



# Journal of Adult Education

Volume 40, Number 2, 2011



## Learning Strategy Preference and Personality Type: Are They Related?

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### Abstract

This study investigated the relationship of learning strategy preference to personality type. Learning strategy preference was identified with the Assessing The Learning Strategies of AdultS (ATLAS), and personality type was measured with the Myers-Briggs Type Indicator (MBTI). The findings indicate that while overall personality type is not related to learning strategy preference, three of the four indicators of personality type show a relationship to learning strategy preference. Consequently, while stereotypes cannot be made to link approaches to learning with overall personality types, certain personality traits can be indicators of how one might be approaching learning tasks.

### Introduction

The central question of how adults learn has been the focus of attention for adult educators since the development of the professional field of practice in the 1920s. While no single model has emerged to explain how adults learn, the two foundational pillars for the field have been the theories of andragogy and self-directed learning (Merriam, 2001, p. 3). These two theories “describe adult learning as a learner-centered activity. This focus mandates that individual differences be identified” (McClellan & Conti, 2008, p. 14).

### Cognitive Styles

The quest for understanding individual differences is associated with the concept of “style” (Riding, 1997, p. 2). The concept of style is used in many ways, but it

is “always associated with individuality and is invariably used to describe an individual quality, form, activity, or behavior sustained over time” (p. 2). When this individuality is applied cognition, it is referred to as cognitive style. Developing from the work of Jung in the 1920s (Sternberg & Grigorenko, 1997, p. 701) and the work by Allport in 1937, cognitive style can be viewed “as a person’s typical or habitual mode of problem solving, thinking, perceiving and remembering” (p. 2). Studies related to cognitive styles “initially developed as a result of interest in individual differences” (Riding & Cheema, 1991, p. 2).

Grigorenko and Sternberg (1995) identified three distinct periods of work in psychology related to the cognitive style tradition. The first, which was a 30-year period starting in the 1940s, was a period in which psychologists investigated individual differences as they related to cognition and perception. The second period,

which began in the 1970s, focused on ways of addressing individual differences for learners in the classroom. The third and current period focuses on the learner with an increased emphasis on how individual differences influence the teaching-learning transaction. This learner-centered period seeks to clarify concepts associated with cognitive style (Riding, 1997, p. 4).

Although the idea of cognitive style has been around for a long time, “the cognitive style construct has been elusive” (Riding & Cheema, 1991, p. 1). One way to overcome this elusiveness is to “search for individual differences which are basic, in the sense that they underlie (and to that extent, explain), a whole range of more readily observable differences” (Lewis, 1976, pp. 304-305). This can be achieved by examining the different dimensions that make up cognitive style. In her work with adult learners, Cross (1976) recognized that cognitive style is made up of several dimensions.

People see and make sense of the world in different ways. They give their attention to different aspects of the environment; they approach problems with different methods for solution; they construct relationships in distinctive patterns; they process information in different but personally consistent ways. (p. 115)

This study focused on two of these cognitive style dimensions; these dimensions are learning strategy preferences and personality style.

## **Learning Strategies**

One of the distinguishing characteristics of adult learning is that it is learner directed. Based upon Knowles’ conceptualization of andragogy (Knowles, 1970; Merriam, 2001), the overall goal of the teaching-learning transaction is to move the learner toward greater self-direction regardless of age.

“Individual differences have always been identifiable and have long interested educators” (Smith, 1993, p. 24). Kolb (1984) focused the discussion of individual differences by conceptualizing learning styles as based upon how people perceive information to gain

new insights through either abstract thinking or concrete experiences and how people process this information to internalize it either through observing and reflecting on it or by working with the new information to test it. While learning styles can “serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment” (Keefe, 1982, p. 44), they are not something that an instructor can teach to a learner because they are inherent within the learner. This has led educators to examine the concept of learning strategies. “Learning strategies are the techniques or skills that an individual elects to use in order to accomplish a learning task. They differ from learning style in that they are techniques rather than stable traits and they are selected for a specific task” (Fellenz & Conti, 1989, pp. 7-8).

While learning strategies grew out of the work by McKeachie (1988) and Weinstein (1987) to teach study skills to students in higher education, the concept of learning strategies for adults has focused on real-world learning for everyday life (Sternberg, 1990). In the field of adult education, learning strategies have been conceptualized as being composed of the five areas of Metacognition, Metamotivation, Memory, Critical Thinking, and Resource Management. Metacognition is knowing about and directing one’s own thinking and learning process and includes the three strategies of Planning, Monitoring, and Adjusting. Metamotivation is an awareness and control over factors that energize and direct one’s learning and includes the three strategies of Attention, Reward/Enjoyment, and Confidence. Memory involves the mental processes used to store, retain, and retrieve knowledge and includes the three strategies of Organization, Use of External Aids, and Memory Application. Critical thinking is a reflective thinking process utilizing higher order thinking skills in order to improve learning and includes the three strategies of Testing Assumptions, Generating Alternatives, and Conditional Acceptance. Resource management is the process of the identification, evaluation, and use of resources relevant to the learning task and includes the three strategies of Identification of Resources, Critical Use of Resources,

and Use of Human Resources.

