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MMTIC as an Indicator of At-Risk Elementary and Middle School Students

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MMTIC AS AN INDICATOR OF AT-RISK ELEMENTARY AND MIDDLE SCHOOL STUDENTS

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Dedication

To:

God, who guides my path and is my center.

Thadene, who plugged me back in to God and universe.

Daniel Joseph, the best gift I ever got from God.

NiCole Christine, who keeps me laughing.

Susan, who analyzes everything with me.

Julie, who listens.

Mom and Dad who supported my efforts.

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Chapter One

Introduction

Psychological type provides information about the manner in which individuals relate to the world and operate during life (Jung, 1971). Meisgeier and Murphy (1987) determined that the way children order and make decisions about the information they uniquely assimilate from their environment, is determined by psychological type. Jung (1971), Meisgeier and Murphy (1987) and Myers and Myers (1995) concluded that personality and learning style are influenced by an individual's psychological type. Undetermined preference areas may appear as stumbling blocks in developmental areas (Meisgeier & Murphy, 1987). According to Meisgeier and Murphy (1987), type development begins in early childhood and children begin to use stylized ways of learning during the elementary school years.

Type preference, or psychological type, was first developed by Carl G. Jung (1971). He defined type as the preference for one of two attitudes and two of four functions, resulting in eight personality types. Isabel Myers and Katherine Briggs later developed a series of questions designed to measure distinctive differences and classify adult personality type (Myers & Myers, 1995). This instrument was called the Myers-Briggs Type Indicator (MBTI). Most recently, a comparable instrument, the Murphy-Meisgeier Type Indicator for Children (MMTIC), was developed to classify typology in

children (Meisgeier & Murphy, 1987).

A category unique to the Murphy-Meisgeier Type Indicator for Children denotes U-band scores, indicating that a bipolar preference was not clear enough to assign a preferred type on one or more scales (Meisgeier & Murphy, 1987). The lack of preference may be present due to inexperience or limited exposure and choices, educationally or otherwise (Forqurean, Meisgeier, & Swank, 1990). According to O'Rourke (1990), maturation of personality is dependent on gaining competence within preferred functions, while strengthening less preferred functions. Synthesis and flexibility of function is the result (O'Rourke, 1990).

Knowledge of individual type may be used as a tool to enhance the learning process (Meisgeier & Murphy, 1987). Type indicates individual preferences for specific methods of taking in and processing information and can affect the processes of assimilation and retention (Meisgeier & Murphy, 1987). When teachers impart information through preferences or strengths, students remember more than when taught through their least preferred modality (Dunn, 1989). Students are more likely to master skills and retain information when taught through methods and with resources that compliment their style (Dunn, 1989). Exposure to many learning styles may enhance the development of undetermined preference, as well as empower students to discover their personal learning strengths (Meisgeier &

Murphy, 1987).

Intent and Goal

The researcher's intent and goal was to determine whether the MMTIC can be used as an indicator of at-riskness in school aged children and to ascertain whether or not the presence of one or more U-band scores, on the MMTIC, is one of those indicators. For the purpose of this study, at-risk students were classified by type, as well as by undetermined versus clear preference, on each of the four preference scales. The scale preference and the total number of U-bands within each individual's score were also a means of grouping students in the sample.

At risk students are those whose educational outcomes become jeoperodized due to academic deficits, often involving a lack of connection with school and/or learning (Fourqurean, Meisgeier, & Swank, 1988b). In many cases delays in educational and social development provide clues for parents and/or educators. Eggen and Kauchak describe at-risk children as, "...students in danger of failing to complete their education with the skills necessary to survive in modern society." (1996, p. 349).

Hypotheses

Null hypothesis 1: The distribution of MMTIC scores on each preference scale - extroversion/U-band/ introversion (EUI), sensing/U-band/intuiting/ (SUN), thinking/U-band/feeling (TUF) and judging/U-band/

perceiving (JUP), for the at-risk sample, conforms to the distribution of scores attained by Tobacyk, Hearn, and Wells, (1990), in their sample of students at high risk for drop-out.

Alternative hypothesis 1: The distribution of MMTIC scores on each preference scale - extroversion/U-band/ introversion (EUI), sensing/U-band/intuiting/ (SUN), thinking/U-band/feeling (TUF) and judging/U-band/ perceiving (JUP), for the at-risk sample, does not conform to the distribution of scores attained by Tobacyk, Hearn, and Wells, (1990), in their sample of students at high risk for drop-out.

Null hypothesis 2: U-band (U) patterns within each MMTIC dimension - extroversion/introversion (E/I), sensing/intuiting (S/N), thinking/feeling (T/F), and judging/perceiving (J/P) for the sample conforms to the patterns of the MMTIC norm group.

Alternative hypothesis 2: U-band (U) patterns within each MMTIC dimension - extroversion/introversion (E/I), sensing/intuiting (S/N), thinking/ feeling (T/F), and judging/perceiving (J/P) for the sample does not conform to the patterns of the MMTIC norm group.

Null hypothesis 3: There is no significant relationship between the presence of U-band scores on the MMTIC and gender.

Alternative hypothesis 3: There is a significant relationship between the presence of U-band scores on the MMTIC and gender.

Null hypothesis 4: There is no significant relationship between the presence of U-band scores on the MMTIC and attendance at a public or non-public school system.

Alternative hypothesis 4: There is a significant relationship between the presence of U-band scores on the MMTIC and attendance at a public or non-public school system.

Null hypothesis 5: There is no significant relationship between the presence of MMTIC U-band scores and grade level in school.

Alternative hypothesis 5: There is a significant relationship between the presence of MMTIC U-band scores and grade level in school.

Chapter Two

Literature Review

From Jung to Myers-Briggs to Murphy-Meisgeier

Two Attitudes

Jung (1971) claimed that the human psyche could approach the world from one of two attitudes, either introversion or extroversion. Attitude is described as a readiness of the psyche to act or react a certain way (Jung, 1971). Jung considered this readiness to be a general principle, which ruled the whole personality. Individual attitude is formed by environmental influences, education, general life experience, and personal conviction (Jung, 1971; and Forqurean, Meisgeier, & Swank, 1990). Some of the same factors are used to determine at-risk status of students.

According to Hergenhahn (1994), Jung considered an introverted person to be internally oriented, while an extroverted person's orientation is outward from self. Introversion suggests a focus on the internal realm of images, ideas, & the unconscious, with more interest in ideas than people (Ferguson & Fletcher, 1987). Extroversion suggests a focus toward the external environment of other people & objects, with more interest in people and environmental events (Hergenhann, 1994). Another way to view this concept is to examine whether the individual prefers to turn inward or outward as a method of re-energizing the libido (Jung, 1971).

Jung (1971) believed that development of type

should be thought of as innate. According to Jung, the earliest indication of extroversion or introversion is the attention a child gives objects. Jung (1971) explained that the introverted child displays fear and mistrust toward unknown objects, using a shy, reflective manner. The extroverted child views the unknown as enticing and is more likely to take risks and feel no barrier between the object and self, moving easily among objects with minimal fear (Jung, 1971).

Four Functions

The four functions of thought, as conceived by Jung (1971), further define how a person perceives his/her world and how an individual deals with information and experience. Jung qualified the functions as either rational or irrational. Thinking and feeling are rational functions of thought, based upon judgments and evaluations. Sensing and intuiting are irrational functions of thought, which occur independently of logical thought.

Personality Types

Usually one attitude (introvert or extrovert) and one function of thought (sensing, intuiting, feeling, or thinking) become dominant, leaving the others underdeveloped (Murray, 1996). By combining one attitude and one function of thought, Jung arrived at eight possible personality types.

When differences develop in function, the parts are distinct (Jung, 1971). In regard to psychological

function, this is important. When a function is mixed up with one or more other functions it does not perform independently. Jung (1971) described a lack of distinct set of preferences as undifferentiated function. His theory states that undifferentiated function is characterized by indifference and lack of direction (Jung, 1971), which may also be used to describe some at-risk students.

MBTI Roots In Jungian Theory

Jung's typology involves the principles of equivalence, opposites, and entropy. As interpreted by Hergenhann (1994), the libido is the driving force behind personality and the base for the biological life energy used to deal with life issues and situations. Finding and/or maintaining a balance of the components of personality is the zenith of Jung's theory (Jung, 1971).

The Principle of Equivalence (First Law of Thermodynamics), when applied to Jung's theory, means there is a specific amount of psychic energy available. If one component of the personality is over valued, the other parts will suffer (Jung, 1971). Value is determined according to the amount of libidinal energy devoted to it (Hergenhann, 1994).

