PERCEPTUAL LEARNING STYLES OF ADJUDICATED DELINQUENTS IN SECURE TREATMENT FACILITIES ENROLLED IN VOCATIONAL AND NON-VOCATIONAL SECONDARY EDUCATION

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CHAPTER 1

INTRODUCTION

Societal demands for the expansion of vocational and non-vocational educational services to the disadvantaged student population has dramatically increased in the past two decades. Educational specialists, administrators, curriculum specialists, and instructors have endeavored to produce programs that articulated society's demand for the graduation of vocational and non-vocational secondary students capable of working in modern technology or progressing to post secondary education. The cost of local, state and federally mandated programs required the educational establishment to formulate dynamic strategies to enhance student opportunities for vocational success in the world of work or higher education (Oakley, 1991).

Fundamental philosophical changes occurred, based on a changing society, that affected the principles, procedures and practices of vocational technical education (Sanders, 1991). For example, the inclusion of all who can benefit from vocational education expanded the student population to include adjudicated delinquents and incarcerated juvenile offenders. This change in philosophy has challenged the vocational technical instructor's ability to adapt a variety of instructional strategies to meet diverse student population needs.

Predelinquent, delinquent, and character disturbed students, in public and vocational education facilities, are adversely effecting educational outcomes (Neal, 1982). The draining of critical resources (i.e. manpower and money) from education in the development of alternative educational programs, facilities, and student exit, prior to secondary graduation are significant issues for the 1990's.

Problem Statement

> America is in the midst of a raging epidemic of juvenile homicide, suicide, and abuse. To cure it, we need to focus on prevention, not just punishment (Henkoff, 1992. p. 62).

The rise in violent crime committed by juvenile delinquents is adversely impacting society. The explosion of violence perpetrated by children between the ages of 12 to 19 in America has reached epidemic proportions. Society at large is struggling to find a treatment modality which will assist in remediating youthful offenders for reintroduction into society.

A dichotomy exists in philosophical approaches to the problem of predelinquent or delinquent students in vocational secondary education. It is argued that the primary responsibility of schools is education and that students with severe acting out behaviors should be excluded from the learning process (Neal, 1992). However, others assert that it is the school's responsibility to identify, treat, and educate delinquency prone children, or those who do not gain by participation in traditional education environments (Kvols-Riedler, 1979).

The inclusion of predelinquent or character disturbed children in the educational process is mandatory. Approximately five percent of the student population in secondary education has a personality or learning disorder that inhibits that student's chance for a successful educational outcome (Magid and McKelvey, 1987).

Adjudicated delinquents may be excluded from traditional educational facilities due to incarceration in a state institution. This target population of incarcerated adjudicated delinquents requires research. Research specifically targeted toward the identification of a modality that will enhance the early identification of students, based on their perceptual learning styles, who are in need of alternative instructional strategies.

Purpose of the Study

The purpose of this research was to identify the sensory intake perceptual learning styles of the following classes of secondary students: 1) incarcerated adjudicated delinquent vocational, 2) incarcerated adjudicated delinquent non-vocational, 3) traditional vocational, 4) and traditional non-vocational, to determine if significant differences in learning styles exist.

Assessment occurred by contrasting demographic and statistical data collected from: 1) four (4) secure treatment delinquent institutional settings, 2) with corresponding data from three vocational technical schools. As a control group non-vocational students from three (3) feeder high schools were also included in the study.

The review of literature revealed significant research in the causation of delinquency. However, little research has been performed using adjudicated delinquents in secondary education to determine perceptual learning styles in the development of instructional strategies.

Limited statistical information exists which shows the differences between vocational technical education students and non-vocational technical education students (Soliday, 1992). This knowledge could be utilized to provide educators with information which should facilitate the identification and selection of alternative instructional strategies for students by preferred perceptual learning style. The results of this study could produce a method for the early identification of students who require individualized instructional strategies to prepare for successful educational outcomes in vocational and non-vocational secondary technical education.

An understanding of the preferred learning styles of adjudicated delinquents and the most efficacious manner of teaching the special needs student is important to vocational educators (Miller, 1985). Adjudicated delinquents meet the requirements of a special need or special focus group as defined by Fingh and McGough (1982). Specifically, they are criminal offenders in an institution requiring habilitative or educational remediation.

A determination of the adjudicated delinquent's preferred learning style is required to construct individualized curricular materials. The mating of teaching style, style flexing, to

curricular materials in a manner most conducive to the students preferred learning style will enhance the possibilities of educational success (Sanders, 1990).

The cost of incarceration, treatment, release, and subsequent recidivism on the part of adjudicated delinquents requires educational research. Each delinquent bed at the L. E. Rader Diagnostic Treatment Facility in Sand Springs, Oklahoma, cost the state on average $79,000.00 per year (Grissom, 1992).

The James and Galbraith's Perceptual Learning Styles Inventory allows for the study of individuals in treatment centers from whom an inferential conclusion may be drawn. The knowledge of a particular class of preferred learning styles common to delinquency would lend itself to educational modalities whose emphasis would be on facilitation, learning, and habilitation skills. Current statutory law requires the "detention of a child if it is necessary to assure the protection of the child in court or for the protection of the child or the public" (Council on Law Enforcement Education and Training, 1984).

Education is a socializing phenomenon which can be used to treat, educate, and reintroduce troubled youth into mainstream society. This reintegration into society is a civil right specifically addressed in Public law 88-452, The Economic Opportunity Act, which mandated the training and placement of special needs youth.

Each student brings to the classroom splintered academic and social skills. These splintered skills require the instructor to

assess essential human relations, communications, and academic competencies requiring remediation. This splintering skills process affects the human environment from which the individual student incorporates a basic understanding of his or her universe. It also affects the situational approach the student utilizes to develop a frame of reference for his or her life role (Hersey and Blanchard, 1987). The application of a proactive treatment program incorporating perceptual learning style assessment and a tailored instructional approach coupled with vocational training shows some promise in alleviating recidivism in adjudicated delinquents (Friedman, 1991). Splintering occurs because of sexual, physical and mental/emotional abuse which retards or inhibits the individual's ability to process information from the environment in a constructive or positive manner (Grissom, 1992).

Sexual abuse may include rape, sodomy, other illegal sexual acts prohibited by law; incest, and the assault/battery of a minor committed for sexual gratification by another. Sexual abuse is accompanied by force or fear, whether external or internal to the juvenile victim (Sorrells, 1980). Physical abuse may range from minor beatings to emasculation-castration, (male and female) or death.

Instructional strategies that analyze the students ability to incorporate information in the cognitive, affective, and psycho-motor domains coupled with an understanding of the students preferred learning style help instructors plan their methods' for teaching.

