

A Comprehensive Study of the Relationship Between Personality Type and Learning
Styles of Students as They Apply to the Classroom Teacher

by

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A Research Paper
Submitted in Partial Fulfillment of the
Requirements for the
Masters in Science Degree
In
Education

Approved: 2 Semester Credits

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May 2005

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ABSTRACT

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A Comprehensive Study of the Relationship Between Personality Type and Learning
(Title)

Styles of Students as They Apply to the Classroom Teacher

MS Education	Marian Marion	May 2005	42
(Graduate Major)	(Research Advisor)	(Month/Year)	(No. of Pages)

American Psychological Association Style
(Name of Style Manual Used in this Study)

The world we live in is comprised of many individuals trying to understand one another. The school setting is no different, yet the classes are designed as if all pupils learn in the same manner. Teachers are constantly confronted with the challenge of teaching many individuals with different backgrounds, personalities, temperaments, and learning styles. There is not a best learning or teaching style. Teachers tend to teach using methods consistent with their own learning style. Understanding the differences and learning how to incorporate all styles in teaching enables the teacher to reach everyone in his/her classroom. Understanding a student's learning style means unlocking the door to that student's greater potential. The purpose of this study was to research personality types

and learning styles of students and formulate recommendations for professional educators. This study was conducted through a comprehensive review and critical analysis of research and literature focused upon the objectives of the study. The results of this study showed that an understanding of type can equip a teacher to better deal with daily learning situations. The researcher has five recommendations for teachers seeking to use learning style or personality type theories with their students: understand and know how to use the instrument, assess his/her own type first, categorize objectives based on the students' styles, develop instructional strategies in order to teach subject matter in each of the learning styles, and develop new methods for evaluating the effectiveness of the teaching and learning processes. If a student does not learn in the way we teach him/her, we must teach him/her in the way s/he learns.

ACKNOWLEDGEMENTS

I would like to express appreciation to the people who contributed knowledge and support during this research project including Dr. Ed Biggerstaff and Dr. Marian Marion, my advisors. I have also been supported by my husband Larkin. During the years this project took, he was there in every aspect. Without his love and support I would not have been capable of finishing this endeavor. I would also like to include my children Raydene, Nichole, Wesley, and Kendi. They have made sacrifices in order to give me the time I needed to complete this project.

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CHAPTER ONE

Introduction

The world we live in is comprised of many individuals trying to understand one another. The school setting is no different, yet the classes are designed as if all pupils learn in the same manner. Teachers are constantly confronted with the challenge of teaching many individuals with different backgrounds, personalities, temperaments, and learning styles. There is not a best learning or teaching style. Each learning style has its own individual characteristics that make it an effective tool for the student. Teachers tend to teach using methods consistent with their own learning style. Understanding the differences and learning how to incorporate all styles in teaching enables the teacher to reach everyone in his/her classroom and avoid potential problems with students becoming disinterested or uninvolved. Understanding a student's learning style means unlocking the door to that student's greater potential.

Mamchur (1996) stated,

Understanding individual learning preferences and differences is an increasingly popular and useful tool, serving teachers in four ways. First, teachers have a method to teach that is diverse and adaptive enough to meet the various learning style needs of students who are not necessarily oriented toward schooling. Second, teachers can indicate to students that they care about the individuality and integrity of each learner. Third, because learning style is related to teaching style, teachers can better understand their own teaching style and the strengths and weaknesses of the style. And fourth, teachers can gain insight into how they work together in this particular world we call school (p. 1).

Although all learning styles have equal intelligence, there are certain characteristics that lead to a higher drop out rate of one group over the others. Depending on the instrument one uses, this group is defined by different terms, but the characteristics are the same. The troublesome characteristics possessed by this group are impulsiveness, curiosity, and a need for spontaneous experiences. Unfortunately for this population of students, there are very few teachers who possess this personality type. School is often found to be very difficult for these students and there are no teachers to lend an understanding view. The current teaching methods cause this type of student to lose his/her energy, spirit, and love for life.

With the ever-growing problems in the classroom, it is necessary to look at solutions other than removing the students. By having one teaching style and many learning styles in the classroom, problems such as lack of motivation, lack of interest, and lack of involvement will arise. Much research in the area of learning and personality style is currently being done. Some of the current researchers are Dunn, Gregorc, and McCarthy. Dunn and Gregorc both believe that matching teaching strategies to student learning styles enhances a student's learning ability, information retention, and general satisfaction. They also believe a mismatch in this area can lead to an interference with learning (Adams, 1984). Through their research many books and articles have been written to help teachers find the importance of learning style and personality in the classroom. In-services can be devised around teaching teachers how to recognize the different learning and personality styles and how to teach to each.

While personality and learning styles are measured differently, they have very similar characteristics. The tools used to measure each have similar questions. This study will be seeking to find relationships between particular learning style and personality preferences.

Purpose of the Study

There are two objectives to this study. The first objective was to research the personality types and learning style of students. While personality types and learning styles are measured with different instruments, they have similar characteristics. This study looked at correlations between particular learning styles and personality preferences of students as they apply to the classroom. The second objective was to take the results of this study and formulate recommendations for professional educators. This study was conducted through a comprehensive review and critical analysis of research and literature focused upon the objectives of the study.

Definition of Terms

Attitudes: In Jungian Psychological type this is the extroversion, introversion, judging, and perceiving aspects that reflect the manner in which a person exists with the external world.

