

EFFECTS OF LEARNING STRATEGY

AWARENESS ON LEARNING,

LEARNERS, AND

INSTRUCTOR

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TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION.....	1
Introduction.....	1
Newman University.....	4
The Adult Learning Process.....	8
Adult Learning Strategies.....	13
The Problem.....	17
Purpose of the Study.....	22
Research Questions.....	23
Definition of Terms.....	25
II. REVIEW OF THE LITERATURE.....	28
Adult Education.....	28
Andragogy.....	28
Life-Long Learning.....	31
Self-Directed Learning.....	32
Reflection-In-Action.....	33
Real-Life Learning.....	35
Learning-How-To-Learn.....	36
Transformative Learning.....	38
Learning Strategies.....	41
Metacognition.....	43
Metamotivation.....	45
Memory.....	46
Critical Thinking.....	48
Resource Management.....	49
Case Study.....	52
Triangulation.....	57
III. METHODS AND PROCEDURES.....	60
Design.....	60
Sample.....	62
ATLAS.....	64
Procedures.....	68
IV. FINDINGS.....	73
Participant Profiles.....	73
Student Performance.....	77
ATLAS Group Follow-Up Interview Findings.....	81

Chapter	Page
Cross-Case Analysis.....	88
V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS.....	96
Summary of the Study.....	96
Summary of the Findings.....	99
Student Achievement.....	101
Student Population.....	103
ATLAS Group Instruction Perception.....	105
Cross-Case Comparison.....	107
Conclusion.....	110
Instrumented Learning.....	110
Student Academic Achievement.....	111
ATLAS as a Instrument.....	112
ATLAS Group Instructor Impact.....	114
Recommendations.....	117
Cross-Cross Analysis.....	119
Final Thought.....	119
REFERENCES.....	121

APPENDIXES	Page
APPENDIX A - INSTITUTIONAL REVIEW BOARD APPROVAL FORM.....	131
APPENDIX B - ATLAS GROUP CONSENT FORM.....	133
APPENDIX C - NON-ATLAS GROUP CONSENT FORM.....	136
APPENDIX D - NEWMAN UNIVERSITY ATLAS GROUP CONSENT FORM.....	138
APPENDIX E - NEWMAN UNIVERSITY NON-ATLAS GROUP CONSENT FORM.....	140
APPENDIX F - ATLAS INSTRUMENT.....	142

LIST OF TABLES

Table	Page
1. Demographics for Total Group.....	73
2. Age Distribution of Participants.....	74
3. Distribution of Observed and Expected ATLAS Responses.....	77
4. <u>T</u> -test of Pre-test and post-test Groups.....	79
5. ATLAS and Non-ATLAS Groups.....	81

CHAPTER 1

INTRODUCTION

Introduction

People learn something new everyday of their lives. They go about this learning in different ways and in many cases without ever identifying any particular strategy they utilize. The identification of these strategies can be an effective tool in increasing learning; particularly for adult learners.

Instrumented learning has been described as learning which is triggered by the use of an instrument. The Assessing The Learning Strategy of Adults (ATLAS) instrument is a measurement tool for learning strategy preferences. The use of this tool and the accompanying counseling regarding learning strategies utilize the instrumented learning philosophy.

Another study utilizing this same methodology was being conducted by W. Munday (2002) at Webster University-McConnell Air Force Base Campus in Wichita Kansas. Therefore, a cross-case analysis was conducted.

How the instructor impacts the adult learner after being exposed to instrumented learning was examined in this

study. The instructor was aware of the learning strategy preferences of his students.

How does one increase the quality of life? This is a question that has been asked by society for many decades. As Sir Francis Bacon stated in a 1605 quote, "Knowledge is power" (p. 192). As a person gains more knowledge they gain more control over their life which equates to an increase in quality of life. Which seems like a very simple equation, how does a person accomplish this task?

If individuals become acquainted with the way they learn then they can begin traveling the road of intellectual supremacy. This does not mean that a person becomes a dictator of a country or a dictator in the workplace or home. It means that people will have a broader base of knowledge with which to work with. Having this new knowledge will make the person more competitive in the workforce and be more effective and efficient on the job. Promotions can come faster, and one's salary will increase. With the increased salary comes a higher level of quality of life for the employee and one's family. Ultimately, people will reach a higher level on the "Hierarchy of Needs" described by Abraham Maslow. Maslow defines the needs as Physiological, Security, Belongingness, Esteem, and Self-Actualization (Moorhead &

Griffin, 1998, p. 124). Increased knowledge fulfills the self-esteem and self-actualization need. The increase of wages fulfills the physiological and security needs.

In today's society, single family environments are very prominent. This environment generates constant pressure on the single parent to provide for their children. It is estimated by the year 2000; women would make up 47% of the labor force in the United States (French, 1994, p. 220). Researchers speculate that between 1994 and 2000 approximately two-thirds of all single mothers in the labor force would be separated, divorced, widowed, or never married. Almost 45% of mothers will have children less than three year's of age (Dessler, 1994, p. 12). With more formal education the single parent has the potential to garner a higher salaried position with a caring organization. The good jobs are requiring at least one year of college (p. 12). The good job, which has desirable benefits, competitive salary, comfortable working conditions, and professional environments, can turn into a career.

Organizations benefit from higher educated employees in many ways. As employees gain more knowledge about the job, they become more efficient and effective. This equates to more production, happier customers, and more

profits. Organizations have recognized this, so many have adopted educational subsidy programs for employees. A research study by Hewitt Associates found that almost all of the 619 companies surveyed pay for college courses that directly related to an employee's job (Dessler, 1994, p. 510). The survey indicated that 79% of companies reimburse job-related courses that pertain to company business and 66% of those courses that are part of a formal degree program.

Organizations understand that they need intelligent and innovative leaders to lead the more educated subordinate populations. The new breed of leaders will need continuing formal education to achieve their mission in the corporate world. "Continuing management education and training are an integral step in building managerial skills, because new theories and techniques are constantly being promoted to improve organizational effectiveness" (George, Hill, & Jones, 2000, p. 22). The final result is the employee's quality of life is increased and the organization will satisfy customer needs in an optimum fashion.

Newman University

One university that is focused on lifelong learning is Newman University. This philosophy is extended throughout

all of the university's programs, including the 8-week session course format accelerated undergraduate business degree program. Newman University is an independent, coeducational Catholic university, which incorporated career-oriented disciplines within its liberal arts curriculum and focuses on educating for life (Newman University catalog, 2000-2001, p. 4). Newman University is located in Wichita, Kansas, on a 51-acre campus in the southwest part of the city.

Newman University has a rich background. It was erected in 1923 as Sacred Heart Hall. It was operated by the Sisters Adorers of Blood of Christ of Wichita, Kansas, whose congregation was founded in Italy in 1834 by Maria DeMattias, who was an educator. The order came to America in 1870, and the first group of sisters to arrive in Wichita established a school for girls in 1902 (Newman University Catalog, 2000-2001, p. 5).

In 1933 Sacred Heart became a junior college with full year and summer courses available for Catholic and lay women. Later, in 1952 the college became a four-year liberal arts institution to better serve the educational needs of its students. In 1958, evening programming began and was opened to men. This was expanded in 1963 to permit granting degrees to men. Later in 1965, the college became

coeducational with residence facilities for both men and women. In the academic year 1992-1993, master's degrees were offered (Newman University Catalog, 2000-2001, p. 5).

Sacred Heart College changed to Kansas Newman College in 1973. Then in July 1998 the name was changed to Newman University. The university was named after Cardinal John Henry Newman (1801-1890). Cardinal Newman was an intellectual leader in the Catholic Church and Catholic philosophy of education (Newman University Catalog, 2000-2001, p. 5).

Newman University's mission is to focus educating for life. Newman University provides for students the knowledge and skill to succeed personally and professionally; it nurtures an ethical and moral standard rooted in Judeo-Christian principles by which students can set goals, make decisions, and establish relationships (Newman University Catalog, 2000-2001, p. 4). Newman University challenges students to become liberally educated persons who will:

- Respect the dignity of every person
- Desire a higher education imbued with the values of Catholic tradition and the mission of the Adorers of the Blood of Christ, namely, that of developing and empowering people
- Develop their whole person by following Cardinal Newman who teaches that the development of the intellect and spirit along with the practical arts

is intrinsic to the fulfillment of the human potential

- Become thinking persons for tomorrow's world by seeking:
 1. Degree programs in the liberal arts and selected professional career areas
 2. Courses and programs for career enhancement and professional development
 3. Educational experiences for personal enrichment
- Consider with special regard the persons who are disadvantaged
- Attain an interdependent global perspective formed by a critical consciousness that hungers and thirsts for justice and peace. (p. 4)

Newman University sees the career-oriented disciplines as well as liberal arts as part of the educational process and therefore prepares students to assume specific responsibilities as informed, mature citizen's (p. 5).

Newman University baccalaureate graduates are required to possess a certain level of intellects (Newman University Catalog, 2000-2001, p. 28). Graduates will be familiar with using problem solving skills effectively, demonstrate the ability to analyze and synthesize information and apply it to different situations, make informed ethical judgments philosophical theories of paradigms applied to problem solving, write and speak effectively, and possess an in-depth knowledge in a discipline (p. 28).

Newman offers a Bachelor of Science degree in Business Management (Newman University Catalog, 2000-2001, p. 41 & p. 51). This degree like the university is accredited by

the Kansas State Department of Education and by North Central Association of Colleges and Schools (p. 6). A business administration student may major in management, management information systems, or marketing (p. 51).

Newman has become a competitor in the formal education arena with the 8-week session course format in the accelerated business administration degree program. This program is attractive to the adult student because the course work is only eight weeks long versus the traditional 16-week semesters. This draws a higher caliber adult student and corporations like the short course time. Companies similar to Boeing Aircraft like the accelerated program, so they are subsidizing adult students to attend the formal education leading up to a Bachelor of Science degree at Newman University.

The Adult Learning Process

Abraham Maslow saw the goal of adult learning to be self-actualization with "the full use of talents, capacities, and potentialities." (Maslow, 1979, p. 150). As Maslow indicates, adults feel good when they have learned something. When adults expand their knowledge of a topic it generates an internal feeling of success then adults seek out new learning experiences. Knowles made an observation that adults are motivated to learn by internal

factors rather than external ones (Knowles & Associates, 1984, pp. 9-12). It appears that Knowles and Maslow share similar viewpoints on adult learning motivation. "All learning begins with experience" (Jarvis, 1987a, p. 63). Knowles revealed an assumption that "adults are motivated to learn as they experience needs and interests that learning will satisfy" (Knowles, 1988, p. 31). One can assume that a need must be present for an adult to pursue an educational experience.

The need for learning brings forth the assumption that individuals can become independent learners. Sidney Jourard developed the concept of independent learning and states "independent learning is problematic, is most peculiar, because man always and only learns by himself" (Holt, Knowles, & Swanson, 1998, p. 15). Learning is not a task or problem; it is a way to be in the world. People learn as they pursue goals and projects that have meaning for them. People are always learning something. Perhaps the key to the problem of independent learning lies in the phrase "the learner has the need and the capacity to assume responsibility for his own continuing learning" (Jourard, 1972, p. 66).

Some define "learning" as the process of gaining knowledge and/or expertise (Holt, Knowles, & Swanson, 1998,

p. 17). As one lives longer, they gain more knowledge. Also, many believe that learning is a process that continues for a lifetime. Lifelong learning is "the process of learning that continues throughout one's lifetime based on individual needs, circumstances, interest, and learning skills" (Merriam & Cunningham, 1989, p. 377). Education is considered by advocates of lifelong learning as a process that, in some form, continues throughout life (Darkenwald & Merriam, 1982). Many adult educators would agree with this belief. For example, Knowles' assumption of andragogy is that adults "accumulate an increasing reservoir of experience that becomes an increasingly rich resource for learning" (Knowles, 1980, p. 44). John Dewey (1938) postulated that "all genuine education comes about through experience" (p. 13). "As adults live longer they accumulate both a greater volume and range of experiences" (Knowles, 1980, p. 44). Both Dewey and Knowles agree that experience is a form of adult education.

It is not just in recent years that researchers in the adult education field have looked at the learning process. In 1926 Eduard C. Lindeman wrote, The Meaning of Adult Education. This text explored the adult learning process.

Lindeman made some very unique observations. He made very insightful statements such as:

the approach to adult education will be via the route of situation, not subjects. Our academic system has grown in reverse order: subjects and teachers constitute the starting point, students are secondary. In conventional education the student is required to adjust himself to an established curriculum; in adult education the curriculum is built around the student's needs and interests. Every adult person finds himself in specific situations with respect to his work, his recreation, his family life, his community life, etc., situations which call for adjustments. Adult education begins at this point. Subject matter is brought into the situation, is put to work, when needed. Texts and teachers play a new and secondary role in this type of education; they must give way to the primary importance of the learners. (Lindeman, 1926/1961, pp. 8-9)

Lindemans' observations stressed the importance of life experiences and that educators should become more learner centered. In today's educational environment, many teachers hand out a prescribed syllabus and stick to it. Many teachers do not leave room for students to share life experiences with their peers. Lindeman championed that the resource of highest values in adult education is the learner's experience. If education is life, then life is also education (Lindeman, 1926/1961, pp.9-10).

Lindeman identified five assumptions about adult learners (Holt, Knowles, & Swanson, 1998, p. 40):

1. Adults are motivated to learn as they experience needs and interests that learning will satisfy.

2. Adult's orientation to learning is life-centered.
3. Experience is the richest source for adult's learning.
4. Adults have a deep need to be self-directing.
5. Individual differences among people increase with age.

Lindeman's assumptions shed light on how adult educators can make the learning experience much better for the adult student. These assumptions have been carried on by adult educators and can be seen in the many self-directed academic programs offered by universities across the country.

The research is showing that adult learners vary in their approach to learning. "Because every group of people engaged in learning will exhibit a formidable diversity of abilities, experiences, personalities, and preferred learning styles, it follows that facilitators should be ready to try a range of different approaches" (Brookfield, 1989, p. 207).

Malcolm Knowles drew numerous implications for the design, implementation, and evaluation of learning activities with adults (Merriam & Caffarella, 1999, p. 272). He proposed "a new label and new technology" of adult learning to distinguish it from preadult schooling (Knowles, 1986, p. 351). The European concept of andragogy, meaning "the art and science of helping adults

learn," was contrasted with pedagogy, "the art and science of helping children learn" (Knowles, 1980, p. 43). Knowles had five adult learning assumptions based on his concept of andragogy (Merriam & Caffarella, 1999, p. 272):

1. As a person matures, his or her self-concept moves from that of a dependent personality toward one of a self-directing human being.
2. An adult accumulates a growing reservoir of experience, which is a rich resource for learning.
3. The readiness of an adult to learn is closely related to the developmental tasks of his or her social role.
4. There is a change in time perspective as people mature from future application of knowledge to immediacy of application. Thus an adult is more problem centered than subject centered in learning.
5. Adults are motivated to learn by internal factors rather than external ones (Knowles, 1980, pp. 44-45; Knowles & Associates, 1984, pp. 9-12).

Adult Learning Strategies

Cyril O. Houle conducted research with 22 participants to discover why adults engage in continuing education and how they learn (Holt, Knowles, & Swanson, 1998, p. 54). Houle discovered three categories. These three categories were not pure types; the best way to represent them pictorially would be by three circles, which overlap at their edges (Houle, 1961, p. 16). Houle's three categories were:

1. The goal-oriented learner - This is a person who uses education for accomplishing fairly clear-cut objectives. These individuals usually

- do not make any real start on their continuing education until their middle twenties and afterwards sometimes much later (p. 181).
2. The activity-oriented learner - This person takes part because they find in the circumstances of the learning a meaning which has no necessary connection and often no connection at all with the content or the announced purpose of the activity. These individuals also begin their sustained participation in adult education at the point when their problems or their needs become sufficiently pressing (pp. 23-24).
 3. The learning-oriented learner - This person seeks knowledge for its own sake. Unlike the other types, most learning-oriented adults have been engrossed in learning as long as they can remember. What they do has a continuity, a flow and a spread, which establish the basic nature of their participation in continuing education. For the most part, they are avid readers and have been since childhood; they join groups and classes and organizations for educational reasons; they select the serious programs on television and radio; when they travel. They make a production out of it, being sure to prepare adequately to appreciate what they see; and they choose jobs and make other decisions in life in terms of the potential for growth, which they offer (pp. 24-25).

Current research concerned with teaching and learning has focused on the active role of the learner in student achievement and includes those techniques, tactics, and methods which enhance effective learning (McKeachie, 1978, p. 23). The learning strategies that students use can have an effect upon their academic achievement (Mayer, 1987). A learner's effective choice of learning strategies "usually results in greater learning" (McKeachie, 1978 p. 3). Adeptness and insight in the use of learning strategies

appears to be a significant part of one's ability to learn how to learn (Fellenz & Conti, 1993, p. 3). "The learner's ability to select the appropriate learning strategies for a specific task may then well prove a fundamental education tool to enhance mastery of material (p.3)."