Learning theory integrated with learning style allows for the proactive manipulation of the learning environment to increase educational effectiveness (Oklahoma State Department of Education, 1983). Learning style instruments based on James and Galbraith's Perceptual Learning Style Inventory are available for use in educational research.

Knowing a student's preferred learning style allows the educator to chose one of four primary instructional strategies to disseminate information effectively to the student. Instructional strategies are: 1) Instructor centered, 2) Individually centered, 3) Interactively centered, or 4) Experiential centered (Sanders, 1990; Cranton and Weston, 1989).

Research Questions

The research questions developed to provide structure and guidance to this study were:

1) What are the perceptual learning styles of institutionalized adjudicated delinquents enrolled in vocational and non-vocational secondary education programs?

2) Does the preferred learning style of adjudicated delinquents in institutional settings enrolled in vocational and non-vocational secondary education differ significantly from non-vocational non-institutionalized vocational secondary students?

Terms and Definitions

Adjudication: Adjudication in juvenile proceedings is the process of civil jurisdiction where in the juvenile is declared a delinquent by the court and some action is directed (Inciardi, 1990).

Adjudication Hearing: The stage in a juvenile court proceeding in which a judge presides on behalf of the child to determine if he or she actually committed the alleged offense (Inciardi, 1990).

Alienation: Disaffection with work and oneself, often defined as having five facets: meaninglessness, powerlessness, estrangement from self, isolation, and normalessness (Duffee, 1989).

Arrest: Arrest is defined as the physical or moral restriction placed on the liberty of an offender under the color of law which denies some freedom of action (CLEET, 1989).

Child In Need of Supervision: For the purpose of this study Persons in Need of Supervision is defined as juveniles considered neglected, abandoned, or unruly who are placed in the custody of the juvenile court (CLEET, 1984).

Community Based Corrections: The location and operation of correctional services in offenders' neighborhoods or other places outside prison, jail or detention, usually accompanied by input of community opinion and decision making (Newman and Anderson, 1989).

Crime: Any act of commission or omission prohibited by law for which a punishment is prescribed (CLEET, 1989).

Detention: Preadjudication, or predispositional lock-up of juveniles (Newman and Anderson, 1989).

Incapacitation: Physically preventing a juvenile from committing a crime or crimes by placing them in a secure treatment facility (Grissom, 1992).

Incest: Sexual intercourse between parent and child, any sibling, pair, or between close blood relatives (Inciardi, 1990).

Intent: The state of mind in which a person acts, used as a distinction between a crime and any other form of prohibited conduct. It is the primary form of the mental element the prosecution seeks to prove through evidence (Chamelin and Evans, 1991).

Juvenile: A person subject to a juvenile court proceeding because of his/her age. The State of Oklahoma specifies that any child under the age of 18 is a juvenile (Dictionary of Criminal Justice Data Terminology, 1981, p. 118). For the purpose of this study a Juvenile is any person who has not reached age 19.

Juvenile Courts: Separate judicial bodies for handling cases involving juveniles; also called family court (Levine, Musheno, and Plaumbo, 1986).

Juvenile Delinquent: A juvenile delinquent is one who commits any act defined by law as illegal and who is adjudicated delinquent by an appropriate court (CLEET, 1984).

Learning Style: The preferred method or way that individuals transfer, assimilate, or process information; the construction of meaning out of stimuli (Kolb, 1984, Sanders, 1990).

Perceptual Learning Style: The use of ones senses to extract information from the environment (Sanders, 1992). The use of one or

more of seven psycho-motor or physiological activities: 1) Print, 2) Aural, 3) Interactive, 4) Visual, 5) Haptic, 6) Kinesthetic, 7) Olfactory, to extract information from the learning environment (James and Galbraith, 1989).

Persons Capable of Committing Crimes: All persons are capable of committing crimes, except those belonging to the following classes: 1) Children under the age of seven (7) years. 2) Children over the age of seven (7) years but under the age of fourteen (14) years, in the absence of proof that at the time of committing the act or neglect charged against them, they knew its wrongfulness. 3) Idiots, 4) Lunatics, insane persons, and all persons of unsound mind, including persons temporarily or partially deprived of reason, upon proof that at the time of committing the act charged against them they were incapable of knowing its wrongfulness, 5) Persons who committed the act or make the omission charged, under an ignorance or mistake of fact which disproves any criminal intent. But ignorance of the law does not excuse from punishment for its violation. 6) Persons who committed the act charged without being conscious thereof. 7) Persons who committed the act, or make the omission charged, while under involuntary subject to the power of superiors (Oklahoma Criminal Code, Title 21, Section 152, 1990).

Primary Learning Styles: That method used to inculcate; 1) Cognitive - knowledge gathered which may be concrete or abstract and is encoded, stored and available for retrieval (McCarthy, 1981), 2) Affective - knowledge modeled which demonstrated motivation, interest, personality, social ability and work ethics (Lawrence,

1988), 3) Physiological/Psycho-motor - knowledge demonstrated or methods of extracting information from the environment (James and Galbraith, 1985), 4) Multidimensional - knowledge incorporated for use from all primary learning styles in the learning process (Sanders, 1990).

State Juvenile Detention-Treatment Facility: The most extreme and restrictive dispositional alternative available to the courts for the placement of adjudicated delinquents (Grissom, 1992).

Status Offense: Any act which if committed by an adult would not be a crime. Traditional status offenses are: 1) Truancy, 2) Curfew violation, 3) Running away from home, 4) Unruliness, and 5) Unmanageability (Inciardi, 1990).

Taking Into Custody: A detention not constituting an arrest for the purpose of investigation, protection of another, or for the suspects welfare (Inciardi, 1990).

Therapeutic Community: A situation in which everyone in a corrections institution is a part of the treatment team (Grissom, 1992).

Assumptions

This study was conducted with the following assumption:

1. The population studied only represents those adjudicated juvenile delinquents who are incarcerated.

2. Splintered academic skills may require the reading of the Learning Styles instrument to some of those being interviewed.

3. That the adjudicated delinquent will understand the questions asked and provide a valid/honest response.

Scope

This study was conducted with four state diagnostic and treatment centers for adjudicated delinquents:

1. The Youth Center at Topeka in Topeka, Kansas.
2. The Youth Center at Beloit in Beloit, Kansas.
3. The Lloyd E. Rader Intensive Treatment Program in Sand Springs, Oklahoma.
4. The Alexander Youth Services Center in Alexander, Arkansas.

