adult learning equated the single act of participation in formal educational programs with the entire range of deliberate learning efforts of adults.

Tough and his associates (1979) surveyed 66 persons who were engaged in learning projects. The subjects were: social science professors, municipal politicians, lower-class white-collar men, blue-collar factory workers, lower-class white-collar women, beginning elementary school teachers, and upper middle class women with pre-school children.

The findings are summarized as follows:

1. "Almost everyone undertakes at least one or two major learning efforts a year and some individuals undertake as many as 15 to 20. The median is eight learning projects a year, involving eight distinct areas of knowledge and skill" (1979, p. 1).

2. The typical range of time that the learners spend on learning activities is from 8 to 16 hours. Some

individuals indicated that they spent more than 2,000 hours in learning projects in the preceding six months.

3. Tough found that the most common motivation for learning was application of a particular knowledge or skill. Usually the learners anticipated some outcome from their learning activities. Basically adults conducted learning projects which were related to their occupations.

4. The findings also showed less than 1% of all learning projects were for credit (learning for a degree or a certificate).

5. This survey identified the major source of planning for the learning projects. Tough (1979) found that in 68% of the learning projects, the major responsibility for planning lies with the learner himself or herself. He or she also seeks assistance from friends, peers, professionals and nonhuman resources, even though he maintains the responsibility for "detailed decision" in planning the learning projects. The average adult conducted at least one project where the responsibility of planning was by a group or its leader. Almost 50% of the adults engaged in at least one project planned by an individual in a one-to-one relationship with the learner.

A large proportion of the people in the above study were engaged in highly deliberate learning efforts outside of educational institutions. Tough's study was limited to a

small and not entirely random sample. With this limitation, the findings were impressive and recommendations were made that further research in the area could be very valuable.

Since 1971 additional research concerning learning projects has been undertaken to explore learning projects of adults in other populations, but not all of these researchers focused on self-planned learning in particular. Coolican (1975) provided the summary picture of the findings of various studies. The studies which utilized Tough's definition and instrument for more research in adult learning projects will be reviewed in the following section.

Learning projects research

Armstrong (1971) found a significant number of learning projects among adults of low educational attainment in Toronto, Canada. Tough's (1971) interview schedule was applied to those who were identified as potential subjects by at least two instructors. High attainment learners averaged 5.7 credit-oriented learning projects during the year. They spent 1340 hours on their learning activities. Low educational attainment adults averaged 5.5 projects and spent 1177 hours on them. For the noncredit learning, high attainment learners averaged 13.9 projects; and spent 1121 hours on them. The average low educational attainment adult

conducted 3.4 projects in a year and spent 100 hours on them.

Johnson (1973) investigated the learning projects of 40 adults who recently completed the requirements for a high school diploma or General Educational Development Certificate. The sample was randomly stratified on the basis of adults who had received adult high school diplomas and adults who had received a twelfth grade equivalency certificate. This group was more involved with formal schooling than other groups studied. Study for credit was reported in 23% of the total projects. The average number of learning projects for adults was 14.4. They spent the average of 876.8 hours on the learning projects. Fifty percent of all the projects were planned by the learner, indicating the important nature of this learning pattern. Group planned projects accounted for 23% of the projects reported. Hobbies and recreation were the most frequently chosen projects, with vocational projects reported as the lowest.

McCatty (1973) studied learning projects of 54 randomly selected professionals in Ontario, Canada. The average number of learning projects was 11.1 with 76% of the projects reported were self-planned. In this group, learning for credit was rare; only 1% of the total learning projects were for credit. Job related learning projects

were most often selected by the sample and accounted for 55% of the total learning projects. Fifteen percent of the learning projects were related to hobbies and recreation. The most common reason given for carrying out self-directed learning projects was the desire for individualized subject matter. The most common reason for a group type of learning was the capability of instructor.

Denys (1973) studied the learning projects of a group of teachers and store managers in Ghana. The average number of the projects reported was 4.8, with the majority of projects vocationally oriented. They spent a mean of 92 hours per project. Seventy-five percent of the learning projects were self-planned, 11% were group planned, 6% were planned on a one-to-one basis, 4% were resource planned, and 3% did not have one dominant planner. Also, the findings show that 93% of the projects reported were noncredit oriented.

Johns (1973) investigated the learning efforts of practicing pharmacists in Atlanta, Georgia. The average pharmacist completed 8.4 learning projects, with a mean of 124 hours per project. Fifty-six percent of the total learning projects were self-planned; 16% were group planned; 9% were one-to-one methods; 19% were resource planned. The study reported that 5% of the total learning projects were

undertaken on a noncredit basis. Job related learning activities were the most frequently selected projects, while 26% of the projects were in the area of hobbies and recreation and 14% were related to home and family.

In another study, Fair (1973) examined the learning projects of beginning elementary school teachers. A six month time period was used in this study in contrast to the twelve month period in all the others. He reported that the interviewees completed an average of 8.8 projects and spent a total of 510 hours on the projects, for an average of 57 hours per project. Ninety-seven percent of these learning projects were self-planned. Less than 1% of the total projects reported were for credit. The teachers tried to learn what they wanted to teach to their students. In the curriculum area, the most important subject for their learning was language arts. In noncurriculum areas, the most important subject was child development.

Deliberate learning efforts of 12 parish ministers in the Louisville, Kentucky metropolitan area, were identified by Allerton (1974). Each minister kept learning diaries during a six month period. Self-planned learning accounted for 58% of the ministers' learning activity, and no projects were pursued for credit. An average of 9.6 projects per person was reported. They spent a mean of 52.6 hours per project. Vocationally oriented projects accounted for 65%

of the learning activities, hobbies, and recreation accounted for 16%, 8% related to home and family and the remaining 14% related to other various interests.

In a study of the learning projects of 50 randomly selected college and university administrators in Tennessee, Benson (1974) found that during the one year prior to the time of the interview, administrators undertook an average of 4.5 learning projects. They spent an average of 269 hours on their learning projects in one year. Seventy-five percent of the administrators planned their own projects, and 25% were group planned, Benson found that 84% of the projects were job-related and 65% were related to the "decision making" and "coordinating" functions of their jobs.

Coolican (1974) interviewed young mothers of pre-school age children. Using one hour as the minimum time to qualify as a learning project, Coolican reported that young mothers carried out an average of 5.8 learning projects, with a mean length of 43 hours per project. Sixty-six percent of learning projects were learner planned; 16% were group planned; 13% were on a one-to-one basis. Ninety-nine percent of the projects were undertaken on a noncredit basis. Home and family related projects were the most often selected by the sample.

Hiemstra (1975) studied the learning activity of 214 adults (age 55 and older) in Nebraska. The data show that older adults each undertook an average of 3.3 learning projects and spent an average of 324 hours on their projects. Fifty-five percent of the projects were self-planned, 20% were group planned, 10% were planned on a one-to-one basis and 10% had no dominant type of planner. Fifty-four percent of their projects were to achieve self-fulfillment, which includes arts, crafts, recreation and religion. Twenty percent were for personal and family concerns such as mental and physical health, finance, homemaking. Fifteen percent were job related and 9% were for social and civic concerns. There were no significant differences in the number of learning projects or the number of hours spent on each one when group categorized according to age, sex, race and residential area. There were differences noted among different levels of education, social class, and occupations in the number of projects, but there was no significant difference in the total number of hours. Ninety-six percent of the learning projects were undertaken for noncredit purposes.

Peters and Gordon (1974), in a study of the learning projects of 466 adults in urban and rural Tennessee, found that 91% of the adults conducted at least one learning

project during a year, averaging 3.9 learning projects and spending an average of 155.5 hours on them. Seventy-six percent of the projects were planned by the learner, 11% were group planned, and 5% were planned on a one-to-one basis, 1% was resource planned, and 5% were planned through other means. Most of the learning projects were job-related or recreational while a small number of projects were related to religion, personal improvement and family relations. As major reasons for undertaking these learning projects, the desire to increase knowledge and understanding was the most frequent choice. Improving job performance was second.

Miller and Botsman (1975) conducted a study on the continuing education activity of Cooperative Extension agents. They found that the average number of learning projects was 12. Forty percent of the learning projects were self-planned, and more than half of their learning was planned by experts and through workshops.

A study of two groups of secondary school teachers from Cortland, New York, was undertaken by Kelly (1976). Group one consisted of 20 teachers with one or two years experience in teaching. Group two also consisted of 20 teachers, but with 10 to 15 years experience in teaching. She reported that the average teacher had conducted 7.9

learning projects in the year prior to the interview. Sixty-eight percent of the projects were planned by the teacher himself/herself, 17% were planned by a group, 7% were planned by individuals in a one-to-one relationship with the learners, 0.3% were material resources planned and 7.9% were mixed planned. Teachers self-planned almost all of the projects related to "students" and "hobbies and recreation". Almost 50% of all projects conducted were in two content areas, subject matter and teaching-learning process. Learning projects also included learning new knowledge or skills related to teachers' fields. Noncredit oriented projects accounted for 85% of all the projects conducted.

McCatty (1976), in an investigation of the patterns of learning projects among physical and health education teachers, found that the learning efforts of those teachers were largely self-planned and not for credit. Of the twenty-one teachers engaged in a personal fitness program for themselves, none of them did so in a group.

Miller (1977) investigated the extent of self-directed learning of teachers and nonteaching professionals in a single school district in Upstate, New York. A sample of 60 elementary and secondary school teachers and nonteaching faculty were randomly selected. She reported that faculty members conducted an average of 5 learning projects each and spent an average of 136 hours on a learning project over

the six month period. Eighty-nine percent of the faculty members' learning projects were self-planned. In this research, one-fourth of the projects were motivated by self-fulfillment needs. Fifteen percent of the motivation to learn was the category of professional growth; 12% was to satisfy a requirement. Credit was not reported as the motivation for initiating a learning activity. Instead, the major motivation for beginning a learning project was to acquire the knowledge and skill for job, community, and personal applications.

Zangari (1977) conducted a study on the learning projects of 45 adult educators in post-secondary institutions in Nebraska. The findings of this study indicated that adult educators undertook an average of 7.19 projects, and spent a mean of 583.20 hours on them. Seventy-two percent of the learning projects were self-planned; 15% were group planned; and the remaining 13% were implemented through use of tutors or programmed materials. It was also found that 3% of the projects were undertaken for credit. Data in this study revealed that learning projects related to improving job performance and professional growth accounted for 37.65% of the total; projects related to home and family, personal improvement, and hobbies were also frequently cited.

Umoren (1977) in an investigation of the learning activities of 50 adults randomly selected from a socio-

economic group in two neighborhoods in Lincoln, Nebraska, found that adults conducted an average of 4.7 projects in the twelve months before the interview and spent a mean of 554.5 hours on them. In this study, 40% of the learning projects were learner-planned; 32.75% were on a one-to-one basis; 16% were group planned and 10.8% were resource planned. The higher income adults conducted more learning projects than did lower income adults.

The learning activities of 85 adults of low literacy attainment in the Brownstown area in Jamaica, were identified by Field (1977). These adults conducted an average of 4.2 learning projects each, spending an average of 504.3 hours per person in their learning activities during a one year period. Approximately 20% of the learning projects were planned by the learner himself/herself. Group leaders planned more than 50% of the projects because so many learning projects focused on literacy training and religion, two areas which seem to rely on group leaders. Learning efforts on literacy, job related, religion, home and family subject matter were emphasized, with few projects undertaken as a part of formal education. Only 3.8% of the learning projects were directed toward some kind of practical application in a job situation.

Baghi (1979) studied the learning projects conducted

by 46 adult basic education students. He reported that adults conducted an average of 6.59 learning projects and spent an average of 393.91 hours per year. Cost was the most frequent obstacle to learning. A desire for individualized subject matter was the most frequently noted reason for self-planned learning. Capability of the instructor and availability of classroom and material was the most frequent reason for the choice of group category, while effectiveness of the method was reported as the most frequent reason for choice of one-to-one learning method.

Sabbaghian (1979) studied the relationship of self-concept and self-directedness in learning of 77 adult students who enrolled at Iowa State University during Spring Quarter 1979. This study indicated that there is a positive relationship of .558 between adult's self-directedness in learning and their self-concept. Highly self-directed adult students have more self-acceptance, self-esteem, and were more productive in different aspects of life than low self-directed adults. She also reported that sex, age and level of education had significant impact of adults' self-directed learning.

Participation theory

In the sixties, participation studies most often took the form described by Knox (1965) as "clientele analysis", which consisted of a description of the characteristics of participants in adult education programs of one or more agencies in comparison with the characteristics of the general population that could potentially be served. The typical participant describes himself or herself as being young, well-educated, a fulltime worker in a white collar occupation, above average in income, married with children, and urban in residence (Johnstone & Rivera, 1965).

Probably the most consistent finding of this type of study has been the strong association between level of formal education and participation in adult education activities. Almost invariably this factor has been found the most important predictor of participation. In their study Johnstone and Rivera (1965) concluded "that formal education attainment plays a highly crucial role in determining whether or not one enters the ranks of adult students". Similar results were obtained by Knox (1965) and by London, Wenkert, and Hagstrom (1963). In all three studies, educational level was found to have greater effect on participation rates than any of the other factors investigated.

Verner and Newberry (1965) reported that through the

identification of the characteristics of those who participate, adult educators can find significant clues to the kind of people not now involved who might become more active if conditions were such as to encourage their participation. These authors also suggest that adult education may need to reconsider its organization patterns and methodology if it wishes to involve persons with little formal schooling. Given today's emphasis on programs for such persons, a knowledge of some of the factors associated with their participation should be of value.

Factors which may be related to an individual's participation can be thought of as being of two types: positional or background factors, which refers to the positions a person occupies in the social structure, and psychological factors, which may influence the manner in which the roles associated with the various positions are performed (Krech & Crutchfield, 1962). The former category includes familiar variables as sex, age, employment status, level of occupation, level of income, marital status, family status, and place of residence. These are the positional factors with which this study is concerned. Psychological variables have, as a whole, received considerably less attention in the literature. It can be seen from the literature, then, that there is a need for research into the area of what influences adults to participate in self-directed learning and the

adult's learning projects activities, and that a valid approach would be to examine the impact on the adult of his current readiness for self-directed learning.

A number of studies have investigated the relationships between educational participation and the potential variables. Based on these studies it appears that across educational levels men and women participate at about the same rate (Johnstone & Rivera, 1965; Knox, 1973); that participation rates decline as age increases by decades (Johnstone and Rivera, 1965; London, Wenkert and Hagstrom, 1963); that persons in the labor force participate to a greater extent than do those not in the labor force (Booth, 1961; Johnstone and Rivera, 1965; London, Wenkert and Hagstrom, 1963); that participation is positively related to both levels of income and level of occupation (Johnstone and Rivera, 1965; London, Wenkert and Hagstrom, 1963); that widowed persons participate less than persons of other marital status (Johnstone and Rivera, 1965; London, Wenkert and Hagstrom, 1963); that couples with children participate more than couples without children (Johnstone and Rivera, 1965); and that urban residents participate more than rural residents (Booth, 1961; Johnstone and Rivera, 1965; London, Wenkert and Hagstrom, 1963).

These variables which have been investigated within educational levels seem to fall into two categories: those

for which the form of association within levels of education is similar to the association in the population as a whole, and those for which the association is reduced or eliminated when education is controlled. Included in the former group are the factors of age and place of residence; both apparently operate relatively independently of level of education. The negative relationship between age and participation and the positive relationship between size and place of residence and participation appear to hold within each educational stratum (Booth, 1961; Johnstone and Rivera, 1965; London, Wenkert and Hagstrom, 1963). These variables whose influence on participation is reduced when education is controlled are as might be expected, variables closely related to educational level--namely income and occupation. Both the Johnstone and Rivera (1965) and London et al. (1963) studies found that the original positive relationships of level of income and level of occupation to participation either disappeared or were considerably reduced when education was controlled (Mohammad Douglah and Gwenna Moss, 1968).

Based on the information on Johnstone and Rivera survey of 1962, it was estimated that approximately 25 million adults--more than one person in every five at that time, had been engaged in one or another form of educational endeavor. A great deal of that activity, nearly one-third, was self-

directed or independent study of some nature. About one-third of the endeavors were of a vocational nature and another one-fifth in the recreational sphere.

Hiemstra (1976, p. 84), in his discussion of the adult education participants, mentioned that the results of Cross and Valley's survey (1972) suggest that a significant increase in participation had taken place in the ten years between the Johnstone and Rivera and the Cross and Valley studies. It was estimated that nearly one adult in every three was involved in some form of adult education. A greater involvement in vocational subjects, and a moderate increase in the study of general academic subjects were found when the 1972 information was compared with the 1962 data.

From the studies described above and numerous additional research endeavors concentrating on fairly specific audiences, the following picture can be drawn of the participant in organized adult and continuing education. People who participate more than others in adult education are likely to be:

1. Younger,
2. Higher educated,
3. Members of more organizations,
4. Positive in their attitude toward education and the educational agency,

5. Middle class,
6. Highly motivated to learn,
7. Urban residents with easy access to education,
8. Involved with broad and diverse leisure activities,
9. Highly skilled in social relationships.
10. Oriented in terms of a personal role of service to others,

(Hiemstra, 1976, pp. 84-85).

People who participate less in adult education activities have been found to have lower incomes and socio-economic levels, to maintain a fairly restricted social circle of friendships, to engage passively in sports, and to limit most of their activity to fairly immediate surroundings (Hiemstra, 1976, p. 85).

Although this picture is drawn of the participants in organized adult and continuing education, evidence from studies in the adult's learning projects area suggested similar characteristics for self-directed learning participants.

A number of resons have been cited to account for why people participate in adult education. Houle (1961) explained that there are at least three basic reasons for participation in continuous educational activity; some people had specific goals in mind, some were activity or socially oriented, and some were just plain interested in

constantly learning new things. "Other reasons that have been determined include wanting to be a better informed person, to have initial or updating job information, to achieve a religious goal, to escape from environmental problems or pressures, and to comply with a formal requirement" (Hiemstra, 1976, p. 85).

Some of the important reasons given as obstacles to participation are as follows:

1. Not wanting to go out in the evening,
2. Not enough time,
3. Financial limitations,
4. Home and job responsibilities,
5. Lack of energy or health problems,
6. Perception of being too old to learn,
7. Bureaucracy complexities,
8. Transportations limitations, and
9. Child care problems (Hiemstra, 1976, p. 85).

Self-planned learning, has been until recently, overlooked. It seems reasonable to conclude that adult education institutions could not possibly meet all the learning needs of adults through their traditional programming services. Adult education professionals must develop efficient and effective ways to assist adults

with their deliberate self-planned learning efforts outside the traditional realm.

Relevancy to Present Research

This chapter has provided a review of the literature which has been considered to be relevant to the present study. As the literature indicates, participation in learning projects appears to occur across all levels of the population as they have been described not only by highly educated professionals (McCatty, 1973) but also by adults who have been considered the least likely to participate in any form of adult education; those who are over 45 years of age and working in laboring or operating positions, or not in the labor force at all (Peters and Gordon, 1974).

These interviewees indicated no concept of lifelong learning; most believed that learning was something which occurred in an institutionalized setting. At the beginning of the interviews, most believed that they had done very little or no learning over the previous year and the interview itself served to heighten the interviewees' awareness of their own learning efforts and "of the fact that non-institutional environments and resources can contribute substantially to a person's continuous learning" (Coolican, 1974, p. 18). From this, it would appear that an interview

on learning projects can be very useful learning itself. In that the interview uncovers the individuals' procedures, preferences and needs related to their learning, information gathered can help educators develop courses for adults as well as offer suitable assistance to the learner who wishes to continue independent learning, but who does require some form of help.

While it is not intended to suggest that the full emphasis of adult learning ought to be placed on independent study, at least Miller's (1964, p. 226) suggestion ought to be adopted; that independent study be encouraged for those who do not respond to established programs.

Jourard (1968), in discussing previous research in social science which looked at the passive aspect of man, stated that "a man may live and share only his passive, reactive possibilities to his teachers or to a researcher. In solitude, or with some trusted other, he may experience and show his active, creative, or other unforeseen possibilities" (1968, p. 106). Tough (1971) has expressed the belief that learning project research should contribute "to the new conception of man . . . who views man as a self-directing organism with initiative, choices, freedom, energy and responsibility" (1971, p. 5). The present research has focused on the above image of man.

As the literature indicated, there are no previous attempts to study the influence of an adult's current readiness for self-direction in learning which plays some part in the learner's decision to commence a learning project.