Fellenz and Conti have focused on the role of learning strategies used in "real-life" learning situations by adults (Conti & Kolody, 1999a, p. 3). They have capualized these learning strategies into five areas: metacognition, metamotivation, memory, critical thinking, and resource management (p. 3). Metacognition is defined as the knowledge and control over one's thinking and learning (Brown, 1985). Metamotivation is the awareness of and control over factors that energize and direct one's learning (Fellenz & Conti, 1993, p. 12). Memory is "the capacity of humans to retain information, to recall it when needed and recognize its familiarity when they later see it or hear it again" (Wingfield & Byrnes, 1981, p. 4). Critical thinking is a reflective thinking process utilizing higher order thinking skills in order to improve learning (p. 30). Resource management is defined as the ability to identify appropriate sources of information and prioritize their use (p. 35).

Research using this conceptualization of learning strategies has resulted in profiles of three groups of learners (Conti & Kolody, 1999a, p. 9). These groups are Navigators, Problem Solvers, and Engagers (pp. 9-14). Navigators are focused learners who chart a course for learning and follow it (p. 9). Problem Solvers are critical thinkers who generate alternatives to create additional learning options; and they are open to conditional acceptance of learning outcomes while keeping an open mind to other learning possibilities (p. 12). Engagers are passionate learners who love to learn, learn with feeling, and learn best when they are actively engaged in a meaningful manner with the learning task. For teachers, these insights can be very beneficial in the selection of appropriate methods and techniques used to focus understanding, discussion, and reflective thought about the learner (p. 16).

Research has shown that instructors should adapt instruction to accommodate differences in individual abilities, styles, and preferences (Jonassen & Grabowski, 1993). If instructors adapt their instructional methods, then it is expected that learning outcomes will improve. Instructors are encouraged to either capitalize on learner

strengths or help learners develop a broader range of capabilities (Knowles, Holton, & Swanson, 1998, p. 154).

"Adult learners are different." They have different learning styles (Jonassen & Grabowski, 1993, p.52).

"Because every group of people engaged in learning will exhibit a formidable diversity of abilities, experiences, personalities, and preferred learning styles, it follows that facilitators should be ready to try a range of different approaches" (Brookfield, 1989, p. 207). To go further, learning opportunities may be enhanced by understanding the difference among adult learners (Brookfield, 1986, pp. 9-11; Galbraith, 1998, pp. 6-17). As Malcolm Knowles proposed, "teachers should be more student-centered and curriculum be more real-life based" (Knowles, 1970, p. 49).

The Problem

In today's society one needs to attain a high level of formal education to move up the economic ladder. Reality is that the gap between higher-skilled and less-skilled workers is increasing as opportunities increase for skilled workers and decrease for unskilled workers (Schwartz, 1995). This observation emphasizes the importance of workers attaining formal education. With education comes positive economic movement. Financial freedom is gained as

a person moves up the economic ladder. With this newfound power of knowledge (Bacon, 2000, p. 192), people become more valuable to the organization of which they are a part.

Not only does the absolute amount of knowledge continue to grow exponentially, but the structure of knowledge, technology, and work is becoming ever more complex and specialized. As a consequence, most people must continue to learn throughout their lives merely to keep up. (Darkenwald & Merriam, 1982, p. 4)

Corporations across America have come to recognize the importance of education. Therefore, many corporations are funding formal and higher education endeavors of their employees. If employees become more educated, then they can become more productive.

In corporate America, the internal and external environments are always changing. Employees that are of a higher level of formal education tend to accept change better. They understand the reason for the change. They are more flexible. This in the long run makes the organization more productive because it runs more effectively and efficiently.

Many adult learners, who recognize that to achieve positive movement within not only an organization but also the economic ladder, choose to indulge in formal education. This is especially so when an organization underwrites the expense of tuition and textbooks.

Higher educational institutions such as Newman University recognize that adult learners are searching for the positive educational experience. One of the adult learner's goals is to enjoy and attain the needed knowledge to progress through their chosen career. Newman University through the 8-week session accelerated undergraduate business administration degree program is offering the adult learner the vehicle to attain their goal. Adult students can move through up to date, progressive, and innovative, course work taught by practitioners in an expedient fashion. This accelerated format makes the adult student become knowledgeable about an educational topic quickly. This delivery format also makes the adult student more valuable to the organization in a more permanent and expeditious fashion.

The question arises in the adult studies arena of how the educational experience for the adult student can be much better. This is a question with which Newman University is also concerned. Not only do the adult students attain their academic goals but also the educational institution can benefit by having very happy and productive graduates. Understanding that the business environment is always changing, institutions like Newman University must

continually evaluate how they are addressing the adult learning experience of their students.

One important way to make the adult learning experience a positive one is for educational institutions to understand that adult learners use different learning strategies. Humans are all different. Instructors need to come to grips with the idea that their students are not all alike. Each one learns differently. Instructors can make a significant impact on their adult students either positive or negative.

Good teachers have a basic human respect for students and allow them to develop in the classroom. These teachers thoroughly enjoy teaching and radiate this excitement through their expressions and actions. Bad teachers, on the other hand, do not communicate this same degree of respect for their students. In not seeming to enjoy teaching, they repressed student questioning and probing. (Conti & Fellenz, 1988, p. 101)

The time has come for college instructors to make the adult learning environment and learning experience a positive one. Adhering to the learner-centered teaching philosophy can make for a positive experience for all involved. Instructors having "this knowledge can be an important element in addressing individual difference in the learning process" and aid in helping adults learn more effectively (Conti & Kolody, 1999, p. 89).

Armed with the knowledge of how adults learn in the 8-week session accelerated undergraduate business degree program can make it easier to market and make improvements in the program. Newman University can benefit immensely from educating instructors on adult learning strategies. Therefore, the need exists to identify the effects of learning strategy awareness on learning, learners and instructor.

Presently, the learning strategies of adult students enrolled in the 8-week session accelerated undergraduate business degree program at Newman University are not known. Although the three learning strategies of Navigators, Problem Solver, and Engagers are almost evenly distributed in the general population, current studies with learning strategies are showing that different types of organizations draw different types of learners (Turman, 2001, p. 20).

Two recent adult education studies revealed that the Engager is drawn towards adult basic education and the community college educational environment (James, 2000; Willard, 2000; Turman, 2001). The segmentation of adult learners pertaining to ATLAS is also illustrated in two other studies. The study of adults using eBay on the Internet showed that a large number of users fell into the

Problem Solver category (Conti & Ghost Bear, 2001; Turman, 2001). A study investigating adult learning strategies in police training revealed a large number of participants fell into the Problem Solver category (Birzer, 2000).

However, studies conducted in the setting of four-year colleges found a general distribution of the three groups (Armstrong, 2002; Penkins, 2002; Turman, 2001). Thus it is not known what the distribution of leaning strategies is at Newman University or how these learning strategies impact student learning or the instructor.

Purpose of the Study

The purpose of this study was to describe the effects of learning strategy awareness on learning, learners and instructor in the 8-week session accelerated undergraduate business administration degree program at Newman University. "Assessing The Learning Strategies of Adults" (ATLAS) was used to assess the learning strategy preferences of adult students one of two classes in the 8-week session accelerated undergraduate business administration degree program. ATLAS was chosen as the assessment instrument is because it is a quick and easy measurement tool to use (Conti & Kolody, 1999, p. 16).

Students in the ATLAS group were provided counseling related to their learning strategies. ATLAS group members

were tested on content related to their course of study, and these scores were compared to the scores of students in the Non-ATLAS group who did not receive learning strategy counseling. The ATLAS group instructor was allowed to observe the introduction of ATLAS to his class. A follow-up interview with him assisted in determining if knowing the learning strategies of his class influenced his style of instruction.

Research Questions

Adult education has evolved over the past two decades, from one of concerned with adult education programs to one with focus on the adult learner (Fellenz & Conti, 1989, p. 23). Kidd viewed this new emphasis on learning as the implication that adult education was finally moving from a field of practice toward a field of study (Kidd, 1973). The field of adult education has been a victim of criticism for not generating "systematic lines of inquiry with one study building on another" (Merriam, 1987, p. 188).

However, learning strategy research "is one line of adult learning inquiry in which one study has continued to lead to other studies" (James, 2000, p. 55). This study of the effects of learning strategy awareness on learning, learners and instructor in the 8-week session accelerated undergraduate business administration degree program at

Newman University is part of this line of inquiry, and in order to facilitate the cross-case comparison with a similar study by Munday (2002), both studies have used a similar design and a similar set of research questions concerning adult learning strategies. The specific research questions for this study are as follows:

1. What is the learning strategy preferences profile for adult under-graduate level students at Newman University?
2. What is the relationship of counseling for learning strategy preferences and academic achievement?
3. What are the perceptions of students concerning how counseling related to learning strategy preferences affected their learning?
4. What are the perceptions of the teacher related to providing counseling to students about learning strategy preferences?
5. How do the findings of this study compare to those of Munday (2002)?

Quantitative, qualitative, and demographic data were collected during this study. ATLAS was used to assess the individual learning strategies of the adult student in the Newman University 8-week session accelerated undergraduate business administration degree program. The learning strategy profiles of the subjects was composed based on a frequency distribution of the ATLAS scores. Also, chi-square was employed to compare the Newman University 8-week session accelerated undergraduate business administration degree program adult student to the norms of ATLAS. t-

tests were used to compare the scores of those receiving counseling on their learning strategy preferences and other students.

A focus group activity was conducted with the group that received counseling on their learning strategy preferences to collect qualitative data. This data related to each learning strategy group's approach to their learning activities. Also, focus group participants were asked questions pertaining to the instructor. All responses were analyzed using the constant comparative method (Merriam, 1998) to identify particular patterns in the three identified groups.

Definitions of Terms

Accelerated Degree Completion Program - Adult students can move through up to date, progressive, and innovative, course work taught by practitioners in an expedient fashion. This accelerated format makes the adult student become knowledgeable about an educational topic quickly (Newman University Catalog, 2000-2001).

Adult - Someone who has left the role of full-time student (the principle social role of childhood and adolescence) and assumed the role of worker, spouse, and/or parent. An adult performs socially productive roles and has assumed primary responsibility for his or her own life (Darkenwald & Merriam, 1992, p. 8).

Adult Learning - The process of adults gaining knowledge and expertise (Knowles, Horton & Swanson, 1998, p. 124).

Andragogy - "The art and science of helping adults learn" (Knowles, 1980, p. 43). The art of helping adults learn (Darkenwald & Merriam, 1982, p.13).

ATLAS - Assessing The Learning Strategies of Adults is an easy to administer and complete learning strategies assessment instrument (Conti & Kolody, 1998b, p.109).

Case Study - Case study methods involve systematically gathering enough information about a particular person, social setting, event, or group to permit the researcher to effectively understand how it operates or functions. It is not actually a data-gathering technique in itself, but a methodological approach that incorporates a number of data-gathering measures (Hamel, Dufour, & Fortin, 1993).

Cross Case Analysis - The researcher attempts to see "processes and outcomes that occur across many cases, to understand how they are qualified by local conditions, and thus develop more sophisticated descriptions and more powerful explanations" (Miles & Huberman, 1994, p.172).

Engager - ATLAS grouping of passionate learners who love to learn, learns with feeling, and learns best when actively engaged in a meaningful manner. Engagers seek out learning activities that provide opportunities for interaction and collaboration (Conti & Kolody, 1999a, p. 14).

Learning Strategies - The techniques and skills that an individual elects to use in order to accomplish a specific learning task (Fellenz & Conti, 1989, p.1).

Navigator - ATLAS grouping of focused learner who chart a course for learning and follow it (Conti & Kolody, 1999a, p. 9).

Newman University - Newman University is an independent, coeducational Catholic university, which incorporated career-oriented disciplines within its liberal arts curriculum and focuses on educating for life, located in Wichita, Kansas, on a 51-acre campus in the southwest part of the city (Newman University Catalog, 2000-2001, p. 4).

Problem Solver - ATLAS grouping of learners who rely heavily on all the strategies in the area of critical thinking that involves testing assumptions, generating

alternatives, and remaining open to conditional acceptance of outcomes (Conti & Kolody, 1999a, p. 12).

CHAPTER 2
REVIEW OF LITERATURE

Adult Education

Andragogy

Malcolm Knowles (1980) defined andragogy as "simply another model of assumptions about learners to be used alongside the pedagogical model of assumptions" (p. 43). Knowles based his adult learning model on five adult learning assumptions based on (Merriam & Caffarella, 1999, p. 272):

1. As a person matures, his or her self-concept moves from that of a dependent personality toward one of a self-directing human being.
2. An adult accumulates a growing reservoir of experience, which is a rich resource for learning.
3. The readiness of an adult to learn is closely related to the developmental tasks of his or her social role.
4. There is a change in time perspective as people mature from future application of knowledge to immediacy of application. Thus an adult is more problem centered than subject centered in learning (Knowles, 1980, pp. 44-45).

5. Adults are motivated to learn by internal factors rather than external ones (Knowles & Associates, 1984, pp. 9-12).

Knowles developed a seven-step program-planning process for implementing the andragogical model. The seven steps are (a) a climate conducive to adult learning, (b) participative planning, (c) a diagnosis of the need to learn, (d) formulation of objectives, (e) design activities, (f) operate activities, and (g) evaluation of the needs for learning (Knowles, 1980, p. 59). Knowles (1980) asserts that making the climate conducive to learning is "perhaps the single most critical thing to facilitate learning in adults (p. 224). Many adult educators would agree with this assumption.

The participative planning piece of the model is concerned with the planning of learning activities. When the adult learner is part of the planning process they take ownership of the process and their interest will peak. This planning partnership also serves as a vehicle to assist the learner in achieving their goals. Instructors must realize that utilizing teams, subgroups, and subcommittees are an effective means whereby a positive planning atmosphere can be established (Knowles, 1980, p. 226).

Diagnosing the needs of the learner is very important to the adult learner. To achieve the greatest level of individual motivation, specific learning needs should be self-diagnosed (Knowles, 1980, p. 227). To properly diagnose learner needs, educators should develop a set of required competencies, diagnose the learner's present level of performance relative to those competencies, and assess the gaps between the model and present performance (p. 227). Following this step in the program-planning model is very important to the success of the learning.

The fourth step in Knowles program planning model is formulating objectives. "The most important thing is that the objectives have meaning to the learners and provide them with directional guidance in their learning" (Knowles, 1980, p. 234). Adult learners will not take ownership or buy-in if they believe that the learning experience has no direction.

The next planning step involves designing activities. When instructors compose and plan activities for the adult learner, they should remember the activities need to relate to the learner's needs.

After the activities are planned, then they must become operational. Instructors must understand that this step in the model requires them to serve "both as a strong

procedural technician...and as a resource person or coach" (Knowles, 1980, p. 239). In this phase, the appropriate materials, resources, and techniques are arranged into a sequence of activities to achieve learning objectives (p. 239).

As in any model, evaluation is very important. Knowles suggests that evaluating results and rediagnosing learning needs consist of measuring the changes that occurred between desired behavior and performance. Learners may enhance their understanding of their new level of strengths and weaknesses and discover "their notion of a model of desired behavior has been raised" (Knowles, 1980, p. 247). "The test of their achievement, then, is not whether they can learn better than someone else, but whether they have learned what is useful to them" (p.171). Adult students will only learn that which interest them.

LifeLong Learning

Lifelong learning is "the process of learning that continues throughout one's lifetime based on individual needs, circumstances, interest, and learning skills" (Merriam & Cunningham, 1989, p. 377).

Education is considered by advocates of lifelong learning as a process that, in some form, continues throughout life (Darkenwald & Merriam, 1982). Many adult

educators would agree with this. For example, Knowles' assumption in reference to andragogy is that adults "accumulate an increasing reservoir of experience that becomes an increasingly rich resource for learning" (Knowles, 1980, p. 44). Knowles stated, "as adults live longer they accumulate both a greater volume and range of experiences" (p. 44).

Self-Directed Learning

There are two conceptions of self-directed learning prevalent (Brookfield, 1986; Candy, 1991). Self-directed learning can be seen as self-teaching, whereby learners are capable of taking control of the mechanics and techniques of teaching themselves in a particular subject (Brookfield, 1986). Self-directed learning can also be conceived of as personal autonomy (Candy, 1991).

Earlier research by Malcolm Knowles referred to self-directed learning as a process which he called, "self-teaching" (Knowles, Holton, & Swanson, 1998, p. 135). During this learning process adult learners take control of the personal techniques needed to teach themselves during an activity. During the self-directed learning process adults:

Take the initiative, with or without the help of others, in diagnosing their learning need, formulating learning goals, identifying human and material

resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes. (Knowles, 1975, p. 18)

Knowles developed many assumptions about self-directed adult learners. First, as adult learners mature they become more self-directed (Knowles, 1975 p. 20). Second, self-directed learning values the learner's experiences as an important resource for learning (p. 20). Third, learner's learning experiences are used in solving their problems (p. 21). Fourth, self-directed learners are motivated internally (p. 21).