Much of the research related to adult learning strategies has resulted from a programmatic line of inquiry by doctoral students in the Adult Education programs at Montana State University and Oklahoma State University. Collectively, this research has revealed that “while learners have flexibility in the learning strategies that they can select for a specific task, the research indicates that when learning strategies are defined by the five concepts...[of Metacognition, Metamotivation, Memory, Critical Thinking, and Resource Management], there are clear patterns in the learning strategies which people have a propensity to use when *initiating* a learning activity” (Conti, 2009, p. 889). Statistical analyses using multivariate analysis and follow-up interviews have confirmed three distinct learning strategy preference groups. These groups have been named Navigators, Problem Solvers, and Engagers. Using a data set of 3,070 North American participants, “the distribution of the respondents among the three groups was relatively equal: Navigators--1,121 (36.5%), Problem Solvers--973 (31.7%), and Engagers--976 (31.8%)” (p. 891). Additional research has shown that a person’s learning strategy preference is not related to gender or age (p. 889).

The three learning strategy preference groups differ in how they seek to accomplish a learning task. “The Navigators and Problem Solvers initiate a learning task by looking externally from themselves at the utilization of resources that will help them accomplish the learning. Engagers, on the other hand, involve themselves in the reflective process of determining internally that they will enjoy the learning task enough to finish it” (Conti, 2009, p. 891). Thus, Navigators and Problem Solvers initiate their learning from the cognitive domain while Engagers begin in the affective domain. Navigators are focused learners who prefer a well-planned, structured learning environment complete with feedback that allows them to monitor their progress and remain on course. Problem Solvers are learners who rely heavily on the critical thinking strategies of generating alternatives, testing assumptions, and practicing conditional acceptance.

Problem Solvers prefer a learning environment that promotes creativity, trial-and-error, and hands-on experimentation. 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. Personal growth, increase in self-esteem, helping others, and working as part of a team for a worthwhile project are emotionally rewarding to Engagers and will motivate them to embark upon and to sustain a learning experience.

Assessing The Learning Strategies of Adults (ATLAS) has been developed to identify one’s learning strategy preference (Conti, 2009). ATLAS is a valid and reliable instrument for identifying the three groups of Navigators, Problem Solvers, and Engagers. “It can help learners become aware of how they initiate a learning task and can help instructors plan learning activities to address individual differences” (p. 895).

### Personality Types

Personality style or type is a widely accepted concept among educators (Noring, 1993). This concept is based upon Jung’s writing on personality and has been popularized by the availability of the Myers-Briggs Type Indicator (MBTI). The essence of the theory underpinning the MBTI is that much behavior which seems random is actually very orderly and consistent due to the basic differences in the way people prefer to use their perception and judgment (Myers & McCaulley, 1985, p. 1). “Perception involves all the ways of becoming aware of things, people, happenings, or ideas. Judgment involves all the ways of coming to conclusions about what has been perceived” (p. 1).

The MBTI, which was developed in the 1940s and has been continually updated, contains four separate indices concerning what people attend to in a given situation and how they draw conclusions about what they perceive (Myers & McCaulley, 1985, p. 2). These orthogonal scales measure (a) how a person is energized, (b) what a person pays attention to, (c) how a person decides, and (d) what lifestyle a person prefers (Noring, 1993). Extensive research has been done over

the years to establish and confirm the validity and reliability of the MBTI and to keep it current with changing social conditions (Myers & McCaulley, 1985, Chapter 9).