However, Tough's findings are important in that they do show the motivations are complex and can not be explained only in terms of attempting to achieve a single specific goal. A variety of motives for beginning a project were almost always present. The five major reasons were: (a) use or application of knowledge or skill, (b) puzzlement, curiosity or a question, (c) satisfaction from possessing knowledge, apart from using it, (d) enjoyment of the content while receiving it, and (3) pleasure or satisfaction while spending time learning (Tough, 1968).

Tough believes that it is now clear that most learning projects arise because of some immediate responsibility, problem or curiosity, which suggests that the prominent motivating factor is close in time to the commencement of the project.

Houle (1961) believed that a great deal of learning can occur incidentally, and that the impulse to learn can arise from almost any source from within or outside a person's life pattern. He suggested that immediate events might bring vague needs to the foreground and trigger the

action of learning.

Havighurst (1964) claimed that learning situations often resulted from "basic tasks of living", such as the developmental tasks associated with the roles of parent, spouse, child of aging parent, homemaker, worker, user of leisure, church member, club or association member, citizen and friend.

This claim has been borne out in Coolican's (1974) review of learning project research. She found that most learning projects were initiated for practical reasons--to acquire knowledge and skill related to job, home, family, sport or hobby. In their national survey, Johnstone and Rivera (1965) also found it to be quite clear that the major emphasis on adult learning was practical rather than academic, and applied rather than theoretical.

Another important factor relating to the reasons for commencing a learning project was discussed by Tough (1968). He concluded from his study that a desire on the part of the learner to undertake a higher level of learning was clearly related to his self-concept. Apparently, many learners feel a strong need to work out their own feelings or beliefs about something and may have a strong desire to become their ideal selves. Therefore, a major purpose is to please themselves rather than others.

This lead Tough to discuss the relationship between

adult learning and self-concept theory. He suggested that if there is a lack of congruence between the ideal self and the perceived self, although the difference need not be extreme, a need or a drive for balance between the two selves will probably arise. One way to change the perceived self in the direction of balance is through deliberate sustained learning efforts.

The educational process can be continuous, for as Armstrong (1971) showed, an interest developed in one area followed through as a learning project often leads the learner to related but different areas.

Another broad factor which seems to be closely associated with the commencement of many learning projects is that of major change in the adult's life. Tough reported in his 1968 study that a major personal change was related to the reasons for commencing a learning project for at least one third of the subjects.

The review of the available literature on learning projects research reveals a high level of learning activity by adults. The problem now is not participation and non-participation, but the differences in participation. Zahn (1967) provides some evidence to suggest that highly self-competent adults tend to be well-educated, from upper middle class families, cosmopolitan in nature, and more

job-oriented than family oriented. Hiemstra (1976) reviewed the literature on adult education participants, noting they tended to be younger, highly educated, middle class, and urban in terms of their place of residence.

The first two hypotheses of this study relate to expected differences in participation in self-directed learning and the adult's learning projects, in relation to participant's current readiness for self-direction in learning. The researcher expected that adults who have high readiness for self-direction in learning will conduct more learning projects and spend more time in the learning projects activities than those who have low readiness for self-direction in learning.

The third hypothesis is about differences in the nature of the planning activity prior to and during learning in relation to the level of readiness for self-direction in learning. Tough (1979) suggests that "the self-reliant, independent type of person is likely to prefer self-planning as the primary learning mode" (p. 93).

As was mentioned earlier, highly self-directed learners more often influence the learning objectives, activities, resources, priorities, and the type of planner (Guglielmino, 1977, p. 34). Besides, review of literature revealed that older adults conducted more self-fulfillment projects than younger adults (Hiemstra, 1975). The fourth and fifth

hypotheses relate to differences in the total number of self-fulfillment projects conducted by individuals who are high, average, or low self-directed learners.

CHAPTER III. METHODOLOGY

Overview

This chapter presents the methodology of the study. It encompasses the following procedures: Identifying participants in the study, instrumentation, and data analysis techniques.

If the ultimate goal of adult education is to design and provide more effective help for the adult learner, then research has to be conducted to understand the nature of adult learning in its natural form in daily life, and the factors which lie behind an adult decision to learn something. Therefore, the problem of this study is to better understand the self-directed nature of much of adult learning.

It would seem that if the encouragement of self-direction in learning is an important goal in all levels of education today, and the literature indicates that it is, we must learn more about the highly self-directed learner. In addition, we must have a valid instrument for determining an individual's readiness for self-directed learning. This study will provide additional verification data on the "Self-Directed Learning Readiness Scale" originally developed by Guglielmino in 1977.

A tentative description of the highly self-directed learner based on those characteristics receiving a final

median rating of 4.0 (the midpoint between desirable and necessary) or higher was formulated by Guglielmino (1977). She defines the highly self-directed learner as "one who exhibits initiative, independence, and persistance in learning; one who accepts responsibility for his or her own learning and views problems as challenges not obstacles; one who is capable of self-discipline and has a high degree of curiosity; one who has a strong desire to learn or change and is self-confident; one who is able to use basic study skills, organize his or her time and set an appropriate pace for learning, and to develop a plan for completing work; one who enjoys learning and has a tendency to be goal-oriented" (Guglielmino, 1977).

Some evidence exists that a small number of persons cannot function effectively in situations requiring self-directed learning, and most people who have not previously been self-directed learners to a high degree benefit from training in self-direction before attempting a project requiring a high degree of self-direction in learning (Brown, 1968, p. 23; Rogers, 1969, pp. 15 and 47). The Self-Directed Learning Readiness Scale can be used by educational institutions or individual learning facilitators to screen learners, to determine their strength and weaknesses in self-direction and to guide them into situations where they can

best utilize and develop their own potential.

Identifying Participants in the Study

The sample for this study was drawn from a general adult population in Ames, Iowa. The desired number for the sample was approximately 75. In order to ensure a random sample, members of the population as shown in a telephone book were assigned numbers. The numbers were utilized as input for the Iowa State University computer, and the computer selected randomly 100 numbers for this investigation.

The refusal rate was very low (only 3 people refused to be interviewed). Two interviewees determined that the interview was taking too much time and were unable to finish answering all the questions on the instrument at once, so the researcher had another interview time with them to finish the Self-Directed Learning Readiness Scale. The final number of respondents interviewed was 77.

Table 1 displays a variety of demographic data describing the respondents. To summarize those data the respondents were approximately 66% female and 34% male. Eighty percent of the sample were white American, and 20% were from different nationality. The average age of the sample was 45, the range of ages was between 19 and 95. Approximately 65% of the respondents were married, 24% were married widowed, 10% were

single, and 1% was divorced or separated. About 85% of the respondents did not have children under 19, while 15% had one or more children under age 19. The subjects were approximately 18% high school graduates, 29% with some college, 21% college graduates, and 32% graduate training. Most of the interviewees did not have any other training, while 30% had on the job training. A wide variety of occupations were represented, but with only a fairly small percentage falling in semi-skilled or unskilled categories.

Table 1. Various demographic characteristics for the study's respondent

Characteristic description	Response frequency	Percent	Accumulative percent
Sex			
Male	26	33.8	-
Female	51	66.2	-
TOTAL	77	100.0	
Race			
White American	62	80.5	80.5
African	4	5.2	85.7
Asian	5	6.5	92.2
Other	6	7.8	
TOTAL	77	100.0	100.0
Age			
19-29	36	46.75	46.75
30-39	10	12.99	59.74
40-49	1	1.30	61.04
50-59	1	1.30	62.34
60-69	4	5.19	67.53
70-79	19	24.67	92.20
80-89	3	3.90	96.10
90 and over	3	3.90	
TOTAL	77	100.0	100.0

Table 1 (Continued)

Characteristic description	Response frequency	Percent	Accumulative percent
Mean = 44.87 Median = 30.33 Minimum = 19 Maximum = 95			
Marital status			
Married	50	64.9	64.9
Married widowed	18	23.4	88.3
Single	8	10.4	98.7
Divorced/separated	1	1.3	100.0
TOTAL	77	100.0	
Number of children under 19			
0	65	84.4	84.4
1	6	7.8	92.2
2	3	3.9	96.1
3	2	2.6	98.7
4	1	1.3	100.0
TOTAL	77	100.0	
Years of education			
High school graduate	14	18.2	18.2
Some college	22	28.6	46.8
College graduate	16	20.8	67.5
Graduate training	25	32.5	100.0
TOTAL	77	100.0	
Other training			
None	48	62.3	62.3
Vocational technical school	6	7.8	70.1
On-the-job training	23	29.9	100.0
	77	100.0	

Table 1 (Continued)

Characteristic description	Response frequency	Percent	Accumulative percent
Profession or occupation occupation			
High executive, major professional	1	1.3	1.3
Business manager-less professional	2	2.6	3.9
Administrative personnel	5	6.5	10.4
Clerical sales technician	28	36.4	46.8
Skilled manual	4	5.2	51.9
Machine operator, semiskilled	2	2.6	54.5
Unskilled	1	1.3	55.8
Homemakers	9	11.7	67.5
Students	25	32.5	100.0
TOTAL	77	100.0	

In order to test whether the sample represents the general adult population in Ames, Iowa, the researcher stated an exploratory null hypothesis: There will be no difference between demographic data for the study sample and 1970 Census for Ames, Iowa. Table 2 displays the comparative data for selected demographic variables.

The exploratory null hypothesis is rejected. The demographic characteristics of sex, race, age, education and marital status are significantly different than the 1970 census data for Ames, Iowa. Therefore, the sample was not a representative one for general adults population in

Table 2. Chi-square comparison of selected study demographic variables with 1970 U.S. census data for Ames, Iowa (19 years of age and older)

Comparison variables	Study data		Census data	
	Number	Percent	Number	Percent
Sex				
Male	26	33.8	15,330	54.4
Female	51	66.2	12,843	45.6
TOTAL	77	100.0	28,173[a]	100.0
χ^2 value = 17.1		Significance = .001		
Race				
White American	62	80.5	27,487	97.6[b]
Other	15	19.5	686	2.4
TOTAL	77	100.0	28,173	100.0
χ^2 value = 124.74		Significance = 0.01		
Age				
19-54	48	62.34	24,154	85.7
55 and over	29	37.66	4,019	14.3
TOTAL	77	100.0	28,173	100.0
χ^2 value = 44.72		Significance = .001		
Education				
High school graduate	14	18.2	5,669	39.1
1-3 years of college	22	28.6	2,387	16.5

[a]Based on sample projections of male and female, 19 years and older, so that the total represents the entire Ames adult population over 19.

[b]Percent of white American in general adult population 19 years and older in Ames, Iowa.

Table 2 (Continued)

Comparison variables	Study data Number	Study data Percent	Census data Number	Census data Percent
Education (Continued)				
4 years of college or more	41	53.2	6,438	44.4
TOTAL	77	100.0	14,494[c]	100.0
χ^2 value = 21.84		Significance = .001		
Marital status				
Married	50	64.9	15,103	43.7
Married/widowed	18	23.4	1,182	9.9
Single/divorced/ separated	9	11.7	15,999	46.4
TOTAL	77	100.0	32,274[d]	100.0
χ^2 value = 53.6		Significance = .001		
Occupation[e]				
Business manager/ administrator	8	18.60	1,062	8.0
Technical/sales, clerical	28	65.12	9,905	74.5
Service workers	7	16.28	2,324	17.5
TOTAL	43	100.0	13,291	100.0
χ^2 value = 19.31		Significance = .001		

[c]Based on sampling projections so that the total is different than the actual universe total.

[d]Based on sampling projections of married individuals, 14 years of age and older.

[e]Based on sample projections of employed individuals, 16 years of age and older, totals represents only these categories of occupations included in the comparison. Fulltime students and homemakers are not included in the study population for the chi-square computation.

Ames, Iowa, on these demographic characteristics.

Examination of Table 2 indicates that the study sample was not representative of the Ames population who were 19 years of age and older. The sample included more female non-whites, older people, higher educated individuals, married, married/widowed people than would be expected in a representative sample. The sample also included less technical, sales, clerical, and service workers individuals than would expected in a representative sample.

Data Collection Procedures

Two instruments were used to collect the data for this study. One was the Self-Directed Learning Readiness Scale, used to measure the degree of readiness for self-direction in learning of the target population. Appendix A shows the instrument. The other was the interview schedule to collect information about the respondents' learning projects during the twelve month period prior to the interview. Appendix B shows the interview schedule, the accompanying sheets for the interviewer's use, and the corresponding computer sheet. The data used in this study were drawn from these two instruments.

The self-directed learning readiness scale

The instrument To collect data on current readiness for self-directed learning, Guglielmino's Self-Directed Learning Readiness Scale was used. The Self-Directed Learning Readiness Scale is a self-report questionnaire with Likert-type items. The individual was asked to read a statement and then indicate the degree to which that statement accurately describes him/her. In order to avoid possible response bias, the actual title of the scale would not be used during its administration. Instead, the SDLRS was described to the subjects as "a questionnaire designed to gather data on learning preferences and attitudes toward learning" (Guglielmino, 1977, p. 41).

The Self-Directed Learning Readiness Scale is four pages long and respondents were asked to circle one of the five options for each separate statement. Response choices were: 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 The reliability of the SDLRS as reported by Guglielmino is .87. A factor analysis indicated the presence of eight factors in self-direction in 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; and acceptance of responsibility for one's own learning (see Appendix A, for items loading on those eight factors).

In a validation study of the Self-Directed Learning Readiness Scale, Torrance and Mourad (1978) computed correlation coefficients between the total score on the Self-Directed Learning Readiness Scale and each of the eleven measures derived from the criterion instruments. These are reported in Table 3a.

As is shown, the two personality measures correlate with scores on the Self-Directed Learning Readiness Scale at rather high levels of significance. So do all three measures of originality. A correlation coefficient of .71 between the Self-Directed Learning Readiness Scale and the Autobiographical measures (SAM) is especially encouraging insofar as construct validity is concerned. This finding indicates that achievements and creative experiences are

Table 3a. Product moment correlations between the Self-Directed Learning Readiness Scale scores and selected creativity and style of learning and thinking measures[a]

Measures	r	P
Originality (Sound and images)	.52	.001
Fluency (Thinking creatively about the future)	.29	.06
Originality (Thinking creatively about the future)	.38	.01
Similes originality (Schaefer)	.52	.001
Photoanalogies (Templeton)	.48	.001
Possible jobs (Gershon and Guilford)	.29	.06
Creative personality (What kind of person are you)	.38	.001
Creative achievements (Something about myself)	.71	.001
Right hemisphere specialization (Style of learning and thinking)	.43	.01
Left hemisphere specialization (Style of learning and thinking)	-.34	.03
Integrated style of learning and thinking	-.05	

"Item analysis data were used to select items for revision and to estimate the parameters of the test. A reliability of .87 was estimated" (Guglielmino, 1977, p. 2).

[a]Torrance and Mourad (1978, p. 1170).

associated with readiness for self-directed learning.

Sabbaghian (1979) reported that highly significant relationships exist between total self-directed learning and all factors except for the factor of acceptance of responsibility for one's own learning. Further, a highly significant correlation of .431 was obtained between the Tennessee Self-Concept Scores and the self-concept as measured by the second factor of the Self-Directed Learning Readiness Scale, supporting the validity information provided by Torrance and Mourad.

The interview schedule

The instrument For measuring the actual learning activities of the sample, the "interview schedule" originally developed by Tough in 1969, and refined by Tough and other researchers in later efforts (1971) was used. This interview schedule was used to explore the number and nature of learning projects conducted by the participants in the study and the amount of time spent in these learning projects.

One purpose of the schedule is to familiarize the interviewee with the concept of a learning project. It also attempts to break down the sterotyped concept of learning as something which takes place only in the school setting. Another important purpose of the schedule is to use a probing

technique which uncovers as many of the subject's learning projects as possible and to determine for each the current status, whether active, not very active, or completed. Finally, interview schedule provides information about the source of day-to-day planning for each projects, the credit nature of the projects and the degree of knowledge, enthusiasm and benefits to other for each project.

In addition to the basic interview schedule developed by Tough in 1969, the complete instrument used in this study contained a demographic/biographic section and three questions designed to gather data pertinent to this study. One such question was designed to determine reasons behind the learner's choice of type of planner while conducting his/her individual learning projects.

The second question sought to determine a rank order of methods and resources used by subjects in conducting their learning projects. Seven methods and resources of learning were printed on cards, and a card sort technique was used to determine the particular ordering. A need for this information developed because during pilot-testing of the questionnaire the researcher noticed that in some cases interviewees were unable to give one primary resource or method used in one or more learning projects. Thus, it was assumed that obtaining from respondents a ranking of methods used

in all their learning activities and then comparing these ranking with the ranking order of the primary resources actually used in learning projects, a better idea about the resources and methods actually used would be determined.

The third question was designed to find out important obstacles encountered by learners during their learning activities. Such information will be useful in suggesting implications for future planning and research.

Reliability and validity To assess the validity of the interview schedule, Tough (1970) and other researchers examined the content validity of the instrument. Tough has reported that the instrument actually measures the basic characteristics of learning projects.

Hiemstra (1975) examined the "Tough" instrument. He found no significant differences between what adults prefer to learn and what they actually learned during the twelve months period prior to the interview. Further, he reported that "individual respondent correlations of the number of course preferences to the number of actual learning projects are significant at the .001 level and beyond" (Hiemstra, 1975, pp. 30-31).

To test the validity of the interview schedule, a correlation coefficient was obtained between self-directed readiness score as measured by Guglielmino's Self-Directed

Learning Readiness Scale and number of self-planned projects. A highly significant relationship of .88 was obtained, supporting the validity information provided by other researchers.

The following efforts were performed to maximize reliability. First, the interview schedule was pilot-tested with 9 adults from the target population (see next section). All questions were checked for clarity, ambiguity and wording, to ensure the instrument reliability, and necessary corrections were made on the final version of the instrument.

Second, results from the follow-up interviews were consistent with results obtained during the primary interview. Seven follow-up interviews were completed.

Third, to check the consistency of the researcher in gathering data from all the study respondents, the total sample was divided into two groups based on odd and the even numbers of the interviews. Each of the two groups was composed of 38 participants. Then, the two groups were correlated on the total number of learning projects. A correlation coefficient of .92 was obtained between the two groups. This correlation coefficient is an indication that the interviewer was consistent in gathering data. The researcher concluded that the interview schedule provided reliable results.

Preparation and pilot-testing The researcher participated in a three-hour training session designed to develop skills needed to administer the interview schedule. The training session was conducted by Dr. Roger Hiemstra, who had carried out previous research on learning projects (Hiemstra, 1975). The training session was conducted to clarify definitions to be used in the study, to explain the setting of a proper climate for interviewing, to describe the proper use of the probing interview technique to help the interviewee move past immediate recall, and to clarify the process of recording of data. The use of role playing was employed to gain skill in administering the interview probing technique.

The interview schedule was pilot-tested with 9 adults in Ames, Iowa. They were not included in the study population. The primary reason for the pilot-testing was to gain the experience necessary to administer the interview schedule adequately with the study sample. In addition, the schedule was examined in terms of clarity, ambiguity and wording and any necessary corrections were made on the final form of the schedule.

During the pilot-testing, questions were checked to ensure their reliability. As a result, the researcher decided to add a section about methods and resources of adult's learning projects described earlier.

Interview procedure

The researcher intended to contact the sample selected by telephone to inform them of the existence of the study. But difficulty in having people agree to participate in the study over the telephone resulted in a decision by the researcher in personal contact. This method yielded a higher rate of participation. Of the first eighty selected to participate in the study, only three persons were unable to take part. Therefore, the findings of this study reflect data from the seventy-seven completed interviews.

Interviews were conducted over a six week period during the months of January and February, 1980. The researcher personally conducted all the interviews, each of which was held at a location and time selected by the interviewee.

Participants were assured that their responses would be kept confidential and that they would not be identified by name. At the beginning of each interview, the researcher tried to establish a relaxed atmosphere. The interview process involved the use of the in-depth probing technique intended to help the respondent recall his/her learning activities which had been conducted during the twelve month period prior to the time of the interview.

During the first portion of the interview, the

interviewee usually remembered only learning activities that were formal in nature and often were group centered activities. As the interview progressed, the interviewee began to report learning projects that they had not originally considered. Most of the interviewees were excited and willing to talk about their learning experience. The participants were generally surprised at the amount of time they had spent in learning activities, and the number of learning projects they had conducted. Other researchers noted the same reaction with various adult populations (Tough, 1971; Coolican, 1974; Hiemstra, 1975; and Johns, 1973).