In today's educational environment it is important for the adult learner to be self-directed. There are many accelerated undergraduate and graduate programs like Newman University's available to them. Universities are putting many programs of study online. Many adults prefer electronic activities versus traveling to a classroom. This equates to the adult learner being self-directed.

Reflection-In-Action

Schon has coined the term "reflection-in-action" to describe the way various professionals he studied deal with situations of uncertainty, instability, uniqueness, and value conflict. They respond to surprise by turning thought back on the process of knowing implicit in their action:

They may ask themselves, for example, what features do I notice when I recognize this thing (process reflection)? What are the criteria by which I make this judgment (premise reflection)? What procedures am I enacting when I perform this skill (process reflection)? How am I framing the problem that I am trying to solve (premise reflection)? Usually reflection on knowing-in-action goes together with reflection on the stuff at hand (content reflection). (Schon, 1983, p. 50)

Schon (1987) talks about "knowing-in-action" and "reflection-in-action." Knowing-in-action is the somewhat automatic responses based on existing mental schema that enables professionals to perform efficiently in daily action. Reflection-in-action is the process of reflecting while performing to discover when existing schema is no longer appropriate and then changing that schema when needed. The most effective practitioners and learners are those who are good at reflection-in-action and double-loop learning (Knowles, Holton, & Swanson, 1998, p. 140).

In laying a foundation for the idea of reflective practice, Schon (1987) has suggested that professional practice can be viewed as an art. He uses the term professional artistry to describe "the kinds of competence that practitioners sometimes display in unique, uncertain, and conflicted situations" (p. 22). Artistry involves the ability to perform in a situation without having to consciously think about it. Such artistry is often closely

linked to what Polanyi (1967) called "tactic knowledge." Schon distinguishes between reflection on action and reflection in action. Certainly, it is possible to think back on one's actions to gain insights into what may have led to a particular outcome; this process is reflection on action (Merriam & Brockett, 1997, p. 283).

Real-Life Learning

Shuell suggests that "Without taking away from the important role played by the teacher, what the student does is actually more important in determining what is learned than what the teacher does" (Shuell, 1986, p. 426).

Student's actions are governed by many factors including past experiences (Conti & Kolody, 1999a, p. 1). Past experiences dictate what technique the adult learner will employ to obtain knowledge in a formal setting or real-life problem setting.

Real-life problems that generate a learning experience are much different than formal education problems. In real-life, adult learning is often undertaken for immediate application to real-life situations (Conti & Fellenz, 1991, p. 64). Unlike formal education problems, real-life problems are unstructured, relate to the learner's life, and have multiple answers (Sternberg, 1990, pp. 37-39). Because real-life problems are unstructured the adult

learner needs to seek out resources to assist in solving these problems. Therefore, adult learners usually involve others in problem solving (Conti & Fellenz, 1991, pp. 64-65).

One of Lindeman's assumptions about adult learning was that "the resource of highest value in adult education is the learner's experience" (Lindeman, 1961, p. 6; Merriam & Caffarella, 1999, p. 222). Lindeman suggests that experience then becomes "the adult learner's living textbook... already there waiting to be appropriated" (p. 7; p. 222).

Jarvis believed that learning involves transforming these experiences into knowledge, and then would add skills and attitudes (Jarvis, 1987a, p. 16). Dewey and Jarvis shared a similar viewpoint of the potential of learning from experience; however, not all experience leads to learning (Merriam, 1994, p. 82).

Learning How to Learn

Learning-how-to-learn is the process of or acquiring the knowledge and skill to learn effectively in whatever learning situation one encounters (Smith, 1982, p. 19). Robert M. Smith developed the theory of learning-how-to-learn on the concept that it is as "important to teach adults how to learn as it is to specify particular

curricular domains for learning" (Brookfield, 1986, p. 64). Smith originally defined learning-how-to-learn as a matter of adults having (or acquiring) the knowledge and skill essential to function effectively in the various learning situations in which they find themselves (Smith, 1976, p. 5). He later refined his definition as possessing, or acquiring, the knowledge and skill to learn effectively in whatever learning situation one encounters (Smith, 1982, p. 19). Although these definitions vary slightly, the concept of learning-how-to-learn is directly related to understanding how adults function in a learning situation and holds great promise for helping adults expand their learning effectiveness (Knowles et al., 1998, p. 166).

Three supporting ideas foster understanding the learning-how-to-learn concept (Smith, 1982, p. 17). The first is what learners need to know about learning itself for success in learning (p. 20). The second supporting idea is the learners learning style (pp. 23-24). Learning styles are the methods people use when they think, approach problems, and process information in learning activities (p. 23). The third supporting idea is training (p. 25). This sub-concept involves deliberate efforts to help people become better at learning and more successful in the educational arena (p. 25).

Adult education is a process (Smith, 1976, p. 6). Involving the learner in this process includes participation in planning, conducting, and evaluating learning activity (p. 6). The learner needs this kind of knowledge and skill to function optimally in the three phases of the process (p. 6).

Planning establishes how adult learners ascertain their needs and set goals. Conducting, is the adult learner activity in which they negotiate selected procedures and resources while learning to give and receive feedback. Evaluating is how adult learners measure the how efficiently and to what extent their goals are met.

Transformative Learning

The incompatibility of attention and anxiety teaches us to exchange diminished attention for lessened anxiety and this trade-off profoundly shapes our experience (Goleman, 1985b, p. 24). Goleman bases his thesis on the following three premises:

- a) The mind can protect itself against anxiety by dimming awareness.
- b) This mechanism creates a "blind spot," a zone of blocked attention and self-deception.
- c) Such blind spots occur at each major level of behavior, from the psychological to the social.

Goleman's theory provides the psychological imperative for a transformative theory of learning (Mezirow, 1991, p. 18).

Dewey described both the importance of perception and comprehension (meaning perspectives) and people's normal unconsciousness of them:

A person in pursuing a consecutive train of thoughts take some system of ideas for granted (which accordingly he leaves unexpressed, "unconscious" as surely as he does in conversing with others. Some context, some situation, some controlling purpose dominates his explicit ideas so thoroughly that it does not need to be consciously formulated and expounded. Explicit thinking goes on within the limits of what is implied or understood. Yet the fact that reflection originates in a problem makes it necessary at some points consciously to inspect and examine this familiar background. We have to turn upon some unconscious assumption and make it explicit. (Dewey, 1933, p. 281)

Mezirow chose the term "meaning perspective" to refer to the structure of assumptions within which one's past experience assimilates and transforms new experience. A meaning perspective is a habitual set of expectation that constitutes an orienting frame of reference that people use in projecting their symbolic models and that serves as a belief system for interpreting and evaluating the meaning of experience (Mezirow, 1991, p. 42).

An essential point made in many studies is that transformation can lead developmentally toward a more

inclusive, differentiated, permeable, and integrated perspective and that, insofar as it is possible, people naturally move toward such an orientation. This is what development means in adulthood. It should be clear that a strong case could be made for calling perspective transformation the central process of adult development (Mezirow, 1991, p. 155).

Transformative learning involves an enhanced level of awareness of the context of one's beliefs and feelings. It also, involves a critique of their assumptions and particularly premises, an assessment of alternative perspectives, a decision to negate an old perspective in favor of a new one or to make a synthesis of old and new. Another part is the ability to take action based upon the new perspective, and a desire to fit the new perspective into the broader context of one's life (Mezirow, 1991, p. 161).

According Mezirow (1991) perspective transformation involves (a) an empowered sense of self, (b) more critical understanding of how one's social relationships and culture have shaped one's beliefs and feelings, and (c) more functional strategies and resources for taking action (Mezirow, 1991, p. 161).

Learning Strategies

Learning strategies are those techniques or specialized skills that the learner has developed to use in both formal and informal learning situations (Conti & Kolody, 1999a, p.3; McKeachie, 1978, p. 23). Learning strategies deal with the ways people approach specific learning situations. These strategies are external behaviors developed by an individual through experience which the learner "elects to use in order to accomplish a learning task" (Fellenz & Conti, 1989, p.7). Learning strategies are "behaviors and thought that a learner engages in during learning and that are intended to influence the learner's encoding process" (Weinstein, 1986, p. 315). This definition further suggest that such strategies may be designed to affect the motivational state or the manner in which one acquires, organizes, or integrates new information (Fellenz & Conti, 1993, p. 3).

Research conducted recently in the areas of teaching and learning has focused on the active role of the learner in student achievement and includes those techniques, tactics, and methods which enhance effective learning (McKeachie, 1978, p. 23). Research supporting the contention that one of the major differences between effective students and ineffective students is their

understanding and use of successful learning strategies (Hill, 1992, James, 2000, p. 58). This research has two themes: (a) the choice of which learning strategies to use in a given situation is affected by many factors which in turn affect the quality and end product of the learning experience; and (b) students can be taught learning strategies that will help them approach tasks more efficiently and effectively, thus improving their chances for success (Hill, 1992, p. 27; James, 2000, p. 58). The skills or techniques selected to accomplish the task often have a great influence on the success of that learning activity. Adeptness and insight in the use of learning strategies appears to be a significant part of one's ability to learn-how-to-learn (Fellenz & Conti, 1993, p. 3).

For adults the role of learning strategies has been linked to real-life learning situations (Conti & Kolody, 1999a, p. 3). Learning strategies are techniques and skills that an individual elects to use in order to accomplish a specific learning task. Such strategies vary by individual and by learning objective. Often, they are so customary to learners that they are given little thought; at other times much deliberation occurs before a learning strategy is selected for a specific learning task (Fellenz & Conti,

1989, p.1). In the field of Adult Education, learning strategies have been conceptualized as consisting of the five areas of Metacognition, Metamotivation, Memory, Critical Thinking, and Resource Management (Fellenz & Conti, 1993, p. 3). These learning strategies can be measured with the Self-Knowledge Inventory of Lifelong Learning Strategies (SKILLS) (Conti & Fellenz, 1991; Conti & Kolody, 1999a, p.3).

Metacognition

Metacognition "knowing about and directing one's own thinking and learning process" (Conti & Fellenz, 1991). It is "the ability to think about thinking, to be consciously aware of oneself as a problem solver, and to monitor and control one's mental processing" (Bruer, 1993, p. 67). Smith concluded "a central task of learning-how-to-learn is developing awareness of oneself as a learner" (Smith, 1982, p.57). Metacognition is often viewed as the highest level of mental activity and is especially needed for complex problem solving (Merriam & Caffarella, 1999, p. 206). The three learning strategies involved in the area of Metacognition are Planning, Monitoring and Adjusting (Conti & Kolody, 1999a, p. 3).

Planning builds in flexibility so strategies can be chosen to meet precisely the right conditions (Conti &

Kolody, 1999a, p.3). In the planning process "important elements of the learning situations are noted and strategies are previewed to determine how best to proceed with the situation" (Counter & Fellenz, 1993, p. 9). Monitoring the learning process is very important to the success of learning. By monitoring, learners assess their progress through a learning project. In this process, they are cognizant of their learning progress and closely monitor their learning by checking to see if they are on task and by comparing their progress to accepted standards or models (Conti & Kolody, 1999a, p. 4). Some strategies that can be used in monitoring include self-testing, comparing progress from previous learning situations, asking for feedback, checking new resources for information, and keeping track of diverse steps in learning (Fellenz & Conti, 1989; Conti & Kolody, 1999a, p. 4).

Comprehension monitoring is another factor in this strategy and "involves establishing learning goals, assessing the degree to which these goals are being met, and, if necessary, modifying the strategies being used to facilitate goal attainment" (Weinstein, 1988, p. 294).

Adjusting as involves the learner in modifying and revising learning plans in relationship to the evaluation of the learning progress (Conti & Kolody, 1999a, p. 4).

"Successful learning occasionally requires modification in order to respond to changing learning situations" (p. 4).

Metamotivation

Metamotivation is the awareness of and control over factors that energize and direct one's learning (Fellenz & Conti, 1993, p. 12). Metamotivation is "one's knowing and understanding how or why one is motivated to participate or remain in a learning activity" (Conti & Kolody, 1999, p. 4). Motivation is regarded as an aspect that shapes adult learning. "An important functional role of motivation is to contribute to the maintenance of positive self-views and perceptions of self-efficacy and personal control that underlie the ability to change negative attitudes toward learning" (McCombs, 1998, p. 142). The three learning strategies within metamotivation exercised by the adult learner are Attention, Reward, Enjoyment, and Confidence (Conti & Kolody, 1999, p. 5-6).

According to Kidd a high attention level, which he calls engagement, which is crucial to successful learning (Conti & Kolody, 1999, p. 5). The key to learning is engagement, a relationship between the learner, the task or subject matter, the environment, and the teacher (Kidd, 1973, p. 266). Attention includes staying focused on the topic of discussion and avoiding distractions.

Reward/Enjoyment is another component of the metamotivational learning strategy. This component is "anticipating or recognizing the value to one's self of learning specific material, having fun, or experiencing satisfaction with the learning activity" (Conti & Kolody, 1999a, p. 5; Fellenz & Conti, 1989). Enjoyment "appears to be a more important motivational factor in real-life learning than in formal learning situations where external motivators such as grades or certificates often dominate" (Fellenz & Conti, 1993, p. 16).

Confidence in one's ability to learn is one of the essential elements in motivation (Conti & Kolody, 1999a, p. 6; Keller, 1987). "The examination of learning style factors confirms that expectancy scores consistently correlated with achievement of adult students...Belief that one can complete the learning task successfully is an important factor in motivation to learn" (Fellenz & Conti, 1993, p. 16)

Memory

Memory is "the capacity of humans to retain information, to recall it when needed and recognize its familiarity when they later see it or hear it again" (Wingfield & Byrnes, 1981, p. 4). Memory is the storage, retention, and retrieval of knowledge. Memory strategies

associated with adult real-life learning are Organization, Use of External Aids, and Memory Application (Paul & Fellenz, 1993, p. 18).

Organization refers to the manner in which the memory reorders or restructures information from that in which it was originally presented (Conti & Kolody, 1999a, p. 7; Seamon, 1980). Restructuring strategies enable the learner to structure information so it can be stored, retained, or retrieved (James, 2000, p. 62). Chunking is the organization of information into sets; thereby reducing the overall number of categories to be remembered (Paul & Fellenz, 1993, p. 23). When information is chunked, individuals seem to be able to remember and deal with larger amounts of data (Conti & Kolody, 1999a, p. 7; Miller, 1957).

Use of external aids as a learning strategy by the adult learner will enhance the ability to use the environment to assist in memory recall. "External memory techniques rely on the interaction of the mental processes of the individual and the manipulation of the environment to insure recall" (Paul & Fellenz, 1993, p. 23). Use of external aids includes the use of appointment books, making lists of things to do; placing visual items on display, and

asking others to provide reminders at relevant times (Conti & Kolody, 1999a, p. 7; Zechmeister & Nyberg, 1982).

Critical Thinking

Critical Thinking is a reflective thinking process utilizing higher order thinking skills in order to improve learning. Although problem solving and decision-making skills are at times included as part of higher-order thinking processes, critical thinking has a more general and more important goal; it is improving individual and societal learning (Fellenz & Conti, 1993, p. 30).

Brookfield (1987) defined Critical Thinking as a reasonable, reflective thinking that is focused on deciding what to believe or do. It includes identifying and challenging assumptions, challenging the importance of context, imagining and exploring alternatives, and reflective skepticism (p. 12). The learning strategies in the area of Critical Thinking are Testing Assumptions, Generating Alternatives, and Conditional Acceptance of general knowledge (Conti & Kolody, 1999a, p. 7).

Testing Assumptions "is the process of challenging assumptions presumes the ability to identify these assumptions and the willingness to examine them. Because they have often been taken for granted over long periods of time, their limitations are not readily noticed" (Fellenz &

Conti, 1993, p. 31). "Testing assumptions involves identifying, examining, and challenging assumptions in the learning process (p. 31). Another part of this process is generating alternatives. This involves "exploring alternatives when engaged in critical thinking or problem solving is vital in the complex, multiple-solution situations common to real life" (p. 32).

Conditional acceptance is "advocating reflective skepticism to avoid absolutes or over simplifications" (Conti & Kolody, 1999a, p. 8). "Considering and imaging alternatives leads to the development of a particularly critical cast of mind, especially where any claims for universal truth or validity of an idea or practice are concerned" (Brookfield, 1987, pp. 20-21).

Resource Management

Resource management is the "identification of appropriated resources, the critical manner in which they are used, the use of human resources in learning situations" (Conti & Fellenz, 1993, p. 27). Learning strategies that lead to effective use of resources can have a positive effect on the learning process (Fellenz, 1993, p. 37). The number and variety of sources available imply a need to choose wisely so the teaching of learning strategies should include "techniques for identifying and

acquiring appropriate learning resources" (Fellenz & Conti, 1989, pp. 4-5).

