

Self-directed learning and intellectual development : a correlation study
by DeAnna Melody Shaw

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Education
Montana State University
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Abstract:
The purpose of this study was to examine the relationship between self-directed learning and intellectual development. A significant factor which influenced this research is the current influx of adult learners in higher education. It was postulated that an analysis of self-directed learning and intellectual development could enhance the theory base from which educators (in both adult education and higher education) practice their profession. A packet of materials was sent to a random sample of students attending Montana State University. The packet of materials included: a demographic questionnaire; the Measure of Epistemological Reflection (MER) - an instrument designed to measure intellectual development along the Perry Scheme: the Oddi Continuing Learning Inventory (OCLI) - an instrument designed to measure self-directedness.

Results of the MER and OCLI were compared. A Pearson correlation indicated that there is a statistically significant relationship between scores on the MER and OCLI. Age and class rank were determined to correlate positively with each instrument. There was no statistically significant difference between men and women on either instrument.

From the results of this study we can conclude that there is at least a tentative relationship between self-directed learning and intellectual development. Further we can conclude that both age and class rank are factors for both intellectual development and self-directed learning.

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by

DeAnna Melody Shaw

A thesis submitted in partial fulfillment
of the requirements for the degree

of

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# ABSTRACT

The purpose of this study was to examine the relationship between self-directed learning and intellectual development. A significant factor which influenced this research is the current influx of adult learners in higher education. It was postulated that an analysis of self-directed learning and intellectual development could enhance the theory base from which educators (in both adult education and higher education) practice their profession. A packet of materials was sent to a random sample of students attending Montana State University. The packet of materials included: a demographic questionnaire; the Measure of Epistemological Reflection (MER) - an instrument designed to measure intellectual development along the Perry Scheme: the Oddi Continuing Learning Inventory (OCLI) - an instrument designed to measure self-directedness.

Results of the MER and OCLI were compared. A Pearson correlation indicated that there is a statistically significant relationship between scores on the MER and OCLI. Age and class rank were determined to correlate positively with each instrument. There was no statistically significant difference between men and women on either instrument.

From the results of this study we can conclude that there is at least a tentative relationship between self-directed learning and intellectual development. Further we can conclude that both age and class rank are factors for both intellectual development and self-directed learning.

# CHAPTER 1

## INTRODUCTION

Adults older than the traditional age of college students (18-22) are returning to formal learning situations with rapidly increasing frequency. Currently, 43 percent of students on our college and university campuses are over the age of 25 ("What They're Reading," 1985). This increase in older students impacts our institutions of higher education. Some of the obvious areas of impact can be seen in the need for family housing, childcare, and special support organizations which provide a social network. Academic assistance programs for the non-traditional student are also common on campuses. Not so apparent, however, is the difference in adult learning styles which necessitates the need for a difference in the instructional method. The field of adult education is rooted in the conceptual and theoretical assumptions that adults learn differently from children or pre-adults. Theoretically, one way of considering the underpinnings of adult education can be found in the comparison of the pedagogical and andragogical models of education as described by Knowles (1985). The pedagogical model

assumes education to be teacher-centered, and that the learner is by and large a passive recipient of knowledge. Students enter into a learning situation motivated by external pressures of society, parents, teachers, competition for grades, and/or fear of failure. The andragogical model, however, assumes that learning is student-centered. The learner chooses the direction his or her education will take based on his/her life experiences and circumstance (Mezirow, 1981; Spear and Mocker, 1984). The student has chosen to enter into the learning situation, and is motivated by a desire to address a problem or issue in his/her life and by the assumption that the knowledge will enhance the quality of his/her life.

Given the andragogical model as a definition of adult learning, it would be easy to make the assumptions that all adults are self-directed in their learning, or that only adults are self-directed in their learning. The following discussion on self-directed learning (and the findings of this study) should serve to clarify why these assumptions may be innaccurate when applied to the population as a whole.

## Overview of Self-Directed Learning

Self-directed learning is an illusive concept because it has been given many descriptive definitions,

but little in the way of a theoretical focus. Is self-directed learning a personality construct, a learning style or a method of instruction? If it is an instructional method, are age, maturity, and intellectual development factors for the appropriateness of this particular method? Is it influenced by socio-economic factors?

There exists a multitude of definitions to describe self-directed learning. These definitions take their place on a continuum that has as one extreme the notion that self-directed learning is a change in perspective or awareness (Mezirow, 1981; Tough, 1979); the other extreme of the continuum would suggest that self-directed learning exists within a more rigid set of parameters (Penland, 1981). Knowles (1975) offers a more specific and less extreme definition of self-directed learning.

> ...'self-directed learning' describes 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, choosing strategies, and evaluating learning outcomes. (p. 18)

This definition, while broad enough to satisfy most adult educators, is merely descriptive of a self-directed learning process. It does not address why individuals choose this process. It does not explain what types of individuals choose this method nor does

it address the relative effectiveness of this learning style. The lack of a theoretical base to explain the how's and why's of self-directedness is a concern of many researchers. (e.g., Gibbons, 198Ø; Mezirow, 1981; Penland, 1981; Cross, 1981; Oddi, 1983).

The definitions which follow are related to the concept of self-directed learning and are presented as these terms are interpreted for this study.

A self-directed learner (for purposes of this study) is someone who possesses the personality traits which distinguish a self-directed learner from an other-directed learner.

An adult (for purposes of this study) is someone who is 25 chronological years of age or older. The age of 25 is an arbitrary number chosen to help define the population for this study. A person's individual experiences and maturity rather than his/her chronological age are believed to be a greater influence as to whether or not he/she is "adult" in his/her world perspective.

Pedagogy is a process of education which is teacher-centered; the learner is a passive recipient of knowledge.

Andragogy is a process of education which is student-centered; the learner is responsible for

initiating, following through with, and evaluating his/her own learning/educational situation.

Thus far, self-directed learning as a concept with theoretical underpinnings is an enigma to the field of education because it is so many things to so many different individuals. Therefore one might speculate its relevance has not been proportional to the amount of attention it has received. To individuals who take this view, the many definitions of self-directed learning suggest that it is merely a conceptual idea to be recognized, to be made aware of, but that the relevancy ends there with many descriptions of many instructional methods. Research can help to develop a theoretical foundation which in turn will establish self-directed learning as an instructional method.

Self-directed learning can be an avenue for many people to get the kind of education they would like to have to enhance their lives, but might not access otherwise. Instead of guarding the educational process as if it had some mystical power, educators should be allowing education its own autonomy to empower the individual. The mystique surrounding education must be removed without removing this ability to empower. We are not so far removed from Paulo Freire's (197Ø) description in Pedagogy of the Oppressed of teachers, the oppressors, who pour the desired knowledge into the

receptacles who are their students, the oppressed. This method distorts the world to be a set of absolutes waiting to be learned.

Researchers in education have failed, thus far, to establish a strong theoretical base for self-directed learning; although some have attempted the development of theory (Mezirow, 1981; Penland 1981; Oddi, 1983). This failure has been a disservice to the field in a number of ways. Without a theory, any definition of self-directedness is tenuous and at best merely educated conjecture. Without theory, assessment of the self-directed learner, or those projects which are considered self-directed learning is very difficult. It is difficult to qualify something without a standard of measurement. Finally, without theory, research into the implications and application of self-directed learning is little more than an educated assumption.

The difficulty in establishing a theoretical base for self-directed learning is multi-faceted. There are some (e.g., Oddi, 1985) who would theorize self-directed learning as primarily a personality construct. A person possesses more or less of the personality traits that allow him/her to be self-directed in his/her learning. Another school of thought (Spear and Mocker, 1984; Brookfield, 1984) suggests that a person's ability to be self-directed is influenced

primarily by his/her socio-economic circumstances. This is a consideration which may be substantially supported by Maslow's (197Ø) hierarchy of needs. A third body of literature views self-directed learning as an instructional method related directly to intellectual development. This study examines self-directed learning as a personality related concept and how this aspect of self-directed learning is correlated to cognitive development. The following section will discuss intellectual developmental theory in more depth.

## Intellectual Development and the Perry Scheme

How do adults make meaning out of their world around them? Developmental theory attempts to address this question. Adult developmental theory can be broken down into three sub-categories: typological theory, psycho-social theory and cognitive developmental theory. Typological theories concern temperament and socialization. The Myers-Briggs Type Indicator (Myers, 198Ø) and the work of Carl Jung (Jung, 1964) are two examples of typological theory. Psychosocial theory describes how an individual reacts to and interacts with his environment. Chickering's vectors of development discusses this type of interaction (Chickering, 1972). Finally cognitive

developmental theory describes the way we view our world and the way we reason about this world. Kohlberg's theory of moral development (Kohlberg, 198Ø) and Perry's theory of intellectual development (Perry, 197Ø) are examples of cognitive developmental theories.

This research study is concerned with this last sub-category of developmental theory. Cognitive developmental theory can be described by a number of characteristics. The following definitions are offered to further explicate the concepts of cognitive or intellectual theory.

Cognitive is a term used to describe the processes of thought - how we think, reason, understand. For purposes of this study, cognitive and intellectual will often be used interchangeably (except where more specifically defined by the text).

Development suggests a progressive movement towards the more inclusive or complex.

Stage or position describes a particular set of assumptions about how we come to "know" our world. Stages or positions are hierarchical, sequential, they describe "how" we see not "what" we see, and finally each stage is qualitatively different from the preceding stage. What occurs before and after a stage or position could be considered periods of transition.

Growth describes, in general, progress in development. It is generally valued positively. That is, growth is traditionally viewed as more productive for the individual than is non-growth. Stages or positions are one way to delineate growth.

Experiential dissonance is an experience which when presented to an individual should cause a dilemma. The dilemma is effectively solved when the individual's reasoning structure changes. Dissonance is used to promote growth in development.

Accommodation and assimilation are the two methods individual's use to make meaning from the experiential dissonance. Assimilation is the process of trying to "fit" the dissonance caused by the experience into current reasoning patterns. This can be through selection, simplification, or distortion. Accommodation is the process of changing the reasoning patterns to "fit" the dissonance caused by the experience. This can occur through transforming or recombining previous reasoning structures to accommodate the new experience.

Lifespan development is a concept which suggests that development occurs from the moment of birth to the moment of death.

Student developmental theory looks specifically at the growth in development during the college years.

Student development can be seen as a period of intense development in the course of an individual's lifespan development.

Often developmental theories are represented by a series of sequential stages in which a person's world view or perspective is enhanced by a series of experiences which cause a degree of cognitive dissonance. This dissonance challenges a person to consider more options or different types of options in their problem solving. The dissonance leads a person from one stage or position into the next. Because intellectual development is sequential in nature, each subsequent stage encompasses the perspective of the previous stage. Further, these stages are hierarchical and sequential and for the most part irreversible. Once an individual has fully established a new perspective and way of reasoning it is difficult for him/her to return to a more limited perspective and reasoning structure.

The Perry Scheme, published under the title, Forms of Intellectual and Ethical Development in the College Years: A Scheme (Perry, 197Ø) is one theory which describes the intellectual development of adults. The Bureau of Study Counsel at Harvard University, under the direction of William Perry, spent twenty years examining the responses of college undergraduates to their learning environment. What emerged from this

study was a theoretical description of the developmental stages individuals pass through during their college experience. There are nine positions on the Perry Scheme. A more comprehensive discussion of the Perry Scheme and each of its "positions" is offered in Chapter 2.

An understanding of how students reason about their world can inform educators about how to present information, interact with students, and create the most conducive learning environments. For example, the Perry Scheme examines how individuals view authority (the instructor), the nature of truth, and peers. It describes the decision-making process individuals progress through and how individuals view evaluation. With this information, instructors may more adequately challenge and support their students. This challenge and support can occur through learning activities per se or through the discussions about the learning activities.