The researcher used probe sheets (see Appendix B) to help the interviewees answer questions about their learning projects.

In order to identify some obstacles to learning which the adult learners perceived when they were conducting their learning projects, the researcher probed by saying "Many things stop people from taking a course of study, learning a skill, or following a topic of interest. Which of the following do you feel are important in keeping you from learning what you want to learn? I will read them to you and you may select as many as you would like by saying yes or no". Then, the researcher read the list of obstacles (see Appendix B).

To determine the rank order of the methods or resources used by each participant while conducting learning projects, a card sort technique was used. Each participant was first asked to identify methods or resources used in his/her learning projects, by indicating "yes" or "no" on the probing sheet number 2 (see Appendix B). An identical list of methods and resources coded on cards was then given to each participant and he/she was asked to examine these methods and place the methods in sequential order, starting with the method used the most, then the second most, etc. The researcher kept the cards in the order given her by the interviewees and recorded the set of information immediately following the interview.

The researcher randomly selected one learning project in each of the planner categories used by each interviewee, and he/she was asked about the reasons behind the choice of the particular type of planner. The researcher probed by saying "There are different reasons which might cause you to choose a particular type of planner, and I have a list of some of these reasons; I am going to read them to you and you may select as many as you want by indicating yes or no." Then the researcher read the list to the interviewee.

After the interview schedule was completed, the researcher introduced the Self-Directed Learning Readiness

Scale to the interviewee. As was mentioned before, to avoid possible response bias, the actual title of the scale was not used during its administration. Instead, the SDLRS was described to the subjects as "a questionnaire designed to gather data on learning preferences and attitude toward learning". The individual was asked to read a statement and then indicate the degree to which that statement accurately described him/her.

At the conclusion of each interview the participant was thanked for his/her time and cooperation and asked if they were willing to be a part of a follow-up study after three weeks. Ten of the sample population agreed to participate in a follow-up study. The researcher was able to reach seven of them. The results of the follow-up study are discussed in the previous section.

Data Analysis Technique

Data from this study were analyzed initially by using descriptive statistical procedures. Specifically summary measures, including mode, mean, median, range and percentage were used where applicable.

Various tables with chi-square comparisons were constructed to describe the relation between selected learning project variables, such as planner of learning projects and subject matter area of the learning projects, with other

learning project variables, such as number of learning projects and various demographic/biographic variables.

The chi-square statistic was used to test the relationship between the demographic variables and the subject matter areas of the learning projects, and also to test for significant relationships between planner of learning project and both the total number of learning projects conducted by each participant and his/her readiness for self-direction in learning.

The t-test of significance was used to determine differences between the mean number of projects by sex, age, marital status, number of children under 19, education and occupation.

The one-way analysis of variance statistic was used to explore relations between selected demographic variables and readiness for self-directed learning. Duncan's test of significance was used to determine which groups have significant mean differences.

Regression analysis was used to test possible predictable relationships between the number of learning projects and one or more of the following variables: readiness for self-direction in learning, education, age and sex. Regression also was used to explore possible predictable relationships between readiness for self-directed

learning and sex, age, and education.

Pearson product-moment coefficient was used to test the relationship between readiness for self-directed learning and the total number of learning projects. It was also used to test the relationship between readiness for self-directed learning and the total number of self-fulfillment projects.

Spearman Rank-correlation coefficient was used to test the relationship between the ranking order of methods and the resources used by the participants.

One-way analysis of covariance was used to test the difference in the average number of self-fulfillment projects conducted by individuals who are high, average or low readiness for self-directed learning. Age was the covariate.

CHAPTER IV. PRESENTATION AND DISCUSSION OF DATA

Overview

This chapter presents the study's findings. The data describe learning projects activity of a selected sample of the adult population in Ames, Iowa. In addition, the investigation measured adults' readiness for self-directed learning and relationships between readiness and actual learning project activity.

The findings are divided into sections as follows:

1. Learning project characteristics, divided into the following subsections:
    a. The number of learning projects pursued by adult learners.
    b. Subject matter areas of the learning projects.
    c. Methods and resources used by adult learners.
    d. The most desirable place to study.
    e. Primary reasons behind the choice of specific types of planners.
    f. Present status of learning projects.
    g. The credit nature of the learning projects.
    h. Relations between demographic/biographic variables and learning projects variables.
    i. Relations between selected learning projects variables.

2. Information on adults readiness for self-directed learning.
3. Degree of satisfaction with learning projects.
4. Information related to the studies hypotheses.
5. Information on obstacles to learning.

Learning Projects Characteristics

The researcher asked different probing questions to help interviewees remember the number of learning projects and number of hours spent in each learning project. Tough's (1971, 1979) definition of learning projects was used by the researcher. Thus, to consider an activity as a learning project, it had to be a deliberate effort to gain knowledge or skill and retain it for at least two days. Tough and most other researchers of learning projects have used as a criterion seven hours of deliberate learning involvement within a six month period for a project to be recorded. In this study, the researcher used as the criterion, a minimum of fourteen hours of involvement within a six month period. After reviewing available literature on learning projects, the researcher believed that a person needs to spend at least seven hours in planning and preparing for the learning activity and seven hours more in the learning activity itself, before being able to gain and retain knowledge and skill.

Number of learning projects

Participants in this study had conducted 753 learning projects during the twelve month period prior to the time of the interview. The average number of learning projects per person per year was 9.78. The median was 9.45, the standard deviation was 3.18, and the number of projects varied from 4 to 16 learning projects. Table 3b displays the findings.

Data in Table 4 show each interviewee identified at least 4 learning projects. Note that approximately 25% of the respondents included 12 or more projects, a very high level of involvement that perhaps reflects the university effect on Ames, Iowa residents, and one of the reasons that the amount of hours were skewed upward.

Table 3b. Learning projects general descriptive information[a]

Informational description	Number of projects[b]
Average per person per year	9.78
Standard deviation	3.18
Median	9.45
Range	12.00
Total number of projects = 753	

[a]Based on 77 individuals with one or more learning projects.

[b]The number of projects are based on 14 hours of deliberate learning involvement. Number of hours are not shown here as they appeared extremely high in comparison with some of the other related studies. Thus, only the number of projects are reported here.

Table 4. Number of learning projects conducted in a year

Number of projects	Number of people	Percent of people	Accumulative percent
4	1	1.3	1.3
5	4	5.2	6.5
6	6	7.8	14.3
7	13	16.9	31.2
8	5	6.5	37.7
9	10	13.0	50.6
10	9	11.7	62.3
11	8	10.4	72.7
12	3	3.9	76.6
13	6	7.8	84.4
14	4	5.2	89.6
15	3	3.9	93.5
16	5	6.5	100.0

Besides the number of learning projects, the researcher also asked the interviewees to recall the number of hours spent in each learning project during the one year period prior to the time of the interview. The number of hours reported in this study were extremely high in comparison with the other studies on learning projects. For example, more than 3,000 hours were reported as the number

of hours by one person. An unusually large number of highly educated retired females, fulltime graduate, and fulltime undergraduate university students that appeared in the sample, obviously skewed the result upwards. A more realistic measure of central tendency in comparison with other studies on learning projects is the mode which was 299 hours per person. Thus, a table showing the average number of hours per person is not included in this study.

Although it is not possible to make exact comparisons, there are some similarities between this study findings and previous research findings. Tough (1977) summarized the results of all previous studies. The summary revealed that 90% of the adults who were interviewed pursued at least one learning project during the 12 month period. The average number of learning projects per person per year was 5 learning projects. As Table 3b reveals, the interviewees in this study conducted more learning projects than the average person. In a study by Armstrong (1971), it was found that high-level learners conducted an average of 19.5 learning projects and spent 2455 hours on the projects, while "ordinary" learners in his study conducted an average of 8.5 learning projects and spent 1280 hours. Therefore, interviewees in this study were roughly similar to Armstrong's study respondents in their extent of learning. The

participation rate in this study of 100 percent also supports earlier findings by Tough (1979) and other researchers that almost all adults participate in learning project activity. The participation rate in Tough's study was 98 percent. In other studies the range of participation has been from 86 percent to 100 percent (see Appendix D).

Nature and content of learning projects

The learning projects reported by interviewees were analyzed to determine their nature and content. The projects were classified into four categories, reflecting subject matter and content areas similar to those used by Hiemstra (1975). Table 5 displays the four content areas and gives the percentage of learning projects reported in each category.

Table 5. Nature and content of learning projects as identified by the study respondents

Content area	Number of projects	Percent
Occupational, vocational	134	17.80
Personal, family	246	32.67
Social, civic	106	14.08
Self-fulfillment	267	35.45
TOTAL	753	100.00

The largest category reported was self-fulfillment projects, accounting for 35.45 percent of the total projects. Examples of self-fulfillment projects included efforts at learning for leisure, arts and crafts, hobbies, recreation, music, dance, theatre, religion, and ethics. Family and personal related projects constituted the next highest category, accounting for 32.67 percent of the total learning projects. Each interviewee reported at least one or more personal or family projects. Examples included learning for the individual's role as parent, spouse, or homemaker, family garden projects, planning home improvement, family finances, estate planning, or physical or mental health.

Occupational/vocational projects ranked third, and accounted for 17.80 percent of the total. Examples included participating in job training sessions, graduate courses for certification, and basic literacy involvement. Social and civic learning projects accounted for 14.08 percent of the total. Examples included current events, neighborhood improvement, preparation for informed voting, and ecology related activity.

The findings approximated the results of related studies. Hiemstra (1975), in his study of older adults, found that self-fulfillment projects was the largest category reported. Another similarity between this study and the Hiemstra findings was that vocational projects ranked third

in this study and Hiemstra's study, no doubt because of the high percentage (37.66) of older people in the Ames population. Vocational/occupational reasons have even been ranked number one in many studies with younger and middle aged adults (Johns, 1973; McCatty, 1973; Denys, 1973; Benson, 1974; and Zangari, 1977).

The Post Secondary Education Resources Report (1976), summarizing the 1975 Triennial Survey of Adult Education, shows that most adult learners had career related reasons for participation in adult education. That survey also indicated that personal or family topics was the fastest growing category mentioned.

Methods or resources used by adult learners

A major purpose of this study was to recognize the methods or resources used by adult learners in their learning projects. For each learning project, the interviewee was asked to specify who or what provided most of the subject matter for the learning project (friends, relatives, group or its leader, programmed material, radio or television, display, books articles or newspaper, etc.). Interviewees also were asked to rank order the methods or resources used. Table 6 displays the findings. Reading books, articles, newspapers, etc., was the most common resource used by the participants, followed by conversation with other people.

Table 6. Methods of adult learning ranked by the interviewees

Methods of description	Number saying yes	Percentage[a]	Range of rank[b]	Average rank
Books, articles, newspapers, etc.	76	98.70	1-4	1.51
Friends, relatives, etc.	75	97.40	1-6	2.55
Experts	66	85.71	1-5	2.63
Group/group instructor	57	74.02	1-6	3.25
Displays/exhibits/museums	41	53.25	3-7	5.00
TV, radio, recordings, films	20	25.47	1-7	4.09
Programmed material	11	14.29	2-6	4.73

[a]Percentages based on total number of responses per item.

[b]Methods were ranked by the interviewees.

Asking experts ranked third while group or group instructor ranked fourth. Visiting displays, museums and art galleries was the fifth popular resource used by the interviewees. The sixth most common resouce ranked by the participants was the use of television, radio, recording and films followed in order by programmed material which ranked last.

In addition to having the interviewees rank the

methods, the researcher determined which methods were actually used the most. A Spearman Rank Correlation coefficient between the ranking order and the percent of interviewees which used each method was computed. Table 7 displays the results. A correlation coefficient of 0.89 was reported which is significant beyond 0.05 level of significance, indicating a strong correlation between both preference for a method and its actual use.

Table 7. A Spearman Rank Correlation coefficient between methods ranked by the participants and by percent of the participants using them

Methods description	Ranked by percent of participants using each method (X)	(X-Y)	Ranked by participants preference (Y)
Book, articles, newspaper, etc.	1	0	1
Friends, relatives, etc.	2	0	2
Expert	3	0	3
Group/group instructor	4	0	4
Displays/exhibits/museums	5	-2	7
TV, radio, recording, films	6	1	5
Programmed material	7	1	6
Spearman Rank Correlation coefficient = .89*			

*Significant at .05.

As was mentioned earlier, participants were asked to specify the primary resource used in each learning project. The responses were categorized following the interviews.

As a summary of the data presented in Table 8, in 293 projects, reading was the primary resource of subject matter. The second most common primary resource of subject matter was group/group instructor, which was used in 122 projects. The third most common primary resource, was conversation with other people was used in 101 projects. Television, radio, recording or films (use of media resources) was the fourth most common primary resource, which was used in 83 learning projects. The fifth common primary resource was asking experts, which was the source in 75 learning projects. Seventy-three learning projects reported that experience/practice was a primary resource and 6 learning projects reported that displays, museums, etc., were a primary resource. None of the learning projects reported using programmed material as a primary resource.

A comparison between Table 6 and 8 shows a slight difference in the ranking order of the resources. Reading, group or group instructor, and conversation with other people, were the three most common primary resources used by the interviewees. However, use of the media resources ranked fourth instead of six, while asking expert ranking fifth instead of third. Practicing was the six most common

Table 8. Primary resources used in the learning projects, as identified by the study respondents

Resources[a]	Number of projects	Percent[b]
Books, articles, newspapers, etc.	293	38.91
Group/group instructor	122	16.20
Friends, relatives	101	13.41
TV, radio, recordings, films	83	11.02
Experts	75	9.96
Experience/practicing	73	9.70
Displays/exhibits/museums	6	0.80
TOTAL	753	100.0

[a]A resource has to be used about 90% of the time in a given learning project to be considered as a primary resource.

[b]Percentages based on total number of responses per item.

resource used by the participants. Some of the interviewees mentioned the use of the experience or practice in some of their learning projects which reveals the importance of doing trial and error learning.

The most desirable place to study

The subjects were asked to identify the most desirable place to study. Table 9 displays the results. Examination of data in Table 9 indicates that library, church, school, college or university, club or an informal group gathering were the most common place to study. Although home was not included in the list which was provided to them, the interviewees often mentioned home as the most desirable place to study. Umoren (1977) also found out that home was the most desirable place to study.

Table 9. The most desirable place to study or practice ranked by number saying yes

Description of settings	Number saying yes	Percentage[a]	Rank
Library, exhibits, museums	52	67.5	1
Church or synagogue	46	59.7	2
Ad. ed. class, school, college, or university	45	58.4	3
Club or an informal group	44	57.1	4
Educational trip, tour or travel group	33	42.9	5
Community organizations	27	35.1	6
Company, factory or office	22	28.6	7
Camp or retreat setting	11	14.3	8
Government programs	6	7.8	9

[a]Percentage based on responses from the 77 study participants.

The primary planner for each learning project

For each learning project reported, the interviewees were asked to identify the primary planner. The intention was to find out who was responsible for the day-to-day planning and decision-making concerning what to learn, and how to go about the major learning tasks involved in each learning project. Tough (1979) suggested five types of planners. These types are: 1) group; 2) one-to-one; 3) nonhuman resources; 4) learner himself/herself; and 5) mixed (no dominant type of planner).

In order to help the interviewees to identify the primary planner for each learning project, a complete description of each type of planner was provided. The researcher accepted the interviewees own judgment about which type of planners they used. Table 10 presents the frequency and percentage of response.

Five hundred eighty-eight learning projects were planned by the learner himself/herself, slightly over 78 percent of the total projects. Tough (1979) indicated that self-planned learning is extensive, and that it is the most common chosen type of planner. Hiemstra (1975) also found out that the learner himself/herself most often planned the activity. Other learning projects studied also reported that self-planned projects were dominant.

Table 10. Types of planners involved in all learning projects as identified by the study's respondents

Type of planner[a]	Number of projects	Percent
The learner himself/herself	588	78.09
A group or its instructor	119	15.80
One person in a one-to-one situation	43	5.71
Nonhuman resources	3	.40
TOTAL	753	100.00

[a]There were no mixed planners reported in this study.

Group planned learning accounted for approximately 16 percent of the total number of learning projects. While one-to-one planner and nonhuman resource planner accounted for approximately 6 percent of the total projects reported, there were no mixed planner reported in this study.

Primary reasons behind the choice of specific type of planner

The researcher randomly chose one learning project for each category of planning reported by each interviewee and asked him/her to identify the primary reasons behind the choice of the specific type of planner. As was mentioned earlier, there were four types of planners reported in this study (self-planned, group planned, one-to-one and material

planned). However, some of the interviewees did not use all the planner categories. The researcher probed by saying: "There are different reasons which might cause you to select a particular type of planner, and I have a list of some of these reasons, I will read them to you and you may select as many as you want by indicating yes or no". The researcher then read the list to the interviewee. The participants were also asked to add any other reasons of their own if their reasons were not included in the list. Responses were analyzed. Tables 11 through 14 present the frequencies and percentages of these reasons by the number of respondents saying yes for each type of planner.

Examination of data in Table 11 indicates that desire for self-planned learning, and evidence of ability to learn were the most common reasons behind the choice of self-planned learning. Financial or economy, most convenient, efficiency of self-planned method, ease of subject, flexibility of time, the simplicity of plan, outside planner not available and urgency to learn received only a few responses.

Data in Table 12 indicate that capacity of instructor and availability of classroom and material were the most common reasons behind the choice of group planned learning. Each accounted for 25 percent of the responses. Efficiency of group method was the next most common reason, with 22.5

Table 11. Reasons for choice of self-planned learning

Reasons	Number of responses[a]	Percent of responses
Desire for self-planned learning	58	23.87
Evidence of ability to learn	50	20.58
Financial, economy	30	12.34
Most convenient	25	10.29
Efficiency of method	20	8.23
Ease of subject	20	8.23
Flexibility of time	15	6.17
The simplicity of plan	15	6.17
Outside planner not available	5	2.06
Urgency to learn	5	2.06
TOTAL	243	100.00

[a]Number of respondents saying yes for each reason.

Table 12. Reasons for choice of group planned learning

Reasons	Number of responses[a]	Percent of responses
Capacity of instructor	50	25.0
Availability of classroom and material	50	25.0
Efficiency of group method	45	22.5
Subject matter was appropriate for this kind of planner	30	15.0

[a]Number of respondents saying yes for each reason.

Table 12 (Continued)

Reasons	Number of responses[a]	Percent of responses
Group attraction	11	5.5
Flexibility of time	10	5.0
Most convenient	4	2.0
TOTAL	200	100.0

percent of the responses. Fifteen percent of the responses indicated that group planning was appropriate for the subject matter area of the learning project. Group attraction, flexibility of time, and most convenient received only a few responses.

Table 13 is a summary of the reasons behind the choice of one-to-one planner. Availability of material, efficiency of method, and flexibility of time were the primary reasons behind the choice of one-to-one planner.

Primary reasons for the choice of material-planned were availability of material and the simplicity of plan. Ease of subject, flexibility of time, and monetary considerations received only a few responses. Table 14 presents the summary of these reasons and frequencies and percentages of responses.

Table 13. Reasons for choice of one-to-one type of planner

Reasons	Number of responses[a]	Percent of responses
Availability of material	15	29.41
Efficiency of method	12	23.53
Flexibility of time	10	19.61
Subject matter was appropriate for this kind of planner	9	17.65
Capacity of instructor	5	9.80
TOTAL	51	100.0

[a]Number of respondents saying yes for each reason.

Table 14. Reasons for choice of material planned learning

Reasons	Number of responses[a]	Percent of responses
Availability of material	3	27.28
The simplicity of plan	3	27.28
Ease of subject	2	18.20
Flexibility of time	1	13.22
Financial or economy	1	13.22
TOTAL	11	100.00

[a]Number of respondents saying yes for each reason.

Status of learning projects

The adult learners were asked to judge the current status of each learning project according to the following: 1) definitely active, 2) not very active, and 3) completed. Table 15 is a summary of the frequency and percentage of the learning projects found in each category.

Table 15. Current status of learning projects

Category	Number of learning projects	Percent of projects
Definitely active	598	79.41
Not very active	52	6.90
Completed	103	13.69
TOTAL	753	100.00

Data in Table 15 indicate that 598 projects reported as being definitely active. These projects accounted for approximately 79 percent of the total projects reported. Previous research findings support the findings of this study in that approximately 75 percent of the total number of learning projects reported were in progress or still active (Zangari, 1977; Coolican, 1973; and Johns, 1973).