There are many sources of information for the adult learner. These include the Internet, books, magazines, journals, people, and documentary material. Some adults prefer electronic sources of information such as the television or computer; others feel the best sources of information in real-life learning situations are other people (Conti & Kolody, 1999a, p. 8). Environmental factors may influence the learner's preference for locating materials. The learner's environment, how much time is available, how difficult it is to procure the materials, and the learner's ability to tell what are good information sources can also impact resource management (Hill, 1992, p. 46).

Identification of resources involves the identification and location of the best possible source of information which may include modern information sources, print sources, people, models, professionals, or agencies (Fellenz, 1993, p. 36). "The learner must judge whether obtaining the resource is equal in value to the time, energy, and expense in gathering it" (Conti & Kolody, 1999a, p. 9).

Critical Use of Resources involves critical reflection about the material and selection of the most appropriate resource rather than simply those that are readily available (Conti & Kolody, 1999a, p. 9). Considerations in evaluating the resources may include the timeliness of the material or the potential bias of the source (p. 9). Techniques used to measure the critical evaluation of resources include contacting an expert or an outsider, checking the information with a second source, and observing or asking questions to check for bias (p. 9).

Use of Human Resources integrates others into the social and political processes of learning. This involves more than simply using others in learning situations (Conti & Kolody, 1999a, p. 9). Using Human Resources entails "dialogue that involves listening to people with different opinions or insights into issues as well as the use of discussion to think through human resources may be as important as the information they contribute" (Fellenz, 1993, p. 37). This support and networking are strategies considered important in the measurement of a learner's preference in incorporating the use of human resources in their learning process (Conti & Kolody, 1999a, p. 9).

Case Study

Case study methods involve systematically gathering enough information about a particular person, social setting, event, or group to permit the researcher to effectively understand how it operates or functions. It is not actually a data-gathering technique in itself but is a methodological approach that incorporates a number of data-gathering measures (Hamel, Dufour, & Fortin, 1993).

The approach of case studies varies significantly from general field studies. Case studies may focus on a single individual, a group, or an entire community (Berg, 1998, p. 212). This approach may employ a number of data technologies such as life histories, documents, oral histories, in-depth interviews, and participant observation (Hagan, 1993; Yin, 1984).

The case study can be further defined by its special features. Case studies can be characterized as being particularistic, descriptive, and heuristic (Merriam, 1998, p.29).

Particularistic means that case studies focus on a particular situation, event, program, or phenomenon. The case itself is important for what it reveals about the phenomenon and for what it might represent. This specificity of focus makes it an especially good design for

practical problems for questions, situations, or puzzling occurrences arising from everyday practice. Case studies "concentrate attention on the way particular groups of people confront specific problems, taking a holistic view of the situation. They are problem centered, small scale, entrepreneurial endeavors" (Shaw, 1978, p. 2; Merriam, 1998, p. 29).

Descriptive means that the end product of a case study is a rich, "thick" description of the phenomenon under study. Thick description is a term from anthropology and means the complete, literal description of the incident or entity being investigated. Case studies include as many variables as possible and portray their interaction, which is often over a period of time. Case studies can thus be longitudinal. They have also been labeled holistic, lifelike, grounded, an exploratory. The description is usually qualitative; that is, instead of reporting findings in numerical data, "case studies use prose and literary techniques to describe, elicit images, and analyze situations. They present documentation of events, quotes, samples and artifacts" (Wilson, 1979, p. 448).

Heuristic means that case studies illuminated the reader's understanding of the phenomenon under study. They can bring about the discovery of new meaning, extend the

reader's experience, or confirm what is known. "Previously unknown relationships and variables can be expected to emerge from case studies leading to a rethinking of the phenomenon being studied. Insights into how things get to be the way they are can be expected to result from case studies" (Stake, 1981, p. 47).

A case study design is used because of the nature of the research problem and the questions being asked, rather than testing hypotheses. The case study offers a means of investigating complex social units consisting of multiple variables of potential importance in understanding the phenomenon. Anchored in real-life situations, the case study results in a rich and holistic account of phenomenon. It offers insights and illuminates meanings that expand its reader's experiences. These insights can be construed as tentative hypotheses that help structure future research; hence, case study plays an important role in advancing a field's knowledge base. Because of its strengths, case study is a particularly appealing design for applied fields of study such as education. Educational processes, problems, and programs can be examined to bring about understanding that in turn can affect and perhaps even improve practice. Case study has proven particularly

useful for studying educational innovations, for evaluating programs, and for informing policy (Merriam, 1998, p. 41).

Kenny and Grotelueschen (1980) offer several reasons for choosing a case study design when doing an evaluation. "Case study can be an important approach when the future of a program is contingent upon an evaluation being performed and there are no reasonable indicators of programmatic success which can be formulated in terms of behavioral objectives or individual differences" (p. 5).

Case study is appropriate when the objective of an evaluation is "to develop a better understanding of the dynamics of a program. When it is important to be responsive, to convey a holistic and dynamically rich account of an educational program, case study is a tailor-made approach" (p.5). Kenny and Grotelueschen also argue that a case study design can be justified on the basis that sometimes it is important to leave an account (Merriam, 1998, p. 39). "This goal of case study is essentially descriptive and of historical significance" (Kenny & Groteluesch, 1980, p. 5).

Yin defines a case study in terms of the research process. "A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life

context, especially when the boundaries between phenomenon and context are not clearly evident" (Yin, 1994, p. 3).

In brief, the case study allows an investigation to retain the holistic and meaningful characteristics of real-life event-such as individual life cycles, organizational and managerial processes, neighborhood change, international relations, and the maturation of industries (Yin, 1994, p. 3).

A common misconception is that various research strategies should be arrayed hierarchically (Yin, 1994, p.3). We were once taught to believe that case studies were appropriate for the exploratory phase of an investigation that surveys and histories were appropriate for the descriptive phase, and that experiments were the only way of doing explanatory or causal inquiries (p. 3). The hierarchical view reinforced the idea that case studies were only an exploratory tool and could not be used to describe or test propositions (Platt, 1992a). This hierarchical view is incorrect (p. 3).

According to Merriam (1998) educational processes, problems, and programs can be examined to bring about understanding that in turn can affect and perhaps even improve practice (p.41). She further asserts that a case study has proven particularly useful for studying

educational innovations, for evaluating programs, and for informing policy (Merriam, 1998, p. 41).

Triangulation

Qualitative and quantitative data are two broad categories of information sought by researchers during the collection phase of any study. Qualitative data is "conveyed through words or images," while quantitative data is "presented in numerical form" (Merriam, 1988, p. 68). Quantitative data measure the extent of a quality and describes how many, how much, and how the quality is distributed (p. 68).

Krathwohl (1993) defines qualitative research as research that describes phenomena in words instead of numbers or measures. Quantitative research describes phenomena in numbers and measures instead of words (Krathwohl, 1993, p. 740; Wiersma, 2000, p. 11).

Qualitative research is done for the purpose of understanding social phenomena, social being used in a broad sense. Quantitative research is done to determine relationships, effects, and causes (Wiersma, 2000, p. 13).

Triangulation refers to the designed use of multiple methods, with offsetting or counteracting biases, in investigations of the same phenomenon in order to strengthen the validity of inquiry results. The core

premise of triangulation as a design strategy is that all methods have inherent biases and limitations, so use of only one method to assess a given phenomenon will inevitably yield biased and limited results. However, when two or more methods that have offsetting biases are used to assess a given phenomenon and the results of these methods converge or corroborate one another, then the validity of inquiry findings is enhanced (Greene, Caracelli & Graham, 1989, p. 256).

Berg (1998) asserts that triangulation is the combining of several lines of sight, researchers obtain a better, more substantive picture of reality; richer more complete array of symbols and theoretical concepts; and means of verifying many of these elements (p.5).

Greene and McLintock (1985), note the triangulation argument requires that the two or more methods be intentionally used to assess the same conceptual phenomenon, be there for implemented simultaneously, and to preserve their counteracting biases, also be implemented independently (p. 523).

Triangulation seeks convergence, corroboration, and correspondence of results from the different methods (Greene, Caracelli & Graham, 1989, p. 259). The rationale is to increase the validity of constructs and inquiry

results by counteracting or maximizing the heterogeneity of irrelevant sources of variance attributable especially to inherent method bias but also to inquirer bias, bias of substantive theory, biases of inquiry context (p. 259).

A mixed-method design with triangulation intent seeks convergence in the classic sense of triangulation. The use of both a qualitative interview and a quantitative questionnaire to assess program participant's educational aspirations illustrates this triangulation intent (Greene, Caracelli & Graham, 1989, p. 258).

CHAPTER 3

Methods and Procedures

Design

This study was a descriptive case study. It was undertaken to identify the effects of learning strategy awareness on learning, learners and instructor in the 8-week session accelerated business degree program at Newman University. The study was also undertaken to identify teaching methods that adult college students perceived as beneficial or detrimental to their learning process. A descriptive study is one that:

Involves collecting data in order to test hypotheses or answer questions concerning the current status of the subject of the study. A descriptive study determines and reports the way things are... Typical descriptive studies are concerned with the assessment of attitudes, opinions, demographic information, conditions, and procedures. Descriptive data are usually collected through a questionnaire survey, interviews, or observation. Just as the historical researcher has no control over what was, the descriptive researcher has no control over what is, and can only measure what already exist. (Gay, 1987, p. 189)

This study examined the adult learning strategies employed by 25 adult students enrolled in the 2001 spring session of eight week course format accelerated business administration degree program courses at Newman University. These students were in two separate classes. One was a

business management course and the other was a business ethics course. Both courses were eight-week courses.

The management class was selected to be the ATLAS group because it had the larger group of students in attendance. This group was provided counseling related to learning strategies and to their leaning strategy preference. Also, this group of volunteer adult learners was provided information on learning strategies in a lecture format. They then were asked to identify their preferred learning strategy by reviewing the ATLAS instrument. Once the students were identified as a Navigator, Problem Solver, or Engager they were asked to move into groups by the identified learning strategy grouping. Once in the groups they discussed both positive and negative learning experiences and related them to their learning strategies in ways that learning strategies affect the different groups of learners, also the interaction of the groups was discussed.

A pre-test was administered to the ATLAS group and Non-ATLAS group. A post-test was given to the ATLAS group and Non-ATLAS group at the end of the four week study. These results, the activities from the ATLAS lecture group discussions, and the results of the focus group discussion session were analyzed.

Sample

A population is an arbitrary universe of "entire group of persons, things, or events having at least one trait in common" but which can have more than one shared trait (Springthall, 1990, p. 113). The population is often considered to be large. Therefore, a sample or subset of the research population can be used from which inferences are drawn about the population (Shavelson, 1996).

A target population is the portion of the total population to which the researcher would ideally like to generalize results (Gay, 1987, p. 102). The population selected for this study was two groups of adult students from two classes (approximately 30 students) and one instructor, in the 8-week session accelerated undergraduate business administration degree program at Newman University.

"A population is an arbitrary universe or entire group of person, things, or events having at least one trait in common but which can have more than one shared trait (Springthall, 1990, p. 113). Researchers understand that populations are usually very large. Shavelson recommends that since the population is often large, a sample or subset of the population can be used from which inferences are drawn about the population (Shavelson, 1996). A target

population is that portion of the total population to which the researcher would ideally like to generalize results (Gay, 1987, p. 102).

A sample as "a subset of the population to which the researcher intends to generalize the results" (Wiersma, 2000, p. 269). The individuals actually involved in the research should be representative of the larger population (p. 269). "Sampling is the process of selecting study participants in such a way that they represent the larger group or target population (Gay, 1987, p. 102).

There are many ways to select a sample. The techniques generally used by researchers include simple random sampling, cluster sampling, stratified random sampling, and systematic sampling (Wiersma, 2000, p. 291). In simple random sampling, the entire population serves as a single unit from which the sample is selected (Wiersma, 2000, p. 291). In cluster sampling, all members of a selected cluster are included in the sample. Not all clusters are included and clusters need not be of equal size (p. 291). Stratified random sampling is characterized as all strata are represented in the sample; strata are allocated sample members, usually by one of two allocation systems: equal or proportional allocation. Proportional allocation is most frequently used (p. 291). Systematic

sampling is described as the population is ordered in some manner and the designation of the initial sample member determines the entire sample (p. 291). Cluster sampling was used in the study. The cluster consisted of two intake classes in the accelerated business administration degree program at Newman University.

ATLAS

The learning strategy preferences of adult students enrolled in the 8-week session accelerated undergraduate business administration program at Newman University were measured by utilizing the Assessing The Learning Strategies of Adults (ATLAS) instrument. ATLAS "arose out of a need for a tool that was easy to administer, that could be completed rapidly, and that could be used immediately by both facilitators and learners" (Conti & Kolody, 1999a, p.16). ATLAS can be completed in approximately one to three minutes (Conti & Kolody, 1998, p. 109).

What makes the ATLAS instrument an expeditious assessing instrument is the instrument's construction. The instrument is in the form of a flow-chart design with written information on one-half sheets of standard-sized, 8 ½" x 11" multi-colored paper. Reading directions and the initial item, participants follow each flip chart by reading the next box. Each box instructs the respondent to

go to the next appropriate box. Respondents continue following the arrows which lead to options in another box or to another colored card, eventually concluding with the respondent's learning strategy group placement (Conti & Kolody, 1998, p. 18).

ATLAS may appear to be a very simple instrument; however, its contents are based on powerful multivariate statistical procedures (Conti & Kolody, 1998, p. 18). ATLAS is a valid and reliable instrument for measuring the learning strategy preference of adults (Conti & Kolody, 1999a p. 16; Ghost Bear, 2001). Validity refers to "the degree to which a test measures what it is supposed to measure" (Gay, 1996, p. 138). The three most important types of validity recognized in educational research are construct, content, and criterion-related validity (Kerlinger, 1973, p. 457).

Construct validity assesses the underlying theory of the test. It is the extent to which the test can be shown to measure hypothetical constructs, which explains some aspect of human behavior (Borg & Gall, 1983, p. 280; Conti & Kolody, 1999a p. 16). "A construct is a nonobservable trait, such as intelligence, which explains behavior. You cannot see a construct; you can only observe its effect" (Gay, 1996, p. 140). The process of establishing construct

validity for ATLAS was to synthesize the results of the numerous research studies using the Self-Knowledge Inventory of Lifelong Learning Strategies (SKILLS) and to consolidate these results (Conti & Kolody 1999a, p. 16). SKILL is a valid and reliable instrument, and the construct validity of ATLAS is linked to SKILLS and to the three groups of learners uncovered by cluster analysis from 3,070 cases of SKILLS (pp. 16-18).

Content validation is the process of establishing the representativeness of the items with respect to the domain of skills, tasks, knowledge, and so forth of whatever is being measured (Wiersma, 2000, p. 300). Content validity is "the degree to which a test measures an intended content area" (Gay, 1996, p. 139). Content validity refers to the sampling adequacy of the content of the instrument (Kerlinger, 1973, p. 458). Content validity for ATLAS is concerned with the degree to which the items are representative of learning strategy characteristics of the three groups identified in the SKILLS' research (Conti & Kolody, 1999a, p. 18). Content validity was established for ATLAS by conducting a series of discriminant analyses to determine the differences between each grouping (pp. 18-19). The results of these analyses were used to write each of the items in ATLAS.

Criterion validation establishes validity through a comparison with some criterion external to the test (Wiersma, 2000, p. 301). The criterion is in essence the standard by which the validity of the test will be judged. Criterion-related validity compares an instrument score with external criteria known or believed to measure the attribute under study (Kerlinger, 1973, p. 459). Criterion-related validity was established by comparing ATLAS scores to actual group placement using SKILLS (Conti & Kolody, 1999a, p. 19). Criterion-related validity was also established by examining the accuracy with which ATLAS placed participants in a learning strategy preference group. Follow-up studies with over 1,000 participants indicated that over 90% of the participants agree that the ATLAS classification of their learning strategy preference is accurate (Ghost Bear, 2001, pp. 83-84; Willyard, 2000, p. 88).

Reliability means "consistency of the instrument in measuring whatever it measures" (Wiersma, 2000, p. 297). Gay refers to reliability as "the degree to which a test consistently measures whatever it measures" (Gay, 1996, p. 145). ATLAS test-retest data confirms that ATLAS has a reliability of 0.87 (Ghost Bear, 2001, pp. 84-85).

Procedures

The researcher contacted the Vice-President of Academic Affairs at Newman University in Wichita, Kansas and discussed the possibility of conducting the research project. After a review by the Newman University Internal Review Board permission was granted to conduct adult learning strategy preference research. The participants were adult students enrolled in the Newman University 8-week session accelerated undergraduate business administration degree program. Two groups of these students were selected. Participants were asked to review and sign the appropriate consent forms. Demographic variables relating to race, gender, age, and education level was garnered when the consent forms were administered.