CHAPTER II

REVIEW OF LITERATURE

Preamble

This study examined the perceptual learning styles of institutionalized adjudicated delinquents enrolled in vocational and non-vocational secondary education. The purpose was to assess learning style as it relates to the individual delinquent and then to the population as a whole. A broad spectrum of vocational and non-vocational education programs exist in adjudicated delinquent treatment facilities with a wide range of students pursuing educational goals. This chapter reviewed the relevant literature on delinquency and the adjudication process, theories on the origins of delinquent behavior, the juvenile delinquent and deficiency motives, the juvenile delinquent as a student and perceptual learning styles.

A frequent question asked in vocational circles is "How can adjudicated delinquents best be served by vocational technical education?" (Thomas, 1992). Finch and McGough (1982) identified classes of individuals whose educational and occupational needs could be met through vocational education. They specifically addressed the needs of minority groups who live in cultural isolation, criminal offenders within an institution or upon parole/release, and at risk youth. Developing a set of teaching methodologies for these special needs students requires the

vocational educator to address learning styles with regard to learning outcomes (Sanders, 1991). Soliday's work, (1992), addressed personality types and perceptual learning styles of secondary students with the goal of identifying teaching strategies, and the students preferred learning style, so that the needs of the students may be met.

Another answer to the question of how adjudicated delinquents may be served by vocational education is vocational technical education offers the delinquent the opportunity for success in a given endeavor; a success they may never have experienced before. Vocational education may provide them with the ability to know they can do something constructive with their minds and hands. They may discover new cognitive, psycho-motor, and affective skills which could prepare them for integration in modern society and the world of work.

Delinquency and the Adjudication Process

A broad range of definitions are available for juvenile delinquency. However, it is difficult distinguishing among children who are dependent and neglected as to whether they are delinquent or simply in need of social services (Newman and Anderson, 1989).

Typically a juvenile delinquent is a person who has, through repeated contact with law enforcement personnel, been identified in need of supervision (Inciardi, 1990). This narrow view, however, fails to address the delinquent as a social being whose lack of employability skills, self esteem, discipline or work skills

provided the framework for police contact (Walker, 1992). Few vocational educators and, for that matter, criminal justice professionals have completed occupational training programs on the identification and facilitation of special needs students (Cummings and Maddux, 1987).

Juvenile delinquency treatment in America is a modern event. The first separation of youthful offenders from the adult criminal population occurred in 1899 (Gibbons and Krohn, 1991). Until that time all youthful offenders, once adjudicated, were incarcerated with adult criminals.

Juvenile delinquency today refers to violations of state rules that regulate the behavior of youths, usually under 18 years. A child who has not reached the age of majority in their respective state may be labeled delinquent if they commit a major crime (i.e. murder, rape, armed robbery) or a status offense. A status offense is "behavior that is permissible if performed by an adult but impermissible if performed by a child" (Klempner and Parker, 1981, p. 55). Status offenses run the gamut from failure to attend school to petit larceny.

The juvenile adjudication process is a civil hearing (regardless of the crime committed) wherein the judge has broad discretion in selecting an appropriate outcome for the child involved. Inciardi (1990) listed eight possible actions the judge may take. The judge may: 1) dismiss the case, 2) warn, 3) impose a fine, 4) order restitution, 5) require community service, 6) refer to a community agency or treatment facility, 7) place on probation,

or 8) mandate commitment into a juvenile institution. Incarceration in a state treatment facility is the most extreme measure the court may direct.

The adjudication process for juveniles encompasses three social agencies: the police, the court, and the Department of Corrections, (and in some states the Department of Human Services). Figure 1 outlines the Juvenile Justice Adjudication System (National Advisory Committee on Criminal Justice Standards and Goals, 1976, p. 9).

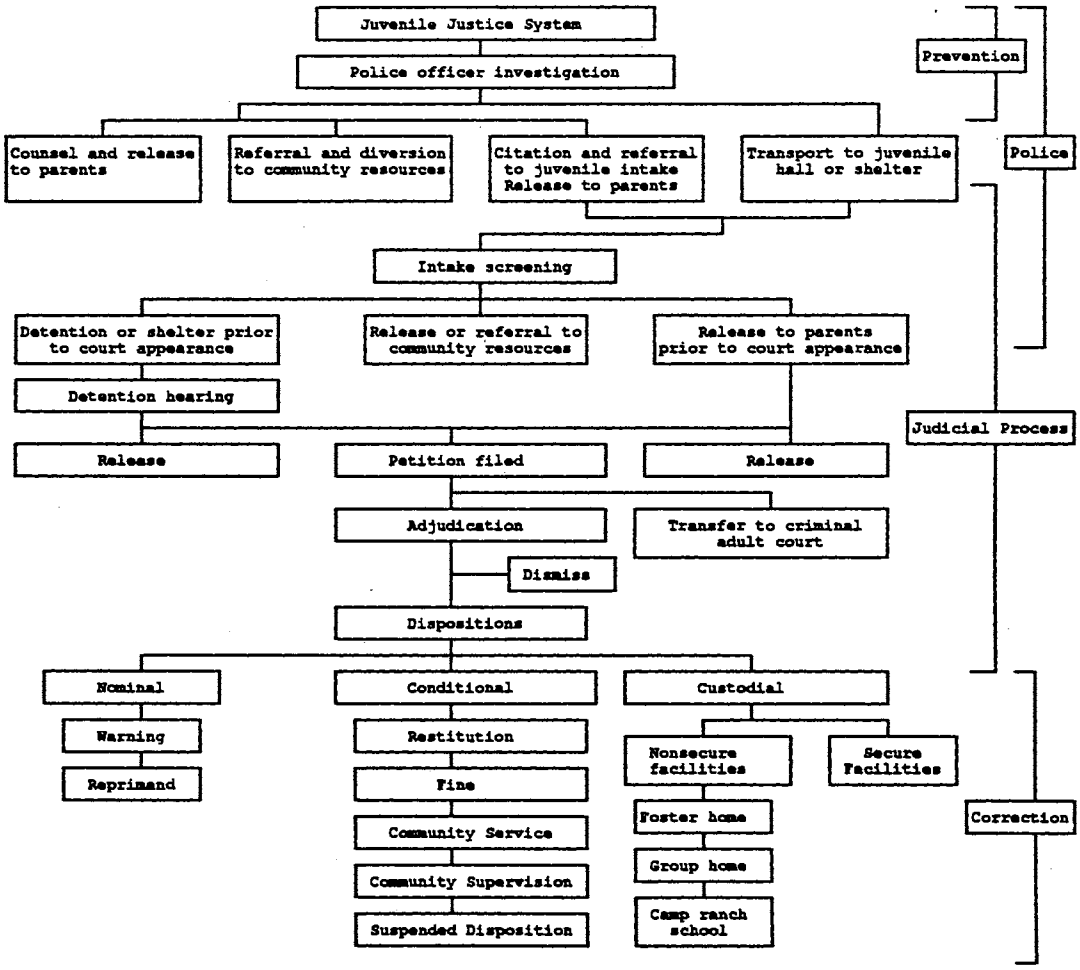
Significant differences exist in the approaches taken to the juvenile delinquency process. Punishment and the use of criminal sanctions currently lead in the process of societal control toward juvenile delinquency (Duffy, 1989). Criminal punishment was defined by K. Greenwalt as:

> Persons who possess authority impose designedly unpleasant consequences upon, and express their condemnation of other persons who are capable of choice and who have breached established standards of behavior (Greenwalt, 1983, pp. 343-344).

