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TEMPERAMENTS AND LEARNING STYLES IN INDUSTRIAL EDUCATION STUDENTS, A CORRELATIONAL STUDY

The University of Nebraska - Lincoln PH.D. 1985

TEMPERAMENTS AND LEARNING STYLES IN INDUSTRIAL EDUCATION STUDENTS, A CORRELATIONAL STUDY

by

Andrew Edward Schultz

A DISSERTATION

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and Steven A. Eggland

Lincoln, Nebraska

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TITLE

Temperaments and Learning Style in Industrial Education Students;

A Correlational Study

BY

Andrew Edward Schultz

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TEMPERAMENTS AND LEARNING STYLES IN INDUSTRIAL EDUCATION STUDENTS, A CORRELATIONAL STUDY

Andrew Edward Schultz, Ph.D.

University of Nebraska, 1985

Co-Advisors: Hazel M. Crain and Steven A. Eggland

The purpose of this study was to compare the proportion of Keirseyan temperaments found in the normative secondary education population with the proportion of temperaments found in the secondary Industrial Education population to find if differences existed and to correlate the temperaments found with two Jungian-based learning style instruments. There was a threefold purpose for this research. First, the Industrial Education sub-population of the secondary education population had never been measured for distribution of personality traits and temperaments. Secondly, some learning style instruments, which have been applied in the classroom, have had limited verification of their capacity for measurement, particularly with secondary school students. The third reason for this study was that there were several differing temperament theories, each based on differing combinations of Jungian traits, which conflicted with one another. Each school of temperament theory had presented evidence that such premises had merit, and each had developed practical classroom applications of their theory. If the practical application of the theories was to be continued, it was important that the discrepancies between them be examined if not resolved.

Data were gathered in November and December of 1984 from 213

senior level Industrial Education students. Intact classrooms were used in schools in southeastern Nebraska. Administration of the three instruments took approximately 50 minutes. Data were read into the mainframe via optical reader and analyzed using SPSS and SAS. The analysis employed Glass' and Stanley's Test of Proportion, Fisher's "Exact Test", Pearson Product Moment Correlations and Crosstabulation.

The results of this study revealed that significant differences between the normative and Industrial Education populations existed in terms of both Keirseyan and Jungian temperament, but that the Jungian temperaments appeared to reveal those differences with more sensitivity than the Keirseyan model with this age group of students. Significant correlations between either the Jungian or Keirseyan temperaments were found, but these correlations were at random and contradictory to theory with this age group. Little evidence was found to support the use of either learning style instrument with the secondary Industrial Education population. Finally, differences between temperament theories were not resolved, but a possible resolution has been proposed and suggested for further research.

ACKNOWLEDGMENTS

Three years is a long time to pursue a goal. It has been a pursuit of joy and pain, of gifts and sacrifice. To my family and those dear friends and colleagues who so selflessly gave of their time (that most precious and fleeting of all possessions), and of themselves, I give my humblest of thanks. I will not be able to repay the kindnesses you have shown. . .rest assured however, that I will strive to follow your sterling examples, and pass along your gifts to others in the future.

Particular thanks must go to members of my committee. Dr. Les Whipp and Dr. Charles Ansorge have been inspirational teachers during my years of study and as I continue my teaching career I will attempt to match the fine examples they have set. Dr. Margaret Johnson and Dr. Steve Eggland, whose keen minds and eyes have served to improve this study, deserve much praise for their patient and most appropriate guidance.

Special thanks to Drs. Hazel Crain and Niel Edmunds for their steadfast support for what must have seemed a graduate student of erratic and scattered promise.

To my mother and father, Jean and Lumir Schultz, I wish to thank you for the last three years which has only been a continuation of a lifetime of caring and giving.