Fifty-two learning projects were not very active at the time of the interview, accounting for about 7 percent of the total

projects reported. The primary reasons given by the interviewees for discontinuing learning projects were lack of time, preschool aged children, job responsibilities, financial limitation and the absence of needed resources.

The credit nature of the learning projects

To identify motivation for participation in learning project activities, the researcher asked the participants to examine each of their learning projects and to judge what the primary part of their motivation was for participation in each project. The "major part of their motivation" was defined as over 50 percent. The criteria for classification were credit, certification, job, enjoyment and mixed. The classification and percent of learning projects in each category are reported in Table 16.

Table 16. Primary reason for projects

Category	Number of learning projects	Percent of projects
Credit	81	10.76
Certification	6	.80
Job	60	7.97
Enjoyment	481	63.87
Mixed	125	16.60
TOTAL	753	100.00

Credit learning projects accounted for approximately 11 percent of all projects undertaken by the interviewees. This percent is high in comparison with other learning projects study findings. However, the sample in this study had a high number of full time graduate and undergraduate university students, which might be the reason for skewing the credit projects upward.

Tough (1979) reported that 5 percent of the learning projects in his study were undertaken for credit. Most of the other learning project research supports Tough's findings. The only exception was a study by Johnson (1973) of recent high school graduates. Twenty-three percent of the projects undertaken by the group he studied were for credit.

Example of projects undertaken for credit are courses in such areas as communication, computers, science, statistics, ecology, administration, or research work.

Six projects were classified as certification, accounting for 0.80 percent of the total learning projects reported. These projects involved such activities as job certification and driving certification.

The noncredit learning projects accounted for approximately 88 percent of the total number of the learning projects undertaken.

Relations between demographic/biographic variables and learning projects variables

A comparison was made on learning project variables utilizing demographic variables. Table 17 contains this information. In order to have a better idea about the learning project activities of the adult learner in Ames, Iowa, a composite picture of the active adult learner was formed. The active adult learner was more often white American, not married, and highly educated. No discernible data were obvious for the variables of "sex", "occupation", and "number of children under 19" because of similar percentages or small number of the interviewees in the various categories. The majority were from age 19 to 62.

Hiemstra (1975) reported that the active older learner in Nebraska more often was 55-64 years of age, rural, white American, upper class, living in an apartment, not married, and highly educated. Thus, this study has many findings similar to the Hiemstra's findings.

Table 18 contains comparison information on the choice of subject matter area according to various demographic subcategories. Examination of Table 18 indicates that there is a considerable difference in the choice of subject matter according to various demographic subcategories.

Younger, highly educated, fulltime students are more likely to report occupational-vocational projects, while,

Table 17. Comparison of learning project information with demographic variables

Comparison variables	Number of people	Average number of projects	Number of projects	
			Minimum	Maximum
Sex				
Male	26	9.88	5	16
Female	51	9.75	4	16
Age				
19-62	49	9.93	4	16
63 and older	28	9.54	5	15
Race				
White American	62	9.90	4	16
Other	15	9.33	5	14
Education[a]				
High school graduate	14	8.29	4	15
Some college/college graduate	38	9.84	5	15
Graduate training	25	10.56	5	16
Occupation				
Business manager/ administrative personnel	8	10.13	6	15
Clerical, sales, technician	28	9.93	4	16
Skilled/semiskilled/ unskilled employee	7	8.43	5	12
Homemaker	9	10.22	6	16
Fulltime students	25	9.76	5	16
Marital status				
Married/married widowed	68	9.69	4	16
Single/separated	9	10.56	6	16
Number of children under 19				
One child or more	12	9.42	5	16
None	65	9.86	4	16

[a]Time spent on vocational training or on the job training was added to years of formal education.

older, highly educated, professional, business manager, administrative personnel, skilled and unskilled employees, are more likely to report self-fulfillment projects.

The data in Table 18 were examined with the chi-square statistic. Every comparison was significant at the .05 level of significance or beyond except for marital status, number of children under 19, and other training. These findings suggest some research implications. For example, Hiemstra (1975) reported that young-educated people, clerical/sales/technical employees, skilled manual workers, unskilled people, and homemakers were more likely to report self-fulfillment projects. He also indicated that each of the chi-square analysis for the subcategories of his demographic variables (sex, age, community, race, social class, living arrangement, marriage status, education, and occupation) was significant at level .05 or above. The several similarities and few differences in the current study from Hiemstra's findings need to be studied further.

The researcher was interested in testing the differences in the average number of learning projects according to the various demographic characteristics. Table 19 contains the t-test comparisons. There were no significant differences in the mean number of the learning projects conducted on any of the various demographic

Table 18. Comparison of subject matter area by various demographic variables

Comparison variables	Occupational/ vocational		Personal family		Civic social		Self-fulfillment	
	No.[a]	Per-cent[b]	No.	Per-cent	No.	Per-cent	No.	Per-cent
Sex								
Male	64	25.00	77	30.08	37	14.45	78	30.47
Female	70	14.08	169	34.00	69	13.88	189	38.00
$\chi^2 = 16.76$ Significance = > .01								
Race								
White American	94	15.30	204	33.20	92	14.96	225	36.60
Other	40	29.00	42	30.43	14	10.14	42	30.43
$\chi^2 = 14.93$ Significance = > .01								
Age								
19-62	127	26.02	168	34.42	59	12.09	134	27.45
63 and older	7	2.64	78	29.43	47	17.73	133	50.18
$\chi^2 = 82.8$ Significance = > .001								
Marital status								
Married/widowed	121	25.00	77	30.08	37	14.45	78	30.47
Single/separated	13	13.82	34	36.17	11	11.70	36	38.30
$\chi^2 = 2.03$ Significance = N.S.								
Number of children under 19								
One child or more	23	20.00	47	40.89	15	13.04	30	26.09
None	111	17.40	199	31.20	91	14.30	237	37.14
$\chi^2 = 6.65$ Significance = N.S.								
Education								
High school graduate	4	3.48	46	40.00	17	14.78	48	41.74
College graduate	69	18.80	117	31.11	54	14.36	136	37.06
Graduate training	61	23.28	83	31.68	35	13.36	83	31.68
$\chi^2 = 22.54$ Significance = > .001								

[a]Number of learning projects.

[b]Percent of learning projects within each subcategory of the demographic variables.

Table 18 (Continued)

Comparison variables	Occupational/ vocational		Personal family		Civic social		Self-fulfillment	
	No.[a]	Per-cent	No.	Per-cent	No.	Per-cent	No.	Per-cent
Other training								
Voc. tech. school	7	12.28	21	36.84	10	17.54	19	33.33
On-the-job training	27	11.49	77	32.77	35	15.31	95	40.42
None	100	21.69	148	32.10	60	13.02	153	33.19
$\chi^2 = 12.21$ Significance = N.S.								
Occupation								
Business manager/ administrative personnel	5	6.17	28	34.57	13	16.04	35	43.21
Clerical, sales, technical	31	11.11	84	30.11	57	20.43	107	38.35
Skilled/semi-skilled/ unskilled employee	7	11.86	18	30.51	6	10.17	28	47.46
Homemaker	10	10.87	41	44.56	6	6.52	35	38.04
Fulltime students	81	33.37	75	30.99	24	9.92	62	25.62
$\chi^2 = 82.08$ Significance = > .001								

subcategories. This supports the Hiemstra (1975) study, except that he revealed that the mean difference of the number of learning projects conducted by white and blue collar was significant. This can be accounted partially for the fact that in his study the white collar workers were more involved with professional projects.

The difference in the choice of type of planner among high and low learners was another area of study. A person

Table 19. t-test participants comparison of various demographic variables with the number of annual learning projects

Comparison variables	Number in group	Number of projects	
		Mean	Standard deviation
Sex			
Male	26	9.88	2.83
Female	51	9.74	3.37
t value = 0.19	Significance = N.S.		
Age			
19-55	48	9.85	3.21
56 and older	29	9.69	3.19
t value = 0.22	Significance = N.S.		
Race			
White American	62	9.90	3.30
Other	15	9.33	2.53
t value = 0.73	Significance = N.S.		
Education			
College graduate/ graduate training	44	9.95	0.44
Noncollege graduate	36	9.61	0.60
t value = 0.06	Significance = N.S.		
Occupation			
Fulltime students	25	9.76	0.64
Other	52	9.81	0.44
t value = 0.06	Significance = N.S.		
Marital status			
Married/widowed	62	9.69	3.17
Not married	9	10.55	3.36
t value = 0.73	Significance = N.S.		

Table 19 (Continued)

Comparison variables	Number in group	Number of projects	
		Mean	Standard deviation
Number of children under 19			
One child or more	12	9.42	3.33
None	65	9.86	2.53
t value = 0.44	Significance = N.S.		

who conducted 7 learning projects or below was considered a low learner, while a person who conducted 12 learning projects or above was considered a high learner. The interviewees were classified into two groups, according to these two categories and a chi-square analysis between the choice of type of planners among the two groups was computed. The average learners were excluded from the χ^2 comparison.

The data in Table 20 reveal that there is no significant difference in the choice of planners among high and low learners. A chi-square value of 5.28 was obtained, which is not significant.

Table 20. Comparison of the annual number of learning projects with primary planner

Comparison variables[a]	Total number of projects			
	7 and less	Percent	12 and up	Percent
Group or group instructor	13	8.67	47	15.93
One person/on a one-to-one situation	11	7.33	16	5.43
The learner himself/herself	126	84.00	232	78.64
TOTAL	150	100.00	295	100.00

$\chi^2 = 5.28$ Significance = N.S.

[a]Material planned projects are excluded from the χ^2 comparison.

Self-directed Learning Readiness

As was mentioned in Chapter I, one of this study's objectives was to provide more information on readiness for self-directed learning, as measured by Guglielmino's Self-Directed Learning Readiness Scale. The scale contains, in addition to an overall score, scores on 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 21 presents information on these scores for the sample of 77 adults.

Table 21. Self-directed learning readiness scores

Comparison variables	Number of items	Mean	Standard deviation	Range
Total score of readiness for self-directed learning	58	227.97	23.87	113.0
Eight factors				
Love of learning	17	71.91	8.62	34.0
Self-concept as an effective independent learner	12	43.19	7.16	32.0
Tolerance of risk ambiguity and complexity in learning	17	64.42	8.15	38.0
Creativity	10	39.29	5.12	21.0
View of learning as a lifelong beneficial process	8	30.43	3.41	15.0
Initiative in learning	5	18.47	2.70	14.0
Self-understanding	9	36.34	4.15	17.0
Acceptance of responsibility for one's own learning	2	8.48	1.74	7.0

A comparison was made between this researcher's findings and previous research on self-directed learning, Sabbaghian's study (1979) and Guglielmino's study (1977). The comparisons indicate that adult participants in this study have slightly lower average scores than the adult populations used by Guglielmino and Sabbaghian. Table 22 contains the comparison scores. The university samples in both studies no doubt account for these differences. Note that gifted young students generally have lower scores in the lower grades.

Percentile ranks of the 77 adult participants in this study were also compared with the 77 undergraduate adult students at Iowa State University (Sabbaghian, 1979) and the 307 high school students and adults in Georgia, Canada and Virginia studied by Guglielmino (1977). Table 23 presents the findings and shows only slight differences on the percentile ranks between the different populations.

To examine the internal validity of the Self-Directed Learning Readiness Scale, each factor of the scale was correlated with the total self-directed learning readiness score. Table 24 contains these correlation coefficients. The highly significant relationship between total self-directed learning readiness and its eight factors indicate that the eight factors are fully accurate measurement of the degree of self-directed learning readiness.

Table 22. Means and standard deviations for select groups of adults and children on the Self-Directed Learning Readiness Scale

Groups	Number of subjects	Mean	Standard deviation	Range
General adults in Ames, Iowa	77	227.9	23.9	113.0
Undergraduate students at Iowa State University[a]	77	229.1	24.1	119.0
Graduate students at University of Georgia[b]	91	247.5	20.0	196.0
College of education faculty at University of Georgia[b]	185	246.8	17.2	100.0
Grade 12 gifted[b]	16	239.2	23.2	75.0
Grade 11 gifted[b]	34	232.6	20.0	82.0
Grade 10 gifted[b]	34	218.0	22.7	95.0
Grade 9 gifted[b]	39	231.2	26.7	95.0
Grade 8 gifted[b]	95	211.6	27.1	153.0
Grade 7 gifted[b]	111	218.8	23.3	116.0
Grade 6 gifted[b]	177	219.0	24.2	119.0
Grade 5 gifted[b]	178	217.5	26.9	151.0
Grade 4 gifted[b]	28	219.2	21.4	83.0
Grade 3 gifted[b]	12	167.2	37.8	144.0

[a]Sabbaghian (1979).

[b]Guglielmino (1977).

Table 23. A comparison of percentiles of self-directed learning scores for high school students and adults in Georgia, Canada and Virginia, and undergraduate adult students at Iowa State University with participants of this study

High school students and adults in Georgia, Canada and Virginia[a]		Undergraduate adult students at Iowa State University[b]		General adult population in Ames, Iowa	
Percentile	SDLRS score	Percentile	SDLRS score	Percentile	SDLRS score
10	191	10	195	10	193
20	203	20	208	20	207
30	209	30	217	30	218
40	214	40	224	40	227
50	223	50	233	50	223
60	231	60	238	60	235
70	239	70	243	70	242
80	248	80	251	80	246
90	255	90	260	90	255

[a]Guglielmino (1977).

[b]Sabbaghian (1979).

Table 24. Correlation coefficients between total self-directed learning readiness score and the eight factor scores

Factors of self-directed learning	Correlation with total self-directed learning score
Love of learning	.89**
Self-concept as an effective independent learner	.83**
Tolerance of risk ambiguity and complexity in learning	.79**
Creativity	.81**
View of learning as a lifelong beneficial process	.78**
Initiative in learning	.81**
Self-understanding	.83**
Acceptance of responsibility for one's own learning	.45**

**Significant at > .01.

Sabbaghian (1979) also examined the internal validity of the Self-Directed Learning Readiness Scale. She found a highly significant relationship between total self-directed learning and each factor except for acceptance of responsibility for one's own learning. On the current study, it too had a lower score. An obvious research need is to study in greater detail how people perceive or do accept responsibility for their own learning.

Guglielmino (1977) identified the total self-directed scores of 209 and below as low and total self-directed scores of 239 and above as high. The range between these two scores was considered as average in self-directedness. The same criteria was used in this study to select the adult participants who were highly self-directed learners versus those who were low self-directed learners. Participants who were average self-directed learners were excluded for the following comparison.

Table 25 contains the mean, standard deviation and t-test statistic for high and low self-directed adult learners. Sixteen interviewees (20.7 percent) out of the 77 participants had total scores of 209 or below. Twenty-six adult interviewees (33.7 percent) had total scores of 239 or above. A t value of 16.46 was obtained for the total readiness score comparison. The value exceeds the .01 level of significance, indicating that there is a highly significant difference between the two groups in terms of their readiness for self-directed learning. Highly significant values were also found for each of the eight factors.

Previous research findings indicate that a highly self-directed learner is a person who continues his/her learning" "reflected in selection from a range of learning activities that are most appropriate for the specific circumstances he/she confronts", Knox (1973). Tough (1979) in his explanation of

Table 25. Mean, standard deviation and a t-test comparison values for high and low self-directed adult learners

Variables	Number of items	High-self-directed (n=26) Mean	S.D.	t-value	Low self-directed (n=16) Mean	S.D.
Total self-directed learning readiness	58	252.0	10.46	16.44**	192.0	12.09
Eight factors						
Love of learning	17	79.0	3.77	12.12**	58.6	6.08
Self-concept as an effective independent learner	12	50.2	3.98	7.28**	35.8	4.67
Tolerance of risk ambiguity and and complexity in learning	17	70.9	6.87	3.76**	55.44	6.10
Creativity	10	43.5	3.64	7.42**	33.6	4.52
View of learning as a lifelong beneficial process	8	32.8	1.72	7.90**	25.94	3.19
Initiative in learning	5	20.7	1.92	8.60**	15.31	2.02
Self-understanding	9	39.9	1.83	12.29**	31.00	2.50
Acceptance of responsibility for one's own learning	2	9.46	.91	4.51**	7.25	1.84

**Significant at > .01.

self-planned learning points out that self-directed learning, and individual learning, "are somewhat similar to self-planned learning projects, but not identical" (1979, p. 42). He agrees that even though the learner may obtain help from a variety of human resources or material resources, the key to being a self-planned learner is carrying on the responsibility for the detailed decisions and arrangements associated with the learning activities. Guglielmino (1977) assumed that the highly self-directed learner more often chooses or influences the learning objectives, activities, resources, priorities, and level of energy expenditure than does the other-directed learner.

Based on the above, the researcher expected that highly self-directed learners would conduct more learning projects than low self-directed learners. Thus, if we are going to use the Self-Directed Learning Readiness Scale in the future to predict the number of learning projects an adult will conduct in a year, it is important to know the predictive validity of the "SDLRS".

One method for determining validity is to see whether predictor scores differentiate groups defined by their criterion performance. Participants in this study were divided into two groups; those who had 7 learning projects or less (low learning involvement), and those who had 12 learning projects or higher (high learning involvement).

Then a comparison was made between the two groups on the Self-Directed Learning Readiness total scores and the eight factor scores. A t-test statistic was used to determine whether a statistically significant difference in their mean scores existed. In other words, do learners with many projects (high learning involvement) obtain significantly higher self-directed learning scores than those with fewer projects (low learning involvement)? Average learners were excluded from this comparison.

Table 26 illustrates the findings. A t value of 3.28 was obtained for the total score comparison. The t value exceeds the .01 level of significance, indicating that there is a highly significant difference between high and low involvement in terms of readiness for self-directed learning. Thus, the Self-Directed Learning Readiness Scale can discriminate among learners. Significant values were also found for several of the eight factors.

Brown (1970) reported that there is a problem with using group separation to indicate validity. Statistical significance of the difference between group means is a function of the size of the groups. As group size increases, smaller differences in average scores will be statistically significant and the test may be of little value in discriminating between subgrouping. Since the size of the sample in this study was not large and the means and standard

deviations reported in Table 26 indicate large differences, it is suggested that the Self-Directed Learning Readiness Scale is a valid measure. However, more validation study will be needed to further confirm this assumption.

As was mentioned earlier, the researcher was also interested in testing the relationship between the self-directed learning score when categorized by the demographic variables. Table 27 is a summary table of one-way analysis of variance for self-directed learning readiness by sex, age, race, number of children under 19, marital status and occupation. No significant difference was found between any of these demographic subcategories in terms of their readiness for self-direction in learning.

The data in Table 28 show that there is a highly significant difference between groups categorized by level of education in terms of their readiness for self-directed learning.

To identify which groups have significant differences, Duncan's test for significance was utilized. Table 29 displays the results which indicate that there is a significant difference between high school graduates and people who have some college education, college graduates, and graduate training in terms of their readiness for self-directed learning. This indicates that an adult's readiness for self-directed learning increases by education.

Table 26. Mean, standard deviation and t-test comparison values for high and low learning involvement on the self-directed learning readiness scores

Variables	High involvement (n=21)		t-value	Low involvement (n=24)	
	Mean	S.D.		Mean	S.D.
Total self-directed readiness scores	234.86	25.46	3.28**	211.37	22.11
Eight factors					
Love of learning	74.14	7.94	3.35**	65.75	8.85
Self-concept as an effective independent learner	44.09	8.71	2.05**	39.50	5.86
Tolerance of risk ambiguity and complexity in learning	67.43	8.21	3.20**	59.83	7.63
Creativity	40.86	4.68	3.80**	35.50	4.76
View of learning as a lifelong beneficial process	31.24	3.90	2.05*	28.96	3.51
Initiative in learning	18.86	3.26	1.79	17.29	2.51
Self-understanding	36.86	4.56	2.31*	33.8.	4.15
Acceptance of responsibility for one's own learning	8.81	1.50	1.25	8.29	1.23

*Significant at > .05.