## Statement of the Problem and Research Hypotheses

Is intellectual development related to self-directed learning? Can we make assumptions regarding a person's ability/preference for self-directed learning based on their level of intellectual development? If individuals progress in intellectual development can

their ability/preference for self-directed learning also progress? Can and should educators use this knowledge to enhance an individual's ability/preference for self-directed learning? These are only a few of the issues to consider when examining the relationship between cognitive development and self-directed learning. The purpose of this study is to empirically examine this relationship. It is not expected that this study will provide conclusive answers; rather, it is expected that this project will provide some useful data regarding the relationship between intellectual development and self-directed learning - data that will ultimately create more questions for investigation.

This study examines the relationship between a person's ability/preference for self-directed learning and that person's intellectual development as described by the Perry scheme. There are nine operational hypotheses tested, statistically, by this study. These are specifically presented in Chapter 3. It is expected that a statistically significant correlation will be found between a person's ability/preference for self-directed learning as measured by the Oddi Continuing Learning Inventory (Oddi, 1984) and a person's position on the Perry Scheme of Intellectual Development as measured by the Measure of Epistomological Reflection (Baxter-Magolda and Porterfield, 1985).

Leeb (1983) found "no statistically significant associations" (p. 192) between positioning on the Perry Scheme (as measured by an essay protocol) and self-directed learning [as measured by the Self-Directed Learning Readiness Scale (Guglielmino, 1977)]; however, Leeb herself noted that her findings should be considered speculative as they were derived from tangential data from her study. This study will be considered in greater depth in Chapter 2.

## Significance of the Research Problem

The significance of this study will be examined by considering some factors involved with this study. These factors include: the relationship between chronological age and ability/preference for self-directed learning and/or intellectual development; differences among individuals at different levels of educational attainment; and the differences between the results for men and for women.

The purpose of this study is to gather additional empirical data on self-directed learning and its relationship to intellectual development. To this point in time, much conjecture has been posited to explain and define self-directed learning. It is this author's belief that only through empirical data collection, will the field of adult education be able to form a

more homogeneous concept of self-directed learning and the factors affecting it.

The significance of this study is derived from the quality of data produced. This data provides information to help test, empirically, a theoretical framework, and to clarify the concept of self-directed learning. A "theory" per se has not been generated by the data of this study; however, the data contributes to a body of knowledge that can be used to more clearly define theory. Another significant factor to consider in this study is whether or not self-directed learning is a developmental concept. It was presumed on the outset of this study that a positive relationship found between self-directed learning and intellectual development could improve the instructional method by helping instructors to develop the self-directed learning tendency in the individuals they instruct. In addition, this study should help clarify for practitioners, in student affairs-related occupations, how they can better serve their new clientele - the older student. The information gained from this study will also help clarify the findings of Leeb's study (1983). Finally, and from a pragmatic view, this study will help add to the validation of both the MER and OCLI.

## Assumptions and Limitations

The construction of this research study has inherent assumptions. Primarily, it is assumed that self-directed learning has a developmental property. This developmental property is the degree to which persons are able to and choose to practice self-directed learning. Self-directed learning is not viewed as a static method of learning, but rather on a continuum of personal involvement. Secondly, it is assumed that the relationship between self-directed learning and intellectual development can be quantified, and this is reflected by the scores on the OCLI and the MER.

A major limitation of this study concerns the demographics of the population from which the sample is drawn. This study was conducted at Montana State University in Bozeman, Montana, and the sample, regardless of the random selection process, was fairly homogeneous. Statistically the largest portion of the university's population is from small towns in Montana (Astin and Groseth, 1984). The population of students attending Montana State University could be described as largely white, middle class, rural individuals.

Another possible limitation of this study is relative newness of both instruments. There are not, at

this time, a large number of published reports using either of these instruments; therefore, it is difficult to generalize about the validity of the instrument from study to study. There are specific limitations inherent in both instruments which will be more fully discussed in Chapter 3. There are also specific reasons for why these instruments were chosen, including cost of administration, validity and reliability, ease of administration, and the author's familiarity with the instruments.

# CHAPTER 2

## REVIEW OF THE LITERATURE

This chapter will examine the literature base of cognitive developmental theory and self-directed learning that is most relevant to this study. The literature related to cognitive development, particularly as reflected by the Perry Scheme is quite extensive as researchers have investigated, many aspects of the theory (e.g., Knefelkamp, Widick, and Parker, 1978; Knefelkamp, 1981; Baxter-Magolda and Porterfield, 1985). The literature related to self-directed learning is also quite extensive (e.g., Knowles, 1975; Tough, 1979; Gibbons, 198Ø; Cross, 1981; Mezirow, 1978; Brockett, 1983; Oddi, 1983; Leeb, 1983; Brookfield, 1984). One reason for this recent interest in adult education theory is the influx of non-traditional students (i.e., students over the age of 25) on college campuses. Little research, however, has been conducted regarding the relationship between cognitive developmental theory and self-directed learning. Therefore, the literature base that overlaps both fields of study is limited.

The purpose of this chapter is to present selected literature on both concepts so that the question of the relationship between the two can be more fully explored. Cognitive developmental theory and the Perry scheme of intellectual development will be considered first. In addition to the discussion of theory, an analysis of assessment issues for intellectual development and the instrumentation used will be presented. The second section of this literature review concerns self-directed learning's conceptual framework. Literature relevant to the research and theories of self-directed learning will be reviewed, as well as of the instrumentation for self-directedness. Finally, the literature which explores the relationship between cognitive development and self-directed learning will be reviewed.

## Cognitive Developmental Theory and Intellectual Development

Cognitive developmental theory suggests that individuals will change their patterns of reasoning. It suggests that as current reasoning patterns cease to assimilate an issue or event (and making meaning from the experience is deemed necessary), then an individual's patterns of reasoning will expand to fit the experience. A classic example might be the child,

who formerly considered his parents to be infallible, suddenly realizes that a parent has made a mistake. Under the previous reasoning structure the mistake would never have been seen, but now the child is confronted with the idea that perhaps this parent isn't infallible. The child has two choices: 1) to ignore the mistake and continue to believe that the parent is infallible; 2) to consider the idea that, at least in this situation, the parent is fallible. The second choice would be a step towards growth in his/her development since the reasoning about parents/authority change to explain the experience.

The Perry Scheme: A Cognitive Developmental Theory

The Bureau of Study Counsel at Harvard University, under the direction of William Perry, spent twenty years examining the reasoning of college undergraduates about their learning experiences. What emerged from this study was a theoretical description of the developmental stages individuals pass through to gain a more inclusive perspective of their world. This theory was published under the title Forms of Intellectual and Ethical Development In The College Years: A Scheme (Perry, 197Ø) but has since been more commonly referred to as "the Perry scheme". There are nine positions on the Perry scheme which represent growth in

development and can be divided under three broad categories: dualism, relativism, and commitment.

The first three positions of the Perry scheme fall under the category of "dualism". A person at the first position, "basic duality", views the world in terms of absolutes. The authorities have "the right" answer. Multiplicity is not perceived at this position. A person at the second position, "multiplicity pre-legitimate", perceives multiple options; however, only one authority or option is considered to be valid. The third stage is entitled "multiplicity subordinate". At this stage, a person recognizes that the authorities may not always have "the" answer. The right answer may be unattainable, but this is only a temporary situation. The right answer may be known at some point in the future.

Positions 4a, 4b, 5, and 6 all belong to the category entitled "relativism". A person at position 4 may relate his/her experience in either or both of two ways. Position 4a, "multiplicity correlate", acknowledges that when there are no absolutes, everyone has a right to his/her own opinion. Position 4b, "relativism subordinate", acknowledges that authorities can have multiple opinions/views because they want others to think in terms of multiple options. At position 4 a person can choose to be either adhering or

oppositional in his/her opinions. An adhering 4 is more likely to accept any idea or perception as equally accurate. An oppositional 4 is more likely to argue that regardless of what his/her opinion is, that opinion is just as valid as anyone else's opinion. At position 5, a person moves into the "relativism correlate" position. Relativism is viewed not in terms of what the authority wants for us, but rather how the world and authorities really are. At position 5 a person views everything as relevant within a context. Each person's opinion may be relevant in the larger picture, but may not be relevant in a particular context. At position 6, "commitment foreseen", a person begins to recognize the need for commitments in a relativistic world.

The final category of positions is the "commitments" category. Position 7, "initial commitment", is the stage at which a person first actualizes and examines the implications of the first commitment. At position 8, "orientation in implications of commitment", the complete implication of commitments is realized. Commitments need to be balanced, which lead a person to position 9, "developing commitments". At position 9, commitments and their full implications become a considered part of a person's reasoning and decision making process. There are some theorists

(e.g., Kitchner and King, 1981; Baxter-Magolda and Porterfield, 1985) who would argue that no developmental change occurs past position 5. This argument is based on the logic that no qualitative differences occur after position 5 or between positions 6,7,8, and 9. In this view positions 6-9 are seen as a process that reoccurs throughout adulthood.

A person's perspective and reasoning structure is fairly consistent from subject to subject. How a person views authority, for example, should be fairly close in reasoning structure to how that person views the nature of truth. If a person has a dualistic view of God and human nature, he/she will probably have a dualistic, right/wrong, view of the nature of truth.

Assessment Along the Perry Scheme

The Perry Scheme was developed through the analysis of a longitudinal study which used an essay and interview format. Assessment of positioning along the Perry scheme can occur through an interview, an essay, a recognition instrument, or a short answer questionnaire. Assessment through interviews requires that a trained investigator ask a series of questions which are designed to establish that person's reasoning structure. Each question is followed by a series of follow-up questions which probe deeper into the response. The essay format is a standardized, written

prototype of the interview format. A recognition instrument asks the respondent to identify a perspective most like his/her own from a list of possibilities. Each of these formats have been used to assess positioning along the Perry scheme.

More recently, Taylor and Porterfield (1983) have developed a short answer questionnaire as an assessment tool. In a recent article (1985) they addressed some of the difficulties inherent to the other methods of assessment. These difficulties include:

1. Although an interview technique is the most comprehensive form of assessment - it is the most time consuming method and requires highly trained interviewers and scorers.
2. Research by Rest (cited in Baxter-Magolda and Porterfield, 1985) indicates that respondents may be able to recognize and prefer a cognitive stage which is higher than the one they can produce (and presumably the one they can produce is their position). Therefore, a simple recognition instrument may be more likely to reflect where an individual would prefer to be rather than where he/she actually is.
3. There is a need to distinguish between content and justification for the response. Because the content can be the same for several stages on the scheme, the "why" behind the content is more enlightening. The

"why" is not reflected in a response format questionnaire.

With these difficulties in mind, Baxter-Magolda and Porterfield (1985) developed an instrument entitled the "Measure of Epistemological Reflection" (MER). This instrument was developed, according to the authors, "to provide specific stimuli and a standard scoring procedure to reduce the degree of inference necessary to assign a Perry level" (p. 343).

The MER is a short-answer response format questionnaire. There are six domains which are rated separately: decision making, role of the learner, role of the instructor, role of peers, evaluation, and view of knowledge, truth, or reality. Individuals can be rated differently within the different domains. For example, a person may generate a position 2 response to the role of the instructor and a position 3 response to decision making. However, individuals will rarely vary more than one position level from domain to domain. The total protocol rating (TPR) is obtained by looking at all 6 domains. If the same position rating shows up in at least 2 of the domains, that position is reflected in the TPR. For example, if an individual has a position 4 rating on 2 of the domains and a position 5 rating on 3 of the domains and a position 3 rating on 1 domain, the TPR would be shown as 5(4). In

this case 5 is the dominant position, but a tendency is still evident for position 4. (The position 3 rating is not reflected in the TPR because it occured only once.) This TPR suggests that this individual has just made the transition from position 4 to position 5 reasoning. Position ratings that are equally distributed among the domains are shown as 2-3. This TPR suggests that an individual is beginning to make the transition from position 2 reasoning to position 3 reasoning, but has not fully moved into position 3. The MER is based on the premise that no significant developmental changes occur past position 5. Therefore, the highest positioning assigned through the MER assessment is 5.