The MBTI continues to be popular for both practitioner and research usage. “More than 2 million people in the U.S. alone take the Myers-Brigg Type Indicator (MBTI®) personality test each year, and it has been translated into more than 30 languages (Weiler, Keller, & Olex, 2012, p. 234). It is used worldwide in such diverse places as Hong Kong (Ko & Chau, 2010), Iran (Rahimi & Asadollahi, 2012), and South Korea (Sunhi Bak, 2012). It is used with various age groups at different education levels from children (Oakland & Lee, 2010) through high school (MacLellan, 2011) to college (Liang, 2011). The MBTI has been used to link personality types with a variety of topics such as emotional intelligence (Snider & Luchini, 2011), job training (Llorens, 2010), reading comprehension (Sadeghi, Kasim, Tan, & Abdullah, 2012), teacher development (Rushton & Richard, 2007), team development (Higgs, Tolkacheva, de Witte, & Kuipers, 2009), and visual impairment (Sunhi Bak, 2012). It is used with diverse audiences such as business (Daisley, 2011), coaches (Holloway, Rawle-Cope, & Passmore, 2010), college faculty (Moehl, 2011), new college students (Ellis, Allan, & Jensen, 2011), nurses (Durham, 2009), and online students (Dewar & Whittington, 2000; Harrington & Loffredo, 2010).

### **Purpose and Methodology**

The purpose of this study was to measure the relationship between learning strategy preferences and indicators of personality type. Learning strategy preference was identified with ATLAS, and personality type was measured with continuous scores on the MBTI. In this casual-comparative study, the research questions directing the research were (a) what is the relationship of learning strategy preference to overall personality type and (b) what is the relationship of learning strategy preference to the four indices constituting personality type.

Data were collected from 553 volunteers in Alberta, Canada, and in the states of Montana, Nebraska, New Mexico, Oklahoma, and Texas. This group was composed of Adult Basic Education teachers, public school teachers, professionals who teach adults in various agencies, adult students returning to a nontraditional college credit program, fire fighters, students in continuing education classes, community college students, and college students.

Respondents provided information concerning their age, gender, ethnicity, and educational level and then completed both the ATLAS and the 94-item version of the MBTI. The sample consisted of 321 females (58.2%) and 231 males (41.8%). The average age of the group was 30.8 with a range from 18 to 90. The ethnic make-up of the group was as follows: White--83.9%, Native American--6%, African American--4.9%, Hispanic--4.2%, and Other--1%. The educational level of the respondents varied as follows: Less than a high school diploma--.7%, high school diploma--37%, vocational or educational certificate--11.5%, associates degree--24%, bachelors degree--13.9%, and graduate degree--13.8%. The respondents were distributed across the three learning strategy preference groups as follows: Navigators--199 (36%), Problem Solvers--142 (25.7%), and Engagers--212 (38.3%).

### **Findings**

“The MBTI contains four separate indices...Each index reflects one of four basic preferences which, under Jung’s theory, direct the use of perception and judgment” (Myers & McCaully, 1985, p. 2). The Extraversion-Introversion (EI) index measures attitudes concerning whether to direct perception judgement mainly on the outer world or on the inner world of ideas. The Sensing-Intuition (SI) index focuses on the process of perceptions as being either depending on observable facts which can be ascertained by the five senses or on intuition which may be determined beyond the conscious mind. The Thinking-Feeling (TF) index reflects a person’s processes of judgement as relying primarily on thinking to decide impersonally through

logical thought or as relying on feeling to decide on the basis of personal or social values. The Judgement-Perception (JP) index describes a person's style of dealing with the outside world either by using a judgement process involving thinking or feeling or by using a perceptive process involving either sensing or intuition. "The preference on each index is independent of preferences for the other three indices, so that the four indices yield sixteen possible combinations called 'types'" (p. 2).

Since personality type has been conceptualized as the interaction of the 4 scales on the MBTI which produces 16 different personality types, the data were first analyzed using discriminant analyses (Conti, 1993; Klecka, 1980) to determine the relationship between learning style preferences and personality type. With this multivariate procedure, the respondents were divided into three groups based on their ATLAS scores, and the interaction of the four MBTI indices were examined. The results of this discriminant analysis indicated that learning strategy preferences are not meaningfully related to personality types. The discriminant function which was produced in this analysis was only 46.1% accurate in placing the respondents in their correct learning strategy group; the accuracy for each group was as follows: Navigators--61.3%, Engagers--40.1%, and Problem Solvers--35.8%. Since a random assignment of the responds to groups could expect an accuracy rate of 33.3%, the discriminate function was only a 12.8% improvement over chance. This low accuracy rate was reflected by an eigen value of .14 and a canonical correlation of .35 which indicates that the learning strategy preference groups only accounted for 12.3% of the variance in the analysis. Because of the lack of accuracy in the classification ability of the discriminant function and because of the low amount of variance accounted for by the process, this function, which was based on personality indices, was judged as not being useful for discriminating between the three learning strategy preference groups.