Punishment in juvenile procedures presupposes that the individual understands the nature of the criminal act, is capable of rational judgment in relationship to the act performed, and had the ability mentally, morally, and emotionally to control the deviant behavior exhibited (Hirsch, 1976).

Punishment according to Jeffery in his theory of differential reinforcement:

> Decreases a response rate only if it is used in a consistent manner and is applied near the time of the occurrence of the forbidden act. As it is used to control criminal behavior, punishment is likely to create avoidance and escape behaviors rather than law abiding behaviors (Jeffery, 1975 p. 44).



Source: National Advisory Committe on Criminal Justice Standards and Goals, *Juvenile Justice and Delinquency revention*. Washington, DC: U.S. Government Printing Office.

Figure 1: The Juvenile Justice System

The Origins of Delinquent Behavior

The causes of delinquency are attributed to a myriad of factors. They may be either psychological or sociological. Research into the nature of the learner [the adjudicated delinquent] integrates vocational education in the election of modalities that facilitate the student [person] in the process of becoming (Miller, 1985). Vocational education is committed to the development of proactive strategies to meet individual needs (Sanders, 1991).

Freud

Psychoanalytic theory based on the work of Freud attributes the causes of delinquency as a human personality deficiency. Delinquency is related to a young person's mental and emotional development (Shoemaker, 1984).

"The meaning of personality is in relation to those enduring traits and dispositions of the individual that have, over time, jelled into a pattern that distinguishes him or her from other individuals" (Krech, et.al, 1982, p. 525).

Plutchik in Emotion: A Psychoevolutionary Synthesis, (1980), outlined eight (8) basic human emotions and their inferred cognition. The juvenile delinquent processes information, demonstrates emotions, and manifests behavior outside the traditional concepts of acceptable standards in society. Plutchik's model provides a means for viewing behavior. The eight basic emotions identified are: 1) Fear - Danger, 2) Rage - Enemy, 3) Ecstasy - Possess, 4) Grief - Abandonment, 5) Acceptance - Friend,

6) Loathing - Poison, 7) Vigilance - What's out there? 8) Amazement - What is it? The mentally/emotionally abused juvenile feels rage, fear, abandonment, loathing and a requirement for vigilance far exceeding normal standards. Their level of alienation and helplessness-hopelessness is directly attributable to the disempowerment of mental/emotional abuse (Plutchik, 1980).

Personality is developed through emotional responses to the environment. Tompkins (1962) in Affect, Imagery, Consciousness, treats emotions as primary motives to human behavior. Personality is then manifest as a habit pattern to conditioning, or conditioned responses, to various stimuli (Hersey and Blanchard, 1982).

Freud defined the personality as having three structural components: the id, the ego, and the superego (Crain, 1992; Krech et.al., 1982). He described the id, ego, and superego as:

- The Id is that part of personality that gives rise to the blind, instinctual impulses demanding immediate gratification.
- The Ego is that part of personality that is usually thought of as the 'self.' The ego tries to control the id and superego, acting in accordance with the reality principle.
- The Superego is that part of the personality serving as the conscience (or guilt conscious), incorporating parental and societal values and goals (Krech, Crutchfield, Livson, Wilson, and Parducci, 1982, pp. 563-564).

Charles Brenner in "An Elementary Textbook of Psychoanalysis", (1955), described the id, ego, and superego as:

> The id comprises the psychic representative of the drives, the ego consists of those functions which have to do with the individual's relation to the environment, and the superego comprises the moral precepts of our minds as well as our ideal aspirations (Brenner, 1955, p. 45).

Psychoanalytic theory places great emphasis on early childhood as the critical period in personality formation, and defines various stages of psychological development. These stages correspond to the child's mastery of certain bodily functions and psychological drives which are manifest as acceptable or deviant behavior (Crain, 1991). Freudian psychology articulates the criticality of the parent-child relationship. Deficiencies in the parent/child bonding process may result in personality and conduct disorders manifest by the child. Specific actions on the part of the parent which may tend to cause emotional instability, personality, and conduct disorders are as follows: A failure on the part of the mother figure to nurture because of an absence, or her rejection of the child, during infancy or very early childhood. An influence may be when the mother is ill or incapacitated by the birth of the child or the mother rejects the child because of physical deformity or some other psychological - physiological attribute. Grissom (1991) specifies absence as the withholding of any intimate physical contact on the part of either or both parents which manifests itself as a lack of affection or discipline during the first few years of life. This withholding of intimacy or contact sometimes causes a physiological deprivation known as "Failure to Thrive Syndrome." Another action may be the abandonment or privation of control by a father figure during preadolescent years. During this period the child needs reinforcement of behavior and acceptance for psychological well being (Bowlby, 1953, 1988; Schoenfeld, 1975).

To Freudian psychologists parents are a significant (important) influence in the formation of the child's superego. Schoenfeld described the relation of superego formation to delinquency in the following way:

> The vast majority of delinquent acts reflect the presence not of an unduly strict superego or of a superego with criminal tendencies but rather of a superego that is somehow so weak, defective, or incomplete that it proves unable to properly control the primitive and powerful urges of early childhood that are resurrected just before puberty, with the result that some antisocial urges are expressed in delinquent behavior (Schoenfeld, 1975, p. 23).

Moral development theorists in delinquency formulation place strong emphasis on early childhood (Erikson, 1959; 1982) and relate delinquency to deficiencies in parent child relationships and in how individuals develop life concepts (Kohlberg, 1963; 1969; Piaget, 1948; 1971).