The MER requires rating by certified raters. To be certified an individual must rate protocols for 2Ø individuals and must obtain approximately a .8Ø correlation on the TPRs with the expert raters. Reliability of the MER was tested for interrater agreement between highly trained raters, an expert on the Perry Scheme, and two self-trained raters. Comparison with the Measure of Intellectual Development (MID), a similar instrument measuring intellectual development along the Perry scheme (Kneflekamp, 1974; Widick, 1975 as cited in Baxter-Magolda and Porterfield, 1985.) was also

conducted to test the correlation between the two measurement tools.

In one research project (Baxter-Magolda and Porterfield, 1985), 155 participants (79 men and 76 women) were sampled from four groups including college freshmen, seniors, graduate students under the age of 30, and graduate students over the age of 30. These participants had been randomly selected (except for the freshmen who were students in a psychology class) from students at a large state university, in 1982. The groups were fairly homogeneous across socio-economic indicators.

The MER and the MID were given to the sample group. The order of the administration of the instruments was reversed for half of the respondents to avoid bias in administration of the instruments. Reliability of the MER was assessed internally by comparing the consistency between the raters. The MER was compared to the MID to establish concurrent validity.

The results of this initial study showed that the internal validity among the raters was quite high. However, there seemed to be quite a discrepancy between the MER and the MID. One reason cited for this low correlation was the lack of similar variability in the MID scores. Also the MER, according to the authors,

generated a greater amount of data. The difference in the type of response elicited could account for the low correlation. The authors cite four follow-up studies which they feel substantiate the validity of the MER. They also recognize the need for a longitudinal study to further their claims of validity for the MER.

The study of intellectual development and applying the Perry scheme to the practices of both adult education and higher education is another avenue educators can use to increase their effectiveness.

## Self-Directed Learning Theory and Research

In the literature, the term self-directed learning has become synonymous with self-planned (Tough, 1971), self-initiated (Penland, 1981), self-educated (Gibbons, 198Ø), among other terms. As self-directed learning seems to be the term most commonly used, this will be the term used in this report. The definitions of self-directed learning are also many and varied. These definitions are spread across a continuum. This continuum represents degrees of self-directedness. What qualifies as self-directed behavior (whether or not that behavior is personality based, instructionally based, or cognitively based) differs considerably from one theorist to the next. On one extreme of the continuum is Mezirow (1981) who links self-directed

learning to perspective transformation or a change in a person's awareness as an aspect of the emancipatory process of the adult learning process. Close to Mezirow on the continuum, but a little farther towards the middle is Tough (1971) who recognizes within broad parameters almost any deliberate effort to gain knowledge or create a change of view as self-directed learning. Somewhere in the middle of the continuum is Knowles (1975) who describes self-directed learning as a process of self-initiated, self-planned, self-implemented, and self-evaluated learning. On the opposite extreme of the continuum is the traditional school view of the independent study project - an academic project initiated and implemented through traditional, academic parameters.

The elusiveness of theory for both adult education, in the broader sense, and self-directed learning, in particular, is seen in the literature as frustrating and defeating to this field of study (Tough, 1979, Mezirow, 1981). Most practitioners and researchers in the field have recognized a need for theory (e.g., Gibbons, 198Ø; Mezirow, 1981; Penland, 1981; Cross, 1981).

Cross (1981) delineates three major stumbling blocks to theory building in adult education. First, she notes that adult education is seen by adult

educators as a consumer-oriented service. Thus the task is not always discovering what is most effective, but rather what is most wanted. Second, Cross notes that there are relatively few scholars in adult education. Most adult educators feel that their first obligation is to serve the needs of the adult learners. The strongest argument Cross makes is her third point. She suggests that the multidisciplinary nature of adult education (e.g., pyschology, sociology, gerontology, and physiology) makes it difficult to assess where the focus of an adult education theory should be placed. Further, as Cross implies, it is not likely that one theory will ever be conclusive enough to address every essential aspect of adult education. She suggests that perhaps it would be more useful to have several theories, each examining in detail one of the disciplines of adult education.

In reviewing the work of several theorists who are attempting to create a theory on adult education, Cross discovered five similarities among theories and suggests that they are very applicable to concepts involved with self-directed learning. First, interaction between the person and the environment is seen as an important component. Each theory reviewed is grounded in the belief that each individual has some control over his/her environment. Second, a low

self-esteem is counter-productive to the processes of adult education. Third, incongruence and dissonance are common themes throughout adult education. Forth, Maslow's (1970) hierarchy of needs is also a common concept to adult education theories. Finally, motivation is seen as being impacted by the perceptions of the positive and negative forces surrounding the learning situation, and by the expected rewards of the learning situation.

This work by Cross (although more specifically related to adult education rather than self-directed learning) addresses issues very relevant to self-directed learning. The following is a review of the more prominent research projects in self-directed learning that suggest some of the current theoretical assumptions.

Malcolm Knowles has contributed much to the literature base for self-directed learning. Self-Directed Learning: A Guide for Learners and Teachers (Knowles, 1975) is considered by many a significant contribution to the literature. This is a how-to book that guides the learner towards self-directedness while at the same time guiding the teacher through the process of losing the center spotlight to become a facilitator of learning. Recently, Knowles (1985) has delineated the differences

between pedagogy and andragogy. He describes pedagogy as a teacher centered monologic approach to learning. The learner is pictured as a blank slate to be written upon, or as Friere (197Ø) has described the traditional concept of the student, as a recepticle to be dumped on. Andragogy is described as a student-centered approach to learning. It is described in terms of the adult and the adult is described as one who by definition is self-directed.

Another significant contribution to the literature of self-directed learning is The Adult's Learning Projects. (Tough, 1979) conducted interviews with 66 adults in 197Ø. This survey focused on the number, type and variety of learning projects the adults had undertaken in the preceeding year. A learning project was defined as, "simply a major, highly deliberate effort to gain certain knowledge and skills (or to change in some other way)" (p. 1). All but one individual in Tough's study had participated in at least one learning project (some were involved with as many as fifteen or twenty; the median number was eight). Further, he discovered that adults spend from 1ØØ to 2ØØØ hours per year on learning projects (687 hours was the median number of hours for the adults in this study). The estimated number of hours may be a conservative number as only one-third of the learning

projects were complete or dormant at the time of the survey. Another important finding of this study was that 68% of the learning projects undertaken by the adults in this study were planned primarily by the learners themselves; they were self-planned/ self-initiated projects. This study supported, empirically, what most adult educators knew intuitively - that self-directed learning was a common practice among adults. Further, the evidence from this study would suggest that for many adults self-directed learning was the preferred method of study/instruction.

Gibbons, et al (198Ø) took a more qualitative approach to the research of self-directed learning. They studied the biographies or autobiographies of twenty individuals of prominence who, with one exception, had no formal education beyond high school. From this study, Gibbons and his associates were able to extrapolate fourteen principles and implications related to self-directed learning. Some of the more relevant factors are: 1) the locus of control for a self-educated person is himself/herself, and it is the task of the instructor to help students internalize control over their own learning; 2) self-directed learning is usually more focused, and the instructor should help students identify their areas of interest; 3) learning is for immediate application (self-directed

learners tend to be pragmatic in their learning activities), and the instructor should integrate theory with practice; 4) self-educated individuals tend to be self-motivated; instructors should encourage students to set their own goals and objectives; 5) self-educators are motivated by the "rewards" of the project; instructors can help a student follow-through to the attainment of the reward; 6) self-educated people tend to find a method of study that is unique to them and their needs; instructors should encourage students to try a variety of learning styles to find the ones that work best for them; 7) self-educated adults use their skills to find the resources and direction they need; instructors can help encourage the drive and independence students need to seek out their own guidance. Gibbons states that, "teaching for self-education involves helping each student to become an expert, a participant, and a person" (p. 55).

Mezirow (1981) described a theory of adult education based on the work of Habermas (cited in Mezirow, 1981). He describes perspective transformation as central to the emancipatory aspect of adult learning. The emanicpatory domain of adult learning is seen as a prerequisite for a person's ability to be self-directed in his/her learning. This observation seems consistent with the views of authors such as

Gibbons (198Ø) and Oddi (1983) who have concentrated on the personality constructs of self-directed learning, and by Knowles, (197Ø) when he describes the differences between andragogy and pedagogy). Perspective transformation, according to Mezirow, is the experience of processing critical events in one's life by integrating the past and therefore moving to a new understanding, and a new perspective. The process of perspective transformation is delineated by the following events. First, a significant emotional experience occurs and disorients the individual which in turn causes self-examination leading towards a critical assessment of beliefs and values. Next, is the recognition that others have shared this disorientation which in turn allows the individual to explore options with others. Finally, once a new option is acted upon and confidence in this new role is gained, a plan of action is created; new skills and knowledge are tried until the individual feels more comfortable with their new perspective. The process can be sudden if the significant emotional experience is disorienting enough. Or the transition to a new perspective can happen gradually over the course of time with several less demanding, less disorienting events.

It is Mezirow's contention that an understanding of perspective transformation will enhance the adult educator's ability to integrate self-directed learning as an instructional model. Mezirow (1981) describes a self-directed learner as one who:

> ...has access to alternative perspectives for understanding his or her situation and for giving meaning and direction to his or her life, has acquired sensitivity and competence in social interaction and has the skills and competence required to master the productive tasks associated with controlling and manipulating the environment. (p. 21)

Further Mezirow (1981) suggests that perspective transformation in a related context with self-directed learning offers, "the essential elements of a comprehensive theory of adult learning and education" (p. 22).

Spear and Mocker (1984) took yet another approach towards looking at self-directed learning. Rather than looking at the internal characteristics of the individual, they looked at the external characteristics of the individual's circumstance. They conducted a secondary analysis of data collected previously and detected some environmental factors which describe the ways individuals organize and initiate learning projects. These factors become the organizing circumstance - the events which dictate the need, interest, motivation for the learning situation. Their qualitative analysis was taken from a survey-based

research project which compared individuals who were involved in formal learning situations, with individuals involved in self-directed learning projects. From this analysis they drew the following hypothesis:

> The Organizing Circumstance, rather than preplanning by the individual, is the directing force behind much, perhaps most, self-directed learning for this population. (p. 4)

Although the specific organizing circumstances vary from individual to individual, there are some themes that seem common to most self-directed learners. A most central theme involves the concept of change. Impetus for learning often stems from a positive or negative change in a person's life circumstances. The change in circumstances typically does not provide very many opportunities or resources for the learning situation; therefore, "the structure, methods, resources and conditions for learning are provided or dictated by the circumstances" (p. 5). Also, learning is not necessarily a linear progression, but rather circumstances seem to suggest the next logical step. The difference here seems to be that the individual may see a linear progression in the light of hindsight; however, this person did not nor could they have planned that linear progression proactively.

Spear and Mocker are suggesting that circumstance plays a large part in organizing the self-directed learner's choices about learning. The study they

analyzed seems to contradict Tough's (1979) research which stated that self-directed learners were very planful in their approach to learning. It is interesting to note the significance that Spear and Mocker found regarding the change in circumstance as an initiating factor for self-directed learning. This observation, in part, would support Mezirow's (1981) theory of "perspective transformation." Brookfield (1984) makes several critical comments regarding the existing research encompassing self-directed learning. Several of these points address the lack of research concerning some of the environmental factors of learning. He believes that the research has focused primarily on white, middle class America, and that the working classes and minorities have largely been ignored. Concentration on adults whose educational attainment level is above the national norm is one characteristic Brookfield finds most alarming in the current research. Further, he notes that with only a few exceptions the research has been very ethnocentric, considering mainly the white population in America. Brookfield also states that self-directed learning research has also failed to adequately address the social climate surrounding the individual. Learning networks, informal learning exchanges require the individual to participate in his/her social setting.