**Significant at > .01.

Table 27. Summary of one-way analysis of variance for self-directed learning by sex, age, race, number of children uner 19, marital status and occupation

Sources of variation	Mean	Standard deviation	F-value	Significance of F-value
Sex				
Male	233.46	16.88	2.10	N.S.
Female	225.17	26.46		
Age				
19-54	231.10	23.44	2.23	N.S.
55 and older	222.79	24.09		
Race				
White American	226.63	25.54	1.01	N.S.
Other	233.53	14.54		
Number of children under 19				
One child or more	237.25	16.37	2.18	N.S.
None	226.26	24.73		
Marital status				
Married/widowed	228.89	23.02	0.87	N.S.
Single/divorced	221.00	30.24		
Occupation				
High exec., major professional, business manager	226.00	25.46	1.53	N.S.
Administrative personnel	242.80	16.08		
Clerical, sales, technician	224.43	25.22		
Skilled manual employees	197.25	28.00		
Machine operator, semiskilled, unskilled	233.00	7.70		
Homemakers	231.56	24.92		
Students	232.97	20.88		

Table 28. One way analysis of variance for self-directed learning by education

Source of variation	d.f.	Sum of squares	Mean squares	F value
Between groups	3	9509.22	3169.74	6.84**
Within groups	73	33808.77	463.13	
TOTAL	76	43317.99		

**Significant at > .01.

Table 29. Duncan's test for self-directed learning readiness by education

Groups	High school graduate	Some college	College graduate	Graduate training
Mean[a]	204.71	231.0	232.37	235.52

[a]Groups under the same subset do not have any significant difference.

Sabbaghian (1979), in her study on the undergraduate adult students at Iowa State University, reported that highly educated adults have greater capacity for self-directed learning than less educated adult students. She also found out that females have greater abilities to organize and direct their learning activities, are more creative, are more eager to learn, and have a higher self-

concept than male adult students. She also reported that older students have higher self-images, greater creativity, initiative in learning, view of learning as a lifelong beneficial process and are more self-directed than younger adult students. Thus, the researcher was also interested to determine if any predictable relationships existed between readiness for self-direction in learning and these variables: 1) education, 2) age, and 3) race. Table 30 contains the regression analysis values.

Table 30. Regression analysis for self-directed learning readiness by age, race, and formal education

Sources of variation	Multiple R	R^2	R^2 change	F value	Significance
Years of education	0.38	0.15	0.15	11.42**	.005
Age	0.40	0.16	0.01	1.50	N.S.
Race	0.40	0.16		0.25	N.S.

Examination of data in Table 30 indicates that there is a significant predictable statistical relationship between readiness for self-directed learning and formal education. An F-value of 11.42 was obtained which is significant beyond the level of .005. The positive relationship indicates that the higher the level of education the higher the self-directedness. However, further analysis indicates that

there is no significant relationship between readiness for self-directed learning and the variables of age and race.

An R^2 value of .15 was obtained when level of education added to the equation. This R^2 value is low. Therefore, practically, we can not use level of education to predict an adult readiness for self-directed learning even though a significant statistical relationship did exist.

Degree of Satisfaction with Learning Projects

The interviewees were asked to respond to three questions pertaining to their degree of satisfaction with each learning project conducted. Each project was rated by the respondents on a three point scale indicating the level of satisfaction experienced. The findings are arranged to illustrate the degree of satisfaction for each level of readiness for self-direction in learning.

First, the researcher asked the interviewees to illustrate the degree of knowledge or change experienced during each learning project. Table 31 displays the responses to this question. The adult participants in this study reported great satisfaction with the amount of knowledge or change attained by their learning projects. They reported that approximately 82 percent of the total projects resulted in a large amount of new knowledge or change, 13 percent of

Table 31. Degree of knowledge or change for all projects identified by level of readiness for self-direction in learning

Response	Readiness for self-direction in learning						Total number of projects
	High		Average		Low		
	No.[a]	Percent[b]	No.	Percent	No.	Percent	
Learning a large amount or changed a great deal	254	80.13	251	82.83	110	82.70	615
Learned a moderate amount or changed moderately	47	14.82	37	12.21	17	12.78	101
Learned a small amount or changed very little	16	5.05	15	4.96	6	4.52	37
TOTAL	317	100.00	303	100.00	133	100.00	753

[a]Number of projects.

[b]Percent of projects within each level of readiness for self-direction in learning.

their projects resulted in a moderate amount of change while only 5 percent of their learning activities resulted in a small amount of new knowledge or change. A breakdown of these responses by level of readiness for self-direction in learning shows few differences across the three levels at each response category.

The second question asked for an indication of the degree of enthusiasm for the new knowledge or skill attained through participation in each of the learning

projects. Table 32 contains the responses categorized by level of readiness for self-direction in learning. The interviewees generally reported high enthusiasm with the amount of knowledge and skill gained through their learning activities. Again, few differences existed across the categories, although those low in readiness for self-direction appeared also to be the least enthusiastic.

The third question required the participants to express the degree to which new knowledge and skill gained through their learning projects was beneficial to persons other than themselves (for example, relatives, friends, or co-workers). Table 33 contains the responses to this question for all projects undertaken. Adult learners reported that in 49 percent of their learning projects, other people were benefited to a large extent. In 25 percent, people other than themselves were benefited to a medium extent, while in 26 percent of their learning activities benefits to persons other than themselves were little.

Comparison by level of readiness for self-directed learning indicates that highly self-directed learners expressed the largest benefits to others as a result of the new knowledge and skill gained. Generally, it appears that those lower in readiness for self-direction are more likely to perceive fewer benefits for others.

Tough (1979) reported that if people retained

Table 32. Degree of enthusiasm expressed for all projects identified by levels of readiness for self-directed learning

Response	Readiness for self-direction in learning						Total number of projects
	High		Average		Low		
	No.[a]	Percent[b]	No.	Percent	No.	Percent	
Very enthusiastic	234	73.81	229	75.58	92	69.18	555
Fairly enthusiastic	72	22.39	65	21.45	35	26.30	172
Not especially enthusiastic	11	3.80	9	2.97	6	4.52	26
TOTAL	317	100.00	303	100.00	133	100.00	753

[a]Number of projects.

[b]Percent of projects within each level of readiness for self-direction in learning.

Table 33. Degree of benefit for others expressed for all projects identified by level of readiness for self-direction in learning

Response	Readiness for self-direction in learning						Total number of projects
	High		Average		Low		
	No.[a]	Percent[b]	No.	Percent	No.	Percent	
Fairly large extent	187	58.99	132	43.56	50	37.59	369
Medium extent	68	21.45	77	25.41	45	33.83	190
Small extent	62	19.59	94	31.03	38	28.58	194
TOTAL	317	100.00	303	100.00	133	100.00	753

[a]Number of projects.

[b]Percent of projects within each.

responsibility for their own learning they considered their learning experience more significant. Self-directed adult learners also are usually satisfied with their new learning experiences (Coolican, 1973; Benson, 1974). Therefore, this study provides additional supportive data to previous research.

Five hypotheses were formulated for the study based on related studies. It is expected that a testing of these hypotheses will provide a better understanding of the nature of the individual learning and other existing variables in the area of adult learning. The following section will display data related to these hypotheses.

Hypotheses

The following research hypotheses were tested:

Question I:

Is there a significant relationship between an adult's readiness for self-direction in learning and the number of learning projects he/she had conducted in the twelve month period before the time of the interview?

HO I: There is no significant relationship between an adult's readiness for self-direction in learning and the number of learning projects he/she had conducted in the twelve month period before the time of the interview.

To examine this hypothesis, the total number of learning projects of the 77 participants were correlated with their total self-directed learning scores. A correlation coefficient of .34 was obtained. This correlation coefficient is highly significant, and the probability level is beyond .01 level of significance. That means there is a highly significant statistical relationship between adults' readiness for self-directed learning and the total number of learning projects. The positive correlation illustrates that when readiness for self-directed learning increases the total number of learning projects increases too. Therefore, the null hypothesis is rejected. Table 34 contains the correlation coefficient.

As was mentioned in the first chapter, the first hypothesis has eight subhypotheses related to the eight factors of the Self-Directed Learning Readiness Scale. Table 34 also presents the correlation coefficient for each of the eight subhypotheses.

A: There is no significant relationship between love of learning and the total number of learning projects.

Data analysis indicates that there is a highly significant relationship between love of learning and the total number of learning projects. The positive correlation shows that when love of learning increases, the total number of

Table 34. Correlation coefficients between the total number of learning projects and the self-directed learning readiness scores

Self-directed learning factors	Total number of learning projects
Total self-directed learning readiness scores	0.34**
Eight factors	
Love of learning	0.48**
Self-concept as an effective independent learner	0.35**
Tolerance of risk ambiguity and complexity in learning	0.38**
Creativity	0.50*
View of learning as a lifelong beneficial process	0.29**
Initiative in learning	0.30*
Self-understanding	0.41**
Acceptance of responsibility for one's own learning	0.07

*Significance > .05.

**Significance > .01.

learning projects conducted in a year increases. Thus, the findings tend to support the alternative hypothesis.

B: There is no significant relationship between self-concept as an effective independent learner and the total number of learning projects.

Examination of Table 34 indicates that there is a highly positive significant relationship between self-concept as an effective independent learner and the total number of learning projects. That means when adult's self-concept as an effective independent learner increases the total number of learning projects he/she will conduct in a year increases. The null hypothesis is rejected.

C: There is no significant relationship between tolerance of risk ambiguity and complexity in learning and the total number of learning projects.

A correlation coefficient of .38 was obtained between the total number of learning projects conducted in a year by the adult learner and his/her tolerance of risk ambiguity and complexity in learning. The correlation coefficient is highly significant. Therefore, the null hypothesis is rejected.

D: There is no significant relationship between creativity and the total number of learning projects.

Examination of Table 34 indicates that a correlation coefficient of .50 was obtained between the total number of learning projects conducted in a year by the adult learner and his/her creativity. The positive correlation suggests that the total number of learning projects increases with

creativity. Data analysis supports the alternative hypothesis. The null hypothesis is rejected.

E: There is no significant relationship between the total number of learning projects and view of learning as a lifelong beneficial process.

Data in Table 34 identify a strong positive correlation between the total number of learning projects conducted by the adult learner in a year and his/her view of learning as a lifelong beneficial process. The null hypothesis is rejected. This finding suggests that the total number of learning projects increases when the person's view of learning as a lifelong beneficial process increases.

F: There is no significant relationship between initiative in learning and the total number of learning projects.

Statistical analysis identifies a correlation coefficient of .30 between the total number of learning projects conducted by the adult learner in a year and his/her initiative in learning. The correlation coefficient is significant. Thus, when the adult's initiative in learning increases, the total number of learning projects he/she will conduct in a year increases. The null hypothesis is rejected.

G: There is no significant relationship between self-understanding and the total number of learning projects.

Data analysis indicates that a highly significant positive correlation exists between the total number of learning projects conducted by the adult learner in a year and his/her self-understanding. Findings lead to a rejection of the null hypothesis.

H: There is no significant relationship between acceptance of responsibility for one's own learning and the total number of learning projects.

There is no significant correlation between a person's acceptance of responsibility for one's own learning and the total number of learning projects he/she will conduct in a year. Therefore, the null hypothesis is not rejected.

Question II:

Knowing of the variables of readiness for self-direction in learning, level of formal education, age, and sex, is it possible to establish a meaningful prediction equation for the number of learning projects the adult learner will conduct in a year?

HO II: Knowing of the variables of readiness for self-direction in learning, level of formal education, age, and sex, it is impossible to establish a

meaningful prediction equation for the number of learning projects the adult learner will conduct in a year.

Table 35 contains the regression analysis scores for total learning projects as a dependent variable and the variables of readiness for self-direction in learning, and level of formal education as independent variables. Data in Table 35 show that an F value of 8.63 is obtained between self-directed learning readiness and the total number of learning projects. The obtained F value is significant beyond the .005 level. An F value of 5.9 (significant at the .005 level and beyond) is also obtained when formal education is added to the equation.

An R^2 value of .18 was obtained when self-directed learning readiness and formal education were added to the

Table 35. Regression analysis of variance of total learning projects by self-directed learning readiness and formal education

Sources of variation	Multiple R	R^2	R^2 change	F value	Significance
Self-directed learning readiness	0.34	0.12	0.12	8.63**	.005
Formal education	0.43	0.18	0.06	5.9**	.005

equation. The R^2 value is low. Therefore, practically we can not predict the total number of learning projects likely to be conducted when self-directed learning readiness and formal education are known even though a significant statistical relationship did exist.

Question III:

Is there a significant difference between the type of the planner used for learning by individuals who are high, average or low self-directed learners?

HO III: There is no significant difference between the type of the planner used for learning by individuals who are high, average or low self-directed learners.

Statistical analysis of the data shows no significant difference between high, average or low self-directed learners in terms of their choices of the type of planner. A χ^2 value of 2.69 was obtained which is not significant. Therefore, there is a failure to reject the null hypothesis. Table 36 contains the comparison of self-directed learning readiness scores by primary planners of learning projects.

Question IV:

Is there a significant relationship between the total number of self-fulfillment projects an adult learner carries out and his/her readiness for self-directed learning?

Table 36. Comparison of self-directed learning readiness groups by primary planners of learning projects

Primary planners of learning projects[a]	Self-directed learning readiness					
	High		Average		Low	
	No. of projects	Percent	No. of projects	Percent	No. of projects	Percent
A group or its leader/instructor	62	15.82	39	17.33	18	13.50
One person in a one-to-one situation	20	5.10	12	5.33	11	8.27
The learner himself/herself	310	79.08	174	77.33	104	78.20
TOTAL	392	100.00	225	100.00	133	100.00
χ^2 value = 2.69	Significance = N.S.					

[a]Material planned projects are excluded from the χ^2 comparison.

HO IV: There is no significant relationship between the number of self-fulfillment learning projects the adult learner had pursued during the twelve month period prior to the time of the interview and his/her readiness for self-directed learning.

Data analysis shows no significant relationship between the total number of self-fulfillment projects the adult had conducted during the twelve month period prior to the time of the interview and his/her readiness for self-direction in

learning. Therefore, there is a failure to reject null hypothesis.

As was mentioned in the first chapter, the fourth hypothesis has eight subhypotheses related to the eight factors of the Self-Directed Learning Readiness Scale. Table 37 contains the correlation coefficients for the total readiness scores and the eight factor scores.

A: There is no significant relationship between love of learning and the total number of self-fulfillment projects.

There is a significant relationship between love of learning and the total number of self-fulfillment projects. The positive correlation suggests that when love of learning increases the total number of self-fulfillment projects increases. Therefore, the sub-null hypothesis is rejected.

B: There is no significant relationship between adult's self-concept as an effective independent learner and the total number of self-fulfillment projects.

There is no significant relationship between adult's self-concept as an effective independent learner and the total number of self-fulfillment projects he/she had conducted in a year. Therefore, there is a failure to reject null hypothesis.

Table 37. Correlation coefficients between self-directed learning readiness scores and the total number of self-fulfillment projects

Self-directed learning readiness factors	The total number of self-fulfillment projects
Total self-directed learning readiness	0.16
Eight factors	
Love of learning	0.21*
Self-concept as an effective independent learner	0.07
Tolerance of risk ambiguity and complexity in learning	0.13
Creativity	0.15
View of learning as a lifelong beneficial process	0.17
Initiative in learning	0.01
Self-understanding	0.11
Acceptance of responsibility for one's own learning	0.19*

*Significance at > .05.

C: There is no significant relationship between tolerance of risk ambiguity and complexity in learning and the total number of self-fulfillment projects.

Statistical analysis indicates that there is no significant relationship between tolerance of risk ambiguity and complexity in learning and the total number of self-fulfillment projects. Therefore, there is a failure to support the alternative hypothesis.

D: There is no significant relationship between creativity and the total number of self-fulfillment projects.

The correlation coefficient obtained between creativity and the total number of self-fulfillment projects is 0.15. This coefficient is not significant, which suggests no significant relationship between creativity and the total number of self-fulfillment projects. The null hypothesis is not rejected.

E: There is no significant relationship between view of learning as a lifelong, beneficial process and the total number of self-fulfillment projects.

Data analysis indicates that there is no significant relationship between the view of learning as a lifelong beneficial process and the total number of self-fulfillment projects. The null hypothesis is not rejected.

F: There is no significant relationship between initiative in learning and the total number of self-fulfillment projects.

There is no significant relationship between initiative in learning and the total number of self-fulfillment projects. A correlation coefficient of .013 was obtained which was not significant. The null hypothesis is not rejected.

G: There is no significant relationship between self-understanding and the total number of self-fulfillment projects.

The correlation coefficient obtained between self-understanding and the total number of self-fulfillment projects is not significant. Therefore, there is a failure to reject null hypothesis.

H: There is no significant relationship between acceptance of responsibility for one's own learning and the total number of self-fulfillment projects.

Findings indicate that a significant relationship exist between acceptance of responsibility for one's own learning and the total number of self-fulfillment projects. The correlation coefficient obtained is 0.19. The probability of this coefficinet is .05. The null hypothesis is rejected.

In summary, there is a significant relationship between the total number of self-fulfillment projects and love of learning and acceptance of responsibility for one's own

learning. But, there were no significant relationships found between the total number of self-fulfillment projects and total self-directed learning readiness scores, 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, and self-understanding.

Question V:

Is there a significant difference in the total number of self-fulfillment projects conducted by individuals who are high, average, or low self-directed learners when initial differences between the three groups have been adjusted with respect to age?

HO V: There will be no significant differences in the total number of self-fulfillment projects conducted by individuals who are high, average, or low self-directed learners when initial differences between the three groups have been adjusted with respect to age.

Table 38 contains the one way analysis of covariance values for self-directed learning by self-fulfillment projects with age as a covariate. Data analysis revealed that there was a significant difference between high, average and low self-directed learners after adjusting for initial

Table 38. One way analysis of covariance of self-fulfillment projects by self-directed learning with age

Source of variation	Sum of squares	d.f.	Mean squares	F value
Covariates				
Age	89.28	1		
Main effects				
SDLRS	19.64	2	9.82	4.07*
Residual	175.98	73	2.41	

*Significant at > .05.

differences between the groups on age (the control variable). The null hypothesis is rejected.

The previous discussion displayed data related to learning projects and self-directed learning readiness characteristics. It also presented data on the study hypotheses. The following section discusses data related to learning obstacles.

Obstacles to Learning

In order to determine the actual obstacles interviewees encounter in their learning activities, the researcher asked the following question: "Many things stop people from taking a course of study, learning a skill or

following a topic of interest. Which of the following do you feel are important in keeping you from learning what you wanted to learn?" A list of suggested obstacles was read to them and the participants were asked to select as many as they would like by indicating "yes" or "no". Interviewees also were allowed to add any of their own obstacles if theirs were not included in the list. Table 39 reports the responses.

Data in Table 39 show that lack of time and courses inconveniently scheduled were the two most frequently mentioned with 49.4 percent of the interviewees reporting them as obstacles. Home or job responsibility was reported as an obstacle by 45.2 percent of the sample. Cost and time required to complete a course or program were each reported by 33.8 percent. Lack of energy reported by 19.5 percent of the interviewees and 18.2 percent reported having difficulty in deciding what they would like to learn as an obstacle. Other obstacles were important only to 14 percent or fewer of the interviewees.

The study findings are similar to earlier data. Hiemstra (1975) found out that the most frequent reasons given as obstacles were as follows:

Don't like to go out at night	45.3%
Not enough time	39.3%

Table 39. Obstacles to learning activity ranked by the numbers indicating yes

Obstacles description	Number saying yes	Percentage[a]	Rank
Not enough time	38	49.4	1.5
Courses are not scheduled when I can attend	38	49.4	1.5
Home or job responsibility	35	45.5	3.0
Time required to complete programs	26	33.8	4.5
Cost	26	33.8	4.5
I do not have enough energy	15	19.5	6.0
I don't know what I'd like to learn	14	18.2	7.0
I do not enjoy studying	11	14.3	8.5
No information about where I can get what I want	11	14.3	8.5
No transportation available	10	13.0	10.0
Not confident of my ability	8	10.4	12.0
I do not meet requirements to begin a program	8	10.4	12.0
Tired of school and classrooms	8	10.4	12.0
My health is bad	7	9.1	14.0
Low grades in the past	5	6.5	15.0
No place to study or practice	2	2.6	16.0

[a]Percentages based on total number of responses per item.

Financial limitation	30.5%
Home responsibilities	30.1%
Job responsibilities	28.6%

In a study on learning projects of adults in a select socioeconomic group, Umoren (1977) revealed that cost, lack of time, home responsibilities and job responsibilities were the most frequently reported obstacles to learning.