Erickson

Erikson defined eight stages in the life of a human being that require adjustment and adaptation (Grissom, 1992). He maintained that a failure to progress successfully from one stage to the next set off unacceptable behavioral activity. In juveniles this was manifest as antisocial or deviant behavior. The first five stages involve juvenile issues, while the last three are primarily directed toward adults. These eight stages include: 1) The development of trust by an infant in his or her caretakers; Trust versus Distrust - the development of Hope. 2) Gaining control over the basic bodily functions; Autonomy versus Shame, the development of Will. 3) Experimentation by the child with various behavioral

roles in the environment; Initiative versus guilt, the development of Purpose. 4) Attempts to master physical, social, and cognitive skills; Industry versus Inferiority, the development of Competence. 5) Development by an adolescent of an identity and sense of purpose; Identity versus Role Confusion, the development of Fidelity. 6) Development by an adult of intimacy with others; Intimacy versus Isolation, the development of Love. 7) Acceptance of adult caretaking activities in the family and external relations; Generativity versus Self-Absorption-Stagnation, the development of Care. 8) Development of personal integrity; Ego Integrity versus Despair, the development of Wisdom (Kratcoski and Kratcoski, 1990; Crain, 1992; Erikson, 1982).

Grissom

Grissom postulates that the juvenile delinquent has not progressed successfully from stage one onward. This failure to progress is directly related to the adjudicated delinquents failure to develop trust in his or her caretakers. He stated:

> The average resident of a clinical diagnostic and treatment facility has been categorized as:
>
> They are nonconforming and resentful of authority. Their behavior is erratic and unpredictable, and they have marked problems with impulse control. They tend to be aggressive, angry, irritable, and resentful, and they act out in asocial ways. Crimes committed tend to be vicious and assaultive, they appear to be senseless, and both poorly planned and executed. Prostitution, promiscuity, and sexual deviation are fairly common. They are underachievers with uneven performance and marginal adjustment. They harbor deep feelings of insecurity, and they have exaggerated needs for attention and affection. They have poor self

> concepts and it seems as if they set themselves up for rejection and failure (Grissom, 1992, p. 10).

This failure in the development of trust inhibits goal directed activity. Since learning is goal directed (to know, to do, to affect), the [adjudicated delinquent] student requires special assessment (Gagne, 1985).

Piaget

The juvenile delinquent fails to develop moral values in the traditional sense. They have values, but those values are skewed. Piaget viewed the internalization of moral values as involving two distinct stages. He called these "Moral Realism and Moral Relativism." In stage one - Moral Realism, the child realizes/ identifies that it is required to obey rules. The child completes a thought/learning process of concrete operations to internalize these externally imposed rules. In stage two - Moral Relativism begins when the child developes an awareness or becomes cognizant of the reasons behind rules. At that point the child begins to develop an internalized set of moral precepts/values demonstrated by abstract reasoning. These processes or operations are developed by and during physiological and psychological growth (Piaget, 1948; 1971).

Piaget's theory of cognitive development postulates that human growth is the outcome of the child's, (infants), interaction with the outward physical world. Specifically the individual/child organizes the world through a series of interrelated events and develops a sense of "equilibration." The child, by organizing its world, is striving to increase the adaptiveness and complexity of

its behavior to or with the external environment. During this period the child demonstrates a progressive growth of mental structures and abilities (Piaget, 1964; 1972). The vocational educator, in delinquent treatment, facilitates and incorporates the fundamentals of cognitive development in selecting teaching methodologies. Those methodologies should take into account the students development of concrete and abstract reasoning.

Kohlberg

Kohlberg believed that the internalization of moral judgment occurred later than Piaget. To Kohlberg, moral development is a learning process involving three distinct periods of growth (Grissom, 1992). A "Premoral" period exists, premorality or preconventional morality has as its goal avoiding punishment by conforming. This stage is may be catagorized as the child's obedience and punishment orientation (Kohlberg, 1963; 1969). The child is caught up in a search for self-gratification while at the same time attempting to avoid punishment [pain] from its significant others.

Kohlberg's second stage, or "conventional morality", is marked by the avoidance of deviant/anti social behavior because there are societal rules against it. In conventional morality the goal is striving to meet or exceed social and family ideals. This second level is predominantly focused on the development of interpersonal relationships with others (Colby, et.al., 1987).

The last stage is Postconventional Morality or "Autonomy ", when a young person willingly conforms to a specific set of social norms or higher moral principles because they have been internalized (Kohlberg, 1963; Kohlberg and Kramer, 1969). Regrettably, the adjudicated delinquent may not process information, move through the stages, or develop sufficiently to ever truly pass the premoral phase because of a failure to in corporate adequate response mechanisms (Grissom, 1992).

Personality-trait theorists have identified certain personality traits as characteristic of delinquents. Yochelson and Samenow, in their book The Criminal Personality, maintained that criminals/delinquents display erroneous thinking patterns and that these patterns or characteristics are present in delinquents at a very early age (Hewitt and Jenkins, 1946; Glueck and Glueck, 1950; Samenow, 1984).

In Samenow's book, Inside the Criminal Mind, he describes the criminal personality in the following way:

> Beginning during the preschool years, patterns evolve that become part of a criminal life style. As a child, the criminal is a dynamo of energy, a being with iron will, insistent upon taking charge, expecting others to indulge his or her every whim. They take risks, become embroiled in difficulties, and then demand to be bailed out or forgiven.
>
> As a child, the criminal has contempt not only for his or her parents' advice and authority but also for the way they live, no matter what their social and economic circumstances. To them having a good time is what life is all about (Samenow, 1984, pp. 26-42).

Child lawbreakers frequently claim to have been rejected by their parents, schools, or other authorities in their lives, but

see no link between their behavior and this supposed rejection (Samenow, 1984).

According to Argyris, (1964), this pattern of failure to accept responsibility for ones actions is based on immaturity. He believes that to have a healthy personality the individual must progress toward maturity on a continuum (see Figure 2).

The culture from which the individual comes and the personality developed within that culture inhibit and limit the growth of the individual from immaturity to maturity. The literature from Samenow, et.al. seems to support a view of the adjudicated delinquent as being personality deprived and immature. The vocational technical instructor selects a teaching style: instructor centered, interactive, individual, or discovery, which supports the learner's disadvantagement (Sanders 1991; Cranton and Westen, 1989).

Theorists of character disturbed/psychopathic delinquency attribute anti-social behavior to the lack of normal human consciousness (Magid and McKelvey, 1989). The character disturbed child apparently experiences no guilt feelings for any delinquent or criminal act. Such children display no bonds of affection for others and have manifestations of extreme emotional deprivation or physical trauma as a child (Grissom, 1992). Typically the character disturbed juvenile psychopathic personality type has been physically, mentally or sexually abused (Sorrell, 1980). The character disturbed/psychopathic juvenile delinquent has a mental disturbance which requires long term treatment (Grissom, 1992).