The tendency of a system to equalize the energy within is the foundation for the Principle of Entropy (2nd law of Thermodynamics). This, in Jung's theory, is recognition of a preference for all parts of the

personality to have equal energy (Hergenhann, 1994).

The Principal of Opposites is similar to Newton's Law, which says for every action there is an equal and opposite reaction. In Jung's theory every concept has its polar opposite (Murray, 1996). Some of the opposites Jung (1971) discusses are conscious versus unconscious, rational versus irrational, feminine versus masculine, animalistic versus spiritual, progression versus regression, thinking versus feeling, introversion versus extroversion, and intuiting versus sensing. Jung considered the struggle for a balance between these polar opposites to be important, regardless of psychological type (Hergenhann, 1994). Tendency and preference toward one side of each polar opposite determines personality type (Jung, 1971).

The MBTI/MMTIC Connection

Based on observations of people, Katherine Briggs (Myers & Myers, 1995) came to believe that the subtle differences were important in personality evaluation. After classifying observed differences, she read Jung's newly translated Psychological Types and found that her ideas were consistent with his. She preferred and used his classifications, rather than the ones she had come up with (Myers & Myers, 1995).

Isabel Meyers Briggs, Katherine's daughter, also spent years watching people. Guided by her mother, Isabel developed a series of questions, intended to measure the observed differences. This instrument is

the Myers-Briggs Type Indicator (Myers & Myers, 1995).

The MMTIC was developed by educators, for educators (Meisgeier & Murphy, 1987). The goal of the developers was to provide a format to understand and identify how different psychological types, specifically children, perceive and process information. Scores are reported as a four letter code, indicating the child's type. Sometimes children have one or more undeveloped or undetermined preferences. This is reported as U (Meisgeier & Murphy, 1987). Mills, Moore, and Parker (1996) found the number of U-band scores unrelated to age, within their sample of gifted students.

Psychological Type

Psychological type, as defined by the MBTI and MMTIC, is determined by combining four preference scale scores. The researcher chose to discuss each in a comparative manner, rather than as bipolar opposites.

1. Extroversion (E)/Introversion (I) Scale

Es (extroverts) are outwardly oriented and base conduct on outer situations, while Is (introverts) are directed from within inherently using Jung's archetypes as a base of operation.

2. Sensing (S)/Intuiting (N) Scale

Ss (sensors) consider what their five senses show them to be trustworthy and Ns (intuitives) are open to possibilities and trust what their inner voice or hunch tells them.

3. Thinking (T)/Feeling (F) Scale

Ts (thinkers) evaluate a situation impersonally, using logic, toward the goal of truth, while Fs (feelers) make decisions from a more personal standpoint, using values and sometimes intuition.

4. Judging (J)/Perceiving (P) Scale

Js (judgers) like to have matters settled and concluded, when it comes to themselves and others. Ps (perceivers) are slow to settle issues, in an effort to remain open minded and to fully understand situations.

Descriptions were compiled, by the researcher, from the works of Jung, 1971; Myers and Myers, 1996; and Meisgeier and Murphy, 1987. Several books have been published, expanding on the work of Isabel Myers-Briggs. These books are primarily description based, detailing the unique combinations of habits and tendencies, for each of the sixteen psychological types.

Applications Of Typology

Instruments assessing psychological type can be useful in counseling and in clinical, educational, and organizational settings (Murray, 1996). Typology provides a strong base to pursue goals, enhance personality, and strengthen and/or mend relationships (Myers & Myers, 1995). Information about type can be used by individuals on the path to self actualization (Jung, 1971). Myers and Meyers (1995) applied Jung's theory to self and others in the realms of communication, decision making, perception, and judgment. Kiersey and Bates (1984), approached

typological information from a position of understanding and appreciation for the differences in people. Murray (1996) views typology as a growing field in areas of application.

The Education Connection

In Theory

Habits and impulses are Dewey's equivalent to Jung's typology. Dewey (1964) explained the distinctive "habits and impulses" of individuals as learned and inherent behavior patterns, respectively. Habits, equivalent to Jungian attitude and rational function, are acquired and guide individual actions or behavior. Impulses, which reflect Jung's irrational functions of thought, take over when something unusual occurs and requires an immediate innate response. Both account for and contribute to mental activity.

Dewey's view of human nature is supportive of Jung's theory and is discussed in terms of learning by Gordon Lawrence (1986). According to Lawrence's interpretation, the student initiates learning, while the teacher must find the keys which unlock and unblock impediments to that initiation. Many authors have suggested teacher use of differences to provoke the learning process (Jung, 1971; Dewey, 1964; Lawrence, 1986; Dunn, Beaudry, & Klavas, 1989; and Simon, 1996).

A Matter Of Emphasis

The focus of many school prevention programs has been to identify a problem and pathology inherent

within the lives of children who are not successful in life (NWREL, 1991). A more positive focus may be to further identify at-risk students by personality type and use their learning styles and strengths to help them enjoy and experience success within the learning process. Faggella and Horowitz (1990) encourage their students to use their strengths and preferred learning styles. They believe that placing the focus on strengths and preferences may point out what students are "at-promise" for. School success is an important building block in the development of a foundation for living. Victoria Lytle (1994) emphasized the important point that a teacher may be the only continuing adult in a child's life and the school the only constant institution.

Simon (1996) argued that children are better able to advance themselves, when they have a sense of autonomy and purpose and the skills to make positive decisions and communicate effectively. He found supportive relationships and high expectations to be important in fostering success. Children need the opportunity to participate in meaningful activities (Simon, 1996).

Implications For At-Risk Students In The School Setting

There are many reasons why students are given at-risk status. The term at-risk is broad and may relate to environmental factors, academic matters, and/or behavioral issues. The influence of at-risk

students, within the school system, is becoming greater, as the number of students identified as at-risk increases (Western Regional Center for Drug Free Schools and Communities, Northwest Regional Laboratory, 1991). Many at-risk students do not experience success in school, which in turn impacts the quality and productivity of their lives (Slavin, Karweit, & Madden, 1989).

Personality/Learning Style Connections Research

There is a growing body of research concerning individual learning style and school success or failure. The MBTI and MMTIC have been included in some of these studies. A large part of the information gleaned from studies describes evidence of correlation/association between the use of learning preference and student success. Some results help build a case for successful school experience through the use of an individual's gifts and preferences, which are a part of psychological make-up (Myers, & Myers, 1995).

Craig and Sleight (1990) described the MBTI and the MMTIC as psychological type models that distinguish an individual's complimentary and/or contrasting tendencies. They discussed type in relation to the adult world of choices and lifestyle, but the category descriptions they chose are relevant to child's world, in the school setting.

Type preference affects career and lifstyle choices

of and adult in the same way it affects the child's school and behavioral choices. Table I shows the primary areas affected by type preference for the adult and child. For example an extroverted adult has a different focus or manner of approaching the world than an introverted adult. In the same way, the focus of attention in school is different for the extrovert and introvert. Type impacts integral aspects of the learning process.

Table I

Relationship Between Learning and Type

Adult-Career	Type Preference	Child-School
Primary Focus	Extrovert/Introvert	Attention Focus
Information/Perception	Sense/Intuit	Attitude
Decision Making	Feel/Think	Process Method
Management	Judge/Perceive	Analysis Skill

Much research on typology and learning style was summarized by Gordon (1984), using the four preference categories rather than all 16 types. Studies examined by Gordon (1984), and those conducted by Myers and Myers (1995), support specific learning styles for specific preferences. The researcher condensed descriptions of learning preferences for each of the bipolar types. The descriptors which follow were paraphrased and combined from the writings of Dewy (1964) and research by Dunn, et al (1989); Ferdman and DiTiberio (1996); Forqurean, et al (1990); Furnham, et al (1995); Jung (1971);

Meisgeier and Murphy (1987); and Myers and Myers (1995).

Es (extroversion) are socially at home everywhere and are responsive, expressive, enthusiastic, and eager. They enjoy group activities and are quick to act, speak, and join in. These children have less trouble adapting to change. Activity before concept presentation is a preferred way for Es to receive new information. Their writing style is active. Social time is a necessity for Es.

Is (introversion) tend to hold back when presented with the unfamiliar and may seem less intelligent because they are slower to respond. They are hesitant to volunteer, presenting to others only what they have accomplished. Sometimes Is are labeled stubborn. They need process time. Concept before application is a preferred mode for processing information. Is are reflective writers. They need privacy. It can be damaging to the self image of an I when others expect and/or request extroverted behavior from them.