Dunn Learning Style Inventory (LSI): Instrument designed by Dunn and Dunn used to identify learning style differences between healthy people.

Functions: In Jungian Psychological type this is the sensing, intuition, thinking and feeling aspect that indicates the way a person gathers or takes in information and forms conclusions.

Learning Style Preference: A consistent method in which one perceives, gathers, and processes information. A measure of preference not ability.

Murphy-Meisgeier Type Indicator for Children (MMTIC): A self-report questionnaire designed by Elizabeth Murphy, Ed.D. and C. Meisgeier to make Jung's theory of personality types understandable and useful in everyday life. The instrument identifies the type preferences of children in grades 2 through 12. It is used to assist teachers in working with students and their individual learning styles.

Personality Type: A theory of personality developed by Carl Jung to explain the normal differences between healthy people.

Psychological Type: An underlying personality pattern resulting from the dynamic interaction of our four preferences, environmental influences, and our own choices (Myers Briggs, 1998 p. 8).

Sensing: Perception of the observable by way of the senses (Lawrence).

Temperament: Characteristic mode of emotional response.

Thinking: A logical decision-making process aimed at an impersonal finding (Lawrence).

CHAPTER TWO

Literature Review

Introduction

In this chapter the researcher reviewed the body of literature and research related to psychological types and learning styles. The theory of psychological type addresses how people experience life, absorb information and make decisions about that information. Cury (1987) described learning style assessment as consisting of four layers; personality, information processing, social interaction and multidimensional. This researcher reviewed two personality type assessments; the MBTI and the MMTIC, two information processing assessments; the Gregorc Style Delineator and the Kolb Learning Style Inventory, and one multidimensional model; The Dunn Learning Style Inventory.

Personality Type Assessments

The Myers-Briggs Type Indicator (MBTI) is a self-report questionnaire designed to take Carl Jung's theory of psychological types and make them understandable and useful in everyday life. It is designed to give the test-taker feedback that will help identify unique qualities and understand motivation and natural strengths as well as identify areas of potential growth. There are two authors for this test, Katharine Cook Briggs and her daughter, Isabel Briggs Myers. The both studied Carl Jung's ideas on psychological types and applied the theory to help them understand people in their lives. Isabel Briggs Myers began the development of the MBTI during the tragedies of WWII. She desired to give others the benefits she gained from knowing psychological type and understanding other's differences (Myers, 1998, p.5). The MBTI is widely used

in the United States and has been translated into more than 24 languages for use abroad in countries such as Germany, Japan and Italy. In the United States alone there are more than three million MBTI's administered each year. The test is used for purposes like career development in high schools, relationship counseling, and team building in businesses (Association for Psychological Type, 2002, p.2).

The MBTI consists of four dimensions. The first two dimensions deal with the mental processes or how information is taken in and decisions are made. The perceiving process determines how information is taken in. The Sensor (S) likes to take in information using observation of the real world using sight, touch etc. The Intuitive (N) likes to use perceptions of meanings, relationships and insight as a way to see the world around them. The judgment process determines how decisions are made. The thinking type (T) uses logical, impersonal methods to interpret information. The feeling type (F) uses personal values and considers others involved when making decisions on interpreting information. The third dimension determines where energy comes from. An Extravert (E) receives energy from the outside world. An Introvert (I) receives energy from within. The fourth dimension reflects the attitude taken toward the outer world. The Judger (J) plans every detail, making life very organized and structured. The Perceiver (P) likes spontaneity, flexibility and new experiences. By combining the four preferences a personality profile is created. Each profile has strengths as well as weaknesses (Lawrence, 1997, p. 7-12). There are many layers to the MBTI lending it to being administered and interpreted by qualified persons. Qualifications mainly consist of

training workshops and course work in psychological tests and measurements (Association for Psychological Tests, p.1).

The Murphy-Meisgeier Type Indicator for Children (MMTIC) is an instrument that measures psychological type using the same dimensions as the MBTI. The MMTIC is designed for students in grades 2 through 8. Murphy and Meisgeier (1987) state six uses for their instrument:

1. To contribute to the rearing, teaching, counseling and understanding of children;
2. To improve children's relationships with those in their lives;
3. To help children better understand themselves as well as others around them;
4. To help children identify their strengths thereby improving self-esteem, achievement and social interactions;
5. As an assessment tool in child and family therapy; and
6. To be used for research on the normal development of children.

There are two authors for this test, Dr. Charles Meisgeier, Professor at the University of Houston and Elizabeth Murphy, doctoral student. The study began with 160 questions designed around the characteristics of eight preferences described by the Myers-Briggs Type Indicator. The result was two forms for grades 2 to 5 and one form for grades 5 to 8. Like the MBTI the person administering and scoring the test needs special training.

Information Processing Assessments

The Gregoric Style Delineator is a self analysis tool designed to help a person recognize the method in which s/he takes in and analyzes information. The Gregoric

model has four constructs; concrete, abstract, random and sequential. The Concrete learner is a hands-on learner, needing to be involved with real objects. The Abstract learner likes detail and is capable of putting pieces together to form whole concepts. The Random learner does not like structure and learns in a holistic manner. The Sequential learner needs structure, order and to have clearly defined objectives (Sarasin, 1999, p.13). Four learning styles emerge from the constructs: Concrete Sequential, Abstract Sequential, Abstract Random and Concrete Random.