The ATLAS group was introduced to ATLAS. The Non-ATLAS group was not. The ATLAS group received a detailed explanation about the research study. Then the students along with their instructor received an hour and a half of instruction and group discussion on ATLAS. They were encouraged to ask questions and make comments. All of the adult students in the ATLAS group reviewed the ATLAS flow chart instrument and established what their learning strategy preferences were. Once they had established that

they were a Navigator, Engager, or a Problem Solver, they were placed in their respective groups. Each group was asked to identify both a positive and negative learning experience. After this exercise was completed then class discussion occurred to show the relevance of ATLAS.

The ATLAS group and Non-ATLAS group both received a pre-test and post-test. The pre-test for both groups were questions that would later appear randomly on the mid-term exams which served as the post-test. The pre-test was given at the beginning of the courses. The post-test was given to both groups four weeks later. This was done to establish a straight difference score between the pre-test and post-test between both groups and what level of increased learning had occurred in the groups.

A voluntary focus group session was conducted with the ATLAS group four weeks after the ATLAS informational session. Focus group questions followed a similar pattern used in previous studies by James (2000), Munday, 2002), Turman (2001), and Willyard (2000). The focus group questions utilized were:

1. Tell me about a recent learning project.
2. How do you go about learning a specific task?
3. What kinds of things do teachers do in a learning situation that you like and that really help you learn?

4. What kinds of things do teachers do in a learning situation that you do not like and that really do not help you learn?
5. What kinds of things do you do to help yourself in a learning situation?

Navigators, Engagers, and Problem Solvers each have unique qualities, which create a need to ask specific questions of each group. Navigators are conscientious, results-oriented, high achievers who favor making logical connections, planning, and organizing activities and who rely heavily on the learning strategies of Planning, Attention, Identification of Resources, Critical use of Resources, and Testing Assumptions (Conti & Kolody, 1999a, p. 9). Navigators place a great importance on "planning" (p. 19). Schedules are very important to Navigators, and they reportedly become stressed if their schedules or plans are disrupted (p. 19). Planning involves knowing "how to elicit purpose from both themselves and the situations and how to organize and identify the steps essential to the learning process" (Yussen, 1985, p. 280). Therefore, the students in the Navigator group were asked these additional questions:

1. How do you use organization in a learning project?
2. How do you check your progress in a learning project?

Problem Solvers score high in critical thinking strategies (Conti & Kolody, 1999a, p. 12). Critical

thinkers rely on a reflective thinking process which utilizes higher order thinking skills (Brookfield, 1987). Besides being critical thinkers Problem Solvers generate alternatives to create additional learning options (p. 12). Therefore, the students in the Problem Solver group were asked these additional questions:

1. How do you plan for a learning project?
2. How do you identify resources for a learning project?

Engagers are passionate learners who love to learn, learn with feeling, and learn best when they are actively engaged in a meaningful manner with the learning task (Conti & Kolody, 1999a, p. 13). Engagers monitor the value of the learning experience and the level of motivation on an economy of scale to determine if the expected reward is worth the effort (p. 14). Therefore, the students in the Engager group were asked these additional questions:

1. What process do you go through in determining if a learning project is worth doing?
2. What types of activities do you like to use in a learning project?

Prior to conducting the ATLAS group focus session the researcher made sure the room was conducive to learning. The lighting and room temperature was found to be very acceptable for this activity. The room had a large conference table so the students could set in a round

circle in a non-threatening environment. The researcher brought in food and refreshments since this was an evening class. This researcher's action followed Knowles seven-step program-planning process for implementing the andragogical model (Knowles, 1980, p. 59). One of the seven steps is making the climate conducive to learning is, which is perceived to be the single most critical thing to facilitate learning in adults (p. 224).

A tape recorder was used to document the activity. The tape was later transcribed and analyzed. The participants were assured of confidentiality and that this activity had no impact on their grade in the course.

After the focus group session with the students, the instructor was interviewed in a one-on-one setting. This interview was held in a quiet office area. The instructor was asked the following questions:

1. How long have you been teaching adults?
2. Knowing the three adult learning strategies of ATLAS Navigators, Engagers, and Problem Solvers did this impact how you taught your class?
3. Did you teach this course differently then you have in the past?
4. Was there any change in the test scores?
5. Should instructors be exposed to ATLAS?

The comments by the teacher were founded on his observation of student interaction in class, test results, and teaching experience.

CHAPTER 4

FINDINGS

Participant Profiles

This descriptive study involved a total of 25 participants. The participants were predominately male (72%) and white (72%) and had levels of higher education (see Table 1).

Table 1
Demographics for Total Group

Variable	Frequency	Percent
Gender		
Male	18	72
Female	7	28
Education		
High School	2	8
Associate Degree	19	76
Bachelor Degree	4	16
Race		
African American	3	12
White	18	72
Other	4	16

Although the group was predominately white, it tended to reflect the demographic makeup of private colleges in the Wichita, Kansas, community. There were no study participants who indicated their ethnicity to be Hispanic or Native American. According to a 1997 survey conducted by the U.S. Department of Education National Center for Education Statistics (<http://nces.ed.gov/index.html>), the

national distribution of ethnic diversity in private colleges is White--78%, African Americans--10.6%, Asian--5.5%, Other--11.4. The U.S. Census Bureau 2000 report of the Sedgwick County Metropolitan Statistical Area reveals a population of 452,869. The ethnicity distribution for 2000 was as follows: White--79.4%, African American--9.1%, Other--11.5% (U.S. Census Bureau, 2001). Because of the small number of participants in the study any change in a participant status would change data by 4%. However, the similarity between the demographics for the county and those in the study indicated the students in the study were representative of the overall population in terms of race.

The ages of the study participants ranged from 22 to 57 years of age (see Table 2). The mean age was 35.9 with a standard deviation of 8.0; the median age of the participants was 38.0. Nearly half (48%) of the participants were of ages 38 to 40 (see Table 2).

Table 2
Age Distribution of Participants

Age	Frequency	Percent
22	2	8
24	1	4
27	2	8
28	1	4
30	2	8
34	1	4
38	5	20
39	2	8

40	5	20
41	1	4
43	1	4
44	1	4
57	1	4
Total	25	100

Since the study involved students in a bachelors degree program of study at Newman University, previous educational attainment was required. Of the 25 participants, two (8%) indicated that they had a high school diploma. Nineteen (76%) indicated that they had completed an associate degree in some area of study. There were 4 (16%) participants who had completed a bachelors degree.

The participants were placed in two groupings. Using the logic of experimental design, one group was the Non-ATLAS group, which consisted of 11 participants. Those in this group were not provided information on their learning strategies. Therefore, they were not exposed to the ATLAS instrument or any other information about learning strategies. However, they did receive a pre-test and post-test on content related to the class.

The other group was the ATLAS group, which consisted of 14 participants. This group received a lecture on ATLAS as a learning strategy preference instrument. The group members then took ATLAS to identify their learning strategy

preferences and then participated in a group advising session that discussed the characteristics of each learning strategy group and explored ways that each group could relate this information to their learning. The students were also encouraged to talk about and think about how their learning strategies applied during the remainder of the course. They also took a pre-test and post-test on content related to the course of study.

All three learning strategy groups were represented in the class. The learning strategy preferences were distributed as follows for the 14 participants in the ATLAS group: Navigators-6 (42.86%), Problem Solvers-5 (35.71%), and Engagers-3 (21.43%). The expected norms for the general population for ATLAS are Navigators-36.5%, Problem Solvers-31.7%, and Engagers-31.8% (Conti & Kolody, 1999a, p. 18).

The chi-square procedure, which is referred to as the "goodness-of-fit test," can be used to test how well a sampling distribution fits a hypothesized distribution (Wiersma, 2000, p. 362). This statistical procedure is used to determine whether an observed frequency distribution differs significantly from an expected frequency distribution (Roscoe, 1975, p. 247). The results observed in this study of Newman University business

management adult students indicated that there was no significant differences between the observed and expected distribution ($\chi^2 = .70$, $df=2$, $p = .71$). Each group was approximately within one person of the expected number (see Table 3).

Table 3
Distribution of Observed and Expected ATLAS Responses

ATLAS Category	Observed	Percent	Expected	Differences
Navigators	6	42.86	5.1	.9
Problem Solvers	5	35.71	4.4	.6
Engagers	3	21.43	4.5	-1.5
Total		100.00		

Note: $\chi^2 = .70$, $df=2$, $p = .71$

As a criterion-related validity check on ATLAS, respondents in other studies have been asked if they perceived ATLAS to be accurate in describing their approach to learning. These studies have been consistent with approximately 90% of those taking ATLAS agreed that the instrument accurately described them as an adult learner (Ghost Bear, 2001, p. 81). All (100%) participants in this study indicated that the ATLAS description of their learning strategy was accurate.

Student Performance

A series of t-tests were conducted to compare the performance of the group receiving learning strategy information to the group that did not receive the

information. The t-test is used to compare two groups "to see whether the differences between group means are large enough to assume that the corresponding population means are different" (Huck, Cormier, & Bounds, 1974, p. 49). The t-test procedure can be used with either one sample or with two samples. In a one-sample t-test, the mean of one group is compared to a hypothesized mean for the group (Roscoe, 1975, p. 214). There are two types of the t-tests for comparing the means of two samples (p. 52). Independent sample t-tests are used for groups that are not related to each other in any systematic way other than that they were selected from the same population (Gay, 1987, p. 390); this is often referred to as a group t-test.

The t-test for nonindependent samples "is used to determine whether there is probably a significant difference between the means of two matched, or nonindependent, samples or between the means of one sample at two different times" (Gay, 1987, p. 391); this can be referred to as a paired t-test. Both one-sample and two-sample types of t-tests were used in this study, and both types of two-sample tests were used.

An analyses of covariance is often used to compare groups on a dependent variable such as a post-test after the group means have been adjusted by a relevant covariant

variable such as a pre-test (Huck, Cormier, & Bounds, 1974, p. 134). However, it was not possible to use this procedure because the Internal Review Board required anonymity for the students in the Non-ATLAS group, which prevented the matching of pre-test and post-test scores for members of the Non-ATLAS group.

Two group t-tests were conducted. One analysis compared the two pre-test groups, and the other compared the two post-test groups. The ATLAS and Non-ATLAS groups differed significantly at the beginning of the instruction on the pre-test (see Table 4).

Table 4
t-test of Pre-test and Post-test Groups

<u>Table</u>	<u>t</u>	<u>df</u>	<u>p</u>
Pre-test	4.76	23	.001
Post-test	.82	23	.423

The pre-test mean score for the ATLAS group was 3.21 with a standard deviation of 1.63. The Non-ATLAS group had a higher mean score of 6.27 with a standard deviation of 1.56. This data indicated that there was a considerable difference between the knowledge base of both groups of students, at the beginning of the course. The Non-ATLAS group scored much higher on the pre-test.

However, the groups did not differ significantly at the end of the four week research study (see Table 4). The post-test mean score for the ATLAS group was 5.79 with a standard deviation of 1.05. The Non-ATLAS group had a mean score of 6.27 with a standard deviation of 1.90. Thus, both groups showed a similar knowledge base at the end of the four week study.

Two different types of t-tests were used to compare the pre-test and post-test scores. A one-sample t-test was used to compare the scores for the Non-ATLAS group because the anonymity requirement prevented the matching of the scores. In this analysis, the mean of the post-test was compared to the overall group mean for the pre-test. There was no significant difference between the obtained mean on the post-test (6.27) and the overall group mean (6.27) on the pre-test (see Table 5). Indeed, even though individual scores varied between the two tests, the mean for each of the tests was exactly the same. Thus, as a group there was absolutely no difference between the pre-test and post-test means for the Non-ATLAS group.

A paired t-test was used to compare the pre-test to the post-test for the ATLAS group. This was used because it was possible to match the two scores for each individual

in this group. A significant difference was found between the pre-test and post-test scores (see Table 5).

Table 5
t-test of Pre-test and Post-test for Non-ATLAS
and ATLAS Groups

Group	<u>t</u>	<u>df</u>	<u>p</u>
Non-ATLAS	.001	10	1.000
ATLAS	4.500	13	.001

A pre-test was given to the ATLAS group and Non-ATLAS group. The Non-ATLAS group showed a higher level of knowledge than the ATLAS group. Four weeks later after the ATLAS group had received their counseling on learning strategy preferences; a post-test was given to them. The Non-ATLAS group also took a post-test at the end four week study. The results revealed a significant increase of knowledge by the ATLAS group (see Table 5).

ATLAS Group Follow-up Interview Findings

A group follow-up interview session was held four weeks after the ATLAS informational session with the Navigator and Problem Solver groups from the class that had taken ATLAS. The three Engagers from the class chose not to participate in the follow-up interview session.

The adult students that identified their learning strategy preference as Navigator made many comments about

their perception of new knowledge. They commented that now they know why they are detailed oriented. Having a better understanding of why people do what they do was a comment made by many of the Navigators. Many of the participants indicated that after identifying their learning strategy preference and receiving ATLAS counseling, they now know how to handle stress associated with various learning environments. A Navigator said, "I learned from ATLAS how to handle the stress in learning environments."

The Navigators discussed their perceptions of teachers. They did not like teachers that never used the book and did not follow the syllabus; this really irritating to them. A Navigator commented, "I like having a syllabus that states week one we do this, week two we do this." Group work was not an attractive activity to which the Navigators looked forward. The main reason is they always felt that they had to do all of the work for the group. They are driven to meet the teacher's time-line, and there are always "slackers" in the group. The slackers always procrastinate. Moreover, the perception is the group gets the same grade that they receive. They do not think this is fair. The Navigators commented that after the ATLAS information session they now have more understanding of other people and how to better work in group activities.

A Navigator said, "group work, there are procrastinators so I have to pick up the slack and do the job." Another Navigator commented, "I do not get along with procrastinators, after ATLAS I now have more understanding of other people."

The identified Navigators made comments concerning the activities that helped them learn. It seemed that the commonality of this learning strategy preference group was learning by repetition. They used flash cards as a study aid. When reading materials, they always highlight the main ideas of the literature. On many occasions, they used different color highlighters when studying for exams. They highlight the instructor notes, main ideas, and possible exam questions. The Navigators mentioned that they manage their study time wisely. They throw out information that is in their opinion not relevant to the task of pre-exam studying.

The adult students of the ATLAS group that identified their learning strategy preference as Problem Solvers made many comments about their perception of new knowledge. They commented that they dread exams with multiple choice questions. They never score well on these types of test questions. After receiving the ATLAS information they now know that to do better on exams, they need to develop more

effective study habits. Problem Solvers by nature are procrastinators. They wait until the 11th hour and cram for tests or hurry projects. What is interesting about this trait is that the Problem Solvers see this as not procrastination but as a skill of working better under pressure.

Because of the perceived procrastination trait, Problem Solvers are always hurrying to meet deadlines. In reality they are searching for the best alternative to solve a problem. This can impact the quality of the product, if they practice better planning and become focused then a quality product is produced.

Problem Solvers like group work because they like discuss and interpersonal interaction. A Problem Solver commented, "I like group discussion, it makes class interesting and I learn more by good group discussion." They will tell you how to build a clock when all you asked for was the time (Ghost Bear, 2001, p. 374). This trait also adds to the procrastination problem. They will talk about the task forever. The Problem Solvers indicated that the ATLAS instrument has triggered their awareness of the procrastination situation and what they need to do to overcome it. One Problem Solver said, "I procrastinate, so when the teacher changes the syllabus and adds a week I am

early relieved." Another Problem Solver commented, "I do not dread multiple choice questions now because I now know my learning strategy and know I need to concentrate more on study habits." In reality the Problem Solver is not procrastinating, but looking for alternatives. They believe that the best alternative to make a decision may come at the last minute.

The Problem Solvers made comments about interpersonal relations. A Problem Solver commented, "I know how to deal with my Navigator boss better now, and also subordinates." ATLAS has awoken them up to other adult learning strategy preferences. They now know how to have better relationship with supervisors or subordinates that practice Navigator behavior.

The Problem Solvers commented on what makes a class become a valuable learning experience for them. They like group discussions throughout the class period. The information exchange and discussion is a very positive learning experience for them. If the teacher cuts the class discussion time down, this creates a negative response from them. They are very interested in the teacher sharing real experiences and covering real scenarios. A Problem Solver commented, "I like real

scenarios and when the teacher puts them in groups to work on the scenarios."

The Problem Solvers commented on their study practices. When reading a textbook they usually read just the first page, last page, and summary of assigned chapters. After receiving the ATLAS information, they commented that now they know the impact of reading the whole chapter. They commented that the Internet is very attractive to them. All of the information they want is at their fingertips. A Problem Solver commented, "I usually read just the first page, last page, and summary of assigned chapters. But, after being exposed to ATLAS I now know the impact of reading the whole chapter. I started reading more after ATLAS and my grades improved."