Learning in this way is still self-directed rather than other-directed, but it necessitates an individual's interaction with others.

In response to Brookfield's critical assessment, Brockett (1985) suggests that Brookfield had a narrow view of "hard-to-reach" populations. Brockett cited his own research which targeted an elderly population as well as several others which he felt offered some of the kinds of data that Brookfield has been quick to say doesn't exist, or only exists in relative scarcity.

Measurement of Self-Directed Learning

The importance of being able to measure self-directed learning lies in the need that educators have for knowing their students and how best to teach them. There exists, at this time, only two instruments for assessing self-directed learning: The Self-Directed Learning Readiness Scale (Guglielmino, 1977), and The Oddi Continuing Learning Inventory (Oddi, 1983).

The Self-Directed Learning Readiness Scale is an instrument which examines to what degree individuals perceive themselves to be self-directed in their learning. It is a 58 item, Likert scale design. The instrument has been used frequently in research on self-directed learning. (e.g., Brockett, 1983; Leeb, 1983)

Brockett (1985) raised several concerns with the Self-Directed Learning Readiness Scale (SDLRS). He raised a concern with the appropriateness of the instrument with certain populations (i.e., individuals with little formal education). Brockett also concluded that twelve of the fifty-eight SDLRS items did not significantly correlate with the entire instrument. The use of double negatives in some items added to the confusion of respondents - accentuating some of the correlation concerns. Brockett also noted that the SDLRS seemed to place specific value on book learning as a preferred tool for self-directed learning.

In response to some of the criticisms of the SDLRS, Oddi (1984) developed a new instrument to measure self-directed learning, the Oddi Continuing Learning Inventory (OCLI). Her study had three specific goals:

1. to describe a theory of the personality characteristics of the self-directed learner.
2. to develop an instrument to assess these learners.
3. to validate the instrument, empirically. (p. 98)

She began by reviewing the relevant literature on the subject; and, by drawing on some common themes, derived three dimensions of self-directed learning. Each dimension lies on a continuum with polar opposites. One pole describes a high inclination towards a characteristic of self-directed learning; the

opposite pole, a low inclination for self-directed learning. These continuums are labeled as follows:

1. Pro-active Drive versus Reactive Drive (PD/RD)
2. Cognitive Openness versus Defensiveness (CO/D)
3. Commitment to Learning versus Apathy or Aversion to Learning (CL/AAL) (pp.98-99)

A pilot instrument was derived from the analysis of 1ØØ items. This pilot instrument consisted of 31 items and was given to 287 graduate students in law, nursing, and education. Five items were discerned to be unreliable in the item analysis and were subsequently eliminated from the scale. The remaining 26 items had a raw coefficient of .75Ø. A validation study was conducted to obtain estimates of reliability and to discern internal and external validity. No less than 7 items were included for each dimension. Validation data were obtained by administering this instrument and a selected validation instrument. Four separate validation instruments were used. Each instrument correlated to a particular component of the OCLI. The reliability of internal consistency was .875, while test/retest reliability was .893. The author noted that these were preliminary findings and that more data should be collected and that the instrument should be refined further.

## Self-Directed Learning and Intellectual Development

The concern for this study was the relationship between intellectual development and self-directed learning. Kasworm (1983) considers self-directed learning as part of a broader context which includes the cognitive and affective factors. She views change, growth, and development as intregal parts of the self-directed learning process. She outlined five considerations for a paradigm of self-directed learning that assumes a developmental stance. These considerations can be related to the definition of stages which was presented earlier; her considerations describe levels which are hierarchical, sequential, and qualitatively different levels of development. They are as follows:

1. Levels of development imply a qualitative difference in the individual's mode of thinking about him/herself in the personal world.

2. These levels represent a complex process including:
   a. level of skill/behavior for engagement in learning inquiry
   b. cognitive capacities and competencies
   c. affective and value orientations

3. There is an invarient sequence for these levels - one must logically follow another.

4. Each level represents the individual's perceptual and cognitive structure of thought.

5. Each level is necessary to the total process of development and has both positive and negative potentials. (p. 33)

Further, Kasworm suggests a three dimensional framework for considering the relationship between self-directed learning and cognitive development. This framework includes: a) specific levels of behavior/skill to engage and complete the action of self-directed learning; b) specific levels of cognitive complexity necessary for specific nature of acts of learning; c) specific levels of affect/value towards orientation of knowledge and learning actions.

Kasworm suggests that considering self-directed learning within this framework presumes several points. It presumes that there exists both quantitative and qualitative differences in generic skills/knowledge, and values of self-directed learning. It presumes that skills, knowledge and values evolve over the lifespan and, "incorporate a person-environment referent in relation to depth and breadth of engagement in self-directed learning" (p. 45). Kasworm conludes her remarks by suggesting a manner in which instructors could create an environment more conducive to promoting self-directed learning, "Thus, instructors who wish to create self-directed learning environments would provide sufficient challenge for both the varied levels and depth of complexity for self-directed learning development" (p. 45).

Cameron (1984) has noted that the accelerating rate at which adults are returning to post-secondary institutions gives relevance to a study on cognitive development and adult learning theory. Her study examined the cognitive positioning of adult students during their first year in a two year institution. Adult learners were described, "as persons who enter college following several years of other activities, such as jobs, military, mothering, and are therefore older than the traditional age student" (p. 2).

A professional group of raters for the Perry scheme developed and validated an essay test (protocol) for the study. Fifty students over the age of 22 were tested. In the first sample of 46 individuals there were 29 dualists (63.3%), 12 multiplists (26.Ø%), and 5 relativists (1Ø.8%). Table 1 indicates a break down by curriculum.

Table 1 Intellectual Development by Curriculum

| | Business Curriculum | Liberal Arts and Human Services |
|---|---|---|
| D | (7) 46.6% | (22) 7Ø.9% |
| M | (6) 4Ø.Ø% | (6) 19.3% |
| R | (2) 13.3% | (3) 9.6% |

This study supported previous data to suggest that most adults were reported to be at the lower positions

of cognitive development. The age range for the 29 respondents at the dualist stage was 22-5Ø years, which Cameron claims disputes a positive correlation between cognitive development and age. According to Cameron several assumptions about these adult learners can be made. We can expect them to be highly dependent on the instructor, to have an external orientation, to possess a high need for approval, to be less aware of their own learning needs. Further she states, "students who are dualists will not be capable of self-directed learning, even though they can be encouraged to be more and more self-directed" (p. 9). Cameron speculates that many of these adult learners would benefit from a support/challenge ratio which would possibly assist in their cognitive development towards a higher positioning.

In her study, Leeb (1983) examined the relationship between health conducive lifestyles and self-directed learning. She used essay protocols to assess the Perry scheme and to establish how adults reason about their health and health goals. Although it was not of central importance to her thesis, Leeb did examine the relationship between Perry positioning and results on the Self-Directed Learning Readiness Scale. She found no statistically significant relationship. However, she did note that her findings were

speculative as the study she conducted was not designed as a correlational study.

Much of the literature regarding the relationship between self-directed learning and intellectual development is speculative at this point. Not enough research has been conducted to draw adequate conclusions. This void in the research is a significant reason for this study.

## Summary

Cognitive developmental theory suggests that individuals reason about and react to their environment throughout their lives. This reaction can be a dogmatic denial of any other perspective, or it can be a reaction to the dissonance caused by examining the potential for a different perspective. Growth is characterized as a sequential process of moving towards a broader perspective. Perry suggests that growth includes changing one's view of authorities, peers, and truth. The MER measures respondent's views of the learner, the instuctor, peers, decision making processes, evaluation, and truth/knowledge. These six categories relate well to examining the differences between a self-directed learner and an other-directed learner. Therefore, an examination of self-directed learners in a cognitive developmental framework can

provide valuable information for educators. As Kasworm suggests, the instructor could use such information to create an environment conducive to promoting self-directed learning in individuals. Thus far the research examining the connection between the two concepts has been very limited. This study adds to literature base uniting the concepts. An underlying presumption of this study, at the onset, was that as persons achieve a higher level of intellectual reasoning they become more self-directed in their learning. Although Kasworm, Cameron, and Leeb have provided some information regarding the nature and importance of the relationship, there is much to learn about this relationship.

# CHAPTER 3

# METHODOLOGY

The previous chapter of this research report outlined some of the more significant literature regarding intellectual development (as specifically related to the Perry scheme) and the theories and research regarding adult education self-directed learning. A limited selection of literature was also presented which suggested that a relationship may exist between self-directed learning and intellectual development. This chapter will outline the methodology used to examine this relationship. This research project was conceptualized, in part, as a response to a void in this literature base. The problem examined in this study is the nature of the relationship between a person's predisposition/preference for self-directed learning and that person's intellectual development.

## Population and Sample

The population from which the sample for this study was taken is the total undergraduate and graduate enrollment for Montana State University. A demographic description of this population is found in a 1984

survey of incoming freshmen (Astin and Groseth, 1984). This survey echoed, in many respects, the results of previous surveys taken in 1976 and in 197Ø. Approximately 97% of the freshmen population in 1984 described their race as white/caucasian. This figure is consistent within 1 percentage point of the previous surveys. The only other race of individuals with a significant percentage was Native Americans with almost 3% of the total enrollment (a figure which has also stayed fairly consistent). Increasingly, a growing number of attendees at MSU come from homes in which at least one parent is a college graduate. While in 197Ø, only 23.9% of entering freshmen claimed that their fathers had completed a college education, the figure for 1984 was 42%. Another interesting statistic reflects family income. In 1984, 46.9% came from households with an annual income in excess of $3Ø,ØØØ. From these statistics we can assume that the population of MSU is largely white and middle class. Any results of this survey may only be applicable to other populations within higher education with similar demographics.

A random stratified sample was taken from the MSU population. Stratums identified for this study were based on the university's classification of students as outlined by the undergraduate catalog (1986-1988). These classifications are:

Freshman: A student who is entitled to regular or conditional admission with less than 45 credits.

Sophomore: A student must have earned 45 or more credits.

Junior: A student must have earned 9Ø or more credits.

Senior: A student must have earned 135 or more credits.

Second bachelor's degree candidate: A student seeking a bachelor's degree who has already earned one or more baccalaureate degrees.

Nondegree student: A student with at least a baccalaureate degree but not seeking another degree.

Graduate degree student: A student who has at least a baccalaureate degree and has been accepted into the College of Graduate Studies. (p. 2Ø)

Initially a sample of 1ØØ students from each of the five stratums was drawn randomly by the Registrar's office. One of the major difficulties of this study was contacting the students in the sample. The list from the Registrar's office did not include phone numbers and since phoning the sample was an important part of the data collection it was necessary to obtain phone numbers from other sources. It was possible to obtain phone numbers for approximately 5Ø% of the sample. Another difficulty encountered was that the information contained on the list was inaccurate for at least 1Ø% of the sample. Some individuals listed were no longer students; many had changed residences. Because of these difficulties, it was necessary to draw

a second sample. This second sample included only those students in the post baccalaureate sample.

## Instrumentation and Scoring

The instruments chosen for this study were both developed within the last four years. However, there is evidence to indicate that each has appropriate validity and reliability to contribute solid results to this study.