The author of this analysis tool is Anthony F. T Gregorc. As an educator he questioned why students were not learning what they were supposed to be learning. In order to answer this question he studied psychological forces styles and phenomenology. After eleven years of research he created the Style Delineator as a means of discovering the secrets of learning (Gregorc, 1982).

The Kolb Learning Style Inventory was designed by David Kolb with the assistance of Roger Fry. The Learning Style Inventory is a 12-item instrument in which subjects rank the four styles. David Kolb, a Professor of Organizational Behavior at the Weatherhead School of Management is known for his work with experiential learning. (Kolb, 1985)

The Kolb Learning Style Inventory was designed for use with businesses and business schools. Kolb felt his learning style inventory could be used to understand the learning needs of people going into business and thereby plan a curriculum that would best fit the learning needs of the students in business schools. Kolb's learning style

theory is based on a four-stage process; concrete experience, reflective observation, abstract conceptualization and active experimentation. Four learning styles emerged from Kolb: Converger, Diverger, Assimilator and Accommodator. The Converger is a combination of abstract conceptualization and active experimentation. This type of learner is strong in practical application and deductive reasoning. The Diverger is a combination of concrete experience and reflective observation. This type of learner is strong in imaginative ability and therefore can create new ideas. The Assimilator is a combination of abstract conceptualization and reflective observation. This type of learner is strong with theoretical models, inductive reasoning and abstract concepts. The Accommodator is a combination of concrete experience and active experimentation. This type of learner has strengths in problem solving and reacting quickly to immediate situations. (Holley & Jenkins, 1993)

Multidimensional Model

The Dunn Learning Style Inventory (LSI) has five stimuli preferences: environmental, emotional, sociological, physiological and psychological. Among the five stimuli there are 20 elements: sound, light, temperature, design, motivation, persistence, responsibility, structure, self, pair, peer/team, adult, varied, perceptual, intake, time, mobility, global/analytic, hemisphericity, and impulsive/reflective. Environment includes sound, light, temperature and design, all describing the place in which you are studying. Emotional includes motivation, persistence, responsibility and structure, all dealing with how the student approaches the task at hand. Sociological includes self, pair, peers/team, and varied, all dealing with the possibility of working

alone or with others. Physiological includes perceptual, intake, time and mobility. These elements deal with the attention of the learner; How long can s/he focus?; Does s/he like to eat or drink while working? Etc. Psychological includes global/analytic, hemisphericity, impulsive/reflective. This element deals with personality traits as described in the MBTI or MMTIC. The Dunn LSI consists of 104 questions, in which the individual rates on a Likert Scale, designed to identify the preferred learning style of the individual.

Kenneth and Krita Dunn are the authors of the Dunn LSI. They originally designed the LSI to help underachievers. Currently teachers, counselors and psychologists use the LSI to identify and describe a student's preferred learning style in order to help develop instructional strategies that enhance the student's learning.

Characteristics of Individual Types

The Sixteen Types of the MBTI/MMTIC

The ISTJ (introverted, sensing, thinking, judging) type is described as a person who is logical and analytical having an objective, tough-minded approach to decision making. An ISTJ arrives at decisions through careful and thorough thinking processes involving logic. The ISTJ is able to remain detached and focused on the issue not being concerned with the individuals involved. A statement used by Isabel Myers to describe the ISTJ is "If it works don't fix it." The ISTJ does not like change and will only allow change after much proof is given that the change will be better than the existing. There are few suggested areas for the ISTJ to work on. One area deals with decision-making,

the ISTJ is not able to make expedient decisions and is therefore not able to react to situations that require quick action. The ISTJ also has difficulty in responding to the needs of others due to the natural concentration to logic and not emotion. For this reason, the ISTJ may have difficulty working in groups. (Myers, 1998)

The ISFJ (introvert, sensing, feeling, judging) type likes harmony and cooperation and takes careful consideration to include others needs when making decisions. They are described as being kind and sensitive. The ISFJ carefully deliberates before making any decision and then sticks firmly to the decision. The ISFJ has respect for established procedures and authority, due to the belief that they exist because they work. The introverted feeling aspect of the ISFJ leads to some social difficulties. The ISFJ can feel unappreciated for his/her efforts to make sure everyone is happy and become the complainer, never actually saying what is wrong. The ISFJ finds it difficult to assert his/her personal needs, possibly leaving them unsatisfied. (Myers, 1998)

The INFJ (introverted, intuitive, feeling, judging) type is sensitive, compassionate and empathetic toward others. The INFJ is considered to be a visionary that follows his/her inner vision and will attain goals by whatever means necessary, even unconventional methods. He/she is insightful and creative and is usually seen as a complex, deep person. The INFJ is loyal to people and institutions that follow his/her dreams or vision but is not interested in those that do not. This type of person is deeply committed to his/her values and invests heavily in personal growth and development. The INFJ leads others by means of persuasion. The INFJ has difficulty giving the details

as to how he/she arrived at a decision. Most decisions are based on very little data.