The ATLAS group made some general comments about their experience with the ATLAS instrument. They were so impressed with the instrument and learning about their learning preference that the group felt that every adult student should be exposed to ATLAS experience. Educational institutions of higher education should make it mandatory that each adult student learns their learning strategy preference. They believe that knowing a learning strategy preference can help adult learners in any learning situation in business or an educational situation.

The ATLAS group made some general comments about instructors. They believe that all instructors of adult students should be introduced to ATLAS so that the instructor will know that there are three types of adult learners in their classroom. This could help instructors become more learner centered. They felt that if the instructor and the adult student both were familiar with adult learning strategy preferences then the learning environment would be a much better one.

The instructor of the ATLAS group in this study was involved in the ATLAS informational session on learning strategies that was given to the ATLAS group. Four weeks later after the focus group session with the ATLAS group members the ATLAS group instructor was immediately interviewed in a one-on-one environment.

The ATLAS group instructor made several observations. He has been an undergraduate instructor for 6 years and has taught this business course six times. The instructor felt that knowing the adult learning strategies of Navigator, Problem Solver, and Engager did impact how he taught the class. He realized that students with different learning strategies had different concerns.

The instructor observed that these adult students acted differently in this class than other groups of adult

students that he has taught. The effect of ATLAS on the students may have caused this behavior. This group of students was much more involved in class activities and worked better as in teams. The instructor also noticed that the ATLAS group members scored an average of eight points better between the mid-term and the final. This was the best increase he has have seen of any of his classes in 6 years. The instructor felt that adult learners should identify their learning strategy preferences early in their academic career.

Cross Case Analysis

Miles and Huberman (1994) have developed numerous methods for analyzing data from several cases or sites. The methods range from simple to complex and from descriptive to explanatory and all involve devising matrices and other visual aids for displaying data across sites (p. 172). Cross case analysis enables the researcher to see "processes and outcomes that occur across many cases, to understand how they are qualified by local conditions, and thus develop more sophisticated descriptions and more powerful explanations" (p. 172).

Ultimately, cross-case analysis differs little from analysis of data in single qualitative case study. The level of analysis can result in little more than a unified

description across cases; it can lead to categories, themes, or typologies that conceptualize the data from all the cases; or it can result in building substantive theory offering an integrated framework covering multiple cases (Merriam, 1998, p. 195).

The design of this case study is very similar to the case study conducted by Wendy S. Munday (2002). Her study examined the learning strategies of adults in a business management program at Webster University covering an 8-week period of time and the Newman University study covered a 4-week period of time. Both studies used a similar design so that a cross-case comparison could be made. "The aim [of cross-case analysis] is to increase generalizability, reassuring oneself that the events and repercussion in one well-described setting are not wholly idiosyncratic" (Miles & Huberman, 1984, p. 151). Both the quantitative and qualitative results of the two studies were compared.

A pre-test was given to the ATLAS group and Non-ATLAS group. There was a difference between the Non-ATLAS group and the ATLAS group scores. The Non-ATLAS group scored much higher on the pre-test.

Four weeks later a post-test was administered to both the ATLAS group and the Non-ATLAS group. The ATLAS made a significant increase in their knowledge base. Thus, both

groups showed a comparable knowledge base at the end of the study. The ATLAS group made a substantial increase in their knowledge base in that time period. The Newman University instructor credited this increase in knowledge base to the students having the new knowledge of their learning strategy preference.

There were some similarities among the three ATLAS groups in the two studies. For instance Navigators in both case studies indicated that they become frustrated when course expectations are not laid out. Navigators were frustrated when "the expectations were not laid out ahead and were not clear" (Munday, 2002, p. 100). Navigators indicated that they liked having a course syllabus that states what is required each week. They want everything laid out for the course. Navigators are focused learners who chart a course for learning and follow it (Conti & Kolody, 1999a, p. 9). The sixth step in Knowles seven-step program planning model for adult education is "operate activities" (Knowles, 1980, p. 59). After the activities are planned, then they must become operational. Instructors must understand that this step in the model requires them to serve "both as a strong procedural technician...and as a resource person or coach" (Knowles, 1980, p.239). In this phase the appropriate materials,

resources, and techniques are arranged into a sequence of activities to achieve learning objectives (p. 239). The Navigators in both studies strongly voiced a preference for this type of organization.

Problem Solvers in the W. Munday (2002) study indicated that they became frustrated when the instructor lectured and gave concepts straight from the book. As one Problem Solver said, "I can read the book myself, give me real-life experiences and share your knowledge as a practitioner" (Munday, 2002, P. 89). Problem Solvers are critical thinkers who generate alternatives to create additional learning options, and they are open to conditional acceptance of learning outcomes while keeping an open mind to other learning possibilities (Conti & Kolody, 1999a, p. 12). Lindeman suggests that experience then becomes "the adult learner's living textbook...already there waiting to be appropriated" (p. 7).

In this study, Problem Solvers took a similar stance by stating that they liked class discussion and that they can read the book on their own. They like real scenarios provided by the instructor for class discussion. Problem Solvers realized that they were procrastinators after receiving the ATLAS instruction. Also, they found out why they traditionally do poorly on multiple choice questions.

One way that they can do better on exams is to generate a study planning method. McKeachie adds that a learner's effective choice of learning strategies "usually results in greater learning" (McKeachie, 1978, p. 3).

In this case the Engagers chose not to be involved in the focus group session. However, during the initial ATLAS instruction, the Engagers did make comments about themselves. They indicated that they like instructors who make learning fun and interesting during the entire class. The Engagers commented that they learn best from an instructor who is committed or passionate about the course topic and the students. "Engagers are passionate learners who love to learn, learn with feeling, and learn best when they are actively engaged in a meaningful manner with the learning task" (Conti & Kolody, 1999a, p. 12).

The Engagers in the study conducted by W. Munday (2002) made similar comments to add to this study. In that study, Engagers also indicated that they learn better when instructors are passionate and able to convey this to students (W. Munday, 2002). When comparing this case study with W. Munday's study, no differences were identified with the Engagers.

In both case studies all three groups of learners indicated that now since they know their learning

strategies, they would be able to function better in the workplace. As a result of having knowledge and understanding of their learning strategy preferences, learners began making connections between their difficulties and failures in the workplace and differences in learning strategies (W. Munday, 2002, p. 94). All three groups felt that they now have a better understanding of "why people do what they do." Many of the ATLAS group members indicated that they have used the ATLAS information to assess the learning strategy preferences of their supervisor or subordinates and now know how to better work with them.

Another area of case comparison was the topic of the instructor. In this case study, the researcher was not the instructor of the class with the ATLAS group. The researcher conducted an interview with the ATLAS group instructor about his observations and perceptions. In the W. Munday (2002) Webster University 8-week study, the researcher was the instructor. In the study, teacher data was gathered through a journal of observations made by the teacher.

The Newman University instructor's comments were very similar to the observations made by W. Munday in the Webster University study. For instance, both the Newman

instructor and W. Munday indicated that because of ATLAS, they know that there are three types of adult learners in the classroom setting. Because of this knowledge, they were able to teach differently than in years past.

Instructors are encouraged to either capitalize on learner strengths or help learners develop a broader range of capabilities (Knowles, Holton, & Swanson, 1998, p. 154).

In both case studies the instructors observed that the adult learners who were aware of their learning strategy preference did better in group activities and individual assessments than those who did not know their learning strategies. Both the Newman instructor and W. Munday (2002) indicated that the students did better because of their new knowledge of learning strategies triggered by the ATLAS instrument.

The Newman instructor and W. Munday concentrated on making the classroom conducive to adult learning, which is the first step in Knowle's seven-step program planning. Making the climate conducive to adult learning consists of the classroom physical environment and atmosphere set by the instructor. Knowles (1980) asserts that making the climate conducive to learning is "perhaps the single most critical thing to facilitate learning in adults" (p. 224).

There were no identified differences between the two case studies pertaining to the instructor.

W. Munday (2002) cited the Newman University case study data in the comparison stage of her study. This comparison of studies culminates to a unified description of adult learning strategies in both case studies pertaining to Newman University and Webster University business management programs.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary of the Study

This case study was conducted in the Newman University Business Management program (Newman University Catalog, 2000-2001, p. 41 & p. 51). This degree program like the university is accredited by the Kansas State Department of Education and by North Central Association of Colleges and Schools (p. 6). A business administration student may major in management, management information systems, or marketing (p. 51). Newman has become a competitor in the formal education arena with the business administration degree. Companies like Boeing Aircraft are subsidizing employee's formal education leading up to a Bachelor of Science degree.

The purpose of the Newman University study was to identify and describe the effects of learning strategy awareness on learning, learners and instructor in the eight-week course format accelerated undergraduate business administration degree program at Newman University. The target population selected for this research study was adult students enrolled in two separate eight-week evening business courses that had two different instructors.

Assessing The Learning Strategies of Adults (ATLAS) was used to assess the learning strategy preferences of adult students in the 8-week session accelerated undergraduate business administration degree program. ATLAS was chosen as the assessment instrument because it is a quick and easy measurement tool to use (Conti & Kolody, 1999, p. 16).

Utilizing ATLAS overcomes negative feelings students have about educational assessments. In addition to the assessment of student learning strategies, the instructor of the ATLAS group was interviewed about his teaching philosophy. This instructor witnessed the introduction of ATLAS to the class. The follow-up interview at the end of the four weeks of the eight-week session with this instructor assisted in determining if knowing the learning strategies of the class influenced his style of instruction.

One of the major weaknesses of research in the field of Adult Education is that there are few systematic lines of inquiry. However, one line of inquiry has developed in the area of learning strategies. This study is part of this line of inquiry, and in order to facilitate the cross-case comparison with a similar study by Munday (2002), both studies used a similar design and a similar set of research

questions. These questions about the relationship of counseling for learning strategy preferences and academic achievement and with the perceptions of students concerning how counseling related to learning strategy preferences affected their learning. The perceptions of the teacher related to providing counseling to students about learning strategy preferences were also explored.

Quantitative and qualitative methodologies were utilized in this descriptive case study to characterize the learning strategy preferences of current undergraduate business administration degree program students at Newman University. Quantitative data was gathered by using ATLAS to identify learning strategies and pre-tests and post-tests to measure content area knowledge. A voluntary focus group session with the learning strategy group and the instructor provided qualitative data. This data was analyzed to discern any themes in relationship between knowledge of learning strategies and student achievement.

The ATLAS instrument as a trigger mechanism provided qualitative data. The focus group session with the volunteer ATLAS group and instructor interview provided quantitative data. The utilization of both qualitative and quantitative methodologies is considered a mixed method approach. A mixed-method design with triangulation intent

seeks convergence in the classic sense of triangulation. The use of both a qualitative interview and a quantitative questionnaire to assess program participant's educational aspirations illustrates this triangulation intent (Greene, Caracelli & Graham, 1989, p. 258).

Summary of Findings

The case study participants were placed in two groupings. One group was the Non-ATLAS group, which consisted of 11 participants. This group was not provided information on their learning strategies. Therefore, they were not exposed to ATLAS or information about applying learning strategies in the classroom environment. However, they did receive a pre-test and post-test similar to the ATLAS group. The second group was the ATLAS group consisting of 14 participants. This group received information on ATLAS and adult learning strategies. The group members then took ATLAS to identify their learning strategy preference. The students were then placed in discussion groups by the learning strategy groups of Navigators, Problem Solvers, and Engagers. Each group discussed both negative and positive learning experiences. They then participated in a group advising session that discussed the characteristics of each learning strategy group and explored ways that each group could relate this

information to their learning. The students were also encouraged to talk about and think about how their learning strategies applied during the remainder of the course. The ATLAS group and Non-ATLAS group took a pre-test early in the courses and four weeks later each group took a post-test. The pre-test and post-test for both groups were composed in a similar fashion.

All three learning strategy groups were represented in the ATLAS group. The learning strategy preferences were distributed as follows for the 14 participants in the ATLAS group: Navigators-6 (42.86%), Problem Solvers-5 (35.71%), and Engagers-3 (21.43%). Although the class was small, the learning strategy groups were distributed as expected for the general population.

As a criterion-related validity check on ATLAS, respondents in other studies were asked if they perceived ATLAS to be accurate in describing their approach to learning. These studies have been consistent with approximately 90% of those taking ATLAS agreeing that the instrument accurately described them as an adult learner. All participants (100%) in this study indicated that the ATLAS description of their learning strategy preference was accurate. This is consistent with the findings in W. Munday's (2002) Webster University case study.

Student Achievement

Although an analyses of covariance is often used to compare groups on a dependent variable such as a post-test after the group means have been adjusted by a relevant covariant variable such as a pre-test (Huck, Cormier, & Bounds, 1974, p. 134), it was not possible to use this procedure because the Internal Review Board requirement of anonymity prevented the matching of pre-test and post-test scores for members of the Non-ATLAS group. Therefore, a series of t-tests were conducted to investigate the relationship of learning strategies to student achievement.

Two group t-tests were conducted. One analysis compared the two pre-test groups, and the other compared the two post-test groups. The ATLAS and Non-ATLAS groups differed significantly at the beginning of the instruction on the pre-test. The pre-test mean score for the ATLAS group was 3.21, and the Non-ATLAS group had a mean score of 6.27. Thus there was a considerable difference between the knowledge base of both groups at the beginning of the study. The Non-ATLAS group scored much higher on the pre-test.

However, the groups did not differ significantly four weeks later at the end of the study. The post-test mean

score for the ATLAS group was 5.79, and the Non-ATLAS group had a mean score of 6.27. Thus, both groups showed a comparable knowledge base at the end of the study.

Two different types of t -tests were used to compare the pre-test and post-test scores. A one-sample t -test was used to compare the scores for the Non-ATLAS group because the anonymity requirement prevented the matching of the scores. In this analysis, the mean of the post-test was compared to the hypothesized mean, which was the mean for the group on the pre-test, to the pre-test. There was no significant difference between the obtained mean on the post-test (6.27) and the hypothesized mean (6.27). Indeed, even though individual scores varied between the two tests, the mean for each of the tests was exactly the same. Thus, as a group there was absolutely no difference between the pre-test and post-test means for the Non-ATLAS group.

A paired t -test was used to compare the pre-test to the post-test for the ATLAS group because it was possible to match the individual scores on the two groups. A significant increase was found between the pre-test and post-test scores. These students, who had a knowledge of their learning strategies, scored higher on the post-test than they did on the pre-test.

Student Population

The students felt that having an awareness of the learning strategy preference helped them in their learning.

Students identified of having a learning strategy preference of Navigator had many observations. The Navigators expressed the perception that by knowing about learning strategies, they now realize why supervisors may give more detail than is needed. They also believe that ATLAS has triggered a better understanding of why people do what they do.

ATLAS research has shown that Navigators do not like group work for many reasons. The ATLAS group of Navigators believes they have to concentrate more on getting along with people in the group, and then doing the work to be productive. They need to not take over the group. Instead, they need to help spread the workload fairly among the group members. Also, members of the Navigator group believed that they learned from ATLAS how to handle stress in learning environments.

Students identified of having a learning strategy preference of Problem Solver also had many observations. The members of this group found during the ATLAS instruction why they experience problems with multiple

choice questions. After this instruction, Problem Solvers indicated that they now do not dread multiple-choice questions because they know their learning strategy preference and know the need to concentrate more on study habits. They realize that planning, monitoring, and adjusting are important to academic success.

True to their tendency to generate alternatives, the Problem Solvers profiled the learning strategy preferences of supervisors and co-workers in class. They made comment that they now know how to deal with Navigator supervisors and also subordinates. Like the Navigators, Problem Solvers indicated that ATLAS has triggered learning, which has helped them work better with co-workers. Problem Solvers learned that by nature they are procrastinators. They have never perceived this trait of procrastination as being negative. They have always felt that they work better under pressure. ATLAS triggered learning that awoke the adult students to this fact and to how to reduce the procrastination factor in their lives.

The Engagers indicated that they like instructors who make learning fun and interesting during the entire class. The Engagers commented that they learn best from an instructor who is committed or passionate about the course topic and the student. In the Webster University case study

Engagers also indicated that they learn better when instructors are passionate and able to convey this to students (W. Munday, 2002, p. 87).

The ATLAS group participants believed that every adult student should be exposed to the ATLAS instrument and instruction. They commented that knowing one's learning strategy and knowing about the other two learning strategy preferences helps to have an understanding of why people do what they do. The group unanimously commented that universities should make it mandatory for adult students and instructors to be exposed to the ATLAS instrument and instruction. They believed that students would do better if teachers become more student-centered.

ATLAS Group Instructor Perceptions

The instructor of the ATLAS group attended the ATLAS instruction session that was given to the ATLAS group. Four weeks later the ATLAS group instructor was interviewed about the influence that knowledge of learning strategies had on the students and on the class. The instructor had a perception that knowing about the three adult learning strategies of Navigator, Problem Solver, and Engager had a positive impact how he taught this class. He was now aware of the fact that adult learners do learn differently. He was very conscious to address each learning strategy as he

taught each class. He noted that students from the varying learning strategy groups had concerns. He found that the Navigator students were very concerned with details. He strived to meet their demands.