To determine if any relationships existed between the number of obstacles perceived by an interviewee and his/her readiness for self-directed learning (Self-Directed Learning Readiness Scale values), correlation coefficients between the number of obstacles and self-directed learning factors were obtained. Data analysis shows that there is a highly significant, negative correlation between total self-directed learning scores. Highly significant, negative correlation also existed between the number of obstacles and love of learning, self-concept as an effective independent learner, tolerance of risk ambiguity and complexity in learning, creativity, initiative in learning and self-understanding. A significant negative correlation also existed between number of obstacles and view of learning as a lifelong, beneficial process and acceptance of responsibility for one's own learning. The negative correlations indicate that when the number of obstacles perceived by participants increases

their readiness for self-directed learning decreases. Table 40 displays the findings.

Table 40. Correlation coefficients between self-directed learning factors and number of obstacles perceived by the interviewees

Self-directed learning factors	Number of obstacles
Total self-directed learning readiness	-0.37**
Eight factors	
Love of learning	-0.33**
Self-concept as an effective independent learner	-0.38**
Tolerance of risk ambiguity and complexity in learning	-0.41**
Creativity	-0.21**
View of learning as a lifelong, beneficial process	-0.23*
Initiative in learning	-0.26**
Self-understanding	-0.34**
Acceptance of responsibility for one's own learning	-0.22*

*Significant at > .05.

**Significant at > .01.

Summary

This chapter has displayed and described the data which were collected in this study. The data presented described characteristics of the learning projects of the sample selected. Besides, the data collected were used to describe and analyze characteristics of self-directed learning readiness and the relationships between learning projects variables and self-directed learning readiness scores. A summary of the findings of this study, conclusions, implications and recommendations for further research and practice are included in Chapter V.

CHAPTER V. SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

Overview

The purpose of this chapter is to summarize the study, provide conclusions, offer implications, and suggest recommendations for further research. The first section in this chapter presents the summary of the purpose and procedure of the study, the second section summarizes the major findings of the study, the third section offers conclusions, the fourth section suggests implications, and the final section provides recommendations for further research and for adult education practice.

Purpose and Procedure

The purpose of this study was to investigate the influences that prompt adults to undertake learning efforts, and that a valid approach was to examine the impact on the adult of current readiness for self-directed learning. Also, to see if adults from different social classes and with different educational backgrounds conduct deliberate learning including learning that might be formal or self-directed, in-depth or superficial. The approach was to investigate learning projects characteristics of a selected random sample of general adult population in Ames, Iowa, and to relate

learning projects variables to person's current readiness for self-directed learning. This in turn, sought to provide additional verification data for the Self-Directed Learning Readiness Scale.

The results of this study will provide additional information concerning learning projects activities and participation patterns of adult learners. It will add to the growing body of knowledge concerning self-direction in learning, and will contribute more information to professional adult educators who are involved in the development and delivery of continuing education for adult populations. More specifically, data obtained through this study, in addition to providing a more stable base for research than is now available, will:

1. Help professional educators at all levels in developing programs suitable for highly self-directed learners or in modifying current programs.
2. Provide self-directed learners with means to assess personal learning strengths and weaknesses in self-directed learning.
3. Help classroom teachers or facilitators in understanding self-direction in learning, and in dealing with self-directed learners and by providing an opportunity for practicing the required teaching skills.

Relevant literature related to learning projects and self-directed learning were reviewed to provide a supportive foundation for the study.

Tough's (1971, 1979) definition of learning project was used in this research. A learning project is a series of clearly related deliberate learning episodes adding up to at least 7 hours of effort within a six month period. However, for this study a minimum of 14 hours of effort within the six month period had to be met for each learning project to be included. These learning projects were conducted by the adult learners to acquire new knowledge, or to develop new skills. The learning projects that were examined were conducted during the twelve month period prior to the time of the interview.

Two instruments were used to collect data for this research. One was the Self-Directed Learning Readiness Scale, developed by Guglielmino (1977), which was used to measure readiness for self-directed learning. This scale is composed of the following factors: 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, and acceptance of responsibility for one's own learning.

The second one was the interview schedule developed and tested by Tough and other researchers. The interview schedule was used to collect information about the respondents' learning project activities during the twelve month period prior to the time of the interview.

In addition to the basic schedule developed by Tough and his associates, the instrument used in this study contained a demographic/biographic section and three questions designed to collect information on the reasons behind the learner's choice of the type of the planner, the rank order of methods and resources used by the subjects in conducting their learning projects, and the important obstacles encountered by learners during their learning project activities.

The sample for this study was drawn from a general adult population in Ames, Iowa. The desired number of the sample was approximately 75. In order to ensure a random sample, the population as shown in the telephone book, were assigned numbers. The numbers were utilized as input for the Iowa State University computer, and the computer selected randomly 100 numbers for this investigation.

The refusal rate was very low (only 3 people refused to be interviewed). Two interviewees determined that the interview was taking too much time and were unable to finish answering all the questions on the instrument at once, there-

fore, the researcher had a second interview with them to finish the Self-Directed Learning Readiness Scale. The final number of respondents interviewed was 77. The researcher conducted all of the interviews.

Major Study Findings

Major findings of this study will be discussed in the following sections: The first section presents findings on the research hypotheses. The second section provides findings on Self-Directed Learning Readiness Scale. The final section presents the major learning projects findings.

Major research hypotheses findings

HO I: There is no significant relationship between an adult's readiness for self-direction in learning and the number of learning projects he/she had conducted in the twelve month period prior to the time of the interview.

There is a significant relationship between the total number of learning projects the adult learner had conducted in a year and his/her readiness for self-directed learning.

As was mentioned earlier, the first hypothesis has eight subhypotheses related to the eight factors of the Self-Directed Learning Readiness Scale. Significant correlations existed between the number of learning projects and

the factors of 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, and self-understanding. There was no significant correlation between acceptance of responsibility for one's own learning and the number of learning projects.

HO II: Knowing of the variables of readiness for self-direction in learning, level of formal education, age, and sex it is impossible to establish a meaningful prediction equation of the number of learning projects the adult learner will conduct in a year.

There is a significant predictable statistical relationship between the total number of learning projects and the variables of self-directed learning readiness, and formal education. But, there was no predictable relationship between the total number of learning projects and the variables of age and sex. Null hypothesis is rejected.

HO III: There is no significant difference between the type of planner used by individuals who are high, average or low self-directed learners.

There is no significant difference between high, average, or low self-directed learners in terms of their

choices of the type of planner. Therefore, there is a failure to reject the null hypothesis.

HO IV: There is no significant relationship between the number of self-fulfillment learning projects the adult learner had pursued during the twelve month period prior to the time of the interview and his/her readiness for self-directed learning.

There were significant relationships between the total number of self-fulfillment projects and the factors of love of learning, and acceptance of responsibility for one's own learning. But, there were no significant relationships between the total number of self-fulfillment projects and total self-directed learning readiness scores, and the factors of 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, and self-understanding. Null hypothesis is rejected.

HO V: There will be no significant difference in the total number of self-fulfillment projects conducted by individuals who are high, average, or low self-directed learners when initial differences between the three groups have been adjusted with respect to age.

There is a significant difference between high, average,

and low self-directed learners in terms of the total number of self-fulfillment projects they pursued in the twelve month period prior to the time of the interview, after adjusting for initial differences between the groups on age (the control variable). The null hypothesis is rejected.

Self-directed learning findings

The following represent the major findings related to self-directed learning:

1. The average self-directed learning readiness score was 227.97, the minimum score was 164, and the maximum score was 277.

2. The Self-Directed Learning Readiness Scale is valid. There is a highly significant correlation between the total self-directed learning score and the factors of 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 and acceptance of responsibility for one's own learning.

3. The predictive validity of the Self-Directed Learning Readiness Scale is high. The SDLRS can discriminate between high and low involvement in learning project activities.

4. The average self-directed learning score for low

self-directed learners is 192, while the average for high self-directed learners is 252. There was a highly significant mean difference among the two groups on the total self-directed learning readiness score, and the factors of 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 and acceptance of responsibility for one's own learning.

5. Sex, age, race, marital status, number of children under 19, and occupation do not have any significant impact on the adults' readiness for self-direction in learning.

6. There is a highly significant difference between high school graduates and those who have higher education in terms of their readiness for self-direction in learning.

7. There is a significant predictable statistical relationship between adult's readiness for self-directed learning and his/her level of education. Positive relationship indicates that readiness for self-directed learning increases by education.

Learning projects findings

1. The 77 adult learners participated in 753 learning projects during the twelve month period prior to the time of the interviews. The average number of learning projects

was 9.78, the median was 9.45, the minimum number of learning projects was 4, and the maximum number of projects was 16.

2. Self-fulfillment projects accounted for 35.45 percent of the total number of projects reported, while personal and family projects accounted for 32.67 percent of the total. The percent of occupational/vocational projects was 17.80, while the percent of social and civic related projects was 14.08.

3. Reading materials were the most frequently mentioned resource used by the participants in conducting their learning projects, accounting for approximately 38.91 percent of the reported resources. Group/group instructor accounted for 16.2 percent, while conversation with other people accounted for 13.41 percent. The percent of media resources reported was 11.02, with experts and practicing were reported in about 10 percent of the total learning projects.

4. Library, church, school, college, or university, club or an informal group gathering were the most desirable place to study or practice.

5. The adult learners in this study planned and directed the majority of their learning projects. Seventy-eight percent of the total projects were self-planned. Group/group instructor was the second frequently reported type of planner, and accounted for 15.8 percent of the total, while an expert or person in a one-to-one situation accounted for

5.71 percent of the total planners reported.

6. Desire for self-planned learning, evidence of ability to learn, financial limitation, and most convenient were the most frequently reported reasons behind the choice of self-planning.

7. Capacity of instructor, availability of classroom and material, efficiency of group method and the appropriateness of the subject matter area for group method of planning were the most frequently mentioned reasons behind the choice of group planner.

8. Availability of material, efficiency of the one-to-one method, flexibility of time and the appropriateness of the subject matter area for this kind of planner were the most frequently reported reasons behind the choice of one person in a one-to-one situation.

9. Availability of material, the simplicity of material planning, and ease of subject matter area were the reasons behind the choice of material planner.

10. Over 79 percent of all learning projects were active at the time of the interview, while 13.88 percent were completed and 6.91 percent were not active.

11. Approximately 88 percent of all learning projects reported by the adult learners in this study were undertaken on a noncredit basis, while 12 percent were conducted for credit or certification.

12. High and average self-directed learners reported the highest level of satisfaction of their learning projects.

13. The active adult learner in Ames, Iowa more often is white American, not married, and highly educated.

14. Younger, highly educated, and fulltime students are more likely to report occupational/vocational projects. However, older, highly educated, high professional/business manager/administrative personnel, skilled manual workers, and unskilled employees, are more likely to report self-fulfillment projects.

15. There is no significant difference in the mean number of the learning projects conducted by the adult learners when they are categorized according to various demographic subcategories.

16. There is no significant difference in the choice of planners among high and low learners. A chi-square value of 5.28 was obtained which is not significant.

17. Lack of time, time required to complete a course or program, courses inconveniently scheduled, home or job responsibilities, and costs were the most frequently mentioned obstacles faced by the adult participants in this study while conducting their learning projects.

18. There is a significant correlation between number of obstacles perceived by the adult learner and his/her total self-directed learning readiness score, and the factors

of 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, and acceptance of responsibility for one's own learning.

Conclusions

The following conclusions drawn from the study, are limited to the sample investigated.

1. Readiness for self-directed learning and formal education have great impact on adult participation in self-directed learning and the adult learning projects activities.

2. Adult participants in this study were highly self-directed learners (the number of high self-directed learners were approximately twice as many as the number of low self-directed learners) as they planned and directed the majority of their learning projects. They retained personal control over the day-to-day progress of their learning activities.

3. The major factor in motivating self-directed learners to conduct learning project activities were personal and internal in nature. Credit and certification were not

major factors in motivating adults to pursue learning projects.

4. Adult's attitude toward learning and schooling is one of the major factors in motivating adults to conduct learning project activities.

5. The adult learners participated in learning project activities related to both their personal and professional lives, and spent large amounts of time in their learning. The activities reported in this study strongly suggest that adult learners are active, continuing learners.

6. The Self-Directed Learning Readiness Scale is age biased. Older adults (65 years of age and older) tend to rate themselves lower on the SDLRS in spite of their high involvement in self-directed learning and learning project activities.

7. The adult learners made extensive use of both human and nonhuman resources in planning and conducting their learning projects. They retained and maintained the responsibility for selection and utilization of those resources.

8. The adult learners were satisfied with the knowledge and skills gained through their learning projects. Personal growth, enthusiasm, and benefits for others were described as high as a result of their learning activities. However, individuals who have high or average

readiness for self-directed learning reported higher satisfaction than those individuals who have low readiness for self-directed learning.

9. Decreasing the number of obstacles to learning will increase readiness for self-directed learning and participation in self-planned learning and learning project activities.

10. The Self-Directed Learning Readiness Scale can be used to screen people into programs that required high readiness for self-directed learning. It also can be used by the adult learner as a tool to assess personal learning strengths and weaknesses in self-directed learning.

11. The adult learners reported the use of experts (professional educators) as a primary source of subject matter less often which suggests that the adult educators should improve their professional competencies in dealing with self-directed learners.

Implications

If the goal of adult education is to help people continue their learning, programs offered should satisfy adults' needs. Mutual needs diagnoses and planning are necessary. The adult learners should play an important part in the learning situation. Adults perceive themselves as capable

of self-direction in learning, and research findings indicates they are. In addition, these research findings indicate that highly self-directed learners conducted higher numbers of learning projects than did low self-directed learners. Therefore, teachers should become facilitators of the teaching/learning process, and serve as process experts when the adult learners need assistance.

The adult learners are self-directed learners. They plan and maintain day-to-day responsibility for their own learning. During their learning activities adults seek help through a wide variety of human and nonhuman resources. But, they still have the responsibility for the majority of their learning efforts. In pursuing their learning project activities on their own, adults need to have the skills to plan and direct their learning efforts.

Adult educators who plan educational programs for adult learners should develop and deliver a wider range of opportunities. Reading material on a variety of subjects should be packaged to fit individual needs. Correspondence courses should also be improved. The media resources should be utilized on a larger scale, since adults use media resources as a learning tool in various ways. Educational institutions should train and prepare more resource people through the local community level to provide help to the adult learners.

The high percentage of participation in learning projects reported in this study and in related research indicates that adult learners are investing a significant amount of time and energy in their learning. This high rate of participation in learning project activities supports the idea that adults have a need and interest in continuing their learning. Professional adult educators must become aware of the motivation that shape adult learning patterns and needs.

Besides the high participation rate, the nature of this participation provides evidence that the majority of adult learning appears to be voluntary. This research supports the findings of related investigations that adults are participating in a high percentage of noncredit learning projects, motivated by the enjoyment and desire to learn, not because of credit requirements and certification.

This research indicates that adults do not use experts as a primary resource that often in their learning projects. They would rather use reading materials than ask professional adult educators. Further, this research also indicates the importance of teachers' perceived capability on adults participation in group planned learning. In some cases, it is the determining factor in persuading the adult learner to conduct a learning project. Therefore, in choosing adult educators who can serve as facilitators it becomes

necessary to know their capabilities in dealing with self-directed learners.

This study and others indicate that learners obtain a higher degree of satisfaction when they maintain control over their learning experience. Besides, this study supports other research findings that the number of high self-directed learners is twice the number of low self-directed learners. Finally, highly self-directed learners conducted more learning projects than did low self-directed learners. Adult educators can not ignore those findings. They can not insist on telling the learners what is "best" for them. The adult learners are self-directed learners and they are able to plan and direct their learning activities. Training programs for professional adult educators on the skills needed to deal with self-directed learners are important.

Findings regarding methods of learning showed that reading, group discussion, and asking other people are important means for transmitting knowledge and skills. Adult educators should help the learners to improve their skills in those areas to maximize their abilities to learn. In addition, adult educators should also help the adult learners to develop the skills necessary to use other learning resources such as programmed instruction materials and media resources.

The learning projects interview schedule is a useful approach to collect information about adult learning activities. It could be a potentially useful approach for need diagnoses. Adult educators could use the information collected through the use of the interview schedule as a future guide in program planning to satisfy learners' needs and to capitalize on preferred learning activities.

The comprehensive information obtained through the use of the in-depth interview schedule could be utilized by the adult educators to assess problem areas, and suggest resources to the adult learners. Therefore, the interview schedule can be used as a need assessment tool for adult educators.

The Self-Directed Learning Readiness Scale can be used in screening and counseling persons for programs where skills of self-direction in learning are necessary, such as correspondence study, a wide range of nontraditional programs, and individual classrooms. In addition to its usefulness in guidance and placement, the instrument also could be used as an evaluative device in programs designed to develop self-direction in learning.

The comprehensive information obtained through the use of the Self-Directed Learning Readiness Scale could be utilized by the adult educators in developing programs suitable for self-directed learners or in modifying current

programs. Classroom teachers or facilitators could gain insight into self-directed learners needs and other behavior in classroom situations by using the Self-Directed Learning Readiness Scale. Further, the SDLRS enables the self-directed learner to know his/her weaknesses and strengths in self-directed learning. Finally, the SDLRS can also be used to obtain information on the required teaching skills to deal with highly self-directed learners.

The information related to perceived obstacles to participation can be utilized by adult educators, and they should be able to derive some implications. Since time constraint was one of the highly ranked obstacles to participation, course scheduling should be examined and courses offered in the evenings or weekends. Offering courses in the evenings and weekends may overcome the obstacle of having home or job responsibilities during day time hours also. The use of media resources are also part of the solution. Using neighborhood schools or community college buildings, neighborhood clubs or even homes will decrease the transportation problems. Baby sitting facilities will encourage young mothers to participate in learning activities. Decreasing formal requirements and financial assistance are also part of the solution.

Some of the reasons given as barriers to participation in learning activities were related to adults' attitudes towards learning and schooling. Therefore, adult educators should promote a positive attitude toward continuing education and learning among the adult population.

The negative relationship between number of obstacles perceived by the adult learner and his/her readiness for self-directed learning offers another implication for educational institutions. Decreasing the number of obstacles may lead to the increase of adult readiness for self-directed learning.

Recommendations for Further Research

The following are suggested recommendations for additional research:

1. Additional research with different populations should be conducted on the relationship between adults' self-direction in learning and the total number of learning projects and time spent on learning. Larger samples are recommended.

2. Further research is needed to study both predictive and content validity of the Self-Directed Learning Readiness Scale.

3. Further research is needed to confirm the

reliability of the Self-Directed Learning Readiness Scale.

4. Longitudinal research is recommended to identify characteristics of self-directed learners.

5. Longitudinal research is needed to identify the degree and direction of change in adult self-direction in learning as they continue their learning through life stages.

6. Longitudinal research should be undertaken to study the degree and direction of change in adult self-direction in learning by age.

7. Research is needed to develop an equivalency scale to the Self-Directed Learning Readiness Scale to be used with older people who are 65 years and older. Statements on the new scale should not include statements about classroom situations. Statements about the learning situation in general should be included.

8. How can media resources be utilized in learning projects?

9. Why do the number of self-fulfillment projects increase by readiness for self-directed learning?

10. How can the adult professional educators be more helpful as a resource for subject matter than they are now?

11. Does attitude toward learning change by age?

12. Why is so little programmed instruction used in learning projects?

13. Research is needed to determine the academic success of highly self-directed learners versus low self-directed learners. To be specific, relationships between achievement test scores or grade point average and the total self-directed learning score and its eight factors should be studied.

14. Further research is required to study the quality of self-planned learning. Most research related to learning projects has been concerned with quantity rather than quality of self-planned learning.

15. Research is needed to study the validity and reliability of the Tough interview schedule.

16. Research is required to study the quality of learning projects conducted by high self-directed learners versus those conducted by low self-directed learners.

Recommendations for Educational Institutions

Findings of this study indicate that self-direction in learning exists in each individual to some degree. It also indicates that high self-directed learners conducted a higher number of learning projects than do low self-directed learners. Further, it suggests that highly educated adults have a greater capability for self-direction in learning than less educated adults.

Most schools seem not only to encourage conformity and passivity but also limit the desire to learn. Bivens, Campbell, and Terry (1963) charge the loss of student self-direction in learning to school attendance. They declare that "By the time students reach ninth grade, they have developed a strong habit of linear study methods that conflicts with self-direction in learning" (1963, p. 4). The linear study methods result from a student's dependence on an authority figure to tell what is worth learning and a personal anxiousness to prepare for teacher made tests which measure "success" in learning, as opposed to an exploration of areas of knowledge based on personal interests.