(Myers, 1998)

The INTJ (introvert, intuitive, thinking, judging) type is described as conceptual long-range thinkers that see situations from a global perspective. The INTJ is often in a leadership role. He/she is independent and trusts his/her own insights regardless of what others may think. The INTJ person holds very high standards for him/herself. This type is quick to relate new information to previous patterns and identify problems to be solved. The INTJ sees problems with a rational, detached and objective view. The INTJ makes tough and decisive decisions based on clear and concise assessments. The INTJ can be seen as single-minded and critical of others who do not share their vision. They do not consider the impact of the decision on the people they affect. The INTJ does not always give the praise or intimate connection others need. (Myers, 1998)

The ESTP (extrovert, sensing, thinking, perceiving) type is an “energetic, active problem solver that responds creatively to challenging situations.” (Myers, p. 16). This type of person is interested in the activities around them, the people, the sounds etc. The ESTP doesn't get caught up in things, he/she likes to enjoy the moment and take things as they are. The ESTP is flexible, observant and practical. The ESTP can seem tough when making decisions through logical reasoning not considering emotional concepts. This type can have difficulty in meeting deadlines due to his/her distractibility and putting personal enjoyment before obligation. The ESTP appears to be self-involved and can forget activities that are meaningful to others. (Myers, 1998)

The ESFP (extrovert, sensing, feeling, perceiving) type is an enthusiastic lover of life that lives in the moment finding enjoyment in others. Everyone wants an ESFP to be in charge of a task because he/she likes to get things done with the most fun and least work. The ESFP is warm, sympathetic and good as responding quickly to the needs of others in crisis. The ESFP generally does not let rules interfere with his/her life and makes decisions using his/her personal values. The ESFP has difficulty with becoming distracted and overly impulsive. (Myers, 1998)

The ENTP (extrovert, intuitive, thinking, perceiving) type is capable of accomplishing anything he/she sets his/her mind to. The ENTP likes challenging and exciting situations here he/she can use imagination and creativity to devise quick solutions. The ENTP likes to improvise using resourcefulness to create global solutions. This type is seen as independent, creative, enthusiastic and outspoken. Sometimes he/she can be seen as being abrasive and critical of others. The ENTP values intelligence, competence and efficiency. People seen as not having these qualities are disregarded and seen as having nothing to contribute. (Myers, 1998)

The ENFP (extrovert, intuitive, feeling, perceiving) type is described as being a people person, warm, friendly and caring. The ENFP looks at situations with a spirit of adventure, using creativity, imagination and curiosity as the guide to life. The ENFP type has insight into others and is able to motivate and energize them into action. This type exuberates an enthusiasm that moves people. A downfall of the ENFP is the ability to be easily distracted and loose focus. They also fail to use logic, only using feeling, in decision-making. (Myers, 1998)

The ISTP (introvert, sensing, thinking, perceiving) type make good trouble-shooters. They are able to carefully observe a situation and arrive at a solution efficiently and effectively. The ISTP likes to have new and challenging problems to solve using objective analytical problem solving skills. The ISTP uses much information to make rational decisions. The focus of the ISTP is on results not relationships. The ISTP can overlook the needs and feelings of others when decisions are being made. The ISTP is generally seen as being confident, independent, action-oriented risk-takers. (Myers, 1998)

The INTP (introvert, intuitive, thinking, perceiving) type is seen as quiet, reserved and independent. The INTP prefer to work alone but make a great team member with an insightful assessment of issues at hand. The INTP can be thought of as skeptical. The INTP tends to need to form his/her own opinion, not taking other's opinion as fact. The INTP has an insightful, logical and analytical mind with which to observe and connect to possibilities beyond the obvious, making them ingenious and theoretical. The INTP can be insensitive to the feelings of others, eliminating others from the decision process. Things without logic are dismissed as unimportant. (Myers, 1998)

The ESTJ (extrovert, sensing, thinking, judging) type likes to be in charge of setting up large projects. The ESTJ is a great organizer and likes to follow through until a project is completed. A person of this type is a problem solver that can be tough when the situation calls for it. The ESTJ has a logical and analytical view on things, focusing on the concrete here and now. The ESTJ is seen as conscientious, dependable and self-confident. Sometimes the ESTJ can become rigid and appear to be a know-it-all. The ESTJ tends to use logic only and does not consider the impact on people. (Myers, 1998)

The ENTJ (extrovert, intuitive, thinking, judging) type is a natural born leader. He/she has the ability to take theory and render possible solutions to achieve short and long term goals. The ENTJ has the ability to organize and motivate people to get them moving in the right directions. The ENTJ is a “strategic visionary, adept at planning for the future needs of the people and organization for which he/she is responsible.” (Myers, p. 25). The ENTJ will seek knowledgeable, self-assured people for exchange of dialogue. Others may see the ENTJ as direct, objective and challenging. The ENTJ can be intrusive and direct, giving orders without listening to others’ opinions. (Myers, 1998)

The ISFP (introvert, sensing, feeling, perceiving) type can be described as a person who values privacy and the ability to make his/her own choices in life and allows others to do the same. It takes a lot of time for an ISFP person to build a relationship but once the relationship is established it is easy for the ISFP person to spontaneously show he/she cares. People see ISFPs as being quiet, reserved and tolerant. The ISFP tends to be trusting, kind, gentle and considerate. He/she is very aware of the feelings and needs of people around him/her. Sometimes the ISFP can become withdrawn and excessively critical of him/herself. (Myers, 1998)

The INFP (introvert, intuitive, feeling, perceiving) type is seen as a sensitive, complex, original individual, who can be difficult to understand. The INFP is guided by an “inner core of values.” The INFP can see the needs of others before they are outwardly expressed. An INFP person is very dedicated to works he/she is interested in but has a lot of difficulty finishing projects that hold no meaning to him/her. A person with this personality type rejects logic completely. An INFP enjoys reflecting on

possibilities of the future and finds structure and rules to be limiting. The INFP person likes depth, authenticity and mutual growth in his/her relationship. (Myers, 1998)