IMMATURITY.....CONTINUUM.....MATURITY

Passive----------->Active

Dependence----------->Independence

Behave in a few ways------->Capable of behaving in many ways

Erratic Shallow Interests---------->Deeper and stronger interest

Short time perspective----->Long time perspective, (Past/Future)

Subordinate position---------->Equal or superordinate position

Lack of awareness of self----->Awareness and control over self

Figure 2: Continuum Table

The abused child develops a character disturbance, psychological instability, which manifests itself in deviant social behaviors. These behaviors may be normal for the child's survival but in the labeling process is called delinquency. Doctor Foster Cline in his book, Understanding and Treating the Severely Disturbed Child, outlined in broad strokes those attributes to look for in the character disturbed child so typically treated in juvenile facilities. They are:

> The profile of the character disturbed child is marked by an inability to give or receive affection. The child demonstrates self destructive behavior and manifest cruelty to others. The child has an aura of hording, and gorging on food. They have marked self control problems, a lack of long term friends, and demonstrate abnormalities in eye contact. They may have a preoccupation with fire , blood and gore. They have a superficial attractiveness and friendliness with strangers. They have various types of learning disorders and develop a particular pathological type of lying called-primary process lying (Cline, 1979, pp. 128).

The cause(s) of this mental disturbance may be inadequate diet, neurological injury, excessive drug use by a parent prior to birth, or excessive drug use by the child, extreme physical, emotional, or sexual (abuse) traumas, violent or chaotic family life, or mentally, emotionally, and physically incompetent parents (Sorrell, 1980).

An awareness and understanding of the philosophical considerations in the development of juvenile delinquency is, or should be, of ultimate interest to the vocational technical educator.

The Juvenile Delinquent and Deficiency Motives

Individual behavior at a particular moment is usually determined by the strongest internal need (Hersey and Blanchard, 1982). The difficulty for a vocational technical educator is in understanding that education may not be a need which requires emphasis on the part of the adjudicated delinquent.

Maslow's hierarchy of needs lists five (5) categories in the arrangement of human needs: 1) Physiological, 2) Safety and Security, 3) Social, 4) Esteem, and 5) Self Actualization (Maslow, 1954). Conceptually, Maslow postulates that human beings exist at different "levels of existence". At any given time individuals may exhibit the behavior and values characteristic of people on or below their same level (Maslow, 1962) (see Figure 3).

Human Needs Theory

Maslow's Hierarchy of Needs provides a framework from which a developmental model of behavior can be identified for the adjudicated delinquent. It also can assist the vocational educator in needs analysis. Hersey and Blanchard explained motivating behavior as a mix of needs which are motivated by the availability of a goal (Hersey and Blanchard, 1982). Converting Maslow accordingly the needs hierarchy for an individual attempting to survive in a hostile home or world environment would be skewed in physiological and safety needs. All other needs become subservient to the need to survive.

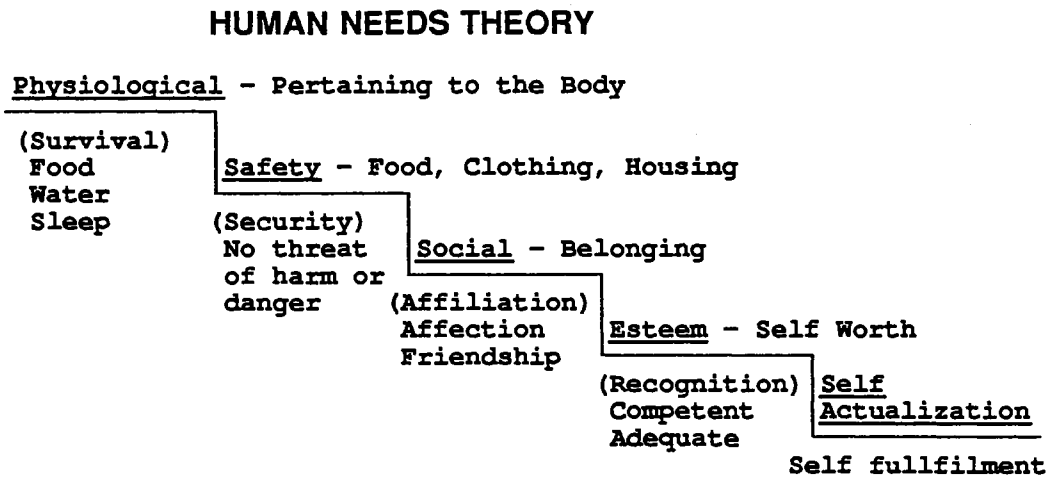


Figure 3. Maslow's Hierarchy

Motivational theory is directly related to the juvenile delinquent's ability to function in society effectively. At the very basic level Maslow's survival and security needs must be met. The deficiency in the environment motivates the individual to some action according to Krech, et.al., (1982).

Deficiency motives are exhibited by external actions:

> PERTAINING TO THE BODY - Avoiding hunger, thirst, oxygen lack, excess heat and cold, pain, fatigue, over tense muscles, and illness.
>
> Goal - Attaining pleasurable sensory experiences, taste, smells, sounds, sexual pleasure, bodily comfort.
>
> PERTAINING TO RELATIONS WITH THE ENVIRONMENT - Avoiding dangerous objects and horrible, ugly, and disgusting objects, seeking objects necessary for future survival.
>
> Goal - Attaining enjoyable possessions, problem solving, seeking change.
>
> PERTAINING TO RELATIONS WITH OTHER PEOPLE - Avoiding interpersonal conflict and hostility, gaining prestige and status, being taken care of with others.
>
> Goal - Attaining love and positive identifications.
>
> PERTAINING TO SELF - Avoiding feelings of inferiority and failure in comparing the self with others or with ideal self; avoiding loss of identity, avoiding shame, guilt or fear.
>
> Goal - Attaining feelings of self respect and self confidence, feeling a sense of achievement (Krech, Crutchfield, Livson, Wilson, and Parducci, 1982, p. 435).

Maslow indicates that failure to gratify a deficiency need results in a physiological or psychological disturbance. A dysfunction occurs within the individual and leads to prepotency - the requirement to fulfill a lower level deficiency need before movement to a higher level need. Rogers (1959) stated that the actualizing tendency is:

> The inherent tendency of the organism to develop all its capacities in ways which serve to maintain or enhance the organism (Rogers, 1959, p. 196).

Adjudicated delinquents who have been sexually, physically, and mentally abused cannot move to higher needs if their deficiency motivation is survival (Grissom, 1992).

Weiner, (1979), developed Attribution Theory. His concept provided a mechanism where by the successes or failures of an individual could be attributed to ability, effort, difficulty of task or luck. The motivation to achieve is the individuals success versus failure (see Figure 4).

In attribution theory, success breeds success based on its relationship to the expectations of the individuals. The difficulty for the vocational educator is overcoming learned helplessness (Seligman, 1975). Learned helplessness is the belief on the part of the adjudicated delinquent that failure cannot be avoided. This helplessness is learned by interaction with an unfriendly environment where actions, efforts to succeed, and desire all fail to meet with positive results (Grissom, 1992).