A. E. S.

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CHAPTER I

STATEMENT OF THE PROBLEM

Introduction

The objective of this study was to measure differences in the proportion of categories of personality temperament and preferred learning styles in Industrial Education students when contrasted with the general high school population. Thoreau once said, "If a man does not keep pace with his companions, perhaps it is because he hears a different drummer" (1937, p. 290). One may infer that Thoreau meant that people vary continuously across all of the features which make them human. Education has struggled with this infinite variety. A mechanistic, production-line inspired philosophy of education was prevalent at the turn of the century. Cronbach noted that in the "early years of the century there was a largely fixed curriculum starting with the common branches of knowledge, and proceeding through an academic high school program and a college liberal arts program. Individual differences were taken into account chiefly by eliminating students. Less successful students dropped out along the way" (1967, p. 8).

This model of education viewed the student as the raw material of education, a material to be shaped, polished and finished so that similar citizens could then serve the nation. Implicit in this notion is the idea that people are all essentially alike. Keirsey (1978) suggests that "the belief that people are fundamentally alike appears to be a twentieth century notion. Probably the idea is related to the growth of democracy in the Western world. If we are equals then we

must be alike" (p. 2).

As early as 1917 it had become politically and economically expedient to keep dropouts in school. Unions and workers realized that a large pool of unemployed workers was not conducive to higher wages and better working conditions, (Starr 1981) and following this line of reasoning, schools across the country began to develop and implement vocational and homemaking curricula. (Cronbach, 1967, p. 8)

This departure marked the advent of teaching to the average student. Group instruction, still the norm for most of public education, has been extensively investigated. Cross (1976) reported, "The research on teaching effectiveness has been inconclusive and disappointing because. . .we were asking the wrong questions" (p. iii). The normative approach to educational research, Cross maintained, missed the interactions of differences. (p. iii)

Vestiges of both the mechanistic and normative approaches to learning were still common in education, (Goodlad, 1983, p. 466) and although it was widely recognized that individual differences occur, the extent and nature of these variations had been only partially examined.

Context of the Problem

One of the first to argue differences rather than similarity among people in this century was Carl Jung (1923). He theorized that people varied across three dichotomous dimensions of personality. The extremes of these dichotomies were polar opposites and represented profound and fundamental differences in the manner in which people attend, perceive and make judgments about stimuli from the environment.

These dichotomies were introversion (I) versus extraversion (E), sensing (S) versus intuitive (N) and thinking (T) versus feeling (F). (p. 3)

In the early 1940's, Isabel Briggs Myers developed the Myers-Briggs Type Indicator (MBTI) which purported to measure the three Jungian dichotomies plus a fourth dimension, perceiving (P) versus judging (J). Of the four dichotomies, Lawrence (1979) has said that "the sensing-intuition preference reveals basic learning style differences" while "the thinking-feeling dimension shows a pattern of commitments and values of the student" and "the judging-perceiving dimension shows work habits" (p. 3). The introversion-extraversion dichotomy revealed a preference for dealing with the world in an interior versus an exterior fashion. According to Keirsey (1978) the 16 possible combinations of these four characteristic dimensions of personality could be broadly categorized into four "temperaments"; intuitive-thinkers (NT), intuitive-feelers (NF), sensing-judgers (SJ) and sensing-perceivers (SP). (p. 29)

The MBTI has been extensively used as a research instrument. Nationwide data collection over a 30-year time period has revealed that temperaments occur in a stable fashion in the following proportions: 38% SP, 38% SJ, 12% NT and 12% NF. However, when considered occupationally, or by college major or by some other subset of the national population, clusters of temperaments appeared disproportionately in significant numbers through the nooks and niches of the diverse and pluralistic American society. (Keirsey, 1978, p. 39, 44) Although the MBTI has implications for learning, its primary role has been as a personality inventory. Kolb and Gregorc, expanding upon

the work of Jung, have developed learning style instruments -- the Gregorc Style Delineator (GSD) and Kolb's Learning Style Inventory (LSI) -- which specifically aimed to identify differences in modes of learning. The work of these investigators was less extensively researched. Only in the last two decades has this investigation been conducted and although national norms have been established, subsets of the national population have been investigated in only a sporadic and piecemeal fashion.

During the last decade, there has been widespread recognition of the manifold differences which exist in the student's preferences for diverse modes of learning. Despite this recogniton, however, Goodlad (1983) found that most teachers taught from a very limited pedagogical repertoire. (p. 467) It appeared that while most secondary school teachers recognized that students differ, they did not know the extent to which students differed and neither did they know the manner in which those differences affected learning style preferences.