The ESFJ (extrovert, sensing, feeling, judging) type likes to be involved in organizing events like the ESTJ but also likes to be involved with the co-workers in completing the task. The ESFJ is an outgoing, socialite who values tradition. People see the ESFJ as being an organized, warm, cooperative and helpful person. The ESFJ person is considered to be very down-to-earth and practical. The ESFJ enjoys being genuinely involved in other people's lives and thrive off the interactions with others. The ESFJ derives comfort in structure and schedules. Harmony is very important to the ESFJ and he/she will do what it takes to keep it. The result of the ESFJ focusing entirely on the need of others is a lack of focus on him/herself. When the ESFJ neglects him/herself feelings of guilt, worry and doubt come about. (Myers, 1998)

The ENFJ (extrovert, intuitive, feeling, judging) type is a people person, valuing the emotional needs of others over all else. The ENFJ type has a tendency to bring out the best in others. This type is warm, compassionate, supportive and trustworthy. The ENFJ is good at bringing people with very different views together to form a consensus. Organization and closure are important to the ENFJ. Others see the ENFJ as being sociable, expressive and persuasive. The ENFJ has many of the same difficulty as the ESFJ, he/she can become too involved in others' satisfaction and neglect his/her own needs resulting in feelings of guilt and doubt. (Myers, 1998)

Gregorc's Learning Styles

The Concrete Sequential learner is described as a practical, predictable, to-the-point type of person. He/she is organized and structured usually with one focus at a time. The Concrete Sequential person is usually considered a perfectionist. He/She is product oriented, not person oriented. Concrete Sequential people are not known for being spontaneous or risk-takers. They are thorough and careful with detail, planning experiences to the last element. (Gregorc, 1982 & Butler, 1984)

The Abstract Sequential learner is described as the intellectual, studious type. This type of person is concerned with ideas and is oriented to analytical research. The Abstract Sequential person likes logical and evaluative learning situations. He/She is rational and not a dreamer. This person seeks proof and rational for situations or ideas. (Gregorc, 1982 & Butler, 1984)

The Abstract Random learner is described as interpretive, sensitive and thematic. Most people see the Abstract Random person as being colorful, lively and spontaneous. He/she is attuned to others and people oriented in decision-making. This type of person soaks in the world and then gives his/her own interpretation of it. (Gregorc, 1982 & Butler, 1984)

The Concrete Random learner is described as original, experimental and an option oriented risk-taker. This type of person likes to solve the problems of the here and now with trial and error. He/she is considered to be an inventive, practical dreamer. The Concrete Random person is a good trouble-shooter with his/her perceptive, insightful,

and creative ideas. This type is considered the type that never settles down with any one thing. (Gregorc, 1982 & Butler, 1984)

Kolb's Learning Styles

The Converger style is interested in data and objects. The converger prefers technical tasks and test questions with one answer. The converger uses logic and problem solving skills when assessing new situations. He/she also takes an active role in the learning process. He/she likes to learn by doing not watching. The area of feelings is not addressed by the converger. He/she much prefers fact to emotion. (Mathews & Hamby, 1995 & Holley & Jenkins, 1993)

The Diverger style is very strong in imagination. He/she likes to create new ideas and look at concrete situations from many different angles or perspectives. The diverger likes to work with others and values personal feelings. Divergers like to learn by watching and listening using careful observation skills. This type of person is a great idea man. (Mathews & Hamby, 1995 & Holley & Jenkins, 1993)

The Assimilator style prefers theoretical models to concrete situations. Assimilators like to use inductive reasoning with abstract concepts. They integrate observations into theories and models. Like the converger, the assimilator prefers to deal with situations using logic not emotion. And like the diverger, assimilators are careful observers of the world around them. (Mathews & Hamby, 1995 & Holley & Jenkins, 1993)

The Accommodator style is able to react quickly to situations that need immediate attention. Accommodators are task-oriented individuals that learn by doing. They rely

on others to give the necessary information for completion of a task. An accommodator prefers to be handed the instructions and left alone to complete the task. (Mathews & Hamby, 1995 & Holley & Jenkins, 1993)

The Dunn Learning Styles

The Dunn Learning styles do not consist of terms for individuals as the others but of a global picture of the learner. The Dunn gives a description of the conditions in which “a student is most likely to learn, achieve and solve problems.” (Blakemore, McCray & Coker, p. 41). After a student responds to the questionnaire, it is computer scored and a report is devised. The report gives a profile of the learner along with instructions as to where to find information on teaching the student.

Research

There is no shortage of research in the fields of personality profiling and learning styles. This researcher concentrated on research dealing with the instruments mentioned in the introduction. With the resources available to the researcher there was little research found for some of the instruments while others had a plethora of options.