Ss (sensing) need information presented step by step. They are observant and respond well to details. Sequential stories loaded with facts and many details would be of great interest to Ss. These children have difficulty relating classwork outside of school and rely on homework and drill, using examples as a path to understanding. Audiovisual is the preferred medium for sensory learning. Ss are less likely to participate in class discussions, but they shine in action oriented

tasks. As writers, they are observant.

Ns (intuiting) prefer self instruction and self pacing. They have a core of being their own person and can be seen as hard to handle. Ns respond well to open ended, relationship oriented tasks. School information is easily transferred to the outside world. Ns may be accused of dawdling or being resistant, because they become trance-like during intense concentration. S adults do not understand and have trouble relating to Ns. The preferred medium of learning for Ns is reading. Fantasy and metaphors interest Ns most. Work and projects are put off until deadlines. N writing is filled with imaginative ideas.

The T (thinking) is logical and objective. Fairness is important to these children. Ts ask questions and require explanations about everything. Problem solving is enjoyable and a good mode of learning for most Ts. Recognition for achievement and immediate feedback on classwork is important for Ns. The writing style of Ts is objective. In a crisis, Ts are good at blocking emotion from their faces. They may have trouble expressing affection and give no reaction when punished or hurt.

Fs (feeling) require a harmonious atmosphere around them. Fs have an almost innate perspective about the feelings of others. They work well with others, preferring to cooperate rather than compete. Fs understand subject matter better when it can be related

to people. They aim to please, often doing favors and services for others. When they ask questions, they often accept the answer "because". Fs display facial expression and react in a verbal manner, appearing vulnerable, because they cry easily. The writing of an F is quite personal.

Js (judging) prefer set classroom procedures and routines, with clearly defined assignments and guidelines. Planned change is highly preferred to spur of the moment acticity. Js can organize well and become stressed by unfinished projects. They tend to be neat and orderly, prompt, and are able to carry out daily routines without reminders. They seem self assured and tend to make absolute statements. Js write in a manner that is decisive and clear cut.

Ps (perceiving) require openness and flexibility. They may seem indifferent to standard, established procedures. Ps need to move around to learn, are spontaneous, curious, and enjoy exploration. Too much routine causes the P child to become restless. Decision making is difficult for Ps. They qualify statements, or may be reluctant to make a statement or decision without more time or information. These children are messy and need to be reminded to do chores. Time is not a concern for Ps. They are inclusive writers.

Cognitive Connections

The relationship between psychological type and cognitive preference/learning style has been studied.

Ferguson and Fletcher (1987) attempted to explore aspects of the MBTI, in relation to cognitive ability. Correlations were done between scores on the Weschler Memory Scale, various listening tasks, and some elements involving distraction. The results of this study supported the idea that the differing psychological types vary in style for processing information, as well as for cognitive ability.

Fourqurean, Meisgeier, Swank, and Murphy (1988a) explored academic ability and type preference in children. They found the J/P scales useful as a measure of learning style. A moderate relationship was shown between Ps and high academic ability. However, academic ability was determined to be virtually independent of the E/I, T/F, and J/P scales, in a related study (Fourqurean, Meisgeier, & Swank, 1988b). Lower achieving students preferred sensing experiences, while higher achieving students preferred intuitive experiences (Fourqurean, et al, 1988b).

The relationship between personality and achievement was researched by Furnham and Medhurst (1995). Their work was based on the understanding that the MBTI does not measure excellence, but presents indications about environments in which people feel most comfortable and work best. One significant, negative correlation was that Ss do not prefer written expression. Es had more success with verbal skills, as opposed to Is who had better written skills.

Behavioral Connections

According to Carlson (1985), the MBTI successfully predicts behavior, ranging from personal problems to imagery and group conformity. He noted that the E/I scale has shown the most evidence of validity. A study by Furnham and Medhurst (1995) indicated that E, N, F, and P are related to positively rated academic behaviors. Es showed a high correlation with oral expression and participation, while Is showed negative correlations in both areas. Ss were less likely to participate than Ns. F was positively correlated with attendance, as opposed to T, which had a significantly low correlation with this area. NEs participated more in the seminars than SIs.

Sipps and DiCaudo (1988) studied the E/I and J/P scales of the MBTI for correlation with the Barratt Impulsiveness Scale (BIS-5) and the EASI-III. They found the J-P scale of the MBTI to be a measure of impulsivity and decision time. Perceivers act on hunches, are impulsive, make snap decisions, seek situations offering sensation, and give up on tasks when faced with obstacles (Sipps & DiCaudo, 1988).

Kelly (1991) studied type in emotionally disturbed and conduct disordered students. T and I-N were overly abundant in the group of conduct disordered students and SF was significantly under represented, compared to the Myers sample. The variance between these two groups was not considered significant. The conclusion made was

that conduct disordered students are not handicapped, but end up in special programs due to misbehavior.

The emotionally disturbed group significantly varied from the Myers norms (Kelly, 1991). There were more ISTJs, ISFJs, and ISTPs and less ESTJs. Clinically the emotionally disturbed individual is acting out an oppositional, or devalued function. Normal individuals may act from devalued functions at times, but not to the degree that indicates disturbance.

U-band Connection

Tobacyk, Hearn, and Wells, (1990) studied association between the MMTIC and California Achievement Test (CAT) results of students at high risk for dropout. The lowest CAT scores, on all four preference scales, were associated with U-band scores. On the E/I dimension, Us had the lowest mean score on 9 out of the 10 CAT scales, while Es scored highest on 7 out of 10. The J/P category was the most consistent for lower performance on the CAT by Us

At-Risk Connections

Fourqurean, Meisgeier, and Swank (1988b) thought of psychological type as a variable which could help in the understanding of variation in academic functioning. Children who become dissociated from the school, or learning environment may then be at-risk for school failure (Fourqurean, Meisgeier, & Swank, 1988b). In their study, those preferring I and N were found to be more successful academically than those preferring E

and S.

Although Fourqurean, et al (1988a & 1988b) found Ns to have high interest and high scholastic aptitude and Ps to be over represented among gifted students. Mills, et al (1996) discussed the NP student as being at-risk for underachieving. This statement was made because the NP preferred style of learning was found to be unsuited to typical teaching practices.

Gifted Students

Personality differences were noted by Mills, Moore, and Parker (1996), from a study comparing the norms of the MMTIC with a sample of gifted students. A higher representation of Ns and Ps were observed in this gifted group. Forqurean, et al (1988b) discovered that 89% of the gifted students in their sample were P, compared to 30% P in the regular student sample, and 29% P among special education students. Ns and Ps prefer an approach to learning that is open, insightful, and creative. Perception indicates the desire for autonomy and choice. Variety, novelty, and change are important to the P learning process.

Intuition/Attention Connection

Intuiting students seem to have a definite advantage in most academic fields (Myers & Myers, 1995 and Fourqurean, et al, 1988a & 1988b). Intuitives translate symbols at a much faster rate, innately (Myers & Myers, 1995). Intuiting introverts learn to translate symbols more easily than extroverts (Myers &

Myers, 1995 and Fourqurean, Meisgeier, & Swank, 1988). Extroverted sensors don't generally use intuition or introversion and find symbols confusing.

Children of any type will have difficulty, if the meanings of symbols used in written language have not been learned. Development of unconscious insight is helpful in symbol translation. Students who have not developed this skill will perform poorly on IQ and achievement tests and may become bored, or humiliated by what they don't know (Myers & Myers, 1995).

Children need help acquiring unconscious insight to process information. Unconscious insight influences the amount of attention required for learning (Myers & Myers, 1995). Attention is required to process and make information available for permanent recall. Unconscious insight provides a context for the integration of new material. When old and new material are linked, the time and attention needed for learning to occur becomes minimal.

If help is given from an early age, the use of unconscious insight becomes more natural. Teachers can help Ss by employing strategies such as: allow more time, speak more slowly, and pause after each sentence (Myers & Myers, 1995). These children learn to read better by letter sound association rather than using sight words.

In a study by Yokomoto and Ware (1982), Ss gave more attention to homework and completing as many

examples as they could. Ns believed if they understood the concept and examples presented in class, they didn't need to focus attention on homework. They make the connection unconsciously and see no reason or purpose for drill and extra practice.

Teacher Connection

Devito (1985) argued that the MBTI merits serious consideration by psychologists. Bayne (1990) made a case for MBTI applications, which include: team building, reconciling group differences, career planning, adapting to change, analyzing troublesome behavior, and facilitating competitive strategic thinking. The MMTIC can be similarly applied in the school and classroom (Meisgeier & Murphy, 1987).

Lawrence (1984) reported on research done involving the MBTI and learning styles. Ross had the faculty of a college rate their students and found that N-P students resist taking directions to the same extent that-S-J students are willing to take direction (Lawrence, 1984). The study also implied that the J's were seen more favorably in the educational setting.