The instructor for the ATLAS group felt that the students acted differently in this class from all other groups of students that he has taught. He felt that this difference may have been due to the student's knowledge of their learning strategies. This group of students was much more involved in class activities than students in his past classes. Importantly in the business area, he felt that the knowledge of learning strategy preferences helped them work better as a team. The inference of his comments is that if adult students are aware of their learning strategy then they will more productive in-group settings and individually.

The instructor observed an average of 8 points increase between the mid-term and the final exam. This was the highest increase that he had experienced in these six years of teaching. Because of the positive benefits he observed, the instructor felt that students should learn their learning strategy preferences early in their academic career.

Cross-Case Comparison

A cross-case comparison was made with a study by W. Munday (2002). Her study examined the learning strategies of adults in a business management program at Webster University. The quantitative and qualitative data from both studies was similar.

In comparing both the Newman University and Webster University case studies quantitative data is very similar. In this study after employing t-tests and Chi-square it was established that the students who knew their learning strategy preferences showed an increase in their knowledge over the students who did not know their learning strategy preference. The Webster University case study also showed that the students that aware of their learning strategy preferences showed an increase in their knowledge over the students who did not know their learning strategy preference.

Navigators in both case studies indicated that they become frustrated when course expectations are not laid out. In this case study and the Webster University study, Navigators indicated that they liked having a course syllabus that states what is required each week. They want everything laid out for the course. There were no

differences between cases that were identified reference the Navigator grouping.

Problem Solvers in the W. Munday (2002) study indicated that they became frustrated when the instructor lectured and gave concepts straight from the book. This is consistent with the profile of Problem Solvers who are critical thinkers who generate alternatives to create additional learning options. In this study, Problem Solvers took a similar stance by stating they liked class discussion, and that they can read the book on their own. They like real scenarios provided by the instructor for class discussion. Problem Solvers realized that they were procrastinators after the ATLAS instruction. Also, they found out why they traditionally do poorly on multiple choice questions. One why that they can do better on exams is to generate a study planning method.

The case study conducted by W. Munday (2002) there are Engager similarities. In both studies, the Engagers indicated that they learn best when instructors are passionate and able to convey this to students.

In both case studies all three groups of learners indicated that now since they know their learning strategies they would be able to function better in the workplace. Learners began making connections between their

difficulties and failures in the workplace and differences in learning strategies. In this case study all three groups stated that now they have a better understanding of "why people do what they do." This information is useful for learning how to better work with others.

Another area of case comparison was the topic of the instructor. In this case study the researcher was not the instructor of the ATLAS group. However, in the W. Munday (2002) study, the researcher was the instructor.

The Newman University ATLAS group instructor's comments were very similar to the observations made by W. Munday in the Webster University study. For instance both the ATLAS group instructor and W. Munday indicated that because of ATLAS they know there are three types of adult learners in the classroom setting. Because of this knowledge they taught differently than in years past.

In both case studies the instructors noticed that the adult learners did better in group activities and individual assessments. Both instructors indicated that the students did better because of their new knowledge of learning strategies triggered by the ATLAS instrument. Also, this knowledge helped in making the classroom conducive to adult learning, which is the first step in Knowle's seven-step program planning. There were no

identified differences between the two case studies pertaining to the instructor.

W. Munday (2002) cited the Newman University case study data in the comparison stage of her study. This comparison of studies culminates to a unified description of adult learning strategies in both case studies pertaining to Newman University and Webster University business management programs.

Conclusion

Instrumented learning is an effective way of creating adult learning awareness.

Adult students can realize a positive impact in their academic achievement if they know their learning strategy preferences.

ATLAS is a very participant friendly and accurate learning strategy preference identifier tool.

Instructors can make a significant impact in the academic achievement of their adult students by knowing the learning strategy preference of the students.

An awareness of individual learning strategies is an important element of being learner centered.

Instrumented Learning

Instrumented learning was utilized in this study by using the ATLAS instrument. It has a language that adult learners understand, it is non-threatening, effective, efficient, easy, and people identify with it.

In general learning instruments are non-threatening, self-scored, and easy for the participant to understand. They are used to help adult learners become aware of their strengths, attitudes and behavior. The adult learner identifies where they are now and where they want to go. Once awareness is generated, then learning instruments can then bridge the gap between practice and theory. Adult learners attain a better understanding of themselves and how they learn.

Student Academic Achievement

Newman University's undergraduate eight-week course format accelerated business administration degree program draws an array of students. Newman is a private college; however, it draws adult students that reflect the general student population. This is consistent with the Webster University case study looking at the adult business graduate program at McConnell AFB campus (Munday, 2002, p. 10).

The ATLAS group in this study showed a positive increase in academic achievement at the end of the four-week study. The ATLAS group had received counseling on ATLAS from the researcher. They also identified their learning strategy preference by taking the ATLAS instrument. They identified their learning strategy group

as a Navigator, Problem Solver, or Engager. At the beginning of this study the ATLAS group had a lower score on the pre-test than the Non-ATLAS group (see Table 5). However, when a similar post-test was given to both groups at the end of four weeks, the ATLAS group had made significant increase in their knowledge and they had caught up to the level of the Non-ATLAS group. In the Webster University eight week case study, the students who had a knowledge of their learning strategy preference also gained significantly more than those who did not have a knowledge of their learning strategy (Munday, 2002, p. 111).

ATLAS has been proven as a valid triggering instrument for adult learning strategy preferences (Lively, 2001). The results of this study and the similar study by Munday (2002) shows that this triggering arm leads to significant academic growth.

ATLAS as an Instrument

In this study, the ATLAS instrument was a very participant friendly learning strategy preference instrument. When ATLAS was given to the ATLAS group, the adult students were able to identify if they were a Navigator, Problem Solver, or Engager very quickly and accurately. It took the students from 45 seconds to 2 minutes to properly identify their learning strategy

preference according to the ATLAS instrument. This was consistent with the Munday (2002) Webster University study. Both case study results were consistent with the perception of ATLAS as an instrument that is quick and easy measurement tool to use (Conti & Kolody, 1999, p. 16).

All members of the ATLAS group indicated that the instrument did identify their learning strategy accurately. This is consistent with the Webster University case study (Munday, 2002, P. 37). This data is also consistent with follow-up studies, which indicate that over 90% of the participants agree that the ATLAS classification of their learning strategy preference is accurate (Ghost Bear, 2001, pp. 83-84; Willyard, 2000, p. 88).

This study revealed that ATLAS seemed to be a "triggering" device for adult students to reflect on previous learning experiences and evaluate themselves. One of assumptions about adult learning is that the resource of highest value in adult education is the learner's experience (Lindeman, 1961, p. 6). Knowles based his adult learning model on five adult learning assumptions one of which is based on the fact that an adult accumulates a growing reservoir of experience, which is a rich resource for learning. (Merriam & Caffarella, 1999, p. 272).

Moreover, "all genuine education comes about through experience" (Dewey, 1938, p. 13).

The ATLAS group expressed appreciation for the counseling and guidance. The students used the adult learning strategy terminology of ATLAS throughout the rest of the course. W. Munday (2002) experienced the same student behavior in the Webster University study.

ATLAS Group Instructor Impact

In the Newman University case study the instructor of the ATLAS group took part in the ATLAS information and counseling session. Therefore, the instructor became familiar with ATLAS and the theory that there are three types of adult learners, based on learning strategy preferences. The instructor even identified his learning strategy preference ATLAS.

The interview with the ATLAS instructor at the end of the four-week study revealed that the instructor had reflected on his new knowledge of learning strategies and had used this knowledge in his teaching of the class. The ATLAS instructor practiced "reflection-in-action." This is known as the process of reflecting while performing to discover when existing schema is no longer appropriate and then changing that schema when needed. Schon believes that the most effective practitioners are those who are good at

reflection-in-action (Knowles, Holton, & Swanson, 1998, p.140).

He was very conscious of each learning strategy during each class. The instructor now has knowledge that students with different learning strategies have different concerns. The instructor found that the Navigators are very concerned with details which are consistent with the ATLAS definition of Navigators who are focused learners who chart a course for learning and follow it (Conti & Kolody, 1999a, p. 9). The instructor found that the Problem Solvers are critical thinkers who generate alternatives to create additional learning options (p. 12). They Engagers were passionate learners that need to be actively engaged in a meaningful manner with learning task p. 19). One of Knowles five adult learning assumptions based on andragogy states that "adults are motivated to learn by internal factors rather than external ones" (Knowles & Associates, 1984, pp. 9-12; Merriam & Caffarella, 1999, p. 272).

Having the knowledge of the learning strategy preferences of his adult learners allowed him to make his instruction more learner centered. For teachers, these insights can be very beneficial in the selection of appropriate methods and techniques used to focus

understanding, discussion, and reflective thought about the learner (Conti & Kolody, 1999a, p. 16).

The ALAS group instructor noticed that the ATLAS group members acted differently in this class than other groups of students that he had taught. They worked better together in groups, they were much more involved in class activities, and they were much more considerate of fellow students. The instructor contributes these positive student behaviors to the student's knowledge of learning strategies and their ATLAS groupings.

Likewise, the Webster instructor observed that the adult students who were aware of their learning strategy preference did better in group activities, classroom discussion, and exams than those who did not know their learning strategies. Both instructors had perceptions that the ATLAS groups did better because of their new knowledge of learning strategies triggered by the ATLAS instrument. Both instructors felt that ATLAS contributed to making the classroom conducive to adult learning, which is the first step in Knowles's seven-step program planning. Making the climate conducive to adult learning consists of the classroom physical environment and atmosphere set by the instructor. Knowles (1980) asserts that making the climate

conducive to learning is "perhaps the single most critical thing to facilitate learning in adults" (p. 224).

Recommendations

This study has shown the need for adult students to become familiar with their learning strategies. It also shows that ATLAS is a useful instrument for doing this. This study was over a four-week period of time. The ATLAS group showed marked improvement in their knowledge base. Therefore, utilizing the ATLAS instrument as a triggering device spurs adult learners to achieve marked knowledge improvement in a short amount of time after instrument exposure. The study has also shown the need for adult instructors to identify their learning strategy preference and for them to understand the differences that exist among the learning strategy groups of Navigators, Problem Solvers, and Engagers.

Adult educational institutions should embrace the learning strategy preference concept and use ATLAS to identify learning strategy preferences. Institutions should make it part of their instructor personal development plan. Adult students need to identify their learning strategy and counseling related to learning strategy can help improve their learning success.

The ideal situation is that adult students be exposed to ATLAS before they take their first college class.

Instructors are encouraged to capitalize on learner strengths or help learners develop a range of learning capabilities (Knowles, Holton, & Swanson, 1998, p. 154). Instructors of adult students should become knowledgeable of the concept of learning strategy preferences. This includes both learning about the concept and identifying their learning strategy preferences. This knowledge "can be beneficial to the selection of appropriate methods and techniques when they are used to form understanding, discussion, and reflective thought about the learner" (Conti & Kolody, 1998, p. 137). This could make them more learner centered. They will understand that adult students are not all the same that they learn differently.

As Malcolm Knowles proposed "teachers should be more student-centered and curriculum be more real-life based" (Knowles, 1970, p. 49). When instructors are able to accommodate differences in individual abilities, styles, and preferences, then it is expected that learning outcomes will improve (Jonassen & Grabowski, 1993). People engaged in learning exhibit a diversity of abilities, experiences, personalities, and preferred learning styles, therefore

instructors should try different approaches" (Brookfield, 1989, p. 207).

ATLAS has shown not only in the study but others that the adult student likes the instructor to utilize scenarios in the classroom and allow them to have an active role in their learning (Conti & Kolody, 1999a, p. 14). Continual research in adult learning strategy preferences will build on what we presently know. This results in positive outcomes for not only the adult learner but also the adult instructor.

Cross-Case Analysis

There needs to be future learning strategy preference studies utilizing the cross-case analysis method. Researchers should pool their energy and resources together and share data. Following the cross-case analysis method strengthens the research studies. One study supports the other. This was realized in comparing this study with the Webster University study conducted by W. Munday (2002).

Final Thought

A popular statement that summarizes adult education and learning is the Chinese proverb that says, "Give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime" (Webster, 2000, P. 286). Knowledge of learning strategy preferences is a concept

that can help adult learners become more self-directed in real-life learning situations. It also provides an organizing concept which reflective adult educators can use to establish learner-centered environments for implementing pedagogical principles.

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APPENDIXES

APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL FORM (IRB)

Oklahoma State University
Institutional Review Board

Protocol Expires: 10/29/02

Date: Tuesday, October 30, 2001

IRB Application No ED0230

Proposal Title: LEANING STRATEGIES OF ADULT STUDENTS IN AN ACCELERATED
UNDERGRADUATE BUSINESS ADMINISTRATION PROGRAM

Principal
Investigator(s):

Donald Munday
2341 N. Sandplum Lane
Wichita, KS 67205

Gary Conti
206 Willard
Stillwater, OK 74078

Reviewed and
Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved

Dear PI :

Your IRB application referenced above has been approved for one calendar year. Please make note of the expiration date indicated above. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved projects are subject to monitoring by the IRB. If you have questions about the IRB procedures or need any assistance from the Board, please contact Sharon Bacher, the Executive Secretary to the IRB, in 203 Whitehurst (phone: 405-744-5700, sbacher@okstate.edu).

Sincerely,



Carol Olson, Chair
Institutional Review Board

APPENDIX B

ATLAS GROUP CONSENT FORM

Undergraduate Business Degree Programs at Newman University

The purpose of this research is to describe the learning strategies of adult students in 8-week session accelerated undergraduate business degree programs at Newman University, Wichita, Kansas. To do this, we need your help in completing the "Assessing The Learning Strategies of Adults" (ATLAS). It is very important that you realize that: (1) your participation in this study is voluntary, (2) you will not be penalized in any way if you choose not to participate, and (3) you are free to withdraw your consent to participate in this study at any time. The information you provide will remain confidential and will not be available to anyone other than the researcher.

If you have any questions about this project, you may contact Donald Munday, Horizons Education Coordinator (WATC) QTPP 2800 S. Rock Rd., Wichita, Kansas, Phone: (316) 523-9983, or Sharon Bacher, IRB Executive Secretary, Oklahoma State University, 203 Whitehurst Hall, Stillwater, OK 74087, Phone: (405) 744-5700.

Print Name _____

ATLAS

Directions: Follow the directions for completing ATLAS (orange booklet). Then place **ONE** check mark next to your learning strategies subgroup that indicates your overall group and subgroup as indicated on ATLAS.

Navigator	Problem Solver	Engager
<input type="checkbox"/> Subgroup 1	<input type="checkbox"/> Subgroup 1	<input type="checkbox"/> Subgroup 1
<input type="checkbox"/> Subgroup 2	<input type="checkbox"/> Subgroup 2	<input type="checkbox"/> Subgroup 2

1. Accuracy: Is the description of your learning strategy group from the Groups of Learners page of ATLAS fairly accurate in describing you as a learner? **Yes** **No**

2. Age: _____

3. Gender: Male Female

4. **Race:** ___ African American ___ Hispanic
___ Native American ___ White ___ Other

5. **Education:** Please check your highest level of formal education.

___ Less than High School Diploma

___ High School Diploma

___ Bachelors Degree

___ Masters Degree

___ Associates Degree

___ Doctoral Degree

APPENDIX C

NON-ATLAS GROUP CONSENT FORM

Undergraduate Business Degree Programs at Newman University

The purpose of this research is to describe the learning strategies of adult students in the 8-week session accelerated undergraduate business degree programs at Newman University, Wichita, Kansas. To do this, we need your help in completing a pre-knowledge assessment and post knowledge assessment. It is very important that you realize that: (1) your participation in this study is voluntary, (2) you will not be penalized in any way if you choose not to participate, and (3) you are free to withdraw your consent to participate in this study at any time. The information you provide will remain confidential and will not be available to anyone other than the researcher.

If you have any questions about this project, you may contact Donald Munday, Horizons Education Coordinator (WATC) QTTP 2800 S. Rock Rd., Wichita, Kansas, Phone: (316) 523-9983, or Sharon Bacher, IRB Executive Secretary, Oklahoma State University, 203 Whitehurst Hall, Stillwater, OK 74087, Phone: (405) 744-5700.

Print Name _____

1. **Age:** _____
2. **Gender:** ___Male ___Female
3. **Race:** ___African American ___Hispanic
 ___Native American ___White ___Other
4. **Education:** Please check your highest level of formal education.
 ___ Less than High School Diploma ___ Bachelors Degree
 ___ High School Diploma ___ Masters Degree
 ___ Associates Degree ___ Doctoral Degree

APPENDIX D

NEWMAN UNIVERSITY ATLAS GROUP CONSENT FORM

Consent Form

You are invited to participate in a study of "Learning Strategies of Adult Students in the 8-week session accelerated undergraduate Business Degree Programs at Newman University." You were selected as a possible participant in this study because you are an adult student in the 8-week session accelerated undergraduate business degree program at Newman University.