The majority of research found was on the Myers-Briggs Type Indicator. Borg and Shapiro (1996) chose to use the MBTI in their study Personality Type and Student Performance in Principles of Economics because they felt it was easy to administer and there was much information available on the instrument. After reviewing literature in the area of economics and learning styles of students and teachers, the researchers hypothesized the NT students would be most comfortable with the principles of the class

and thereby do better in overall grade. They felt the NF and SP students would do the worst and the SJ students were left undecided. The study involved 119 macroeconomics students at the University of North Florida. They only studied the students who finished the course which may have altered the findings slightly. Another downfall to this study is the variability in teachers and teaching styles. There were three different professors with three different testing and grading styles. The researchers tried to accommodate for the difference in professors by having the professors personality style analyzed for comparison with the students personality profiles. Borg and Shapiro (1996) concluded personality type had an important influence on a student's ability for success in the economics field. Their study found three personality types (ENTP, ESTP and ENFP) did worse in the class than the other personality types. The ISTJ type had the best performance and was the most common personality type enrolled in the class. The recommendations of the researchers were:

1. Engage faculty in preferred learning and teaching style presentations
2. Allow more flexibility in assignments in the course
3. Consider other options for course material presentation, and
4. Allow for class discussion on the principles of economics.

The researchers did all they could to minimize effects of other factors on the grade of the student. They felt the study was very helpful in the formulation of ideas for incorporating all personalities into the field of economics.

S. Soliday and R. Sanders (1993) incorporated the MBTI in their study on personality and learning styles of secondary students. The purpose of the study was to

compare styles of vocational and non-vocational high school students. The researchers found there to be no previous information on learning or personality styles of vocational education students. The study involved high school students in Arkansas, Kansas, Louisiana, Missouri and Oklahoma. The states involved were chosen because of their similar vocational programs. The vocational students were enrolled in business education, health occupations, and trade and industrial education programs while the non-vocational students were chosen from junior and senior college bound or honors English classes at a comprehensive high school. The subjects consisted of 193 vocational students and 275 non-vocational students. The researchers used the MBTI because they felt the instrument was “the simplest and most reliable method of determining a person’s Jungian type”. Demographic information was also collected. The hypothesis was there would be no difference in personality types/learning styles of the two groups. The most frequent styles in the vocational group were ESTP and ISTP while ESFJ and ENFP were the most frequent in the non-vocational group. The researchers concluded with five recommendations for the vocational student:

1. Organization and task completion should be stressed in the classroom environment
2. Basic skills and content should be stressed in the curriculum
3. Product productions and drills are important in instructional strategies
4. Mastery learning, command style teaching and repetition should be included in teaching strategies, and

5. A variety of evaluations should be used including checklists, demonstrations and objective tests.

The researchers found all personality types included in both vocational and non-vocational education programs and therefore accommodations for all styles should be made in all courses.

In a follow up study by Opt and Loffredo (2000), the MBTI was used in comparing personality styles to communication apprehension. This was a second study done by the authors to narrow the effects of personality styles on communication apprehension. The first study found that introverts had more communication apprehension than extroverts. The authors felt the number of subjects in the first study was too small. The second study enlarged the sample size to 200 and included a comparison between the other dichotomies of the MBTI as well as the Extroverts and Introverts. The hypothesis is the Extroverts would have less apprehension in all four contexts of communication than the Introverts. Extroverts thrive off the energy of the outer world and Introverts need to process before expanding on ideas. The second part of the hypothesis stated Intuitors would have lower communication apprehension than Sensors. The Intuitors like to embrace the unknown. The Sensors on the other hand see the immediate world in concrete ways and have more difficulty in communicating in ambiguous situations thereby increasing the apprehension level. The third part to the hypothesis stated Thinkers would have lower apprehension than Feelers due to their ability to detach themselves emotionally. The fourth and final part of the hypothesis stated judging and perceiving would have no relationship to communication

apprehension. The study supported the hypothesis in the categories of extrovert/introvert, sensing/intuition and judging/perceiving but found no significant difference in the thinking/feeling category. The researchers recommended there be further study incorporating a combining of personality traits. They further recommend an examination of the education system to find ways of incorporating the less talkative student in regular classroom discussions.

Another study relating psychological type and anxiety or apprehensiveness was conducted with students at the College of Notre Dame. The researchers were looking to further investigate the interaction of psychological type and anxiety sensitivity on academic achievement. Each of the personality characteristics from the MBTI was divided into high and low anxiety sensitivity from the subjects' scores on the Anxiety Sensitivity Index. The judging-perceiving dimension resulted in significant findings. The judging types with high anxiety sensitivity and the perceiving types with low anxiety received better GPA's than judging types with low anxiety sensitivity and perceiving types with high anxiety sensitivity. There was also a correlation found between age and anxiety sensitivity and GPA. The age was negatively correlated with anxiety sensitivity and positively correlated with GPA. The researchers felt the results of the study inspired questions about combinations of personality traits and anxiety sensitivity. (Nyland, Ybarra, Sammut, Rienecker, and Kameda, 2000)

A study of college students at Marygrove College used the MBTI to teach the students how to learn. The first year students at Marygrove take a seminar on learning styles. During the seminar the students take the short form of the MBTI. The faculty

who teach the seminar decided it would be beneficial to track the students' progress to better serve incoming students. The study had four objectives:

1. Work with Student Support Services to keep building from the lessons in the seminar
2. Provide workshops for students to improve their weaker styles
3. Analyze styles of new students to identify clustering of styles in the population, and
4. Offer on-going support to faculty involved with the seminar.

The researchers found the population of Marygrove to consist primarily of NF students. The general population of NF people is 12% but Marygrove's population was approximately 40% NF. Some of the characteristics of the school they felt contributed to the high percentage include the small, warm, friendly environment and the concentration of liberal arts programs. The study was intended to only be relevant to the population studied. Other schools could repeat the study to find pertinent information for their students. The researchers concluded that students capable of using many learning styles are more effective than those strong in only one. Recommendations were made to help students build their personal learning style while helping them develop less dominant styles. This study provided suggestions as to how a teacher may accomplish the building of a well-rounded student. The researchers felt teaching a student how to learn was the most important lesson a teacher could teach. Once the student accomplished the lessons/he would be a "life-long learner capable of learning in diverse settings." (McClanaghan, 2000).