The work of Myers revealed that over 50% of the secondary school teachers were of the SJ temperament and over 35% were NFs. Research in secondary schools revealed that almost 90% of the student body in vocational education classrooms were sensate in their preferred mode of perception. (1962, p. 14) Similar kinds of research in the distribution of temperaments in elective secondary vocational areas when correlated with measures of learning style may reveal particular patterns of instruction which might be more effective.

Problem Statement

Much theoretical work exists which suggests differing distributions of learning style preferences and personality

temperaments in various educational sub-populations. Ample empirical evidence supports this supposition. Within the educational literature base, however, there is a dearth of relevant research relating to vocational education, particularly on the secondary level. Consequently, the problem to be solved in this study was that the secondary Industrial Education sub-population has not been measured in terms of personality temperaments and learning style preference and that there has been little empirical evidence gathered to support the notion that Jungian learning style instruments measure Jungian constructs.

Purpose of the Study

The purpose of this study was to compare the frequency of the SJ, SP, NT and NF temperaments from the sampled Industrial Education population with the national norms for the secondary school population. It was hypothesized that correlations between temperament classes and the two learning style inventories would reveal whether or not certain modes of learning are associated with these broad personality categories.

Research Questions

The following research questions were generated:

1. Are there differences in the distribution of personality temperaments in the Industrial Education population when compared to the general high school population?

2. Are there preferences within the various Industrial Education classrooms for certain learning styles among the four temperaments of personality as described by Keirsey (1978, p. 27-66)?

Definitions

For the purposes of this study, the following definitions were utilized:

Attitude. - One of the three theoretical functions postulated by Jung. The attitude function is revealed by the extent to which individuals tend to one of the two dichotomous poles, introversion and extraversion.

Cognitive Style. - Refers to the characteristic ways of using the mind (Cross, 1976) and is frequently considered as one element among other elements comprising learning style. (Huelsman, 1983, p. 13) For the purposes of this study Cognitive Style was considered a synonym of Learning Style.

Extraversion. - One of the attitude functions. A person whose choice is to interact directly with the world is an extravert. Outward in preference. The main points of reference projected outward to the world of people and things. Also Extraverted, Extravert.

Feeling. - "A process of appreciation, equally reasonable in its fashion [to thinking], bestowing upon things a personal, subjective value" (Myers, 1962, p. 52). A manner of Judgment. Also Feeler.

General High School Population. - Those people enrolled in public secondary education grades 9 through 12.

Industrial Education Student. - A student who has elected to enroll in an Industrial Education class. For this study these students were selected from the drafting, electronics, automotive, construction, graphics and metals areas of Industrial Education.

Introversion. - An attitude function. "Everyone whose attitude is introverted thinks, feels, and acts in a way that clearly demonstrates that the subject is the prime motivating factor and that the object is of secondary importance" (Jung, 1921, p. 452-453). Also introvert, introverted.

Intuition. - A perceptual function. The "indirect perception by way of the unconscious, accompanied by ideas or associations which the unconscious tacks on to the perceptions coming from outside. These unconscious contributions range from the merest masculine 'hunch' or 'women's intuition' to the crowning examples of creative art or scientific discovery" (Myers, 1962, p. 51). Also intuitive, intuiter.

Judging. (the function) - One of the three theoretical functions postulated by Jung. Myers found that "'judgment' is understood to include the processes of coming-to-conclusions about what has been perceived" (1962, p. 51). The Judging function was revealed by the extent to which individuals tend to prefer one of the two poles of the Judging function, Thinking or Feeling. Also Judger, Judgment.

Judging. (the trait/characteristic) - One of the two traits Isabel Briggs Myers added to Jung's theoretical work to serve as a pointer to the individual's preference for judgment or perception as the primary means of dealing with the outer world. Keirsey, et al, has suggested that these traits also had characteristics of their own such as judgers preferred closure, valued punctuality and tended to adhere closely to the work ethic. (1978, p. 23) Also Judger, Judgment.