Nisbet, Ruble, and Schurr (1982) implemented strategies for helping high risk students, over a three year period. Two thirds of the sample were Ss, who demonstrated problems with symbols, relationships, and applying new concepts. High risk Is had difficulty with objective tests. They inferred meanings not intended by the test writers and did not like the choices given.

Myers and Myers (1995) present an interesting twist, which could be useful in reframing rather than maintaining the at-risk label. If a teacher is aware of a student's type, there is a new vantage point to work from. Understanding replaces frustration for students and teachers. Personality conflicts might be avoided and individual differences could be used to build a new respect for individuality.

Type theory was taught to a group of elementary education students, to determine whether appreciation for type differences made a difference in the way they viewed students and their teaching style (Boersma, Kienholz, Jevene, & Chapman, 1989). Questionnaire data revealed teacher and student differences to be equally important to the learning process. Elementary education students attended a workshop devoted to informing about and implementing type theory in the educational setting. As a result, the most frequent teaching choice was SF and the least preferred was ST. Case studies presented examples of how knowledge of type can be integral in the process of successful assimilation of at-risk students.

Concluding Remarks

Jung (1971) and Dewey (Lawrence, 1986) discussed education, in terms of helping children discover and express their preferences by providing opportunities to that end. According to Jung (1971), when children are encouraged to use their less dominant preference, they may be less content and feel less competent. They

remain out of touch with their own uniqueness.

Meisgeier and Murphy (1987) recommend examination of each attitude and function, so as not to confuse preference with developmental issues. Some of the literature lead the researcher to conclude that it might be wise to consider both. The researcher pondered whether the MMTIC might be reflective of developmental issues.

Problems may arise if the student's type and learning environment are not complimentary. For example, introverted children may appear rebellious, or stupid. When teaching style and learning style are in conflict, resistance may occur. The teacher may feel rejected by the child, when the child merely needs time to reflect inwardly before giving an answer.

Achievement increases when teacher/student styles are blended. Teachers can encourage students to learn through their strengths and help them build on their weaknesses. Jung acknowledged that, "Man can never be everything at once, never complete: he always develops certain qualities at the expense of others and wholeness is never attained." (Jung, 1933, p. 92)

Chapter Three

Methodology

Population and Sample Information

The sample for this study was made up of 85, third through eighth grade students, from public and Catholic city schools. Students chosen to participate in the study, were those who had been identified as at-risk by teachers and/or parents and recommended for Project Achievement (PA), a summer school program specifically designed for at-risk students. Student referrals into Project Achievement were based on the presence of academic and/or social adjustment problems. The researcher wanted a sample of at-risk children and chose Project Achievement because it serves that population. Raw data gathered for each child can be viewed in Appendix A.

Of the total sample, 16.5% (14) children attended public school, compared to 83.5% (71) who attended catholic schools. Age ranged from 7 years to 14, with the mean age of 10.63. Gender was divided 43 (50.6%) females and 42 (49.4%) males. Grade level distribution was 10.5% (9) third graders, 15.3% (13) fourth graders, 21.2% (18) fifth graders, 14.1% (12) sixth graders, 21.2% (18) seventh graders, and 17.6% (15) eighth graders. The ethnic composite of the group was Caucasian 83.6% (N = 71), African American 14.1% (N = 12), and, other 2.3% (N = 2). Some of this information appears in Table II.

Table II

Gender By Ethnicity By School System

	Male			Female		
	Cauc	Afr.Am	Other	Cauc	Afr.Am	Other
Public	1	4	0	2	6	1
Catholic	35	1	1	33	1	0

Project Achievement

Permission was requested of and granted by the directors of Project Achievement (PA), for students enrolled in the 1997 session to participate in this study. Project Achievement is a summer school program which targets at-risk students from the city of St. Louis. PA is in phase two, which was approved for three years, from 1997-99. Project Achievement uses social skill development, academic enrichment, and field experiences to enhance each student's sense of self.

Four sites comprised of one public and one non-public school, paired as partners. One building housed grades K-4 and the other housed grades 5-8. The purpose of paired sites was to foster a relationship between the two systems that might be carried on into the regular school year. Interaction between grade levels for field trips and learning, as well as visits between buildings for show and tell about on going thematic units, was encouraged. The directors of Project Achievement allowed one of these sites to be used as the testing ground.

Information such as to GPA, repeat of grades, or

suspensions, was not available through PA. A general profile was provided to Project Achievement teachers, outlining academic and/or social areas of concern. The researcher did not have access to the profiles for each of the students in the sample, but did a series of follow up calls to determine whether any of the students tested had repeated a grade, or had special educational needs. Although not all parents were reached, the data obtained is included in Appendix A, Raw Data. A majority of parents called expressed concerns over the academic progress of their child past to present.

Procedure

Students entering the third through eighth grades, at both sites, received permission slips to document parent permission for participation in the study. Appendix B is a sample of the permission slip handed out and collected by classroom teachers. Out of 215 students, 85 returned parent signed permission slips. The Murphy-Meisgeier Type Indicator For Children was administered to every student who returned a permission slip (N = 85).

The test was administered in 2 sessions, to grades 5-8, by the researcher. Directions for the MMTIC were given, as suggested in the manual and test booklet. Once directions were give orally by the test administrator, students were left on their own to read the questions and record their answers. The test administrator remained available to answer questions or

help with reading, however no students asked for help. Seating was arranged at 8 foot tables, with students neither directly across from, nor next to any other students. The room where the testing took place was air conditioned. The 7th (N=14) and 8th (N=12) graders were tested first and 5th (N=12) and 6th (N=10) graders tested at a second session, on the same day.

The 3rd and 4th grade students were tested by their classroom teacher. The researcher directed each teacher as to test administration procedures, which were also stated on the test booklet used. Teachers of the 3rd (N=9) and 4th (N = 13) grade students reported that they followed directions for administering the test as given. Students sat in their own, desks within each classroom. Once the directions were given, students were left to read and answer the questions on their own. The test administrator was available to help with reading, but none was requested. Although K-3 building did have not air conditioning, the climate was comfortable on the day the test was given.

A make-up test day was held for 5th (N=6), 6th (N=2), 7th (N=4), and 8th (N=3) grade students who turned in permission slips, but were absent on the original test date. These students were tested in one session together, by the researcher. Otherwise, administration procedures remained the same.

The researcher scored each test twice, by hand. The second scoring was used as an accuracy check. Scores

were immediately recorded on the test form after the first scoring. Changes were made on the test form during the second scoring. Actual scores are recorded in Appendix A, Raw Data.

Data was recorded into an Excel spreadsheet. The data was saved onto a floppy disk and taken to a research consultant for statistical testing. Tests were calculated using Non-Parametric Statistics from SPSS For Windows, Version 8 (1997). The researcher transferred the information from the NPar tables to this document.

Variables

There were 9 variables considered in this study.

1. GENDER was the label given to the variable reporting the student as male, or female. This variable is at the nominal level of measurement.
2. SYSTEM was the label given to the variable reporting attendance during the regular school year in either public (P) or catholic (C) school system. The level of measurement for this variable is nominal.
3. GRADE was the label assigned to the variable defining the grade level in school, denoted as 3, 4, 5, 6, 7, or 8. Grade is an ordinal level of measurement.
4. EUI was the label used to report preference scores of Extroversion (E), Undetermined (U), or Introversion (I). This is an ordinal variable.
5. SUN was the label used to report preference scores of Sensing (S), Undetermined (U), or Intuiting (N). This is an ordinal variable.

6. TUF was the label used to report preference scores for Thinking (T), Undetermined (U), or Feeling (F). This is an ordinal variable.

7. JUP was the label used to report preference scores of Judging (J), Undetermined (U), or Perceiving (P). This is an ordinal variable.

8. TYPE was the label used to report the four letter MMTIC code received by each participant in the study. There are 16 possible types: ESFP, ESTP, ESTJ, ESFJ, ENFP, ENTP, ENTJ, ENFJ, ISFP, ISTP, ISTJ, ISFJ, INTP, INFP, INTJ, OR INFJ. The level of measurement for this variable is nominal.

9. U-BAND was the label assigned for preference, with NO U (indicating a clear preference) and U. (indicating no preference/U-band), on each of the four MMTIC preference scales. This is a nominal variable.

Instrumentation

The instrument used in this study was the Murphy Meisgeier Type Indicator for Children/MMTIC (Meisgeier & Murphy, 1987). The MMTIC is similar to the MBTI, but is geared for children. Mills, Moore, and Parker (1996) considered the MMTIC scores a means for defining the way the child operates within his/her world and how children relate to each other. The MMTIC is a self report questionnaire, which consists of 70 forced choice (answer A or B) items. The responses are used to establish psychological type.