### The Measure of Epistemological Reflection

The Measure of Epistemological Reflection (MER) was chosen for this study for several reasons. The major advantage of this instrument is its format. The (MER) is a short answer essay with follow-up questions. There are six domains investigated by the instrument: decision making; role of the learner; role of the instructor; role of peers; evaluation; and view of knowledge, truth, and/or reality. The standardized format and scoring reduces the degree of inference necessary to evaluate along the Perry scheme.

Another advantage of this instrument is its ease of administration and the nature of the responses. The instrument can be given to the respondent in any setting. The nature of the questions make it unlikely that the individual can manipulate his or her response.

According to Taylor (1983), reliability of the MER was based on the interrater agreement and on internal consistancy among domain ratings. Interrater agreement on the individual domains ranged from 42% to 64%; however, interrater agreement for the total protocol rating (TPR) ranged from .75 to .84. As was noted earlier, in order to be certified to rate the MER, an individual must obtain approximately a .8Ø correlation with an expert rater on a collection of sample protocols. Internal consistency among domains for the initial sample (79 men and 76 women) was found to be .76. Concurrent validity of the MER was established to be quite low when compared with another similar instrument - The Measure of Intellectual Development. Correlation of scores from both instruments ranged from .Ø4 to .11. A difference in the variability of reported scores may account, in part, for the low correlations. The MER is designed to obtain more informtion and assigns a more specific position rating than does the MID.

Scoring the instrument is accomplished by comparing the individual's responses to the instrument with the reasoning structures outlined in the scoring manual. A score reflecting the Perry positioning and a reasoning structure as outlined by the manual is assigned to each domain rating; the dominant rating is

assessed. Any additional rating which occurs twice is shown in parenthesis [example, 2(3)]. If the ratings are evenly split between two ratings the TPR is shown with a dash (example, 2-3). A rating which occurs only once is not reflected in the TPR. The TPR reflects a person's positioning along the Perry scheme. The Perry positioning assigned to a person reflects the way that person reasons about his or her world. For research purposes the total protocol rating can be converted into a continuous variable. This was done in order to complete the statistical analysis of this study.

The Oddi Continuing Learning Inventory

The Oddi Continuing Learning Inventory (OCLI) was chosen to evaluate self-directed learning. The instrument was chosen for a number of reasons. First, the instrument is easy to administer; like the MER, the OCLI can be administered in almost any setting. Instructions for completing the instrument are fairly straightforward and easy to follow. Second, it is relatively inexpensive to use. A licensing agreement with the author allows a researcher to use the instrument without royalty. Finally, the OCLI examines self-directed learning as a personality construct which is how the concept is operationalized for this study. The OCLI is a 24 item Likert scale. Each item consists of a statement to which the respondent is asked to

react. The scale ranges from a "1" which reflects that the person strongly disagrees with the statement to a "7" which reflects strong agreement with the statement. There are five reverse items on the scale which guard against "out-guessing" the instrument.

The OCLI measures factors on three continuums: Cognitive openness versus defensiveness; proactive drive versus reactive drive; and, commitment to learning versus apathy or aversion to learning. External validity for the OCLI was determined by comparing these different factors measured by the instrument with other instruments which measure the same factors. Commitment to Learning vs. Apathy or Aversion to Learning (CL/AAL) was validated against the Leisure Activity Survey (r = .363) and against the Affliation subscale of the the Adjective Check List (r =.265). The Internal-External Scale was measured against the Cognitive Openness vs. Defensiveness (CO/D) factor (r= -Ø.4Ø); and against the Change subscale of the Adjective Check List (r = -.Ø2Ø). The Proactive Drive vs. Reactive Drive (PD/RD) factor was correlated with two sub-scales of the Adjective Check List. The Self-Confidence subscale correlated with an r = .551; the Endurance subscale correlated with an r = .539. Oddi (1985) suggests that the instrument is a valid instrument when considered in its entirety, but raises

cautions about the use of the factors. For this reason factor scores were not considered in this investigation. The reliability of internal consistency was .87 while test/retest reliability was determined to be .89. The size of the sample on which validity and reliability figures are based was 271 (Oddi, 1985).

As was noted, the instrument is fairly easy to administer. The individual is asked to circle the number which corresponds to his/her reaction to the statement. Scoring the instrument is merely a matter of adding the numbered responses. The range of possible scores is from 24 (which represents a low inclination towards self-directed learning) to 168 (which represents a high inclination towards self-directed learning).

## Research Design and Data Collection Procedure

The design for this study is an ex-post-facto, correlational design. It is an ex-post-facto design because the variables, intellectual development and self-directedness, are not manipulated in the research and because these factors are associated with the individual's life span development. It is a correlational study because it is examining the relationship between two factors.

A random stratified sample was obtained from the Registrar's office at Montana State University. From this list, phone calls were made to 158 individuals soliciting participation in this study. The phone calls offered a brief introduction to the study and asked for a verbal agreement for participation. Individuals who agreed to participate were sent a packet of materials which included the following: a letter to participants; a consent form; instructions for completing the instruments; a demographics questionnaire; the Measure for Epistemological Reflection; the OCLI; and a return envelope. Indivduals were instructed on how to return the completed materials to the principal investigator. An example of this packet of materials is provided in Appendix A.

## Hypotheses

To investigate thoroughly the relationship between self-directed learning and intellectual development, nine operational hypotheses were postulated. Stated in the null, they are:

1. There is no statistically significant relationship between scores on the OCLI and scores on the MER.
2. There is no statistically signficant relationship between chronological age and scores on the MER.

3. There is no statistically significant relationship between chronological age and scores on the OCLI.
4. There is no statistically significant difference between individuals under the age of twenty-five and indivdiuals over the age of twenty-five on the MER.
5. There is no statistically significant difference between individuals under the age of twenty-five and individuals over the age of twenty-five on the OCLI.
6. There is no statistically significant difference between the scores of males and females on the MER.
7. There is no statistically significant difference between the scores of males and females on the OCLI.
8. There is no statistically significant relationship between grade level attainment and scores on the MER.
9. There is no statistically significant relationship between grade level attainment and scores on the OCLI.

## Summary

The distribution and collection of data took approximately two and a half months to complete. The

data collected are rich with information regarding self-directed learning and intellectual development. The following chapter will discuss the statistical configurations of the sample population; the results of the OCLI and the distribution of scores; the results of the MER and the distribution of scores; the results of each tested hypothesis. These data offer a clearer picture of the relationship between these two factors - perhaps the clearest picture available in the current literature base. Additionally, the information provided by this study is potentially valuable to adult educators as well as to the instructor or administrator in a higher education setting.

# CHAPTER 4

# RESULTS

In Chapter 3, nine hypotheses, stated in the null, were postulated to examine the relationship between self-directed learning and intellectual development. In this chapter, the characteristics of the sample will be discussed; results of each instrument will be presented; and finally there is a discussion of the results as they pertain to each hypothesis.

## Characteristics of the Sample

Respondents were asked to complete a demographic questionnaire. This questionnaire was designed to solicit information regarding the sample which could be used for descriptive purposes. Data were collected regarding gender, age, race, family income, whether or not the respondent attended high school in Montana, and whether or not the respondent's father and/or mother graduated from college. Results of these data are presented in Table 2.

Research materials were sent to 154 individuals who had indicated, over the phone, their willingness to parti- cipate in this study. One-hundred of these

Table 2 Characteristics of Sample Population

| Characteristic | n | percent |
|---|---|---|
| Gender | | |
| Males | 5Ø | 5Ø |
| Females | 5Ø | 5Ø |
| Total | 1ØØ | 1ØØ |
| Age | | |
| Under 25 | 61 | 61 |
| 25 and Over | 39 | 39 |
| Total | 1ØØ | 1ØØ |
| Class | | |
| Freshman | 22 | 22 |
| Sophomore | 15 | 15 |
| Junior | 16 | 16 |
| Senior | 15 | 15 |
| Post-Baccalaureate | 32 | 32 |
| Total | 1ØØ | 1ØØ |
| Attended Montana High School | | |
| Yes | 71 | 71 |
| No | 29 | 29 |
| Total | 1ØØ | 1ØØ |

Table 2 Continued

| Characteristic | n | percent |
|---|---|---|
| Parent's Income | | |
| 1Ø,ØØØ - 19,ØØØ | 5 | 5.6 |
| 2Ø,ØØØ - 29,ØØØ | 2 | 31.1 |
| 3Ø,ØØØ - 39,ØØØ | 2Ø | 22.2 |
| 4Ø,ØØØ - 49,ØØØ | 18 | 2Ø.Ø |
| 5Ø,ØØØ - higher | 19 | 21.1 |
| Total | 9Ø | 1ØØ.Ø |
| Race | | |
| Caucasian | 97 | 98.Ø |
| Oriental | 1 | 1.Ø |
| Other | 1 | 1.Ø |
| Total | 99 | 1ØØ.Ø |

individuals returned completed research materials for a response rate of 65%. Fifty-percent of the respondents were men and 5Ø% were women. Respondents ranged in age from 17-54 with the mean age for the sample being 25.27 (with a standard deviation of 8.18). Sixty-one percent of the respondents were under the age of 25. Ninty-eight percent of the sample reported their race as "caucasian"; one percent indicated "oriental"; one percent indicated "other". One individual did not respond to this question. Respondents were asked to approximate their parent's income. Of the 1ØØ individuals in the sample, 1Ø chose not to respond to this question. Of the respondents who answered this question, 63.3% indicated that their parent's income was over $3Ø,ØØØ per year.

The results of this demographic questionnaire are similar to results found by the surveys of incoming freshmen (Astin and Groseth, 1984) cited in Chapter 3. The sample is mostly white, middle class and most attended high school in Montana. These individuals seem to come from homes which indicate a value for higher education as 5Ø% of the fathers and 36% of the mothers had graduated from college.

## The Measure of Epistemological Reflection

Ninety-eight respondents completed the Measure of Epistemological Reflection (MER) in a manner which provided rateable data. Table 3 reflects the numerical breakdown for scores on the MER. Table 4 reflects Perry positioning for individuals who completed the MER.

The range of scores possible on the MER is 1.ØØ - 5.ØØ. The range of scores for individuals in this study was 1.8Ø - 4.66. The mean for the 98 respondents was 2.95. Sixty individuals under the age of 25 responded ($\bar{x}$ = 2.69). Thirty-eight individuals 25 years of age and older completed the questionnaires (x = 3.38). There was equal representation by men and women on the MER. Women scored slightly higher than men. The mean for the female sample was 2.97 and for the men was 2.94. Juniors appeared to have the lowest average for scores on the MER with a mean of 2.52; freshmen had a mean of 2.57; sophomores had a mean of 2.75; seniors had a mean of 3.Ø7; and post baccalaureate students had a mean of 3.48. Except for the junior sample, a positive correlation between intellectual development and educational attainment is shown by these findings. The small sample representing each class rank may be a factor in these results.

Table 3 Numerical Results for the MER

| Characteristic | n | $\bar{x}$ | sd |
|---|---|---|---|
| Age | | | |
| 17-24 | 6Ø | 2.69 | .49 |
| 25-54 | 38 | 3.38 | .66 |
| Gender | | | |
| Females | 49 | 2.97 | .64 |
| Males | 49 | 2.94 | .67 |
| Class Rank | | | |
| Freshman | 22 | 2.57 | .6Ø |
| Sophomore | 15 | 2.75 | .58 |
| Junior | 15 | 2.52 | .36 |
| Senior | 15 | 3.Ø7 | .66 |
| Post-Baccalaureate | 31 | 3.48 | .49 |
| Total Sample | 98 | 2.95 | .65 |

Table 4 Positioning Results for the MER

| Characteristic | Dualists | Multiplists | Relativists |
|---|---|---|---|
| Age | | | |
| 17-24 | 46 | 12 | 2 |
| 25-54 | 8 | 21 | 9 |
| Gender | | | |
| Females | 29 | 15 | 5 |
| Males | 25 | 17 | 6 |
| Class Rank | | | |
| Freshman | 19 | 3 | Ø |
| Sophomore | 1Ø | 4 | 1 |
| Junior | 13 | 2 | Ø |
| Senior | 7 | 6 | 2 |
| Post-Baccalaureate | 5 | 18 | 8 |
| Total Sample | 54 | 33 | 11 |

There are 54 dualists, 33 multiplists and 11 relativists in this sample. There is a great difference between individuals under the age of 25 and individuals 25 years of age and older. Women and men were dispersed comparatively across the positions. Again, aside from the sample of juniors, positioning seems to increase with educational attainment.