The understanding of deficiency motives as they relate to Maslow's hierarchy, Maslovian theory and prepotency of needs, allows the vocational educator to formulate teaching strategies which meet deficiency goals.

The Juvenile Delinquent as a Student

Learning is an activity, either intentional or vicarious, in which the student acquires skills, knowledge and attitudes by study,

	INTERNAL		EXTERNAL	
CONTROLLABLE	**STABLE**	**UNSTABLE**	**STABLE**	**UNSTABLE**
Uncontrollable	Ability	Mood	Task Difficulty	Luck
Controllable	Typical Effort	Immediate Effort	Teacher Bias	Unusual help from others

Figure 4. Model - Attribution Theory

instruction and experience (Sanders, 1991). The juvenile delinquent has the ability to learn if properly taught, encouraged and supported. The learning process is a cognitive activity influenced by existing or prior education the student brings to the classroom (Gagne, 1985). However, education alone will not overcome the disabilities inherent in a juvenile delinquent without the inclusion of other treatment modalities (Grissom, 1992).

The physiological and psychological attributes of the learner; prepared to learn, physical difficulties, lack of sleep, lack of nutrition, uncomfortable chairs, illness, physical defects or other environmental conditions, all adversely impact the educational process (Sanders, 1991). Understanding the individual nature of the delinquent learner is critical to the development of programs which provide a success oriented outcome (Green, 1992).

The learner must be involved in the educational process. He or she must have the ability of selecting desired educational outcomes. The failure of the individual to select outcomes from which success can be built is an inhibitor to educational success (McClelland, and Burnham, 1976). In previewing the learner Hersey and Blanchard (1982) outline four types of educational participants: Willing and Able, Willing and Unable, Unwilling but Able, and Unwilling and Unable. Developing instructional and educational strategies which support a goal directed competency based educational objective in the learning environment is critical to the students success regardless of the motivation brought to the classroom (Hitt, Middlemist, and Mathis, 1983).

The vocational educator's objective in the learning environment is to overcome inhibitors to success (McCleland and Burnham, 1976). The purpose of learning is to encourage each individual to develop to his or her full unique potential (Gilley and Eggland, 1989).

Adjudicated delinquents suffer from an alienation which effects their ability to incorporate positive learning outcomes. Grissom believes that all juvenile delinquents are emotionally, socially, and academically disabled. He articulated these disabilities as "splintered skills" which require comprehensive remediation. Remediating splintered skills and psychological treatment will allow the juvenile to function effectively and efficiently in society (Grissom, 1992).

Cognitive, affective and psycho-motor skills are all involved in comprehensive learning. Cognitive skills can be measured through the use of evaluation instruments developed using Blooms Taxonomy of Learning. The commonality of knowledge is measured through the use of performance based statements reflecting; knowledge, comprehension, analysis, application, synthesis and evaluation (Bloom, 1956). Affective skills are taught using role modeling and human relations training. Psycho-motor or physiological skills can best be measured in application or demonstration (Sanders, 1990).

In Strategic Teaching and Learning; Cognitive Instruction in the Content Areas, Jones, et.al., (1987) outlined a process for teaching content in the learning environment. This process demands

the vocational technical instructor establishes content priorities in relation to students prior knowledge and develops instructional strategies to link that prior knowledge to content (Jones, Palincsar, Ogle and Carr, 1987). With this strategic approach to teaching disadvantaged students who are disempowered the vocational technical instructor focuses attention on the primary task of vocational education - student growth (Zumwalt, 1986).

Coffey (1986) provided a generalized profile of the typical adjudicated offender and his or her need for educational programs:

> The typical male or female offender, is poor, unskilled, undereducated, and underemployed. Most function on the fifth-grade level in reading and spelling and somewhat lower on math.

Werner (1990) described additional attributes of the juvenile offender as: 1) from a single or divorced-parent household, 2) a member of a minority/disadvantaged group, 3) probably had another family member who was or had been incarcerated, 4) knew other people in juvenile detention or prison, 5) was a victim of child abuse, and 6) had an early history of trouble with the law.

Gleason, (1986), suggests there are two criteria to be judged in the education and training of offenders. These criteria are: First, does the training teach an occupation from which the offender may gain employment? Secondly, does the educational program of training make the incarceration of the offender more tolerable? Vocational technical education's goals toward the learner are to teach an employability skill and to facilitate life long learning (Oakley, 1991). The goals of vocational education are compatible

with the criteria formulated by Gleason as ways of measuring/ evaluating training of incarcerated offenders (Gleason, 1986).

The use of vocational technical education as a treatment in juvenile diagnostic and treatment centers directly supports an Oklahoma Department of Vocational Technical Education study conducted in 1990 at Oklahoma Prison facilities. That study found that offenders enrolled in Vo-Tech skills centers viewed their classrooms and shops as refuges from the hostile environment around them.

The literature supports the premise that juvenile offenders require unique and challenging strategies to involve them in the learning process. Because the juvenile delinquent has developed a way of thinking which may be categorized as foreign to the outside world, the emphasis of education must be on attitudinal change coupled with skill and knowledge development or we will simply develop juvenile delinquents "with job skills" (Gehring, 1989). The vocational educator sets a role model example for the student (Sanders, 1991). They also set fair and consistent standards of conduct and educational expectations (Allen and Bosta, 1981).

Friedman (1991, p. 35) stated:

> The common denominator of success for educational programs with criminal offenders appeared to be a break from the traditional forms of educational delivery. Such narrowly focused methods had yielded only failure and unpleasant experiences for the offender in the past. In situations where there was a suitable match between the way the offender/student preferred to learn and the instructional delivery, significant progress was reported in cognitive learning.

_Preferred Learning Styles

Sensory intake perceptual learning indicates the method through which the individual extracts information from the environment (Sanders, 1990). Every individual has a preferred perceptual learning style (Dunn and Griggs, 1988). The development of personalized instructional materials, tailored to the individual, (mated to preferred/perceptual learning style), maximizes the chances for a successful competency outcome in the educational setting (Oakley, 1991).

According to Dunn and Griggs educational programs in the past have been ineffective:

> because they [programs] have not responded to the many different ways healthy, normal, motivated students absorb, process and retain information and skills (Dunn and Griggs, 1988, p. 2).

Since educational programs for mainstream children have been ineffective there is consensus that programs for juvenile delinquents fail to adequately address individual social, emotional, and educational requirements. Stumphauzer (1986) indicates juvenile delinquents must be taught how to learn. Filipczak, Friedman and Reese (1979) propose that delinquents need special educational services in the development of individualized programs in math, English, and interpersonal skills.