The second grade reading level makes this

instrument appropriate for use with third through eighth grades students. It can be read aloud to second grade students, or other populations having some reading difficulty.

Scores indicating preferences are plotted on four continuous scales, with the polar opposites E/I, S/N, T/F, and J/P on the left and right sides, respectively. The MMTIC allows for the possibility that a child may score a U or within the U-band (less than one standard error on either side of the cut point of the scale). The U-band denotes an undetermined preference (Meisgeier & Murphy, 1987).

Initially an item pool of 160 items was split up (20 per scale) in two sample instruments. These two tests were administered to a population of 982 students. Scores were based on which scale had the most responses. Analysis of the sample tests, resulted in 20 items (80 total) for each scale that did not correlate positively with any of the other scales. Significant correlation between every item and its scale was found at the .0001 level. Discriminate index analysis and new item-to-scale correlations were performed, resulting in the 70 item Form C (Meisgeier & Murphy, 1987).

New weights and cut points were set, in the final version of the MMTIC, Form D. Half scores were calculated and then correlated, using the Pearson product-moment method. Spearman-Brown correlations were used to determine reliabilities for the

discriminant function score estimates obtained by the Pearson correlations. These reliabilities and the standard deviations of the discriminant function scores were used to estimate new standard errors. The U-Band and preference cut scores were redefined by the new standard errors. The conclusion is that the reliability of the MMTIC is consistent across gender and grade and reading levels. The reliabilities are comparable to student samples of the MBTI, although less than those reported for adult MBTI samples (Meisgeier & Murphy, 1987).

Concurrent validity is evidenced by correlations with other instruments. When compared with the Children's Personality Questionnaire, the J/P and T/F scales were significantly related to the Anxiety Factor. Ts and Ps tend to be more anxiety prone. The CPQ Extraversion Factor was most strongly related to the E/I scale of the MMTIC. No correlations occurred with the Learning Preference Inventory (Murphy-Meisgeier, 1987) or Dunn's Learning Style Inventory (Maler, 1986).

Data Analysis

Each null hypothesis was accepted or rejected on the basis of the following tests:

A Chi-Square Goodness of Fit Test was used to determine that there is no significant relationship between MMTIC preference scale scores for at-risk sample compared to the Tobacyk, Hearn, and Wells (1990) sample of students at high risk for drop-out (Null Hypothesis

1).

Frequency of U-band scores on each of the four preference scales between the sample of at-risk students' scores and the MMTIC norms was compared using the Chi-Square Test (Null Hypothesis 2).

Crosstabulations were performed to determine the relationships, if any, between the presence of U-bands and GENDER, SYSTEM, and GRADE (Null Hypothesis 3, Null Hypothesis 4, and Hypothesis 5).

Chapter Four

Results

Type Distribution

Type distribution of MMTIC results for the whole sample are displayed in Table III. Of the 85 students tested, 36 (42%) scored no U-bands, while 49 (58%) scored one or more U-bands within individual type. Appendix B lists the distribution of types for the entire sample.

Table III

Distribution By Preference And U-band

Type	0 U-band	1 U-band	2 U-band	3 U-band	Total
E	27 (75%)	17 (53%)	6 (35%)	1 (100%)	51 (60%)
U	0	11 (34%)	8 (47%)	0	18 (21%)
I	9 (25%)	4 (13%)	3 (18%)	0	16 (19%)
Total	36	3	17	1	85
S	22 (61%)	17 (53%)	5 (29%)	0	44 (52%)
U	0	5 (16%)	11 (65%)	1 (100%)	17 (20%)
N	14 (39%)	10 (31%)	1 (6%)	0	24 (28%)
Total	36	3	17	1	85
T	6 (17%)	5 (16%)	3 (18%)	0	14 (16%)
U	0	10 (31%)	7 (41%)	1 (100%)	17 (20%)
F	30 (83%)	17 (53%)	7 (41%)	0	54 (64%)
Total	36	3	17	1	85
J	9 (25%)	10 (31%)	3 (18%)	0	22 (26%)
U	0	6 (19%)	8 (47%)	1 (100%)	15 (18%)
P	27 (75%)	16 (50%)	6 (35%)	0	48 (56%)
Total	36	3	17	1	85

Type Distribution Excluding U-band Cases

Excluding U-band cases, type distribution for the at risk group differed from the MMTIC sample. There were 11 (31%) cases of ESFP in the researcher's sample

of at-risk subjects, compared to 104 (18%) of the MMTIC sample. Table IV shows the distribution of types for the at-risk sample.

Table IV

MMTIC Type Distribution, Excluding U-band Cases (N=35)

ISTJ	ISFJ	INFJ	INTJ
N=1 (3%)	N=0	N=1 (3%)	N=0
ISTP	ISFP	INFP	INTP
N=1 (3%)	N=1 (3%)	N=4 (11%)	N=1 (3%)
ESTP	ESFP	ENFP	ENTP
N=2 (6%)	N=11 (31%)	N=7 (20%)	N=0
ESTJ	ESFJ	ENFJ	ENTJ
N=1 (3%)	N=5 (14%)	N=1 (3%)	N=0

Hypotheses 1

Null hypothesis 1: The distribution of MMTIC scores on each preference scale - extroversion/U-band/ introversion (EUI), sensing/U-band/intuiting/ (SUN), thinking/U-band/feeling (TUF) and judging/U-band/ percieving (JUP), for the at-risk sample, conforms to the distribution of scores attained by Tobacyk, Hearn, and Wells, (1990), in their sample of students at high risk for drop-out.

Alternative hypothesis 1: The distribution of MMTIC scores on each preference scale - extroversion/U-band/ introversion (EUI), sensing/U-band/intuiting/ (SUN), thinking/U-band/feeling (TUF) and judging/U-band/ percieving (JUP), for the at-risk sample, does not conform to the distribution of scores attained by Tobacyk, Hearn, and Wells, (1990), in their sample of

students at high risk for drop-out.

Table V displays the observed and expected frequencies for preferences for both groups. Scores were compared on each of the four MMTIC preference scales. Expected scores were obtained from respective percents for youth at high risk for drop-out (Tobacyk, et al, 1990). The disparity between the observed and expected values was not greater than 4, or less than -4, on any of the preference scales.

Table V

MMTIC Scale Preferences For The At-Risk Sample And Students At High Risk For Dropout

	Sample	High Risk	
Scales	Observed	Expected	Residual
E	51	47	4
U	18	21.4	-3.4
I	16	16.7	-0.7
Total	85		
S	44	41.1	2.9
U	17	18.5	-1.5
N	24	25.3	-1.3
Total	85		
T	14	13.7	0.3
U	17	16.5	0.5
F	54	54.8	-0.8
Total	85		
J	22	23.8	-1.8
U	15	16.1	-1.1
P	48	45.1	2.9
Total	85		

A Chi-Square, Goodness of Fit Test was performed on each of the four preference scales, to confirm the sample as representative of at-risk students. The

signifigance level on each scale was greater than alpha (P > .05) and none of the Chi-Square test results exceeded the critical value of 5.99 (df 2).

The Chi-Square tests, as shown in Table VI, were performed for each preference scale. The tests show no difference in MMTIC scores. Null hypothesis 1 must be accepted. Each preference scale distribution for the sample conforms to that of students at high risk for dropout. The researcher's sample may be considered representative of an at risk student group.

Table VI

Chi-Square, Goodness Of Fit Test For The At-Risk Sample And Students at High Risk For Dropout

	Preference Scales			
	E/U/I	S/U/N	T/U/F	J/U/P
Chi-Square*	.910	.403	.036	.388
df	2	2	2	2
Sig.	.635	.818	.982	.824

*0 cells (0%) have expected frequencies less than 5. The minimum expected cell value is 13.7.

Hypotheses 2

Null hypothesis 2: U-band (U) patterns within each MMTIC dimension - extroversion/introversion (E/I), sensing/intuiting (S/N), thinking/feeling (T/F), and judging/perceiving (J/P) for the sample conforms to the patterns of the MMTIC norm group.

Alternative hypothesis 2: U-band (U) patterns within each MMTIC dimension - extroversion/introversion (E/I), sensing/intuiting (S/N), thinking/ feeling (T/F),

and judging/perceiving (J/P) for the sample does not conform to the patterns of the MMTIC norm group.