Although a person's overall personality type is not related to learning strategy preferences, three of the four personality indices do have a significant relationship

with learning strategy preferences. Using continuous scores which are a linear transformation of the respondent's preference scores (Myers & McCaully, 1985, pp. 9-10), one-way analysis of variance indicated that the SN ( $F=20.22, df=2/550, p<.0001$ ), TF ( $F=8.02, df=2/550, p=.0004$ ), and JP ( $F=34.02, df=2/550, p<.0001$ ) indices are related to learning strategy preferences. The EI index ( $F=.84, df=2/550, p=.43$ ) showed no significant differences among the groups.

The post hoc comparisons of the three significant analyses using the Tukey test revealed that the learning strategy preference groups associated with each other differently on each index. Scores on the continuous scale for each index can range from 33 to 167. The midpoint for each index is 100. Scores below 100 are associated with the first term in the name of the index while those above 100 are associated with the second term in the name. On the Sensing-Intuition index, the Navigators ( $M=81.9$ ) were strong on the Sensing side of the scale while the Problem Solvers ( $M=98.1$ ) and the Engagers ( $M=95.2$ ) were near the midpoint but also on the Sensing side of the scale. On the Thinking-Feeling index, the Navigators ( $M=92.7$ ) and Problem Solvers ( $M=94.4$ ) were on the Thinking side of the scale while the Engagers ( $M=101.7$ ) were slightly on the Feeling side. The largest differences between the groups were on the Judgment-Perception index. Here the Navigators ( $M=85$ ) were strongly on the Judgment side of the scale while the Engagers ( $M=105.6$ ) and Problem Solvers ( $M=106.7$ ) were on the Perception side of the scale. In all three analyses, the Navigators and Engagers were in different groups. However, the Problem Solvers align with each of these groups on the various scales; on the SN scale, the Problem Solvers are like the Navigators while they are like the Engagers on the TF and JP scales.

As with the past research related to learning strategies (Conti 2009, p. 889), the use of learning strategies was not associated with demographic variables. No differences existed among the learning strategy groups on the demographic variables of gender ( $F=.90, df=2/549, p=.41$ ), age ( $F=.61, df=2/527, p=.54$ ), or level of education ( $F=.55, df=2/546, p=.55$ ).

## Discussion

Although the characteristics of the learning strategy preference groups can easily lead one to speculate that certain types of learning patterns can be linked with specific personality types, no significant relationship was found between overall personality type and learning strategy preference; that is, personality type is not a predictor for discriminating among learning strategy preference groups. Thus, stereotypes cannot be made to link approaches to learning with overall personality types. It cannot be assumed that people will have a certain type of personality just because they approach learning in a certain way. Instead, the various personality types can be expected to exist within all three types of learning preference groups.

While the interaction of the various personality type indicators failed to show a relationship to learning strategy preference, three of the four indicators did show an individual relationship to learning strategy preference. While no differences were found on the Extraversion-Introversion scale, the Navigators were more Sensing and more Judging than the Problem Solvers and the Engagers. The Engagers were more Feeling than the Navigators and the Problem Solvers. Thus, those in the various learning strategy preference groups have differing degrees of support for the various personality type indices which is not related to the comprehensive personality types theorized by the MBTI.

However, certain personality traits can be indicators of how one might be approaching learning tasks. The developers of the MBTI argue that overall personality type is a combination of the four indices which make up the measure. This combination cannot be associated with the learning strategy preference groups because the Problem Solvers share personality traits in common with both the Navigators and the Engagers. Nevertheless, the individual traits that make up this combination can be associated with the groups. Of these, the traits of the Navigators are the strongest. Navigators have the strongest scores on Sensing, Thinking, and Judgement. These all indicate a

preference for dealing with concrete items in a realist way. They favor making logical connections, planning operations, and organizing activities; they are not afraid to make a decision and to move toward closure on things (Myers & McCaulley, 1985, pp. 11-14). Engagers tend to rely more heavily than Navigators on subjective feelings and upon adapting incoming information to address immediate realities. The Problem Solvers are similar to the Engagers on Intuition and Perception, but they tend to rely more on making logical connections like the Navigators than on subjective feelings like the Engagers.

Thus, as with any concepts that have the potential of labeling people, care must be taken in how they are used. Learners cannot be labeled in their personality type because of the way they go about the learning process. However, certain traits that are associated with personality can be useful in providing insights about how people learn. Such a knowledge could help learners better understand how they go about the learning process. For the teacher, types of information such as this “can be beneficial to the selection of appropriate methods and techniques when they are used to focus understanding, discussion, and reflective thought about the learner; however, they can be detrimental if they are used to avoid critical thinking about the learners” (Conti & Kolody, 2004, p. 189). By providing instructors with additional tools for better identifying ways to help adults learn effectively, this knowledge can be an important element in addressing individual differences in the learning process.

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