Koeing and Mckeachie (1959, p. 134) found out that students who have learned to expect authoritarianism in a teacher tend to do poorly in independent study. There is evidence that self-directed learning can be more effective than traditional forms of teaching with learners of varied intellectual ability (Gruber and Weitman, 1962; Hatch and Bennett, 1960; Rogers, 1969).

Findings of this study support Sabbaghian's findings that the number of high self-directed learners is twice as high as the number of low self-directed learners. This result suggests that lifelong learning and self-directed learning as a fact can not be ignored. The adult participants

in this study, like numerous other adult populations studied, are spending significant amounts of time and energy in their learning projects. The high percentage of self-planned learning and high self-directed learners lend strong support to the notion that adults have both a need and interest in planning and directing their own learning activities.

Sabbaghian (1979) found that high self-directed learners are more effective in their personal, family, and social lives, are more interested in learning, and have a higher self-understanding.

It has always been said that the purpose of adult education, or any kind of education, is to make the subject a continuing "inner-directed"; self-operating learner" (Kidd, 1975, p. 47). Bruner defines teaching as "the provisional state that has as its object to make the learner or problem solver self-sufficient" (1966a, p. 53).

Knowles (1975) indicates that adults are not adequately prepared for self-planned learning, although the nature of self-planned learning is consistent with a basic characteristic of adults as self-directing human beings.

To Knowles, self-direction in learning is based on his theory of andragogy (see Chapter 11 for more information). He believes that "the assumptions made in andragogy applies to children and youth as they mature and that they, too, will

come to be taught more and more andragogically" (Knowles, 1973a, p. 43). Knowles said that "self-directed learning is the best way to learn--every act of teaching should have built into it some provision for helping the learner become more self-directing" (1975, p. 10).

The researcher believes that one of the important goals of adult education and education at all levels is to cherish self-directed learning. The reasons for this position succinctly summarizes the justifications for advocacy of self-direction in learning which appear elsewhere in the literature.

1. There is convincing evidence that self-directed learners participate more in learning activities. They are more productive, more effective in their personal, family and social lives, and have higher self-understanding.
2. As people mature, they become more independent, inner-directed persons, and they want to retain control over their decision-making processes.
3. The numerous nontraditional programs which are open in the United States, require a high degree of self-direction in their students, heavily involving them even in the planning of the degree programs. It is important that the students be prepared for more self-directing roles in their own learning.

4. The main purpose of education must now be to develop the skills of self-directed learning, to encourage self-inquiry for new knowledge and skills in a rapidly changing society, and to provide more productive educated citizens to our society.

In order to achieve these goals, educational programs for adults should include skill building in the process of planning, conducting and evaluating their own learning activities. Each learner should learn to establish his/her criteria of evaluation. To the researcher a performance contract is a means for the self-directed learner to evaluate his/her experience. In the performance contract, the learner sets up his/her own goals, decides the learning activities which should be taken to achieve those goals, and the grade or value to be achieved on the accomplishment of those goals. The teacher will be a facilitator to the learning experience as well as a resource person, if the learner needs assistance.

Review of literature indicates that as individual matures his/her need and capacity to be self-directing, to utilize his/her experience in learning, to identify his own readiness to learn, and to organize his/her learning around life problems increases steadily from infancy to pre-adolescence and then increases rapidly during adolescence (Knowles, 1973a, p. 43).

The researcher believes that self-directed learning should be emphasized and students in every level of education should be trained in the skills of self-direction in learning. Granted, some people do not do very well in self-directed learning situations. However, training will lead to more success for those people before they are introduced to self-directed learning activities (see Chapter II for more information). Therefore, involving students in planning, conducting and evaluating their learning experience as soon as they start school will maximize their chances to be highly self-directed adult learners later.

Summary

The purpose of this chapter has been to provide a summary of the problem, the procedure, and the major findings of this study. In addition, conclusions were drawn from the findings, implications, recommendations for further research and practice in the field of education in general and adult continuing education were cited.

It was estimated that nearly every adult in this country is involved in some form of adult education, which indicates that the demand for lifelong learning continues to grow. It is important for professional adult educators to recognize the characteristics of self-directed learners and

to effectively plan to meet the challenge these characteristics present.

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APPENDIX A: SELF-DIRECTED LEARNING READINESS SCALE AND ITEMS LOADING ON ITS EIGHT FACTORS

Items Loading on Factor 1:

Love of Learning

Item		Loading
47.	Learning is fun.	.72
5.	I love to learn.	.69
45.	I have a strong desire to learn new things.	.61
1.	I'm looking forward to learning as long as I live.	.59
46.	The more I learn, the more exciting the world becomes.	.59
17.	There are so many things I want to learn that I wish that there were more hours in a day.	.58
28.	I really enjoy tracking down the answer to a question.	.46
24.	The people I admire most are always learning new things.	.41
49.	I want to learn more so that I can keep growing as a person.	.59
31.	I'll be glad when I'm finished learning.	.55
51.	Learning how to learn is important to me.	.51
53.	Constant learning is a bore.	.45
54.	Learning is a tool for life.	.36
8.	I believe that thinking about who you are, where you are, and where you are going should be a major part of every person's education.	.36
39.	I think of problems as challenges, not stop signs.	.34
32.	I'm not as interested in learning as some other people seem to be.	.33
26.	I try to relate what I am learning to my long term goals.	.30

Items Loading on Factor 2:

Self-concept as an Effective, Independent Learner

Item		Loading
11.	I can learn things on my own better than most people.	.65
38.	I'm better than most people are at trying to find out the things I need to know.	.64
27.	I am capable of learning for myself almost anything I might need to know.	.54
57.	I am an effective learner in the classroom and on my own.	.53
10.	If I discover a need for information that I don't have, I know where to go to get it.	.46
33.	I don't have any problem with basic study skills.	.43
13.	In a learning experience, I prefer to take part in deciding what will be learned and how.	.36
42.	I become a leader in group learning situations.	.45
25.	I can think of many different ways to learn about a new topic.	.43
9.	I don't work very well on my own.	.37
2.	I know what I want to learn.	.32
4.	If there is something I want to learn, I can figure out a way to learn it.	.31

Items Loading on Factor 3:

Tolerance of Risk, Ambiguity, and Complexity in Learning

Item		Loading
29.	I don't like dealing with questions where there is not one right answer.	.49
48.	It's better to stick with the learning methods that we know will work instead of always trying new ones.	.44
7.	In a classroom, I expect the teacher to tell all class members exactly what to do at all times.	.43
3.	When I see something I don't understand, I stay away from it.	.43
19.	Understanding what I read is a problem for me.	.41
44.	I don't like challenging learning situations.	.40
23.	I think libraries are boring places.	.38
20.	If I don't learn, it's not my fault.	.36
22.	If I can understand something well enough to get a good grade on a test, it doesn't bother me if I still have questions about it.	.33
12.	Even if I have a great idea, I can't seem to develop a plan for making it work.	.31
6.	It takes me a while to get started on new projects.	.31
9.	I don't work very well on my own.	.44
32.	I'm not as interested in learning as some other people seem to be.	.38
53.	Constant learning is a bore.	.35
56.	Learning is a tool for life.	.32
31.	I'll be glad when I'm finished learning.	.30
35.	I don't like it when people who know what they're doing point out mistakes that I am making.	.30

Items Loading on Factor 4:

Creativity

Item		Loading
36.	I'm good at thinking of unusual ways to do things.	.63
30.	I have a lot of curiosity about things.	.53
34.	I like to try new things, even if I'm not sure how they will turn out.	.49
37.	I like to think about the future.	.44
43.	I enjoy discussing ideas.	.39
41.	I'm happy with the way I investigate problems.	.35
26.	I try to relate what I am learning to my long term goals.	.35
39.	I think of problems as challenges, not stop signs.	.33
25.	I can think of many different ways to learn about a new topic.	.32
55.	I learn several new things on my own each year.	.31

Items Loading on Factor 5:

View of Learning as a Lifelong, Beneficial Process

Item		Loading
52.	Old dogs can learn new tricks.	.50
56.	Learning doesn't make any difference in my life.	.54
58.	Learners are leaders.	.50
54.	Learning is a tool for life.	.47
43.	I enjoy discussing ideas.	.37
49.	I want to learn more so that I can keep growing as a person.	.34
55.	I learn several new things on my own each year.	.30

Items Loading on Factor 6:

Initiative in Learning

Item		Loading
40.	I can make myself do what I think I should.	.55
8.	If there is something I have decided to learn, I can find time for it, no matter how busy I am.	.42
58.	Learners are leaders.	.40
41.	I'm happy with the way I investigate problems.	.36
42.	I become a leader in group learning situations.	.32

Items Loading on Factor 7:

Self-Understanding

Item		Loading
21.	I know when I need to learn more about something	.52
16.	I can tell whether I'm learning something well or not.	.50
14.	Difficult study doesn't bother me if I'm interested in something.	.38
4.	If there is something I want to learn, I can figure out a way to learn it.	.43
8.	I believe that thinking about who you are, where you are, and where you are going should be a major part of every person's education.	.40
55.	I learn several new things on my own each year.	.33
35.	I don't like it when people who really know what they're doing point out mistakes that I am making.	.32
18.	If there is something I have decided to learn, I can find time for it, no matter how busy I am.	.30
2.	I know what I want to learn.	.30

Items Loading on Factor 8:

Acceptance of Responsibility for One's own Learning

Item		Loading
15.	No one but me is truly responsible for what I learn.	.75
50.	I am responsible for my learning - no one else is.	.74

APPENDIX B: INTERVIEW SCHEDULE, PROBE SHEETS AND LEARNING PROJECTS AND SELF-DIRECTED LEARNING READINESS DATA SHEET

I D _____

S _____ R _____ INterview NO _____

(Introduce yourself. Say, I am a graduate student at Iowa State University conducting a research in the area of adult learning. My research is about people and the sorts of thing they learn. Everyone learns, but different people learn different things--- and in different ways. I am interested in listing the things you have tried to learn during the past year and your potential learning needs so that the Adult Education Department might be better prepared to help the people of Iowa.)

What is your age? _____ Marital Status? _____

How many children under 19 do you have? _____

How many years of formal education do you have? _____

What other types of training or education do you have? _____

What is your profession or occupation? _____

---

1. Obstacles to learning

Many things stop people from taking a course of study, learning a skill, or following a topic of interest. Which of the following do you feel are important in keeping you from learning what you want to learn? I will read them to you and you may select as many as you would like by indicating "yes" or "no".

___ Cost

___ Not enough time

___ Home or job responsibility

___ Amount of time required to complete a course or program

___ No information about where I can get what I want

___ Courses I want are not scheduled when I can attend

I D _____

_____ Low grades in the past

_____ I do not enjoy studying

_____ I do not have enough energy

_____ No transportation available

_____ I do not meet requirement to begin a program

_____ No place to study or practice

_____ Not confident of my ability

_____ I do not know what I would like to learn

_____ Friends or family do not like the idea of my taking courses

_____ Other

2. Learning projects

Now I am interested in listing the things you have tried to learn during the past year. When I say " learn " I do not just mean learning the sorts of things that people learn in schools and colleges I mean any sort of deliberate effort at all to learn something, or to learn how to do something. Perhaps you tried to get some information or knowledge---or to gain new skills or improve your old ones---or to increase your sensitivity or understanding or appreciation. Can you think of any efforts like this that you have made during the past 12 months?

ID _____

(P) Try to think back over all the past 12 months - right back to ___ of last year. I am interested in any deliberate effort you made to learn anything at all. Anything at all can be included, regardless of whether it was easy or hard, big or little, important or trivial, serious or fun.

(P) It does not matter when your effort started, as long as you have spent at least a few hours at it sometime since last (month) _____

(P) We want to get as complete a list as possible, because we think that people make far more attempts to learn than anyone realizes. We can include any sort of information---knowledge---skill---or understanding at all that you have tried to gain---just as long as you spent at least a few hours at it sometime during the past 12 months. What else do you recall? (Pause)

Now, I have a list of some of the things people learn. It may remind you of other things that you have tried to learn during the past 12 months. Take as long as you want to read each word, and to think about whether you have tried to learn something similar. (give the

I D _____

Interviewee Sheet NO. I.)

Now I want to find out a bit more about your methods of learning. I have a list of different methods that people used to learn. This list may help you to remember. Take as long as you want to read each word, and to think about whether you have tried similar methods. If you think that you have tried to use similar methods write "yes", if you have not write "no". (Hand out Interviewee Sheet NO. 2 .) After your selection of your methods of learning would you please rank them in order by giving number "1" to the most method you used in your learning efforts during the last year and number "2" to the second and so forth.

---

3. Content of Learning Project

During the interview if possible record the content of the learning projects and classify it according to the Scheme below. If necessary to record the content use the list below as a probe list.

Occupational,Vocational and Professional Competence

THIS INCLUDES:
1. Learning related to preparing to enter the labor market
2. On-the-job training
3. Retraining for a shift in occupation
4. Basic literacy education
5. Graduate courses for certification

PERSONAL OR FAMILY COMPETENCE

THIS INCLUDES:
6. Role as parent, wife, homemaker, such as infant or child care, family planning, family relations, money management, etc.
7. Personality development, such as physical fitness, anything related to mental and physical health, driving lessons, etc.

SOCIAL AND CIVIC COMPETENCE

THIS INCLUDES:
8. Voting and politics
9. Current events
10. Community government
11. Community development
12. Civil defense

LEARNING FOR SELF-FULFILLMENT

THIS INCLUDES:
13. Arts and crafts
14. Hobies and recreation
15. Music, dance, theatre
16. Religion, ethics, or moral behavior

Now I want to know a little bit more about each of your efforts to

learn. The questions are the same for each one, so after the first one we will be able to move along quickly.

4. Time

Let's begin with the first one on the list. It was your efforts to learn _____. Here is a sheet that will help us learn more about your efforts, help us estimate the number of hours that you spent at learning this, and help to determine the number of hours spent at planning and preparing for that learning. (Hand him or her the third sheet.)

Ask for a time estimate in total number of hours. If the number of hours is below 14, check two criteria. First, " Within some six-month period during the past year, did you spend at least five hours at the learning itself--that is, to gain knowledge and skill related to the topic of interest. " Second, " Within some six-month period or shorter period during the past year, did you spend at least seven hours altogether on the learning effort? " This seven hours may include the time you spent for planning your learning, traveling for your learning and the learning itself. " If both criteria are met write yes and proceed; if both are not met write no and move to the question.

---

5. Reason for undertaking the project

In any of your efforts on the learning endeavor, was credit any part of your motivation? That is, did you hope to use any of your learning efforts for academic credit--towards some degree, certificate diploma, or grade achievement? (Pause)

Was any of your learning directed toward passing a test,

I D _____

examination, or course--or toward some license or a driving test? (Pause)

Did you undertake the learning activity for your own enjoyment or self-improvement? (Pause)

Was it toward some requirement of examination or upgrading related to a job?

(Pause and record it.) _____

6. Present status of learning project

Which of these three answers best describes this particular learning effort at the present time:

(A) Not very active - that is, you have dropped it or you have set it aside for a while.

(B) Definitely active - that is, you are definitely continuing this learning effort right now, and you are spending about as much time as ever at it.

(C) Completed--- that is, you have completed it.

7. Degree of Satisfaction

Now for the knowledge and skill you gained in your learning effort, please tell me your answers to these questions. (Give handout sheet no. 4 and record the three letters for each learning project.)

8. Planners

Now we are going to think about your learning efforts and try to decide who or what was the director or leader. That is, who decided what you would learn--and how you would learn--whenever you spent

I D _____

Some time trying to learn? Here is a sheet explaining what I mean (Sheet Five). (If no one resource was primarily (51%) responsible, classify it as mixed. If the interviewee does not seem to understand or if you feel doutful about the response, ask who the particular director or leader was. If you anticipate difficulty or if the learner asks, say that we are interested in who the leader was for the past 12 months rather earlier.)

---

9. Reasons for Choice of the Type of the Planner

In order to discover the reasons behind the choice of a particular type of planner, you can probe by asking " was there anything about this particular type of planner that influence your choice? Here is a list of some of the reasons which might have influenced your choice. I will read them to you and you may select as many as you would like by indicating "yes" or "no". "

Reasons for choice of the type of the planner

___ Availability of classroom and material

___ Capacity of instructor

___ Efficiency of method

___ Group attraction

___ Employer pressure

___ Financial economy

___ Pressure by an individual

___ Flexibility of time

___ Subject matter was appropriate for this kind of planner

___ The simplicity of plan

___ Availability of material

I D _____

___ Desire for self-planned learning

___ Most convient

___ Ease of subject

___ Evidence of ability to learn

___ Outside planner not available

___ Learning inappropriate for outside planner

___ Urgency to learn

___ Other

(Repeat for each learning project, recording the appropriate data.)

That completes the interview. Thank you very much for your time and assistance. I think your efforts will help to make education more meaningful in the lives of many adults.

Miscellaneous Notes for Interviewers

Do not interrupt the person's list of learning projects in order to ask criterion questions unless it is clear that the person is far off the track. Whenever there is a long pause, though, you may want to clarify the one or two or three possible learning projects that have just been mentioned. Use all your insight and questioning skill in order to understand just what the real focus was. Try to become precise about just what the person was trying to learn. Especially if he or she selects one of the methods or subjects from our lists, try to get him or her to use their own phrase rather than yours. Record the desired knowledge and skill, the task or responsibility, the question or interest, or whatever the focus was.

Do not quarrel with the person's decisions and data, but do sometimes make one or two attempts to check his or her understanding of the question or to clarify the answer. Record any doubts you have about the responses you get.

Whenever the person mentions some activity or some area of life that you think might have produced other learning projects, too, ask about this possibility.

SOME THINGS THAT PEOPLE LEARN ABOUT

1. A sport or game; swimming; dancing; bridge
2. Current events; public affairs; politics; peace; biography
3. Sewing; cooking; homemaking; entertaining
4. Driving a car
5. Home repairs; woodworking; home improvement project; decorating and furniture
6. A hobby or craft; collecting something; photography
7. Raising a child; discipline; infant care; child's education
8. Nature; agriculture; birds
9. Mathematics; statistics; arithmetic
10. Speed reading; effective writing; public speaking; vocabulary; literature
11. Science; astronomy; man in space
12. Health; physical fitness; posture; clothes; appearance
13. History; geography; travel; some region, city, or neighborhood
14. Personal finances; savings; insurance; investing; purchasing something
15. Psychology; effective relationships with people; groups; leadership; social skills
16. Typing; data processing; mechanical skill
17. Some personal problem; mental health; an emotional problem; an illness or medical condition
18. Various careers; choosing an occupation; finding a job
19. Gardening; landscaping
20. Something related to a job or responsibility or decision
21. Musical instrument; singing; music appreciation
22. Professional or technical competence; sales skills; how to teach or supervise

SOME THINGS THAT PEOPLE LEARN ABOUT

23. Some aspect of religion; ethics; philosophy; moral behavior
24. Current changes in society; the future; problems in cities; pollution; sociology
25. Relationship with the opposite sex; manners; marriage; relationships within the family
26. Art; painting; architecture; the opera; movies; television
27. Business management; economics; business
28. Sensory awareness; human potential; communication; understanding oneself; efficiency
29. New techniques; a new way of doing something; an innovation
30. Spanish; French; some other language

SOME METHODS OF ADULTS LEARNING

GOING RIGHT BACK OVER THE PAST YEAR, CAN YOU RECALLL ANY TIME YOU TRIED TO LEARN SOMETHING BY:

___ READING A BOOK, BOOKLET, PAMPHLET, LETTER, ENCYCLOPEDIA, NEWSPAPER OR MAGAZINE?

___ ASKING AN EXPERT SUCH AS LAWYER, DOCTOR, COUNSELOR, THERAPIST SOCIAL WORKER, COACH, PRIVATE TEACHER, OR FINANCIAL OR TAX ADVISOR?