The pattern of U-band scores, within each preference scale, for the sample was compared with those of the MMTIC norm group. A score is considered U or undetermined if it falls within + or - one standard deviation of the mid-point on the scale continuum. Table VII displays these compared scores. Disparity between values for the sample (observed) and the MMTIC norm group (expected), was no more than 6.3 and less than -6.3.

Table VII

U-band Frequencies For At-Risk Students/MMTIC Norms

		Sample	MMTIC Norms	
	Scales	Observed	Expected	Residual
	E/I	67	64.9	2.1
	U	18	20.1	-2.1
Total		85		
	S/N	68	72.4	-4.4
	U	17	12.6	4.4
Total		85		
	T/F	68	61.7	6.3
	U	17	12.6	-6.3
Total		85		
	J/P	70	65.5	4.5
	U	15	19.5	-4.5
Total		85		

Chi-Square tests were performed to determine if a significant departure exists between the frequency of U-band scores, occurring within each preference scale, for

the at-risk group (observed) and the MMTIC sample (expected). Table VIII shows the Chi-Square test results for each preference scale.

The tests showed no departure in scores. Null hypothesis 2 must be accepted. The U-band scores for the sample conform to those of the MMTIC norming group. These tests are considered reliable, as none of the cells (0%) had expected frequencies of less than 5.

Table VIII

Chi-Square For At-Risk And MMTIC Norm Group U-band Frequencies

	Preference Scales			
	EI/U	SN/U	TF/U	JP/U
Chi-Square*	.299	1.823	2.340	1.328
df	1	1	1	1
Sig.	.584	.177	.126	.249

*. 0 cells (0%) have expected frequencies less than 5. The minimum expected cell frequency is 12.6.

Hypotheses 3

Null hypothesis 3: There is no significant relationship between the presence of U-band scores on the MMTIC and gender.

Alternative hypothesis 3: There is a significant relationship between the presence of U-band scores on the MMTIC and gender.

Table IX shows the crosstabulation for GENDER by U-BAND (U = 1 or more Us within type), No U = 0 Us). Of 85 total cases, 49% (42) were male and 51% (43) were female.

Table IX

Crosstabulation GENDER By U-band

	No U	U	Total
Male	15	27	42
Female	21	22	43
Total	36	49	85

The Chi-Square analysis for GENDER by U-BAND (df 1) appears in Table X. Null hypothesis 3 was accepted, because no measure of association was evidenced between these variables. P >.05, where P = 1.499 for the Chi-Square. The Phi Correlation (.0176351) says that 1.764% of the variability in U-BAND is accounted for by GENDER and vice versa.

Table X

Chi-Square For GENDER By U-BAND

	Value	df	(2sided)	(2sided)	(2sided)
Pearson Chi-Square	1.499**	1	.221		
Continuity Correction*	1.009	1	.315		
Likelihood Ratio	1.504	1	.220		
Fisher's Exact Test				.274	.158
Linear-by-Linear Association	1.481	1	.224		
N of Valid cases	85				

*. Computed only for a 2x2 table.
**. 0 cells (.0%) have expected values less than 5. The minimum expected value is 17.79.

Hypotheses 4

Null hypothesis 4: There is no significant relationship between the presence of U-band scores on the MMTIC and attendance at a public or non-public school system.

Alternative hypothesis 4: There is a significant relationship between the presence of U-band scores on the MMTIC and attendance at a public or non-public school system.

Table XI shows the crosstabulation for SYSTEM (public versus catholic) by U-BAND. Of 85 students, 14 (16%) attended public schools, while 71 (84%) attended catholic school, during the regular school year.

Table XI

Crosstabulation SYSTEM By U-BAND

	U-band		
	Yes	No	Total
Public	5	9	14
Catholic	31	40	71
Total	36	49	85

Table XII shows results of the Chi-Square tests performed on the 2x2 table for SYSTEM by U-BAND.

Table XII

Chi-Square Tests for SYSTEM By U-BAND

	Value	df	(2sided)	(2sided)	(2sided)
Pearson Chi-Square	.303**	1	.582		
Continuity Correction*	.065	1	.799		
Likelihood Ratio	.307	1	.580		
Fisher's Exact Test				.769	.404
Linear-by-Linear Association	.299	1	.585		
N of Valid cases	85				

*. Computed for a 2x2 table.
**. 0 Cells (.0%) have expected values less than 5. The minimum expected value is 5.93.

Because P =.303, where P > .05, the researcher accepted

Null hypothesis 4. The Phi Correlation (.0035646) says that .35% of the variability in U-BAND are accounted for by SYSTEM and vice versa.

Hypotheses 5

Null hypothesis 5: There is no significant relationship between the presence of MMTIC U-band scores and grade level in school.

Alternative hypothesis 5: There is a significant relationship between the presence of MMTIC U-band scores and grade level in school.

Table XIII displays the results of a correlation between GRADE (grade level in school) and U-BAND. The correlation was significant at the .05 level (2-tailed) between these two variables.

Table XIII

Correlation For GRADE By U-BAND

		GRADE	U-BAND
Grade	Pearson Correlation	1.000	-.217*
	Sig. (2-tailed)		.046
	N	85	85
U-BAND	Pearson Correlation	-.217*	1.000
	Sig. (2-tailed)	.046	
	N	85	85

*. Correlation is significant at the 0.05 level (2-tailed).

Because a negative relationship (-.217) was the outcome, Null hypothesis 5 must be rejected (P >.05). According to this correlation, the higher the grade level, the lower number of U-bands, or vice versa. The researcher accepted alternative hypothesis 5.

Chapter Five

Discussion

Type Preferences

The researcher deemed it important to discuss combinations of type occurring within the sample. Tests were not performed in this study, in regard to type. However this may be an area for further study. Many combinations preferred by the sample students are characteristically described in the literature as behaviors and attitudes which may well fit in with the at-risk personality.

As can be seen in Table III, ESFP was the most common type in this sample. This information is interesting because ESFPs learn best from experience, more so than from school (Myers & Myers, 1995). That which cannot be understood through the senses, seems less real to the ESFP and is less than acceptable to them. These children are not well disciplined. ESFJ was the predominant type in the at high risk for dropout (Tobacyk, et al, 1990)

INT, the opposite of the prominent ESF type found in this study, is the type most often associated with academic achievement. There was 1% (1) INT in the entire Project Achievement sample. Mills, Moore, and Parker (1996) found that gifted students showed a higher preference for the ENFP type than the MMTIC norm group.

The percentage of ESs in the total sample was 32% (27). USs represented 13% (11), of the sample and

EUs as 12% (10), and 4% (3) UUs. If the Us were determined E and S respectively, the potential for ES in the sample may be as high as 60% (51). Appendix C list the frequency for each type.

When looking at the combinations within type there are some interesting observations. The at-risk sample is 27% (23) SP, excluding Us in the S or the P scales. creating a potential 52% (44) SP population within the sample. According to Myers and Myers (1995), the SP child needs freedom and is compelled to be independent. They are impulsive and must be in the moment. SPs become bored easily and will not practice to learn. SPs ignore the rules and have the lowest correlation between GPA and academic ability. Because school is not conducive to SP learning style, many of these students tend to dropout (Myers & Myers, 1995).

While this study found no relationship between U-band scores and at-risk status, Tobacyk, et al (1990) did find significant relationships between U-band scores on the E/I, S/N, AND J/P preference scales and low academic performance. In the study by Mills, et al (1996) there was no strong association between grade level and U-band scores, while this study showed the relationship is significant.

Hypotheses

The MMTIC scores for the sample of at-risk students were consistent with the scores of students at high risk for dropout. The at-risk group scores were consistent

with the MMTIC norm group, in frequency of U-bands, within each preference scale. Even though the at risk groups had similar preferences, the Chi-Square tests performed to prove or disprove null hypothesis 2 imply that the MMTIC is not a good indicator of at-riskness in students, based U-band scores.

The hypotheses regarding GENDER by U-BAND and SYSTEM by U-BAND were not confirmed. However it was determined in a correlation for GRADE by GENDER,that the higher the grade level in school, the lower the number of U-bands within a student's type. The MMTIC developers suggested that younger students would be more likely to have an undetermined preference (Meisgeier & Murphy, 1987)

Limitations and Recommendations for Future Research

There is a need to look at other MMTIC factors which might predict or determine that a child is at-risk. Specific preferences rather than undetermined preference might be an avenue for further research. One recommendation includes a longitudinal study, using suggestions for type preference learning within the classroom. Researchers could administer pre and post ratings or scores for GPA, incidents of social problems, and student level of satisfaction at school.