Harasym, Leong, Juschka, Lucier and Lorscheider (1996) involved a psychological type instrument, the MBTI, and a learning style instrument, the Gregorc Style Delineator in their study. The purpose of the study was to examine a possible relationship between the two measures. Achievement in an anatomy class and overall GPA were then compared to the styles. The researcher found in fact there was a connection between some traits of the MBTI and learning styles from the Gregorc Style Delineator. The thinking-feeling dimension of the MBTI showed learning styles of abstract sequential and abstract random as described by Gregorc. Concrete Sequential and Concrete Abstract exhibit traits of Sensing-Intuiting and Judging-Perceiving. The researchers indicate evidence of contradictions to Myers' and Gregorc's research. They feel their study shows only three bipolar dimensions in the Myers-Briggs instead of four and three factors instead of four in the Gregorc Style Delineator. The researchers also claim no correlation between the instruments and grade in the class or overall grade point average. The sample size of this study was 259 students from one field of study. The sum numbers in the MBTI types were very small, less than 10. A broad statement of no correlation would require a sample size much larger. The majority of the students fall within five of the sixteen types. The numbers for the Gregorc Style Delineator are also skewed. Nearly 200 of the 259 subjects fall within two categories, Concrete Sequential and Abstract Random, leaving the other two categories underrepresented. The authors do recognize the study's limitations due to the restricted sampling but feel other investigations are necessary.

Professors at the University of Arkansas wanted to determine if there was a dominant learning style in their field of Vocational Education. The researchers chose the Gregorc Style Delineator for determining the learning styles of the students because of its ease in administration and analysis. The study had two purposes, 1) to determine if there was a dominant style in the technical education institutes in Arkansas and 2) to determine if program area, work experience or gender led to significant learning style differences. The study involved 322 students at ten post-secondary schools in Arkansas. The researchers found only about 50% of the students had a dominant learning style and the majority of those were Concrete Sequential. About 45% of the students had dominance in two learning styles and the rest had no dominance. The Concrete Sequential also yielded significant differences between students with no work experience and students with work experience. The significance implies a concrete sequential person may be more likely to train for a different career after a number of years working. The researchers recommend the teachers should recognize all learning styles as important, as they were all present in the study. (Orr, Park, Thompson & Thompson, 1999).

Fourqurean, Meisgeier, and Swank (1998) studied the relationship between learning style preferences and Jungian psychological type. The participants consisted of 492 ninth grade participants from a large metropolitan high school. The students were mostly white and from above average socioeconomic backgrounds. There were three tests given by the students' teacher; the Murphy-Meisgeier Type Indicator for Children (MMTIC), the Dunn Learning Style Indicator (LSI), and the Renzulli Learning Style Indicator (LSI). The participating teachers received training in administering the tests.

There was a brief insert in the instructions to the MMTIC because of the lower maturity level of the questions in order for the students to take the test seriously, as it is designed for elementary students. A correlation procedure was used to determine if relations existed between the Dunn LSI and the Renzulli LSI and the MMTIC. The results showed the extroversion-introversion and judging-perceiving dimensions of the MMTIC were both related to specific learning preferences. Two basic needs for learning were brought out through this data, the need to work alone to learn and the need to work with others to learn. The results of the study suggest psychological type may be useful as a guide for understanding how student preferences interrelate and affect teaching and learning.

Researchers using the Kolb Learning Style Inventory wanted to establish if there were differences in learning styles between high school and college students and to determine if style preferences differed with sex and race. (Mathews & Hamby, 1995). The study incorporated over 6000 high school students and over 1800 college students. The demographics of the students included a variety of races as well as a variety of school types. The results of the study showed African American college students, male or female, are more active in information processing and less active in human relations than similar high school aged African Americans. African American college students preferred analytic, one-answer problems. Caucasian female college students rely on creativity for the answers rather than a right/wrong style more than high school females. Abstract reasoning for Caucasian males and females decreased from high school to college age individuals. The percentage of each learning style was very similar in both

groups. The researchers found the weakness of the study to be the unequal distribution of participants. The high school population was over represented and all of the schools came from the same state. The researchers felt this was a pilot study that warranted further study.

Another study using the Kolb Learning Style Inventory was done by Holley and Jenkins (1993). Their study investigated the relationship of the accounting students' LSI and performance on several accounting test formats. Previous studies showed the majority of accounting students' learning style was Converger. This learning style has dominant learning abilities of abstract conceptualization and active experimentation. This study was designed to educate professors in the area of learning style characteristics associated with different test formats to enable them to construct tests that would evaluate the students knowledge of accounting. The researchers discovered multiple-choice tests had no variance across learning style constructs whereas objective, open-ended questions had significant influence across the learning style constructs. Different learning styles have different reactions to objective test questions. The researchers feel this is a problem for certification of accounting students. They feel performance cannot be generalized across subject matter when testing format differs. The researchers felt making a connection between the dominant characteristics of students in the accounting program and test preference styles has a potential to influence the student's future career performance. The study is limited because the research is done at one school with one professor and with a minimal sample size. Holley and Jenkins' results justify more research in this area.