Interrater Reliability for the MER

In order to rate MER data, this researcher completed a self-paced training program. At the end of that training program, I evaluated twenty protocols. I attained a .78 correlation with the expert raters on this sample data (and therefore, gained certification to rate the MER data). See Appendix B for the letter confirming certification to rate MER data.

To add to the reliability of the findings of this study, one of the developers of the MER agreed to rate 1Ø randomly selected protocols from the 1ØØ protocols completed for this study. A Pearson product moment correlation was used to examine the relationship between the expert rater's findings and this researcher's findings. The correlation on these 1Ø protocols was r=.79.

## The Oddi Continuing Learning Inventory

One-hundred respondents completed the Oddi Continuing Learning Inventory (OCLI). Table 5 reflects the breakdown of scores for the OCLI. The possible range of scores for this instrument is 24 - 168. The range of scores for individuals involved with this study was 54 - 157 ($\bar{x}$ = 121). There is hardly any difference in scoring on the OCLI for men ($\bar{x}$ = 122) and women ($\bar{x}$ = 121); and, hardly any difference in scoring for individuals under the age of 25 ($\bar{x}$ = 12Ø) and those 25 and over ($\bar{x}$ = 124). The only notable difference in scores was between post baccalaureate students and the undergraduates. The means for freshmen and sophomores were both 116; juniors had a mean of 112 (the lowest mean for class rank cells); the mean for seniors was 119; post baccalaureates had a mean of 126. It is interesting to note that scores for juniors on both the MER and OCLI were lower than the scores for the other class rank stratums on both instruments.

## Results of the Hypotheses

Nine operational hypotheses were examined in this study. They concern the relationship between the two instruments; age-related considerations; gender-related considerations; and class rank-related considerations.

Table 5 Results Related to the OCLI

| Characteristic | n | $\bar{x}$ | sd |
|---|---|---|---|
| Age | | | |
| 17-24 | 61 | 12Ø | 17.74 |
| 25-54 | 39 | 124 | 17.Ø4 |
| Gender | | | |
| Females | 5Ø | 121 | 19.41 |
| Males | 5Ø | 122 | 15.61 |
| Class Rank | | | |
| Freshman | 22 | 116 | 17.62 |
| Sophomore | 15 | 116 | 13.1Ø |
| Junior | 16 | 112 | 14.Ø6 |
| Senior | 15 | 119 | 19.88 |
| Post-Baccalaureate | 32 | 126 | 18.87 |
| Total Sample | 1ØØ | 121 | 17.53 |

The following material will present each hypotheses, the tested results, and whether or not the null hypotheses has been rejected.

Relationships Between the MER and the OCLI

The first hypothesis of this study is the main focus of the study. It was presented in the null, in Chapter 3, as follows:

Hypothesis 1: There is no statistically significant relationship between scores on the OCLI and scores on the MER.

A Pearson product moment correlation was used to measure the relationship between the scores on the two instruments. A correlation coefficient of .21 ($p < .05$) was found which rejects the null hypothesis. Although this is not an overwelming relationship it does indicate that to some degree a person who has attained a higher level of intellectual development is more likely to be more self-directed in his/her learning. It should be noted that the variance for this coefficient is quite low ($r^2 = .044$). Therefore, while there exists a statistical relationship, the magnitude of that relationship is weak.

Age-Related Findings for the MER and OCLI

Hypotheses two, three, four and five each examine the relationship of age to the two instruments. They are presented in Chapter 3 as follows:

Hypothesis 2: There is no statistically significant relationship between chronological age and scores on the MER.

Hypothesis 3: There is no statistically significant relationship between chronological age and scores on the OCLI.

Hypothesis 4: There is no statistically significant difference between individuals under the age of twenty-five and individuals over the age of twenty-five on the MER.

Hypothesis 5: There is no statistically significant difference between individuals under the age of twenty-five and individuals over the age of twenty-five on the OCLI.

A Pearson product moment correlation was used to measure the relationships between age and scores on the two instruments. Statistically significant relationships were found for both the MER and age and the OCLI and age. This relationship can be noted in Table 6. The relationship between the MER and age is quite strong with a correlation coefficient of .55 ($p < .\emptyset\emptyset1$), with a variance of .3Ø; the relationship between the OCLI and age, while statistically significant, is not nearly as strong with a correlation coefficient of .17 ($p < .\emptyset5$) with a variance of .Ø28. This finding indicates that while age and intellectual development have a strong positively-correlated relationship, age and self-directed learning have only a slight, though statistically significant positive relationship.

Table 7 indicates the differences between individuals above and below the age of 25 on the two

Table 6 Pearson Product Moment Correlations for Scores on the MER, OCLI and Age

| Relationship | Correlation |
|---|---|
| OCLI and MER | r = .21*** |
| MER and Age | r = .55* |
| OCLI and Age | r = .17*** |

* (p< .ØØ1)
*** (p< .Ø5)

Table 7 Differences for Individuals Under and Over the Age of Twenty-five on the MER and OCLI

| Instrument | Age Range | n | $\bar{x}$ | T-Value |
|---|---|---|---|---|
| MER | 17-24 | 6Ø | 2.69 | |
| | 25-54 | 38 | 3.38 | -5.9Ø* |
| Total | 17-54 | 98 | 2.95 | |
| OCLI | 17-24 | 61 | 12Ø | |
| | 25-54 | 39 | 124 | -1.27 |
| Total | 17-54 | 1ØØ | 121 | |

* (p< .ØØ1)

instruments. A T-test was computed to examine these differences. Age differences on the MER appear, again, to be a significant factor. Individuals under the age of 25 are more likely to be dualists, while individuals over the age of twenty-five are more likely to be multiplists. Scores on the OCLI do not appear to be significantly different for persons above and below the age of 25.

The results of these statistics indicate that hypotheses two, three, and four are rejected at the .Ø5 level of significance. The statistics failed to reject hypothesis five.

Gender-Related Findings for the MER and OCLI

Hypotheses six and seven concern the differences between males and females on the two instruments. They were presented in Chapter 3 as follows:

Hypothesis 6: There is no statistically significant difference between the scores of males and females on the MER.

Hypothesis 7: There is no statistically significant difference between the scores of males and females on the OCLI.

T-tests were computed to examine gender-related differences for scores on the MER and OCLI. As is illustrated by Table 8, there was little difference between the scores of men and women on either

instrument. Therefore, the statistics fail to reject hypotheses 6 and 7.

Table 8 Gender-Related Differences for Scores on the MER and OCLI

| Instrument | Gender | n | $\bar{x}$ | T-value |
|---|---|---|---|---|
| MER | Females | 49 | 2.97 | .19 |
| | Males | 49 | 2.94 | |
| OCLI | Females | 5Ø | 121 | -.16 |
| | Males | 5Ø | 122 | |

Relationships Between the MER, OCLI, and Class Rank

Hypotheses eight and nine examine relationships between the instruments and class rank. These hypotheses are presented in Chapter 3 as follows:

Hypothesis 8: There is no statistically significant relationship between grade level attainment and scores on the MER.

Hypothesis 9: There is no statistically significant relationship between grade level attainment and scores on the OCLI.

A Spearman rank order correlation was calculated to obtain the nature of the relationship between scores on the MER and Class Rank and between scores on the OCLI and Class Rank. Tables 9, 1Ø, and 11 illustrate these relationships.

Class rank correlated significantly with both instruments. The correlation for the MER with class

Table 9 Relationship between Class Rank and Scores on the MER and OCLI

| | OCLI | MER |
|---|---|---|
| Class Rank | .26 ** | .57 * |

* (p< .ØØ1)
** (P< .Ø1)

Table 1Ø Differences between Class Rank and the MER

| Class Rank | n | $\bar{x}$ | sd |
|---|---|---|---|
| Freshmen | 22 | 2.57 | .6Ø |
| Sophomore | 15 | 2.75 | .58 |
| Junior | 15 | 2.52 | .36 |
| Senior | 15 | 3.Ø7 | .46 |
| Post-Baccalaureate | 31 | 3.48 | .49 |
| Total | 98 | 2.95 | .65 |

Table 11 Differences between Class Rank and the OCLI

| Class Rank | n | $\bar{x}$ | sd |
|---|---|---|---|
| Freshmen | 22 | 116 | 17.62 |
| Sophomore | 15 | 116 | 13.1Ø |
| Junior | 16 | 119 | 19.88 |
| Senior | 15 | 112 | 14.Ø6 |
| Post Baccalaureate | 32 | 126 | 18.87 |
| Total | 1ØØ | 121 | 17.52 |

rank was quite strong, ($r = .57$; $p < .01$) with a variance of .32. The correlation of the OCLI with class rank was not quite as strong, ($r = .26$; $p < .001$) with a variance of .09. It can be concluded from these results that, to some degree, as individuals become more educated they become more self-directed and they obtain a higher level of intellectual development. Therefore, hypotheses eight and nine are rejected at the .01 level of significance.

Interaction of Age and Class on the MER and OCLI

A two-way analysis of variance (ANOVA) was computed to examine the interaction of age and class and how that interaction was reflected for both the MER and the OCLI. Table 12 reflects the results of these ANOVAs. There does not appear to be a statistically significant interaction of age and class on either instrument. This is surprising, given the results of the Pearson correlation which showed a positive relationship between age and class on both instruments, and given the results of the Spearman rank order correlation which indicated a positive correlation between class rank and both instruments.

Table 12 ANOVA Results for Interaction of Age and Class on the MER and OCLI

| Instrument | Interaction | ss | df | f | p |
|---|---|---|---|---|---|
| MER | Age / Class | 4546.657 | 2 | .8Ø6 | .45 |
| OCLI | Age / Class | 876.4Ø4 | 2 | 1.463 | .24 |

## Summary

From the results of this study, we can conclude several things about the relationship between self-directed learning and intellectual development. First, there is a positive relationship between the two factors. The relationship found in this study is not terribly strong, but it is statistically significant. Second, age correlates positively with both instruments. The relationship between age and intellectual development is quite a bit stronger than the relationship between age and self-directed learning. Third, there are no significant differences between males and females on either instrument. Forth, class-rank correlates positively with both instruments. Again, there is a stronger correlation with intellectual development and educational attainment than with self-directed learning and educational attainment. Chapter 5 will present a discussion of the implications and limitations of these findings.

# CHAPTER 5

## DISCUSSION OF THE RESULTS

The results presented in Chapter 4 provide solid evidence regarding the relationship between intellectual development and self-directed learning. While the data indicated that a statistically significant, positive correlation exists between the two factors, the magnitude of that relationship is tenuous. This chapter will discuss these results and their implications to practice. In addition, it will examine how the results of this study impact the current literature on this subject. Finally, limitations of this study and suggestions for future research studies will be presented.