Some aspects were not examined in regard to U-band cases. The MMTIC Manual did not include a distribution by type for the norms, including U-band cases, so the researcher did not examine this in regard to the Project

Achievement sample. Correlation of type distributions might be another approach to the investigation of MMTIC applications. This study did not look at the number of Us scored in the dominant function preference. The lack of a dominant preference effects the success of some student populations (Meisgeier & Murphy, 1987).

This study was limited in that the researcher did not comprehensively collect information such as social problems, repetition of grade level, or known learning disabilities. During subsequent conversations with some parents the researcher learned that some of these situations applied to students in the sample. Within the at-risk population there are many sub-categories. A comparative study of scores and psychological type within these groups may prove valuable.

The fact that the sample included only city children and the ethnic combination of the sample may be limiting components of this study. The at-risk sample is primarily Caucasian, and therefore may not be truly considered representative of a city population. City populations are typically more diverse. The ethnic distribution may effect the validity of the sample as a " city sample".

Correlations between Learning Styles Inventory scores and MMTIC scores may show whether the two may be complimentary or compatible for educational and career enhancement. The two might be useful to teachers as a path to student motivation and the desire to learn.

Caution

Interpretation of MMTIC results must be reported with care. The purpose of the instrument is to acknowledge and enhance individual difference. Psychological type information is to be used to promote growth within an individual's type. Jung stressed striving for a balance between all polar opposites, so there is not "energy war" within. Using opposite or subordinate preferences is not the same as striving to become a different psychological type. Until more current research supports uses or implications, the MMTIC must be looked upon as a tool for learning about how individuals learn. It should not be used to determine or identify students as at-risk.

Appendix A

Raw Data

GENDER	SYSTEM	GRADE	AGE	EUI	SUN	TUF	JUP	REPEAT	ETHNIC	L.D.	SP. ED
2	1	3	8	I	S	T	J	NO	AFR. AM	NONE	NO
1	2	3	8	E	S	F	J	NO	CAUC.	ADD	YES
2	2	3	8	E	S	U	J	NO	CAUC.	NONE	NO
1	1	3	8	E	N	U	P	NO	CAUC.	ADD	NO
2	2	3	8	E	U	F	J	NO	CAUC.	NONE	NO
2	1	3	8	E	S	U	J	NO	AFR. AM	NONE	NO
1	2	3	8	E	U	F	U	NO	CAUC.	NONE	NO
1	2	3	8	U	N	F	J	NO	AFR. AM	NONE	NO
1	2	3	9	E	N	F	U		CAUC.		
2	2	4	10	I	U	T	U	NO	CAUC.	NONE	NO
1	2	4	10	U	S	F	P	NO	CAUC		
2	2	4	8	U	S	F	J	NO	CAUC		
2	2	4	10	I	U	U	J	NO	CAUC.		YES
1	2	4	9	U	S	F	P	NO	CAUC.		NO
2	2	4	9	U	S	F	P	NO	CAUC.		NO
2	1	4	9	U	S	F	P	NO	OTHER		NO
2	2	4	9	E	N	F	P		CAUC.		
2	2	4	10	I	N	F	J		CAUC.		
1	2	4	9	E	N	F	P		CAUC.		
1	1	4	10	E	U	U	J		AFR. AM		
2	1	4	9	I	N	F	P		AFR. AM		
1	2	4	11	E	U	U	P	3RD	CAUC.		YES
2	2	5	11	E	S	F	P	4TH	CAUC.	NONE	
1	1	5	10	I	N	F	P		AFR. AM	NONE	
2	1	5	10	E	U	F	U	NO	CAUC.	NONE	
2	1	5	11	E	S	T	J	NO	CAUC.	NONE	
1	2	5	10	E	U	U	P		CAUC.		
1	2	5	10	E	S	F	P	NO	CAUC.		
2	2	5	10	E	N	F	U		CAUC.		
2	2	5	10	U	S	F	U	NO	CAUC.		
1	2	5	10	U	S	T	U		CAUC.		
2	1	5	10	E	S	U	J	NO	AFR. AM	NONE	
2	1	5	10	E	S	U	P		CAUC.		
1	2	5	11	E	U	F	U	KG	CAUC.		
1	2	5	10	E	N	U	P	NO	CAUC.		
1	2	5	10	E	S	F	P	NO	CAUC.		
2	2	5	11	E	U	F	J	KG	CAUC.		
1	1	5	10	I	N	F	P		AFR. AM		
2	1	5	9	E	S	U	J		AFR. AM		
1	1	5	10	E	S	F	U		AFR.AM		
2	2	6	11	E	S	F	J	NO	CAUC.		
1	2	6	11	I	S	U	U		CAUC.		
1	2	6	11	U	S	F	U		CAUC.		
2	2	6	11	U	U	F	J	NO	CAUC.		
2	2	6	11	E	N	F	P		CAUC.		
2	2	6	11	E	S	F	J	NO	CAUC.		
2	2	6	12	E	S	F	P		CAUC.		

GENDER	SYSTEM	GRADE	AGE	EUI	SUN	TUF	JUP	REPEAT	ETHNIC	L.D.	SP. ED
1	2	6	11	E	S	U	J	NO	OTHER		
2	2	6	11	E	S	F	P		CAUC.		
2	2	6	11	E	S	F	P		CAUC.		
2	2	6	10	I	S	F	U	NO	CAUC.		
2	2	6	11	E	S	F	J	NO	CAUC.		
1	2	7	12	E	N	F	J	NO	CAUC.	ADHD	
2	2	7	14	E	S	F	J	YES	AFR. AM	EMR	
1	2	7	12	I	U	F	P		CAUC.		
1	2	7	12	U	S	U	P	NO	CAUC.		
2	2	7	12	I	N	F	P		CAUC.		
1	2	7	12	I	U	T	P	NO	CAUC.		
1	2	7	13	I	N	T	P	1ST	CAUC.		
1	2	7	13	U	U	T	P	NO	CAUC.		
2	2	7	12	U	N	F	P	NO	CAUC.		
1	2	7	12	E	S	T	P		CAUC.		
2	2	7	12	E	S	F	P	NO	CAUC.		
1	2	7	11	I	S	T	P		CAUC.		
2	2	7	12	E	N	F	U		CAUC.		
2	2	7	12	E	S	F	P	NO	CAUC.		
1	2	7	13	U	S	T	P	NO	CAUC.		
1	2	7	13	U	S	F	P		CAUC.		
1	2	7	13	E	S	F	P		CAUC.		
1	2	7	12	E	S	T	U	NO	CAUC.		
1	2	8	14	E	N	F	P	1ST	CAUC.		
1	2	8	13	E	U	U	U		CAUC.		
1	2	8	13	E	S	F	P		CAUC.		
1	2	8	13	E	N	F	P	NO	CAUC.	ADD	YES
2	2	8	13	E	N	F	P	NO	CAUC.		NO
2	2	8	13	E	S	F	P	NO	CAUC.		
2	2	8	13	U	U	F	P		CAUC.		
1	2	8	13	U	N	T	P	NO	CAUC.		NO
1	2	8	13	I	S	U	J	NO	CAUC.		NO
2	2	8	13	E	N	F	P		CAUC.		
2	2	8	14	E	S	T	P		CAUC.		
2	2	8	14	E	N	U	P		CAUC.		
1	2	8	13	U	N	T	P		CAUC.		
2	2	8	13	E	U	F	P		CAUC.		
1	2	8	13	I	S	F	P	NO	CAUC.		

Appendix B

Permission Slip

July 21, 1997

Dear Project Achievement Parents:

I am doing a research project on students attending Project Achievement. The study is about learning styles and preferences. The information gained from the study will be helpful to me as a graduate student of Lindenwood College, and for students attending Project Achievement in the future.

The research tool I have chosen is called the Murphy-Meisgeier Type Indicator for Children. The type of questions asked are:

1. Which do you like best?
   A) Reading
   B) Math

2. You like to learn things:
   A) With others
   B) On your own

I would like for students to fill out the questionnaires in class, as a group, so a prompt reply is necessary. If you have questions, please feel free to contact me at St. Joan of Arc or at 296-0048. Your cooperation is very much appreciated.

Thank you,
Karen Allen
(P.A. Teacher 7th/8th grades)

PLEASE RETURN THIS PORTION BY 7-22-97.

I understand that my child will take the Murphy-Meisgeier Type Indicator For Children (MMTIC) as part of a research project to study learning styles and preferences.of Project Achievement students. My child _____ has permission to participate in the study.