If you decide to participate, you will be part of an experimental group of adult students that will have an hour instruction on "Assessing The Learning Strategies of Adults" (ATLAS).

Any information obtained in this study in which you can be identified will remain confidential and will be disclosed only with your permission. This study is being conducted for a doctoral research disseration. The research data collected will be disclosed in the dissertation by numbered data only. No names of participating students will be used.

Participation in this study is entirely voluntary. Your decision whether or not to particiapte will not affect your future relations with Newman University. If you decide to participate, you may withdraw from the study at any time without affecting your status as a student.

If you have any questions about this research, please ask me. If you have additional questions during the study, I will be glad to answer them. You can contact me at:
Donald R. Munday, MSM, Horizons Education Coordinator
(WATC) QTTP 2800 S. Rock Rd., Wichita, Kansas, (316) 523-9983.

You will be offered a copy of this consent form to keep.

You are making a decision whether or not to particiapte. Your signature indicates that you have read the information provided above and have voluntarily decided to participate.

Signature of Subject Date

Signature of Investigator Date

APPENDIX E

NEWMAN UNIVERSITY NON-ATLAS
GROUP CONSENT FORM

Consent Form

You are invited to participate in a study of "Learning Strategies of Adult Students in the 8-week session accelerated undergraduate Business Degree Programs at Newman University." You were selected as a possible participant in this study because you are an adult student in the 8-week session accelerated undergraduate business degree program at Newman University.

Any information obtained in this study in which you can be identified will remain confidential and will be disclosed only with your permission. This study is being conducted for a doctoral research disseration. The research data collected will be disclosed in the dissertation by numbered data only. No names of participating students will be used.

Participation in this study is entirely voluntary. Your decision whether or not to particiapte will not affect your future relations with Newman University. If you decide to participate, you may withdraw from the study at any time without affecting your status as a student.

If you have any questions about this research, please ask me. If you have additional questions during the study, I will be glad to answer them. You can contact me at:
Donald R. Munday, MSM, Horizons Education Coordinator
(WATC) QTTP 2800 S. Rock Rd., Wichita, Kansas, (316) 523-9983.

You will be offered a copy of this consent form to keep.

You are making a decision whether or not to particiapte. Your signature indicates that you have read the information provided above and have voluntarily decided to participate.

Signature of Subject Date

Signature of Investigator Date

APPENDIX F
ATLAS INSTRUMENT

Assessing *The Learning Strategies of AdultS*



Gary J. Conti
Oklahoma State University

Rita C. Kolody
Medicine Hat College

(<http://coetechnology.okstate.edu/HRAE/atlas.htm>)

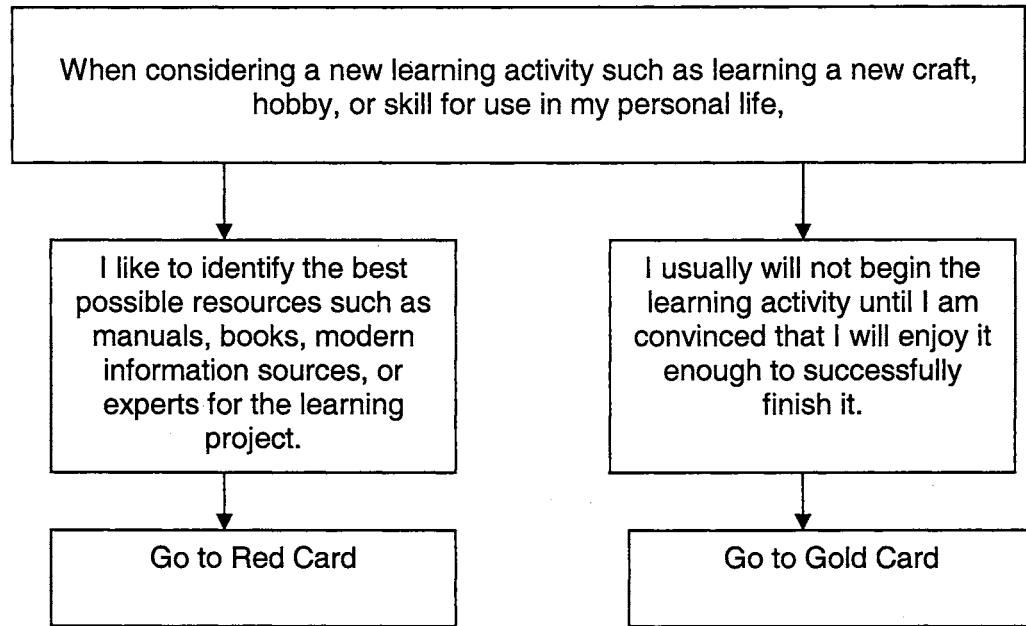
ATLAS

(Assessing *The Learning Strategies of AdultS*)

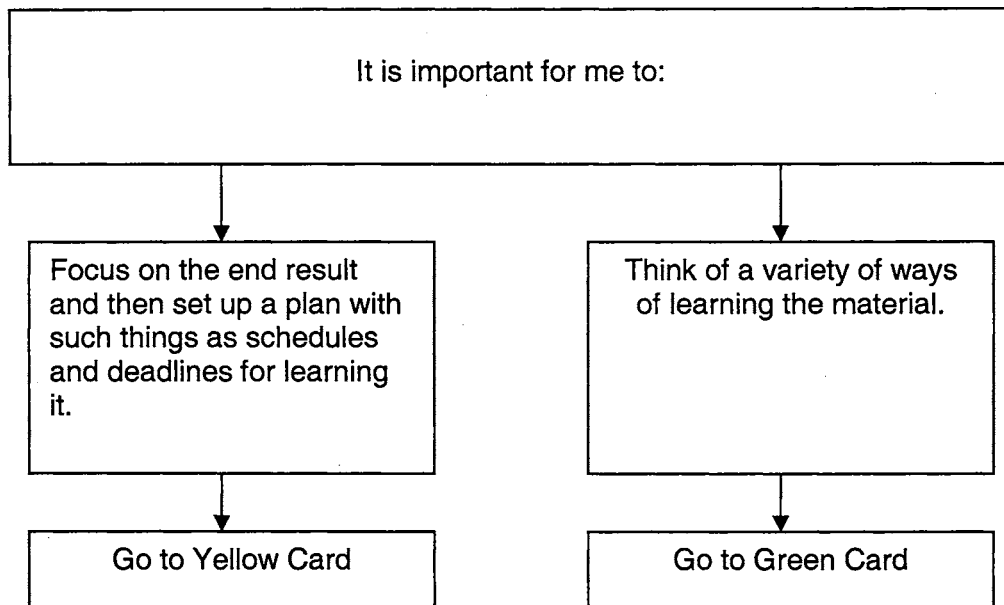
Directions: The following colored cards have statements on them related to learning in real-life situations in which you control the learning situation. These are situations that are **not** in a formal school. For each one, select the response that best fits you, and follow the arrows to the next colored card that you should use. Only read the cards to which you are sent. Continue this process until you come to the Groups of Learners sheet. Along the way, you will learn about the group in which you belong. Start with the **BLUE** card.



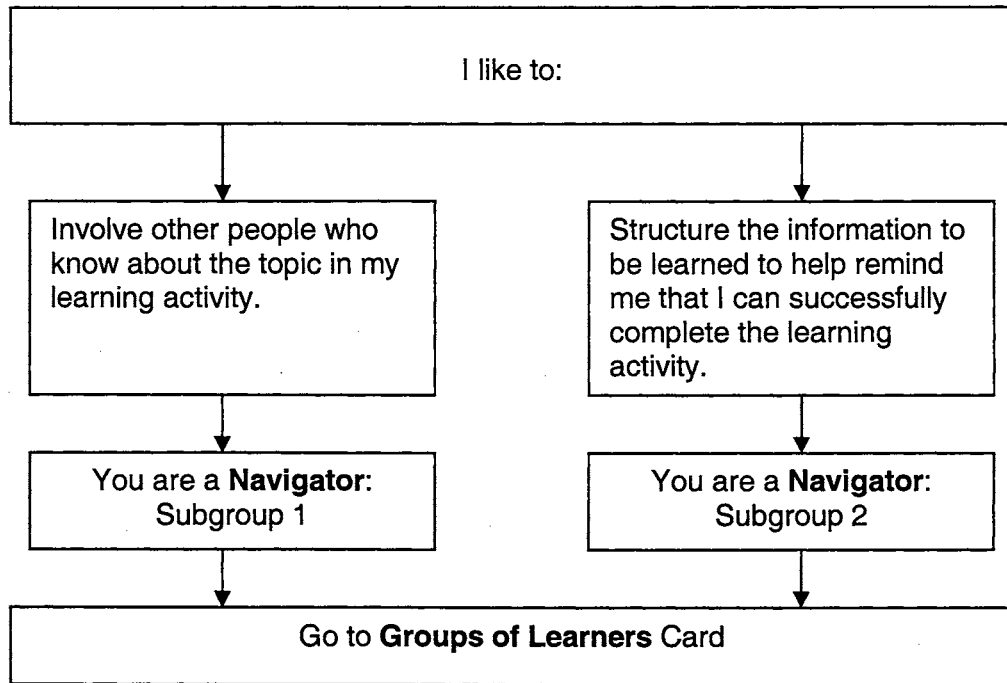
Cool BLUE card stock



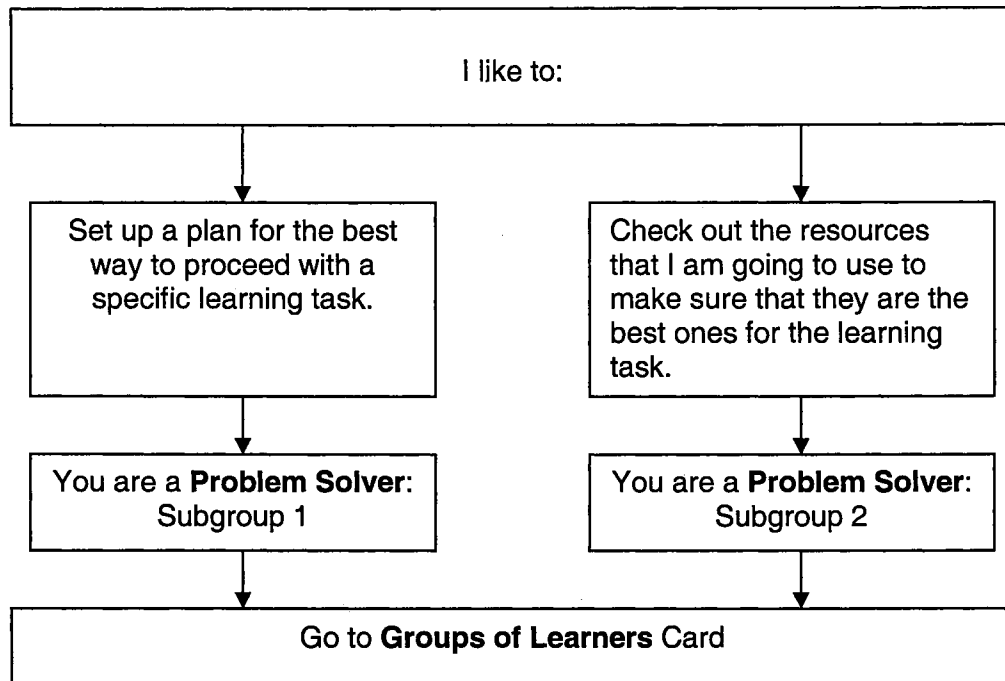
Red card stock



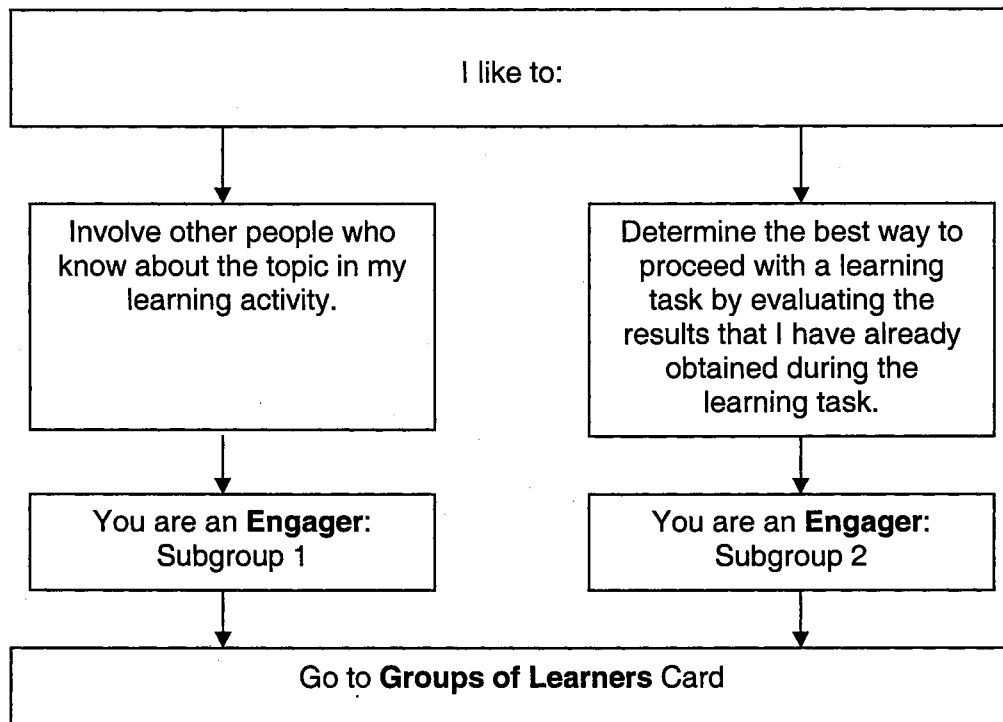
YELLOW card stock



Gamma GREEN card stock



GOLDEN ROD card stock



Navigators



Description: Focused learners who chart a course for learning and follow it. Subgroup 1 likes to use human resources while Subgroup 2 is more concerned with the organization of the material into meaningful patterns.

Characteristics: Focus on the learning process that is external to them by relying heavily on planning and monitoring the learning task, on identifying resources, and on the critical use of resources.

Instructor: Schedules and deadlines helpful. Outlining objectives and expectations, summarizing main points, giving prompt feedback, and preparing instructional situation for subsequent lessons.



Problem Solvers

Description: Learners who rely heavily on all the strategies in the area of critical thinking. Subgroup 1 likes to plan for the best way to proceed with the learning task while Subgroup 2 is more concerned with assuring that they use the most appropriate resources for the learning task.

Characteristics: Test assumptions, generate alternatives, practice conditional acceptance, as well as adjusting their learning process, use many external aids, and identify many of resources. Like to use human resources and usually do not do well on multiple-choice tests.

Instructor: Provide an environment of practical experimentation, give examples from personal experience, and assess learning with open-ended questions and problem-solving activities.

Engagers

Description: Passionate learners who love to learn, learn with feeling, and learn best when actively engaged in a meaningful manner. Subgroup 1 likes to use human resources while Subgroup 2 favors reflecting upon the results of the learning and planning for the best way to learn.

Characteristics: Must have an internal sense of the importance of the learning to them personally before getting involved in the learning. Once confident of the value of the learning, likes to maintain a focus on the material to be learned. Operates out of the Affective Domain related to learning.

Instructor: Provide an atmosphere that creates a relationship between the learner, the task, and the teacher. Focus on learning rather than evaluation and encourage personal exploration for learning. Group work also helps to create a positive environment.



Groups of Learners

2

VITA

Donald Ray Munday

Candidate for the Degree of

Doctor of Education

Thesis: EFFECTS OF LEARNING STRATEGY AWARENESS ON LEARNING,
LEARNERS, AND INSTRUCTOR

Major Field: Occupational and Adult Education

Biographical:

Education: Graduated from Haysville Campus High School, Haysville, Kansas in May 1973; received Bachelor of Science degree in Human Resource Management and a Master of Science in Management from Friends University, Wichita, Kansas in May 1987 and May 1989, respectively. Completed the requirements for the Doctor of Education degree with a major in Adult Education at Oklahoma State University in May, 2002.

Experience: Police Officer with the Wichita Police Department from 1978-1998; Chief of Police 1998-1999; Director of Criminal Justice Program, Friends University, Wichita, Kansas 1999-2000; Current Employer Horizons Education Program Coordinator, Wichita Area Technical College, Wichita, Kansas; Current Employer Adjunct Faculty Member Newman University, Wichita, Kansas since 1989.

Professional Memberships: International Association of Chiefs of Police, Academy of Criminal Justice Sciences, American Society of Law Enforcement Trainers, Fraternal Order of Police, Phi Kappa Phi Honor Society.