Learning Style. - "Consisting of distinctive behaviors which serve as indicators of how a person learns or seeks meaning from and adapts to his/her environment" (Huelsman 1983, p. 14). A synonym of Cognitive Style for this study's purposes.

Perceiving. (the function) - One of the three theoretical functions postulated by Jung. Myers stated that "'perception' is here understood to include the processes of becoming-aware of things or people or occurrences or ideas" (1962, p. 51). The Perceiving function was revealed by the extent to which individuals tended to prefer one of the two poles of the Perception function, Intuition or Sensation. Also Perceiver, Perception.

Perceiving. (the trait/characteristic) - One of the two traits Isabel Briggs Myers added to Jung's theoretical work to serve as a pointer to the individual's preference for judgment or perception as the primary means of dealing with the outer world. Keirsey, et al, had suggested that the traits had characteristics of their own such as perceivers

preferred freedom in action, appointments were approximate and flexible, and the play ethic was more important than the work ethic. (1978, p. 23-24) Also Perceiver, Perception.

Sensation. - A trait of the Perceiving function. "Sensation is the psychological function that mediates the perception of a physical stimulus" (Jung, 1921, p. 461). Tended to prefer facts to ideas, now to the future. The stimuli was the perception. Also Sensing, Sensate.

Temperament - "Temperament can denote a moderation or unification of otherwise disparate forces, a tempering or concession of opposing influences, an overall coloration or tuning, a kind of thematization of the whole, a uniformity of the diverse" (Keirsey, 1978, p. 27-28). For the purposes of this study, Keirseyan temperament is comprised of the NT (intuitive/thinking), NF (intuitive/feeling), SJ (sensing/judging) and SP (sensing/perceiving) combinations of Jung's and Meyer's dichotomies. Jungian temperaments, a term coined for this study, although never labeled as such by Jung or Meyers, shall be the NT and NF combinations noted by Keirsey plus combinations of SF (sensing/feeling) and ST (sensing/thinking) dimensions rather than the SP and SJ ones of Keirsey.

Thinking. - A trait or characteristic of the Judging function. "If when one judges. . .ideas, he concentrates on whether or not they are true, that is thinking-judgment. . .a logical process, aimed at impersonal finding" (Myers, 1962, p. 52). Also Thinker.

Assumptions

For the purposes of this study:

1. It was assumed that the MBTI, the GSD and the LSI accurately and reliably separated subjects into broad classes of people.

2. It was assumed that the preferred modes of interaction with the world as theorized by Jung and Measured by the MBTI were dichotomous to one another.

Delimitations

The following delimitations were defined:

1. The categories of the MBTI, the GSD and the LSI were hypothetical constructs which this study neither confirmed nor rejected.

2. The categories on the MBTI, the GSD and the LSI could have changed when as few as two item responses were changed. Although research on the MBTI had revealed that few adult subjects fall into this ambiguous area, with adolescents this may have been more common. (Mendelsohn, 1963, p. 147) With the GSD and the LSI, the extent to which subjects fall into the narrow range of the dichotomies was unknown.

3. The scores on the MBTI, the GSD and the LSI were located along a closed continuum. Categories of type or style did not reveal the true strength of response.

Limitations

This study was limited by the following factors:

1. Twenty intact classes of students from Class A and B Nebraska high schools were used rather than randomized sampling of subjects. Intact classes were used in order to prevent excessive disruption of classwork and because it was the most efficient manner of gathering data. Class A and B schools in Nebraska are athletic designations based on school size. Class A schools have high school populations above 499 students while Class B schools range from 150 - 499 students.

2. Correlational research did not imply a causal relationship between correlates.

3. The reliability and validity figures for the MBTI were largely obtained from adult populations. There is evidence to indicate that the MBTI was less reliable with younger adolescents.

4. The Industrial Education high school population was disproportionately male. To the extent that the thinking/feeling dichotomy of the MBTI had been shown to reveal the cultural effects of sex, care must be used in the application of the results of this study to educational planning.

5. Due to increased graduation requirements, many students desiring elective courses were unable to fulfill these wishes. It was unknown to what extent differing personality types were influenced by these