CHAPTER THREE

Summary

A review of the literature reveals that all classrooms consist of people representing each learning style, no matter which measure is used to determine learning style, but not all styles are represented equally. The authors of each of the instruments studied in this research all seem to have a similar theory, that is, everyone possesses all characteristics but prefer to use one more than the others. Some of the authors believe the teacher should try to help develop the less used characteristics, while others think it is important to show the student his/her strengths and teach him/her how to use them. Murphy states, "By understanding each of the sixteen psychological types, adults can increase their awareness of more effective ways to help children grow and develop their special gifts and talents." (p. viiii). Myers believes:

"Taking the MBTI and receiving feedback will help you identify your unique gifts. The information enhances understanding of yourself, your motivations, your natural strengths and your potential areas for growth. It will also help you appreciate people who differ from you. Understanding your MBTI is self-affirming and encourages cooperation with others." (p. 5)

Gregorc's view is "Although each style has its own complete view of the world, it is inappropriate for any of us to operate solely with one style. First, all four styles exist in every individual mind; second, we deny expression to part of ourselves if we insist on using only one style." (Butler, p. 11) The fact that all styles are represented leaves a multitude of problems for the teacher to figure out how to reach all the individuals.

Most authors agree preferences do not restrict people from using their less preferred functions. School instruction fits some styles better than others and students learn to adapt. Some functions are developed early while others tend to develop over a lifetime.

Recommendations

Personality and learning style theories help us to see that people learn and teach differently because they are different. By learning the necessary techniques, teachers will be able to recognize the strengths their style brings to the teaching process and learn how to communicate with students who have other styles. Understanding type can equip a teacher to better deal with daily learning situations.

Lawrence studied the sixteen types and made recommendations for teaching to each type in his book. Extraverts need to learn by talking out a problem allowing the thoughts to form and learning through interactions. They need the teacher or someone to begin an idea in order for reflection and concentration to begin. Introverts on the other hand prefer quiet reflection until his/her thoughts are perfected. They like to read on their own and listen to others talk about a subject. They are always looking for new information that builds on previous knowledge. Sensors prefer facts and memorization. They need a practical, logical method to deal with new information. They also like to use all their senses when learning. Intuitors like to be inspired. They rely on insight and reading between the lines for their understanding of new material. They focus on the big picture rather than the little details. Thinkers like to look at situations with little emotion, keeping a logical approach to analyzing new information. They like to bring order and



logic out of confusion. Feelers like to study topics they really care about, something they can get excited over. They want the teacher to allow them to pick their own topic to write about or research. They learn best by helping someone else. Judgers need structure for learning. They like a teacher who gives them a paper outlining exactly what to do and when to do it. They like predictability and consistency. They do not like change or surprises. Perceivers need to explore all options to an assignment. They like to be spontaneous and impulsive. They need projects that allow them to discover new things.

Gregorc's Concrete Sequential learners need to incorporate physical activity in daily learning. They like to use tools and other objects for tactile stimulation. The Abstract Sequential learners connect best working on their own with structured activities. They thrive when placed in positions of responsibility. They are usually considered the "good student." The Abstract Random students like stress-reducing activities like creative drawing or relaxing to music. They enjoy socializing and like group activities. They also like the use of multimedia productions as teaching methods. The Concrete Random students are independent explorers. They like to create and think in unconventional ways. They enjoy independent projects that allow them to use problem-solving skills. (Butler, 1984)

The researcher has five recommendations for teachers seeking to use learning style or personality type theories with their students.

1. The teacher needs to understand and know how to use the instrument s/he chooses to use in determining learning style or personality type. If the teacher is well

versed with type dynamics s/he may choose to use her/his own personal interpretations of the students instead of administering type tests to the class.

2. After deciding to use a personality type indicator or learning style inventory in the class, the teacher should assess her/his own characteristics to better understand that her/his type preference influences instructional presentation, format of test questions, classroom rules, judgment of students and the overall way s/he teaches.
3. After identifying her/his own characteristics and the characteristics of the class, the teacher should categorize objectives based on the students' styles, identifying the dominant perception and judgment function involved in each learning task.
4. Next the teacher should develop instructional strategies so that every objective is taught in each of the learning style forms in order to affirm the various styles of the learners and increase depth and breadth of curriculum content.
5. As the teacher restructures the learning environment to accommodate various learning styles, new methods of evaluations need to occur to determine the effectiveness of the teaching and learning process. Implementing alternative evaluation methods will provide the teacher with more complete and accurate information about the capabilities of their students. Evaluations may include cooperative group forms, simulated situations, questions on audiotape and student created projects.

A curriculum incorporating all the styles will include strategies of demonstration, drill, lecture, competitive games, collaboration, personal discussion, small-group activities, debate, role play, and simulations. Eiszler (1983) claims that varying teaching strategies

to address all channels promotes learning no matter what students' preferences of cognitive styles are. Dunn (1979) showed that slow learners tend to increase their amounts of achievement when varied multi-sensory methods were used as a form of instruction. Today low achievement is blamed directly on the teachers and their teaching methods. Just juggling requirements of courses without attention to what needs to occur between teachers and students inside the classroom will not produce prepared students. Students need to feel confident they can learn as well as possess the skills needed to facilitate their learning. Students who understand their learning styles and who exercise active control over their cognitive skills do better in school (Keefe, 1991). If a student does not learn the way we teach her/him, we must teach her/him in the way s/he learns.

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