### Results Related to the MER

This study examined age, gender, and class in relation to scores on the MER. As was reported in Chapter 4, a statistically significant relationship does exist between chronological age and class rank and scores on the MER. It is difficult to speculate if older individuals have higher scores because of life experiences or because of educational attainment

because, in general, the older individuals of this study had attained more formal education. The results of the ANOVA would lead us to believe that age and class rank impact scores independently. There is little interaction between these two factors. If age can be isolated as a factor, this information could greatly assist adult educators in maximizing their effectiveness. For example, educators could make certain assumptions about their students based on age. Therefore, they could provide educational opportunities which offer an appropriate level of experiential dissonance. The appropriate level is dissonance which addresses the student's developmental reasoning structure. Presumably teaching at this level will be most effective, because it will offer enough challenges to keep the student engaged in the learning process, but will not be too challenging. Too much challenge is not productive to the learning process, because the student feels overwhelmed by the situation; and, therefore, is not engaged in the learning process. Too little challenge can bore a student and, therefore, he/she may not choose to engage him/herself in the learning process.

Additionally, it might be speculated that the difference between the effectiveness of a pedagogical approach versus an andragogical approach is

developmental. Therefore a thorough understanding of a theory of intellectual development would be an important aspect of instructor effectiveness. However, until age can be discriminated as an independent factor in another study, it should be noted that these are preliminary findings, based on the results of this study. These findings would lead us to believe that older individuals possess a more advanced degree of intellectual reasoning. This finding is in contradiction to the findings of Cameron's (1984) study. Cameron suggested that there is not a significant, positive correlation between age and intellectual development. However, Cameron's study included a relatively small sample (n = 5Ø), and all of her respondents were above the age of twenty-two. It is apparent that additional research isolating the age and educational attainment variables is necessary to draw more conclusive data.

Gender does not appear to have a statistically significant impact on scores for the MER. From this it can be concluded that intellectual reasoning or development is not gender based. Recent work by Gilligan (1982) suggests that there may be some gender differences in the way individuals progress through the stages of cognitive development. This is not supported by the results of this study. However, this

study was not designed to address this specific question.

To conclude, the intellectual development of the sample group seems to be consistent with the results of other studies (Cameron, 1984; Porterfield, 1983). The majority of adults fall under the dualist and multiplist categories. Growth in development, according to the results of this study, is related to increasing age, and to a lesser degree, educational attainment. This would suggest that adult educators who familiarize themselves with the characteristics of dualists and multiplists, and with the kinds of dissonance causing experiences which challenge the individual in his/her development could greatly enhance their effectiveness. An example of this would be: given a class of individuals over the age of twenty-five, we could assume that they are multiplistic in their reasoning and are probably in transition towards a relativist view. Therefore, they still consider the teacher as somewhat of an authority. An experience which would cause appropriate dissonance would be to place individuals in small discussion groups. Where consensus decision making is a task, or where the opinions of peers are the primary focus. Dissonance is caused when the authority fails to provide "the

answer," but rather encourages the possibility of several "right answers."

## Results Related to the OCLI

Age, gender, and class were also studied in relation to scores on the OCLI. Age correlated with the OCLI in a statistically significant manner (however, the magnitude of this relationship is quite small). A stronger significant positive correlation does appear to exist between educational attainment and scores on the OCLI. Essentially, the results of this investigation indicate that age may or may not affect ability/preference for self-directed learning; and that educational attainment may be a significant factor. However, it is difficult to determine if individuals develop self-directedness as a result of formal education or if individuals who are more self-directed are more likely to pursue more formal education. Gender did not have a significant impact on the scores for the OCLI. Therefore, we can conclude that self-directed learning is probably not a gender-specific ability/preference, at least in terms of the present sample.

In a normal distribution of scores the mean for the OCLI would be 72. The mean for this sample was 121. According to this instrument, individuals in this

sample are very self-directed in their learning. This finding is consistent with the types of information gained through the content of the short answers written on the MER. Many individuals in this study indicated in the short answers that they prefer learning situations which are not teacher-centered. Many enjoyed experiential learning situations and the opportunity to learn from peers. Although there is no way of quantifying the content of the short answers, the observation of this rater is that much of what was written qualitatively supports the results of the OCLI for this sample.

## Correlation Between Intellectual Development and Self-Directed Learning

The results of this study indicate that intellectual development is related significantly to both chronological age and educational attainment. Age and educational attainment, however, appear to be less significant factors in determining whether or not individuals are self-directed in their learning. By this we can conclude that age and educational attainment are factors which relate to the development of intellectual reasoning. If self-directed learning has developmental factors then age and educational attainment may only slightly impact that development.

The relationship between scores on the OCLI and on the MER did correlate; however, the magnitude of the correlation is not strong enough to make many assumptions about the relationship between intellectual development and self-directed learning. An intervening factor, may be that because the OCLI was designed to examine the personality aspects of self-directed learning it may not be an accurate reflection of the developmental factors associated with self-directed learning.

The findings of this study appear to dispute the findings of Leeb's (1983) study in which she found no statistically significant relationship between the two factors. It should be noted that Leeb had a fairly small sample size (n = 34) and that 29 of these had at least four years of college experience. Therefore, her sample did not span as large a range as does this study. This small, homogeneous sample could account for her results. The results of the present study do, however, tentatively support the theoretical speculations of Kasworm (1983) and Cameron (1984). More research into the relationship between intellectual development and self-directed learning is necessary in order to be more conclusive about the nature of the relationship.

## Significance and Limitations of Applying Results to Practice

The significance of the results of this research study is that it indicates possible applications for the practices of both adult education and higher education. First, age and educational attainment appear to be factors for intellectual development; therefore, an understanding of intellectual development can significantly enhance teacher effectiveness. Second, because age and educational attainment appear to be only minimal factors for determining self-directedness, adult educators need to be careful of making assumptions about the self-directedness of the adult learner. This may also mean that andragogy, which is generally considered to be a more appropriate instructional method for adults is not necessarily an age-related method, a point Knowles and others continue to emphasize (Knowles and Associates, 1984).

Aside from the implications for adult education, there are several implications for student personnel work in higher education. As was noted in Chapter 1, student services on many campuses are already trying to accommodate the older student population. One of the major implications of this study regards the very nature of student services.

In the recent past, colleges have denounced the "in loco parentis" philosophy of the previous 60 years. However, there is still a tendency, for student service departments and organizations to be very nurturing and parental. One of the challenges of the eighties and nineties will be to encourage and to allow students to take more responsibility for themselves. Thus far we have really only denounced the disciplinary aspects of "in loco parentis." Is it necessary or even fair for administrators to continue to embrace the nurturing aspect of "in loco parentis?" Challenging students to assume more responsibility makes sense developmentally, especially as student bodies are increasing in age. This is not to imply, however, that administrators should relinquish all responsibility to students. Most services offered at educational institutions serve a valuable function. However, perhaps it is time to stop hand-holding and provide more challenges along with the support. A knowledge of intellectual development and self-directed learning on the part of student personnel administrators could provide them with a theory base from which they could practice. Perhaps this would bring a congruence to student personnel administration and could bridge the incongruencies caused by the hasty retreat from the "in loco parentis" philosopohy.

Results of this study indicate that there exists a positive correlation between educational attainment and self-directed learning, and that a positive relationship exists between age and intellectual development and between educational attainment and intellectual development. Therefore, as the student body increases in age and in educational attainment their dependence on authorities diminishes. Implications of this can be seen implemented in many Residence Life programs which focus on a developmental philosophy. Other areas which could implement this type of educational/developmental approach include (but are not limited to): fraternal organizations, academic support services (i.e., tutoring services, remedial courses, return to learn programs for the non-traditional student), and student activities.

A major limitation of this study is that the sample was made up of mostly white, middle class individuals who, at the time of completing the instruments, were attending at least one class at Montana State University. Therefore, the results of this study could be generalized to only those populations with similiar demographic make-up. And, it is possible that the variable, educational attainment, may intervene with the results of this study. It is difficult to determine the effect

educational attainment has on intellectual development and self-directed learning without first isolating it as a factor.

## Suggestions for Future Research

Future research regarding self-directed learning and intellectual development as related factors could concen- trate on areas not adequately addressed by this study. First, as was discussed in the previous section, it would be important to isolate educational attainment as a factor by including individuals who have never pursued higher education in a formal setting. Second, a population with more diverse demographics could provide data which would generalize better to the population of the United States. Third, a different instrument to assess self-directedness (one that was not based on personality contructs) could provide data more supportive of the relationship between self-directed learning and intellectual development.

Further research should be conducted to examine the effectiveness of different instructional methods with various age groups. This would add quantitative evidence to the theories surrounding the andragogical and pedagogical approaches to education as well as to

theories surrounding a developmental approach to education.

## Summary

Are intellectual development and self-directed learning related factors? The results of this study indicate that they are related, but that the relationship calculated was not substantial enough to be able to predict one factor from the other. As a theoretician, I still feel compelled to believe that the relationship is stronger than indicated by the numerical representation of this study. Results of the OCLI seemed to indicate that the sample was quite self-directed. Statements written on the MER often reflected a self-directed orientation to learning, and these statements were often representative of a higher level of intellectual reasoning. Therefore, while the initial results of this study seem to discourage the significance of the existing relationship, it is this researcher's opinion that additional research may further elucidate a developmental link between self-directed learning and intellectual development. If the link is not related to personality or age or educational attainment, then perhaps it is related to some other factor not examined or considered by this research.

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# APPENDICES

# APPENDIX A

## SAMPLE RESEARCH PACKET

February 1, 1987

Dear Participant:

Thank-you for verbally agreeing to participate in this research project. As I indicated in our phone conversation, I am a graduate student in the Adult and Higher Education program.

This research study is designed to look at learning and how a person's reasoning/perspective affect learning. It is hoped that the results of this study will help educators to recognize the different needs of different learners. We all know, intuitively, that people learn in different ways. This research may help define what these "different ways" are.

This research will conclude in my Master's thesis. After the results of this study are calculated and examined, I will present a workshop for participants to explain these results and their significance.

Please read the attached instructions before beginning, and thanks again for your participation.

Sincerely,

DeAnna M. Shaw

Instructions

1. Please complete the two instruments enclosed: The Oddi Continuing Learning Inventory and the Measure of Epistemological Reflection.

2. It doesn't matter which order you complete the instruments, but be sure to answer every question on both instruments.

3. Please return the completed instruments along with the Consent Form and the Demographics Sheet in the enclosed envelope. Envelopes may be returned through campus mail.

4. Please feel free to contact me at any point during the research project. I can be reached at the following numbers:

   DeAnna Shaw
   994-3131 (office)
   994-2Ø6Ø (home)

5. If you wish, you may also contact my major advisor:

   Dr. Ralph Brockett
   994-5793

Consent Form

Project: A study designed to look at learning and of the affect of a person's reasoning/perspective on learning.

Primary Researcher: DeAnna M. Shaw
Master's degree candidate
Adult and Higher Education

Faculty Advisor: Dr. Ralph Brockett
Educational Services

Please read the following statements regarding this study.

I. Participants in this study have chosen to participate they may withdrawl from the study at any time.

II. Completed instruments and results will be kept strictly confidential. Only the primary researcher (named above) will have access to this information. Participants will have access to their own results.

III. Participants will be given an opportunity to attend a workshop at which time a more comprehensive explanation of the research project will be given.

IV. Participants may contact the primary researcher at any time during the project for any reason.

I have read the above statements and find these conditions acceptable. I give my consent for the primary researcher to use my test results as part of the data used to draw conclusions for this research project. I understand that my identity will be kept confidential.

_____ _____

Signature of Participant Date

The instruments will not be evaluated without this consent form.