___ ASKING QUESTIONS OF YOUR FRIENDS, RELATIVES, NEIGHBORS, OR OTHER PEOPLE?

___ ATTENDING A CONFERENCE, DISCUSSION GROUP, A WEEKEND MEETING, OR OTHER GROUP MEETING?

___ ENROLLING IN A CORRESPONDENCE OR TV COURSE, OR THROUGH RADIO OR TAPE RECORDING?

___ PROGRAMMED MATERIAL?

___ DISPLAYS, EXHIBITS, MUSEUMS, OR GALLERIES?

HAVE YOU LEARNED IN A:

___ ADULT EDUCATION CLASS, SCHOOL, COLLEGE, OR UNIVERSITY?

___ COMMUNITY ORGANIZATION?

___ GOVERNMENT PROGRAM?

___ CHURCH OR SYNAGOGUE?

___ COMPANY, FACTORY, OR OFFICE?

___ AN EXHIBITION, MUSEUM, ART GALLERY, OR LIBRARY?

___ EDUCATIONAL TRIP, TOUR OR TRAVEL GROUP?

___ CLUB,OR AN INFORMAL GROUP?

___ CAMP OR RETREAT SETTING?

PROBE SHEET NO. 2

1. We need your best guess about the total amount of time you spent at all aspects of this particular learning during the past 12 months.

Please include the time you spent reading ---listening--- observing---or learning in some other way--- if your <u>main</u> purpose during that activity was to gain and retain certain knowledge or skill. In other words, we will include all the times during which at least <u>half</u> of your total motivation was to gain certain knowledge or skill, and to retain it until at least two days later.

In addition to the time you spent at the actual learning itself, please include all the hours that you spent, during the past 12 months, at deciding about the learning, planning the learning, and preparing and arranging for it. This can include any time spent at deciding how to learn---deciding where to get help---seeking advice about these decisions (from other people or from printed materials)--- traveling to some of the learning activities, such as a meeting or practice session or library--- arranging appropriate conditions for learning--- choosing the right book or person for the actual learning-- obtaining that book or reaching that person.

Of course, you cannot remember <u>exactly</u> 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 70 100 140 180 or more.

PROBE SHEET NO. 3

1. Please think for a moment about how much knowledge, information, and understanding you gained as a result of this one learning project-- or think about how much your skills and habits improved--or how much your attitudes or sensitivity changed. would you say that altogether:

(A) you learned a large amount or changed a great deal;

(B) you were about halfway between (A) and (C); or

(C) you just changed or learned a little.

---

2. How enthusiastic have you been about having this new knowledge and skill?

(F) very enthusiastic;

(G) quite enthusiastic or fairly enthusiastic;

(H) not especially enthusiastic.

---

3. Let's set aside your own benefits for a moment, and look at any benefits for other people. Your new knowledge and skill might have been of some benefit to your family, your friends and relatives, your boss, your company or organization, your field, or even to people who live in other places.

To what extent did the knowledge and skill you gained provide some benefit to people other than yourself?

(J) to a fairly large extent;

(K) medium (about halfway between J and L);

(L) only to a small extent.

PLANNERS PROBE SHEET NO. 5

There are four different sorts of learning efforts, according to who direct them. That is, a person's efforts to learn can be classified according to who was responsible for the day-to-day planning. We have to look at who planned or decideed exactly what and how the person should learn at each session. For example, who decided what the person should read or hear, or what else he or she should do in order to learn?

1. Group-planned learning

In some learning projects, you may decide to attend a group and let the group(or its leader or instructor) decide what and how you learn during each session. A group may be lectures, study groups, workshops, small informal groups, or conferences.

2. One-to-one learning

In some learning projects, the planning and deciding of what to learn and in what order is handled by one person, who helps the learner in a one-to-one situation. That is, there is one helper (or instructor, teacher, expert, or friend) and there is one learner. These two persons interact usually face-to-face, although it could be by telephone or by correspondence. Even if 2-4 learners were receiving individualized attention from one other person at the same time, it would be included here.

3. Material Resource learning

In these learning projects, the major part of the detailed direction on what to learn and what to do at each session resides in some material resource, object, or nonhuman resource. A programmed instruction book, a set of tape recordings, or a series of TV programs are examples. The learner follows the programs or materials and they tell him or her what to do next.

PLANNERS

4. Self-planned learning

In other learning projects, the learner him or herself retains the major responsibility for the day-to-day planning and decision-making. He may get advice from various people and use a variety of materials and resources, but he retains the responsibility for deciding what activities to try next, what to read, and what skill or knowledge should be next in the sequence. Instead of turning the job of planning over to someone else, he makes the day-to-day decisions alone.

LEARNING PROJECT DATA SHEET

Description	Code	Column
Interview ID		1-4 __ __ __ __
Card Number		5 __
Sex	1- Male	6 __
	2- Female	
Race	1- Caucasian 3- Asian	7 __
	2- Negroid 4- Other	
Age	Actual	8-9 __ __
Marital Status	1- Married	10 __
	2- Married/widowed	
	3- Single	
	4- Divorced/separated	
Number of children under 19	Number	11 __
Years of formal education	1- Under 8 th grade	12 __
	2- 8-11 th grade	
	3- High school graduate	
	4- Some college	
	5- College graduate	
	6- Graduate training	
Other training	1- Vocational/technical school	13 __
	2- On the job training	
	3- Correspondence study	
	4- Business school	
	5- Other	
Profession or occupation	1- High exec./Major professional	14 __
	2- Business manager/ lesser professional	

Description	Code	Column
	3- Administrative Personnel	
	4- Clerical, Sales, Technicians	
	5- Skilled Manual Employee	
	6- Machine Operator/semi skilled	
	7- Unskilled	
	8- Homemaker	
	9- Students	

Obstacles to Learning 1- Yes 2- No

Cost ---------- 15 __

Not enough time ---------- 16 __

Home or job responsibility ---------- 17 __

Amount of time required to complete a course or program 18 __

No information about where I can get what I want ----- 19 __

Courses I want aren't scheduled when I can attend ----- 20 __

Low grades in the past ---------- 21 __

I do not enjoy studying ---------- 22 __

I do not have enough energy ---------- 23 __

No transportation available ---------- 24 __

I do not meet requirement to begin a program --------- 25 __

No place to study or practice ---------- 26 __

Not confident of my ability ---------- 27 __

I do not know what I would like to learn ---------- 28 __

Friends or family do not like the idea of my taking courses ---------- 29 __

Other ---------- 30 __

Description	Code	Column
2- Learning Project List		

Methods of Adults Learning 1- Yes 2- No

Reading a book, booklet, pamphlet, letter, encyclopedia, newspaper or magazine ---------- 31 __

Asking an expert such as lawyer, doctor, counselor, ect. 32 __

Asking questions of your friends, relatives, neighbors or others ---------- 33 __

Attending a conference or group meeting ---------- 34 __

Enrolling in a correspondence or TV courses, through radio or tape recording ---------- 35 __

Programmed material ---------- 36 __

Displays, exhipits, museums, or galleries ---------- 37 __

Adult ed class, school, college or university ------- 38 __

Community organization ---------- 39 __

Government program --------- ---------- 40 __

Church or synagogue ---------- 41 __

Company, factory or office ---------- 42 __

An exhibition, museum, art gallery, or library ----- 43 __

Educational trip, tour or travel group ---------- 44 __

Description	Code	Column
Club, or an informal group	----------	45 __
Camp or retreat setting	----------	46 __

Learning project information

Number of occupational, vocational projects	---	47-48 __ __
Number of personal, family projects	----------	49-50 __ __
Number of social, civic projects	----------	51 __
Number of learning for self-fulfillment projects		52-53 __ __

Learning project # 1: (Card two; 1-4,) 5 2

Estimated number of hours/project number 6-8 __ __ __

Primary reason
1- Toward academic credit 9 __
2- Toward certification
3- Job 4- Enjoyment 5- Mixed

Present status
1- Definitely active 10 __
2- Not very active 3- completed

Degree of satisfaction

How much knowledge
1- You learned a large amount or change a great deal 11 __
2- You were about half way between (1) and (3)
3- You just changed or learned a little

How enthusiastic
1- Very enthusiastic 12 __
2- Quite enthusiastic
3- Not especially enthusiastic

Benefits for other
1- To a fairly large extent 13 __
2- Medium about halfway between (1) and (3)

Description	Code	Column
	3- Only to a small extent	
Type of the planner	1- Group-planned learning	14 __
	2- One-to-one learning	
	3- Material resource learning	
	4- Self-planned learning	
	5- Mixed	

Reasons for choice of the type of the planner 1- Yes 2- No

Availability of classroom and material ---------- 15 __

Capacity of instructor ---------- 16 __

Efficiency of method ---------- 17 __

Group attraction ---------- 18 __

Employer pressure ---------- 19 __

Financial economy ---------- 20 __

Pressure by an individual ---------- 21 __

Flexibility of time ---------- 22 __

Subject matter was appropriate for this kind of planner ---------- 23 __

The simplicity of plan ---------- 24 __

Availability of material ---------- 25 __

Desire for self-planned learning ---------- 26 __

Most convient ---------- 27 __

Ease of subject ---------- 28 __

Evidence of ability to learn ---------- 29 __

Outside planner not available ---------- 30 __

Learning inappropriate for outside planner ----- 31 __

Urgency to learn ---------- 32 __

Other ---------- 33 __

Sources of subject matter 1- Group, group instruction 34 __

Description	Code	Column

2- Friend, relative, neighbor

3- Expert 4- Books, pamphlets, newspaper 5- programmed material

6- TV, radio, correspondence, tape recording 7- Displays, exhibits, museums, galleries

---

2

35-37	___	43 __	49 __	55 __	61 __
38	__	44 __	50 __	56 __	62 __
39	__	45 __	51 __	57 __	63 __
40	__	46 __	52 __	58 __	
41	__	47 __	53 __	59 __	
42	__	48 __	54 __	60 __	

---

3 (card 3)

6-8	___	14 __	20 __	26 __	32 __
9	__	15 __	21 __	27 __	33 __
10	__	16 __	22 __	28 __	34 __
11	__	17 __	23 __	29 __	
12	__	18 __	24 __	30 __	
13	__	19 __	25 __	31 __	

4

35-37	___	43 __	49 __	55 __	61 __
38	__	44 __	50 __	56 __	62 __
39	__	45 __	51 __	57 __	63 __
40	__	46 __	52 __	58 __	
41	__	47 __	53 __	59 __	
42	__	48 __	54 __	60 __	

Description	Code	Column

5(card 4)

6-8 ___	14 __	20 __	26 __	32 __	
9 __	15 __	21 __	27 __	33 __	
10 __	16 __	22 __	28 __	34 __	
11 __	17 __	23 __	29 __		
12 __	18 __	24 __	30 __		
13 __	19 __	25 __	31 __		

6

35-37 ___	42 __	47 __	52 __	57 __	62 __
38 __	43 __	48 __	53 __	58 __	63 __
39 __	44 __	49 __	54 __	59 __	
40 __	45 __	50 __	55 __	60 __	
41 __	46 __	51 __	56 __	61 __	

7 (card 5)

6-8 ___	13 __	18 __	23 __	28 __	33 __
9 __	14 __	19 __	24 __	29 __	34 __
10 __	15 __	20 __	25 __	30 __	
11 __	16 __	21 __	26 __	31 __	
12 __	17 __	22 __	27 __	32 __	

8

35-37 ___	42 __	47 __	52 __	57 __	62 __
38 __	43 __	48 __	53 __	58 __	63 __
39 __	44 __	49 __	54 __	59 __	
40 __	45 __	50 __	55 __	60 __	
41 __	46 __	51 __	56 __	61 __	

Description	Code	Column

9 (card 6)

6-8	___	13 ___	18 ___	23 ___	28 ___	33 ___
9	___	14 ___	19 ___	24 ___	29 ___	34 ___
10	___	15 ___	20 ___	25 ___	30 ___	
11	___	16 ___	21 ___	26 ___	31 ___	
12	___	17 ___	22 ___	27 ___	32 ___	

10

35-37	___	42 ___	47 ___	52 ___	57 ___	62 ___
38	___	43 ___	48 ___	53 ___	58 ___	63 ___
39	___	44 ___	49 ___	54 ___	59 ___	
40	___	45 ___	50 ___	55 ___	60 ___	
41	___	46 ___	51 ___	56 ___	61 ___	

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11 (card 7)

6-8	___	13 ___	18 ___	23 ___	28 ___	33 ___
9	___	14 ___	19 ___	24 ___	29 ___	34 ___
10	___	15 ___	20 ___	25 ___	30 ___	
11	___	16 ___	21 ___	26 ___	31 ___	
12	___	17 ___	22 ___	27 ___	32 ___	

12

35-37	___	42 ___	47 ___	52 ___	57 ___	62 ___
38	___	43 ___	48 ___	53 ___	58 ___	63 ___
39	___	44 ___	49 ___	54 ___	59 ___	
40	___	45 ___	50 ___	55 ___	60 ___	
41	___	46 ___	51 ___	56 ___	61 ___	

Description	Code					Column
# 13 (card 8)						
6-8 _ _ _	13 _	18 _	23 _	28 _	33 _	
9 _	14 _	19 _	24 _	29 _	34 _	
10 _	15 _	20 _	25 _	30 _		
11 _	16 _	21 _	26 _	31 _		
12 _	17 _	22 _	27 _	32 _		
# 14						
35-37 _ _ _	42 _	47 _	52 _	57 _	62 _	
38 _	43 _	48 _	53 _	58 _	63 _	
39 _	44 _	49 _	54 _	59 _		
40 _	45 _	50 _	55 _	60 _		
41 _	46 _	51 _	56 _	61 _		
# 15 (card 9)						
6-8 _ _ _	13 _	18 _	23 _	28 _	33 _	
9 _	14 _	19 _	24 _	29 _	34 _	
10 _	15 _	20 _	25 _	30 _		
11 _	16 _	21 _	26 _	31 _		
12 _	17 _	22 _	27 _	32 _		
# 16						
35-37 _ _ _	42 _	47 _	52 _	57 _	62 _	
38 _	43 _	48 _	53 _	58 _	63 _	
39 _	44 _	49 _	54 _	59 _		
40 _	45 _	50 _	55 _	60 _		
41 _	46 _	51 _	56 _	61 _		

SELF-DIRECTED LEARNING READINESS DATA SHEET

Description	Code	Column
Self-Directed Learning (card 10; 1-3)	4-5	____
1. I'm looking forward to learning as long as I'm living	6	___
2. I know what I want to learn	7	___
3. When I see something that I do not understand I stay away from it.	8	___
4. If there is something I want to learn, I can figure out a way to learn	9	___
5. I love to learn	10	___
6. It takes me a while to get started on new projects	11	___
7. In a classroom, I expect the teacher to tell all all class members exactly what to do at all times.	12	___
8. I believe that thinking about who you are where you are, and where you are going should be a major part of every person's education	13	___
9. I don't work very well on my own	14	___
10. If I discover a need for information that I don't have, I know where to go to get it.	15	___
11. I can learn things on my own better than most people	16	___
12. Even if I have a great idea, I can't seem to develop a plan for making it work	17	___
13. In a learning experience, I prefer to take part in deciding what will be learned and how.	18	___
14. Difficult study doesn't bother me if I'm interested in something.	19	___
15. No one but me is truly responsible for what I learn	20	___
16. I can tell whether I'm learning something well or not.	21	___
17. There are so many things I want to learn that I wish that there were more hours in a day.	22	___

Describtion		Column
18. If there is something I have decided to learn, I can find time for it, no matter how busy I am.	23	
19. Understanding what I read is a problem for me.	24	
20. If I do not learn, it's not my fault.	25	
21. I knew when I need to learn more about something.	26	
22. If I can understand something well enough to get a good grade on a test, it doesn't bother me if I still have questions about it.	27	
23. I think libraries are boring places.	28	
24. The people I admire most are always learning new things.	29	
25. I can think of many different ways to learn about a new topic.	30	
26. I try to relate what I am learning to my long-term goals.	31	
27. I am capable of learning for myself almost anything I might need to know.	32	
28. I really enjoy tracking down the answer to a question question.	33	
29. I don't like dealing with questions where there is not one right answer.	34	
30. I have a lot of curiosity about things	35	
31. I'll be glad when I'm finished learning	36	
32. I'm not as interested in learning as some other people seem to be.	37	
33. Idon't have any problem with basic study skills	38	
34. I like to try new things, even if I'm not sure how they will turn out.	39	
35. I don't like it when people who really know what they are doing point out mistakes that I am making	40	
36. I'm good at thinking of unusual ways to do things.	41	
37. I like to think about the future.	42	

Description		Column
38. I'm better than most people are at trying to find out the things I need to know.	43	___
39. I think of problems as challenges, not stopsigns.	44	___
40. I can make myself do what I think I should.	45	___
41. I'm happy with the way I investigate problems.	46	___
42. I become a leader in group learning situations.	47	___
43. I enjoy discussing ideas.	48	___
44. Idon't like challenging learning situations	49	___
45. I have a strong desire to learn new things.	50	___
46. The more I learn, the more exciting the world becomes.	51	___
47. Learning is fun.	52	___
48. It's better to stick with the learning methods that we know will work instead of always trying new ones.	53	___
49. I want to learn more so that I can keep growing as a person.	54	___
50. I am responsible for my learning- no one else is.	55	___
51. Learning how to learn is important to me.	56	___
52. Old dogs can learn new tricks	57	___
53. Constant learning is a bore.	58	___
54. Learning is a tool for life.	59	___
55. I learn several new things on my own each year.	60	___
56. Learning doesn't make any difference in my life.	61	___
57. I am an effective learner in the classroom and on my own.	62	___
58. Learners are leaders.	63	___

APPENDIX C: SUMMARY DATA OF LEARNING PROJECTS RESEARCH

A comparison of summary data from six research studies on learning projects

Data description	Zangari (N=45)	Tough (N=66)	Hassan (N=77)
Number of learning projects:			
Mean	7.19	8.3	9.78
Median	7.0	8.8	9.45
Range	2-21	0-20	4-16
Percent of participation in learning projects activity:	100%	98%	100%
Current status of projects:			
Active	75.31%	66%	79.41%
Inactive/completed	24.69%	34%	20.59%
Credit status of projects:			
Credit	3.08%	1%	10.76%
Non-credit	96.91%	99%	89.24%
Type of planner:			
Self-planned	72.22%	68%	78.09%
Group planned	14.81%	12%	15.80%
One-to-one	8.33%	8%	5.71%
Resource planned	1.85%	3%	.40%
Mixed	2.78%	9%	—

Summary table (continued)

Data description	Peter and Gordon (N=466)	Benson (N=50)	Hiemstra (N=214)
Number of learning projects:			
Mean	3.9	4.6	3.3
Median	3.3	—	3.0
Range	0-19	0-31	1-9
Percent of participation in learning projects activity:	95%	94%	83.5%
Current status of projects:			
Active	N.A	N.A.	75%
Inactive/completed	N.A.	N.A.	25%
Credit status of projects:			
Credit	N.A.	N.A.	4%
Non-credit	N.A.	N.A.	96%
Type of planner:			
Self-planned	77%	70%	55%
Group planned	11%	28%	20%
One-to-one	6%	0%	10%
Resource planned	1%	2%	4%
Mixed	5%	—	10%

APPENDIX D: HUMAN SUBJECT COMMITTEE APPROVAL

INFORMED CONSENT

Purpose and Procedure

This research is about people and the sorts of things they learn. Everyone learns, but different people learn different things—and in different ways. I am interested in interviewing you for approximately one hour to find out your learning activities during the past year and your potential learning needs so that adult education might be better prepared to help the people of Iowa. For example, I might ask you to read some statements about your learning efforts during the last year and give me your answers. Whenever you are asked to read, if you have any question or you can not read them, please tell me as we go along. You will not be identified by name. Information will be kept confidential. And you may withdraw consent and discontinue participation at any time. If you have any questions, please ask them at any time during our discussion.

I have read the above statements and voluntarily agree to participate.

Name _____

Date _____

INFORMATION ON THE USE OF HUMAN SUBJECTS ...

IOWA STATE UNIVERSITY

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

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(1.) Title of project (please type): An Investigation of the Learning Projects Among Adults of Low and High Readiness for Self-Direction in 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.

Hassan Awatif Mohamed	July-3-79	Awatif M. Hassan
Typed Named of Principal Investigator	Date	Signature of Principal Investigator

1420 Hawthorn	292-1093
Campus Address	Campus Telephone

(3.) Signatures of others (If any)

	Date	Relationship to Principal Investigator

(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 August Day 1 Year 79

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:

Participants will not be identified by name. Month ___ Day ___ Year ___

(8.)

Signature of Head or Chairperson	Date	Department or Administrative Unit
[signature]	7/12/79	J. S. Bowman Adm.

(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		
Name of Committee Chairperson	Date	Signature of Committee Chairperson