_____parent signature

Appendix C

Sample Distribution Of Type

	Frequency	Percent	Valid Percent	Cumulative Percent
ENFJ	1	1.2	1.2	1.2
ENFP	7	8.2	8.2	9.4
ENFU	3	3.5	3.5	12.9
ENUP	3	3.5	3.5	16.5
ESFJ	5	5.9	5.9	22.4
ESFP	11	12.9	12.9	35.3
ESFU	1	1.2	1.2	36.5
ESTJ	1	1.2	1.2	37.6
ESTP	2	2.4	2.4	40.0
ESTU	1	1.2	1.2	41.2
ESUJ	5	5.9	5.9	47.1
ESUP	1	1.2	1.2	48.2
EUFJ	2	2.4	2.4	50.6
EUFP	1	1.2	1.2	51.8
EUFU	3	3.5	3.5	55.3
EUUJ	1	1.2	1.2	56.5
EUUP	2	2.4	2.4	58.8
EUUU	1	1.2	1.2	60.0
INFJ	1	1.2	1.2	61.2
INFP	4	4.7	4.7	65.9
INTP	1	1.2	1.2	67.1
ISFP	1	1.2	1.2	68.2
ISFU	1	1.2	1.2	69.4
ISTJ	1	1.2	1.2	70.6
ISTP	1	1.2	1.2	71.8
ISUJ	1	1.2	1.2	72.9
ISUU	1	1.2	1.2	74.1
IUFP	1	1.2	1.2	75.3
IUTP	1	1.2	1.2	76.5
IUTU	1	1.2	1.2	77.6
IUUJ	1	1.2	1.2	78.8
UNFJ	1	1.2	1.2	80.0
UNFP	1	1.2	1.2	81.2
UNTP	2	2.4	2.4	83.5
USFJ	1	1.2	1.2	84.7
USFP	5	5.9	5.9	90.6
USFU	2	2.4	2.4	92.9
USTP	1	1.2	1.2	94.1
USTU	1	1.2	1.2	95.3
USUP	1	1.2	1.2	96.5
UUFJ	1	1.2	1.2	97.6
UUFP	1	1.2	1.2	98.8
UUTP	1	1.2	1.2	100.00
TOTAL	85	100.00	100.00	

References

Ayres, B. J. & Hedeen, D. (1996). Been there, done that, didn't work - alternative solutions for behavior problems. Educational Leadership, Feb. 48-50.

Boersma, F., Kienholz, A., Jevene, R., & Chapman, J. (1989). Teaching type to elementary school teachers: implications for individualizing instruction. Journal of Psychological Type, 18, 33-38.

Carlson J. (1985). Recent assessment of the Myers-Briggs type indicator. Journal of Personality Assessment, 49, 356-365. (1985)

Craig, C. H. and Sleight, C. C. (1990) Personality relationships between supervisors and students in communication disorders as determined by the Myers-Briggs Type Indicator. The Clinical Supervisor, 8 (1), 41-51.

Dewy, J. (1964). The Need For A Philosophy Of Education. In R. A. Archaumbault (Ed.), John Dewey On Education: Selected writings. York: The Modern Library

Dunn, R. (1988). Teaching students through their perceptual strengths or preferences. Journal of Reading, 31 (4), 304-309.

Dunn, R. (1989). Introduction to learning styles and brain behavior. The Association for Advancement of International Education, 15 (47) Spring, P. 145-150.

Dunn, R, Beaudry, J. S., & Klavas, A. (1989) Survey of research on learning styles. Educational Leadership. 46 (6), 50-58.

Eggen, P .D. & Kauchak, D. P. (1996). Strategies for Teachers Teaching Content and Thinking Skills. Needham Heights, MA.: Allyn and Bacon

Fagella K. & Horowitz, J. (1990). Different child, different style - seven ways to reach and teach all children. Instructor, Sept. 49-54.

Ferguson, J. and Fletcher, C. (1987) Personality type and cognitive style. Psychological Reports, 60, 959-964.

Forqurean, J. M., Meisgeier, C., Swank, P. & Murphy, E. (1988). Investigating the relationship between academic ability and type preference in children. Journal of Psychological Type, 16, 38-41.

Forqurean, J. M., Meisgeier, C., Swank, P. & Murphy, E. (1988). The Murphy-Meisgier type indicator for children exploring the link between psychological type preferences of children and academic achievement. Journal of Psychological Type, 16, 42-46.

Forqurean, J. M., Meisgeier, C. and Swank, P. (1990). The link between learning style and Jungian psychological type: a finding of two bipolar preference dimensions. Journal of Experimental Education, 58 (3). p. 225-237.

Furnham, A. and Medhurst, S. (1995). Personality correlates of academic seminar behavior: a study of four instruments. Personality and Individual Differences, 19 (2), 197-208.

Hergenhahn, B. R. (1994). An Introduction To Theories of Personality. Englewood Cliffs, New Jersey: Prentice Hall.

Issacson, L. E., & Brown, D. (1997). Career Information, Career Counseling, and Career Development. Allyn and Bacon:Needham Hieghts, MA

Jung, C. G. (1974). Dreams. (R. F. C. Hull, Trans.), New York: Princeton University Press.

Jung, C. G. (1971). Psychological Types. (H.G.Baynes, Tran. revised by R.F. c. Hull). Volume 6 of the collected works of C.J. Jung. Princeton, NJ: Princeton University Press. (Original work published in 1921).

Jung, C. G. (1961). Memories, Dreams, Reflections. New York: Random House.

Kahn, A. (1995). Discipline is the problem - not the solution. Learning, October/November, 34.

Keirsey, D. & Bates M. (1984). Please Understand Me. Gainesville, FL: Center for Applications of Psychological Type.

Lawrence, G. (1986). Teaching for thinking: a Jungian extension of Dewey's ideas. Journal of Psychological Type, 12, 38-49.

Lawrence, G. (1984). A synthesis of learning style research involving the MBTI. Journal of Psychological Type, 8, 2-15.

Maler, G, M. (1986). Doctoral dissertation, The University of Toledo, Ohio. Dissertation Abstracts International, 47, (12), 4280.

Meisgeier, C. & Murphy, E. (1987). Murphy Meisgeier Type Indicator for Children Manual. Palo Alto CA: Consulting Psychological Press.

Meisgeier,C., Murphy, E., & Meisgeier, C. (19--). A Teacher's Guide to Type: A New Perspective on Individual Differences in the Classroom. Palo Alto CA: Consulting Psychological Press.

Mills, C. J., Moore, N. D., & Parker, W. D. (1996). Psychological type and cognitive style elementary-age gifted students: Comparisons across age and gender. Journal of Psychological Type, 38, p. 13-23.

Murray, W. S. (1996). Testing bipolarity of the Jungian functions. Journal of Personality Assessment, 67, (2), 285-293.

Myers, I. B. (1962, 1975). Manual: The Myers-Briggs Type Indicator. Palo Alto, CA: Consulting Psychologists Press.

Myers,I. B., & Myers, P. B. (1995) Gifts Differing. Palo Alto, CA: Consulting Psychologists Press.

Myers, I. B., & McCaulley, M. H. (1985). Manual: A Guide to the Development and Use of the Myers Briggs Type Indicator. Palo Alto, CA: Consulting Psychologists Press.

Nisbet, J., Ruble, V. E., & Schurr, K. T. (1982). Predictors of academic success with high risk college students. Journal of College Student Personnel, 227-235.

O'Rourke, A. M. (1990). Comment on Cowan's interpretation of the Myers-Briggs Type Indicator and Jung's psychological functions. Journal of Personality Assessment, 55 (314), 815-817.

SPSS For Windows, Version 8 [Computer Software].. (1997). Chicago, IL: SPSS Inc.

Shiflett, S. (1989). Validity evidence for the Myers-Briggs Type Indicator as a measure of hemisphere dominance. Educational and Psychological Measurement, 49, 741-745.

Simon, T. (1996). Drug education now! Creative Classroom, March/April, 98-110.

Sipps, G. J. and DiCaudo, J. (1988) Convergent and discriminant validity of the Myers-Briggs Type Indicator as a measure of sociability and impulsivity. Educational and Psychological Measurement, 48, 445-451.

Slavin, R. E., Karweit, N. L., and Madden, N. A. (1988). Effective Programs for Students At Risk. Needham Heights, Mass.: Allyn and Bacon.

Tobacyk, J. J., Hearn, R. E., & Wells, D. H., (1988). Jungian type and California Achievement Test Performance in junior high school students at high risk for dropout. Journal of Psychological Type, 19, 13-19.

Werner, E. and Brodkin, A. M. (1992) Why some kids beat the odds [an interview with Emmy Werner]. Instructor, May/June, 12-13.

Western Regional Center for Drug Free Schools and Communities, Northwest Regional Laboratory (NWREL), (1991), Promoting Resilience Manual. Portland, Oregon.