Demographics Sheet

For office use:

Name:_____ Code:_____

Birthdate:_____ Date received:

College Major:_____ _____

Class Rank by credits (check one)

_____ freshman (Ø-44)

_____ sophomore (45-89)

_____ junior (9Ø-134)

_____ senior (135- )

_____ post baccalaureate
second bachelor's
nondegree
graduate degree

Did you attend high school in Montana? yes no

Did your father graduate from college? yes no

Did your mother graduate from college? yes no

Parents' annual income (estimate)

_____ Ø - 1Ø,ØØØ

_____ 1Ø,ØØØ - 19,ØØØ

_____ 2Ø,ØØØ - 29,ØØØ

_____ 3Ø,ØØØ - 39,ØØØ

_____ 4Ø,ØØØ - 49,ØØØ

_____ 5Ø,ØØØ - and higher

Race: _____ Caucasian _____Black _____Native Amer.

_____Oriental _____Hispanic _____Other _____

# MEASURE OF EPISTEMOLOGICAL REFLECTION

INSTRUCTIONS: The questionnaire that follows has to do with your perspective on a number of concerns related to college students. Each of the questions on the following pages asks for your opinion or choice on a given subject, and the REASONS why you have that particular perspective or opinion. We are interested in understanding your perspective as fully as possible. Please give us as much detail as you can to describe howyou feel about each question. Feel free to use the backs of pages if you need more space. Thank you.

NAME_____

AGE_____ CLASS RANK____

SEX (circle) MALE FEMALE

COLLEGE MAJOR_____

FATHER'S JOB_____

MOTHER'S JOB_____

DATE_____

© 1982 Taylor-Porterfield

Code # _____
(for office use only)

THINK ABOUT THE LAST TIME YOU HAD TO MAKE A MAJOR AND DIFFICULT DECISION IN WHICH YOU HAD A NUMBER OF ALTERNATIVES (E.G., WHICH COLLEGE TO ATTEND, COLLEGE MAJOR, CAREER CHOICE, ETC.). WHAT WAS THE NATURE OF THE DECISION?

WHAT ALTERNATIVES WERE AVAILABLE TO YOU?

HOW DID YOU FEEL ABOUT THESE ALTERNATIVES?

HOW DID YOU GO ABOUT CHOOSING FROM THE ALTERNATIVES?

WHAT THINGS WERE THE MOST IMPORTANT CONSIDERATIONS IN YOUR CHOICE? PLEASE GIVE DETAILS.

DO YOU LEARN BEST IN CLASSES WHICH FOCUS ON FACTUAL INFORMATION OR CLASSES WHICH FOCUS ON IDEAS AND CONCEPTS?

WHY DO YOU LEARN BEST IN THE TYPE OF CLASS YOU CHOSE ABOVE?

WHAT DO YOU SEE AS THE ADVANTAGES OF THE CHOICE YOU MADE ABOVE?

WHAT DO YOU SEE AS THE DISADVANTAGES OF THE CHOICE YOU MADE ABOVE?

IF YOU COULD GIVE ADVICE TO ANYONE ON HOW BEST TO SUCCEED IN COLLEGE COURSEWORK, WHAT KIND OF ADVICE WOULD YOU GIVE THEM? TALK ABOUT WHAT <u>YOU</u> BELIEVE IS THE KEY TO DOING WELL IN COLLEGE COURSES.

DURING THE COURSE OF YOUR STUDIES, YOU HAVE PROBABLY HAD INSTRUCTORS WITH DIFFERENT TEACHING METHODS. AS YOU THINK BACK TO INSTRUCTORS YOU HAVE HAD, DESCRIBE THE METHOD OF INSTRUCTION WHICH HAD THE MOST BENEFICIAL EFFECT ON STUDENTS.

WHAT MADE THAT TEACHING METHOD BENEFICIAL? PLEASE BE SPECIFIC AND USE EXAMPLES.

WERE THERE ASPECTS OF THAT TEACHING METHOD WHICH WERE NOT BENEFICIAL? IF SO, PLEASE TALK ABOUT SOME OF THE ASPECTS AND WHY THEY WERE NOT BENEFICIAL.

WHAT ARE THE MOST IMPORTANT THINGS YOU LEARNED FROM THE INSTRUCTOR'S METHOD OF TEACHING?

PLEASE DESCRIBE THE TYPE OF RELATIONSHIP WITH AN INSTRUCTOR THAT WOULD HELP YOU TO LEARN BEST AND WHY.

DO YOU PREFER CLASSES IN WHICH THE STUDENTS DO A LOT OF TALKING, OR WHERE STUDENTS DON'T TALK VERY MUCH?

WHY DO YOU PREFER THE DEGREE OF STUDENT INVOLVEMENT/PARTICIPATION THAT YOU CHOSE ABOVE?

WHAT DO YOU SEE AS THE ADVANTAGES OF YOUR PREFERENCE ABOVE?

WHAT DO YOU SEE AS THE DISADVANTAGES OF YOUR PREFERENCE?

WHAT TYPE OF INTERACTIONS WOULD YOU LIKE TO SEE AMONG MEMBERS OF CLASS IN ORDER TO ENHANCE YOUR OWN LEARNING?

SOME PEOPLE THINK THAT HARD WORK AND EFFORT WILL RESULT IN HIGH GRADES IN SCHOOL. OTHERS THINK THAT HARD WORK AND EFFORT ARE NOT A BASIS FOR HIGH GRADES. WHICH OF THESE STATEMENTS IS MOST LIKE YOUR OWN OPINION?

IDEALLY, WHAT DO YOU THINK SHOULD BE USED AS A BASIS FOR EVALUATING YOUR WORK IN COLLEGE COURSES, AND WHO SHOULD BE INVOLVED IN THE EVALUATION?

PLEASE EXPLAIN WHY YOU THINK THE RESPONSE YOU SUGGESTED ABOVE IS THE BEST WAY FOR EVALUATING STUDENTS' WORK IN COLLEGE COURSES.

SOMETIMES DIFFERENT INSTRUCTORS GIVE DIFFERENT EXPLANATIONS FOR HISTORICAL EVENTS OR SCIENTIFIC PHENOMENA. WHEN TWO INSTRUCTORS EXPLAIN THE SAME THING DIFFERENTLY, CAN ONE BE MORE CORRECT THAN THE OTHER?

WHEN TWO EXPLANATIONS ARE GIVEN FOR THE SAME SITUATION, HOW WOULD YOU GO ABOUT DECIDING WHICH EXPLANATION TO BELIEVE? PLEASE GIVE DETAILS AND EXAMPLES.

CAN ONE EVER BE SURE OF WHICH EXPLANATION TO BELIEVE? IF SO, HOW?

IF ONE CAN'T BE SURE OF WHICH EXPLANATION TO BELIEVE, WHY NOT?

# THE OCLI

PURPOSE: This set of statements is designed to collect information on how you approach learning. There are no "right" or "wrong" answers to these statements. Rather, you should indicate on the scale provided how much you agree or disagree that each item describes your behavior.

HOW TO RESPOND: Read each item and choose the response number that best indicates how much you agree or disagree that the item describes your behavior. Do not think too long about the statement. Your first reaction will usually be your most accurate response. If you have difficulty responding, select the one response that is least objectionable and move on.

Please select only ONE response to every statement.

Please respond to EVERY statement.

HOW TO MARK RESPONSES: To mark your response, find the number of the response that best describes how much you agree that the item describes you.

7 - STRONGLY AGREE. You would agree most of the time.

6 - MODERATELY AGREE. You would frequently agree.

5 - SLIGHTLY AGREE. You would occasionally agree.

4 - UNDECIDED. You can't really agree or disagree with the item.

3 - SLIGHTLY DISAGREE. You would seldom agree.

2 - MODERATELY DISAGREE. You would infrequently agree.

1 - STRONGLY DISAGREE. You would almost never agree.

EXAMPLE: In the sample statement below, if you strongly agree with the item, you would circle the "7."

| | Answer column |
|---|---|
| 118. I am too old to learn anything new. | 1 2 3 4 5 6 (7) |

Please turn the page and begin.

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*** FOR THE PURPOSES OF THIS RESEARCH, A ROYALTY-FREE COPYRIGHT LICENSE FOR THE USE OF THE OCLI WAS GRANTED BY LORYS F. ODDI.

| | DISAGREE | | | | AGREE | | |
|---|---|---|---|---|---|---|---|
| | Strongly | Moderately | Slightly | UNDECIDED | Slightly | Moderately | Strongly |
| 1. I successfully complete tasks I undertake. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. My work is beneficial to society. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. I seek involvement with others in school or work projects. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. I make an effort to learn the meaning of new words I encounter. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. My values and beliefs help me to meet daily challenges. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. I seek the views of others when I am curious about something. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. I have a hobby (such as writing, painting, or making things) which provides me with a means of self-expression. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. I am able to resist the efforts of others to pressure me into doing something I don't want to do. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. I regularly read professional journals. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. I select serious literature (such as history, biographies, or the classics) for my reading pleasure. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. I volunteer for new assignments. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. I'm not comfortable with my performance on an assignment until my supervisor, teacher, or colleague says it's acceptable. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. I have been an eager reader since childhood. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | DISAGREE | | | | AGREE | | |
|---|---|---|---|---|---|---|---|
| | Strongly | Moderately | Slightly | UNDECIDED | Slightly | Moderately | Strongly |
| 14. After I read a book or see a play or a film, I talk to others to see what they think about it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15. I resist judging others (such as new managers or teachers) until I've had an opportunity to associate with them. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 16. When I do a job well, it's because I have been prepared and have put in personal effort. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 17. I find it difficult to judge if I've performed well or poorly on a task such as giving a speech, writing a paper, or answering a test question. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 18. Once I start to work on a task, I keep working until it's done to my satisfaction. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 19. I read an average of one or more national news magazines each week. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 20. When in school, I tend to have difficulty in estimating whether or not the teacher is going to like my work. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 21. I find it useful to think about people (or refer to them) according to categories (such as by education, occupation, race, or ethnic background). | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 22. I work more effectively if I have freedom to regulate myself. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 23. I make an effort to meet new people. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 24. Being afraid to take a chance has prevented me from doing something I have wanted to do at some time in my life. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

# APPENDIX B

## CERTIFICATION TO RATE MER

MIAMI UNIVERSITY

Department of Educational Leadership
School of Education and Allied Professions
350 McGuffey Hall
Oxford, Ohio 45056
513 529-6825

February 17, 1987

DeAnna Shaw
Hapner Hall
Montana State University
Bozeman, MT 59717

Dear DeAnna,

Congratulations! Your ratings for the certification protocols of the Measure of Epistemological Reflection have been compared to the expert ratings yielding a correlation of .78. Thus you are now certified to rate data from the instrument.

As you know from our previous communications, your certification increases the opportunity for you to use the MER is research studies since you can rate the data. Use of the instrument still requires permission of the authors but we are supportive of its use as long as we are certain the instrument will perform the functions you require in your study. We use the proposal investigators submit when they request to use the MER to ascertain the MER's appropriateness for the study. We hope you will put your rating skills to use in future studies!

I have had numerous requests from researchers who do not wish to learn the rating process for raters who might assist them. If you would consider this please let me know so that I can offer your name when these requests are received. The rater training agreement we signed indicated that certified raters would not use their rating skills in the sense of generating profits from rating. The reason we included that stipulation was to avoid limiting those who could use the MER due to high costs. This is particularly important in the case of graduate students who have limited funds to complete their research. However in some cases where grant money exists or when the rating task is extensive we would view is as appropriate to accept a fee for rating. If you agree to provide rating service for others, please be sure they have obtained permission to use the instrument.

Thank you for participating in the rater training program. Your participation has assisted us in determining the practicality of the MER and helped us refine the rater training materials. I know you have devoted considerable time and energy to this and want you to know that it is appreciated! Should you wish to have a copy of the latest version of the MER Rating Manual please drop me a note. I will have a revised version in the near future and would be glad to provide you one at copy cost (approximately $5.00).

I will look forward to continued contact with you!

Sincerely,

Marcia

Marcia B. Baxter Magolda, Ph.D.
Assistant Professor

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