The inclusion of learning style inventories in the development of educational programs for the criminal adjudicated delinquent can facilitate the creation of instructional modalities to meet the needs of this special needs population. Learning style in a broad

sense is:

> A biologically and developmentally imposed set of characteristics that make the same teaching method wonderful for some and terrible for others (Dunn and Griggs, 1988, p. 3).

Dunn and Price (1979) stipulated that each student has a preferred method of extracting information from the environment. They further stated that teaching, if it is to accomplish its goal, should incorporate the students preferred style in teaching cognitive skills. James and Galbraith in Perceptual Learning Styles: Implications and Techniques for the Practitioner (1985), indicated that all individuals have an identifiable preferred learning style.

Babich, et.al., (1988) postulated that the allowance for individual differences in the classroom must consider the way the student learns and works. They view as a critical factor how the instructor responds to the student's perceptual learning style needs. Sullivan and Wircenski (1986) stated that each student may have a different learning style and each lesson or unit of educational instruction may require a different instructional approach to meet the students needs.

James and Galbraith (1985, pp. 20-21) identified seven (7) psycho-motor/physiological methods of extracting information from the environment:

> Print - the individual learns best by reading and writing, actively retains material that is read.
>
> Aural - the individual learns best by listening or hearing instruction, verbal presentations.

Interactive - the individual learns best by verbalization, group interactions, discussions.

Visual - the individual learns best by observing instruction, responds to visual stimuli.

Haptic - the individual learns best through a sense of touch, a hands on approach to learning.

Kinesthetic - the individual learns best by involvement with and in the learning environment, movement.

Olfactory - the individual learns best by associating learning with smell or taste.

To determine the perceptual learning style by which the student extracts information from the environment requires the identification of "Strong" and "Weak" perceptual elements (see Figure 5). Each instructor should "style flex" the instructional format within the learning environment to assist the student in processing, internalizing, or displaying mastery of information provided (Sanders, 1990). Style flexing is defined as the use of a multiplicity of styles meant to exercise all seven sensory intake perceptual learning styles. Sanders and Galbraith (1990) indicated that enhancement of the learning process requires t e vocational educator to use a variety of teaching styles. This "style flexing" allows the transmission of concepts and principles more efficiently to students with diverse learning styles in the classroom (Cross, 1976; Wicklein and Sanders, 1989).

Babich, et.al., identified preferred/perceptual learning styles as: 1) Auditory Language - the way a student hears words or processes spoken language, 2) Visual Language - the way a student sees words or processes written language, 3) Auditory Numerical -the

Questions Related to Identifying Strong Perceptual Elements		*Questions Related to Identifying Weak Perceptual Elements*
PRINT:		
Do you remember quickly and easily what you read?	OR	Do you have to read articles several times before grasping the important concepts?
Can you learn something better after seeing it or after writing it?	OR	Do the words on the page all seem to run together?
AURAL:		
Do you tend to remember and repeat those ideas you heard verbally?	OR	Do you find if difficult to remember information presented in lectures?
Do you "hear" what others are telling you?	OR	Do audio tapes leave you wanting to read the information?
INTERACTIVE:		
Do you like to use other people as sounding boards?	OR	Do you find that you do not get much information from small group/discussion activities?
Do you enjoy question/answer sessions or small group discussions?	OR	Would you prefer not to discuss things with others preferring instead to work alone?
VISUAL:		
Do you need to have a "picture" in your mind before comprehending something?	OR	Do visual representations such as graphs or tables leave you wanting an explanation?
Do you "see" what others are trying to tell you?	OR	Do you find it difficult to picture things in your mind?
Do you create visual images as you think?	OR	Do you fail to understand displays or charts?
HAPTIC:		
Do you feel that you have to touch the new things you are learning?	OR	Do you find it difficult to distinguish the feel of different items?
Are "hands on" experiences important to you?	OR	Does touching objects fail to create a visual image in your mind?
KINESTHETIC:		
Do you think you learn better when you are able to move during your learning?	OR	Do you find movement distracting?
Do you like to move your hands (knit crochet, doodle) while learning, not because it helps you concentrate?	OR	Is it hard to concentrate on learning something if you are also moving or doing something else?
OLFACTORY:		
Do smells have any special significance for you?	OR	Do you find smells basically offensive?
Can you associate a particular smell with specific past memories?	OR	Do smells detract from your learning?
Are you frequently able to identify smells?	OR	Do you find it hard to distinguish between different smells?

Figure 5: Strong or Weak Physiological/Psycho-motor Styles Matrix

way a student hears numbers or processes spoken numerical values, 4) Visual Numerical-the way a student sees numbers and processes written numerical values, and 5) Auditory-Visual-Kinesthetic-the way a student learns by doing or involvement (Babich, Burdine, Allbright, Randol, 1988).

Dunn and Dunn (1978), developed a learning styles checklist based on four primary attributes (Dunn, 1983). Those attributes were:

What impact does the environment have on learning?

ENVIRONMENTAL CONDITIONS:

Needs Quiet or Tolerates Sound.

Requires Bright Light or Requires Low Light.

Needs Cool Environment or Needs Warm Environment.

Requires Formal Furniture Design - Desk and Chairs

Requires Informal Design -Furniture permits lounging.

What impact does the emotional - motivational states of the individual have on learning?

EMOTIONAL-MOTIVATIONAL STATES OF THE INDIVIDUAL:

Is the student self motivated or unmotivated to learn?

Is the student persistent or not persistent in the pursuit of learning?

Is the student responsible or not responsible for learning?

Does the student need structured learning conditions or can the student work on his/her own?

How does the sociological preference of the individual effect the learning process?

SOCIOLOGICAL PREFERENCE OF THE INDIVIDUAL:

Does the student prefer learning alone?

Does the student prefer learning with one, two, or several peers?

Does the student prefer learning with adults?

Does the student prefer various methods of learning - depending on the situation?

Finally, Dunn and Dunn specifically address the physical or psycho-motor methods used by the student and the physiological characteristics that impact learning.

PHYSICAL CHARACTERISTICS AND NEEDS OF THE INDIVIDUAL:

Does the student have an auditory, visual, tactile, or kinesthetic learning preference?

When physically does the student function best? In the morning, late morning, afternoon, or evening?

Does the student need mobility in the learning process?

Understanding the preferred/perceptual learning style of the student allows the instructor-educator to understand the individual students method of collecting, organizing and transforming the information provided into useful knowledge (Cross, 1976). The instructor, to benefit the student, develops procedures to meet the cognitive, affective and physiological learning style needs of the student (Keefe, 1982).

Each educator provides the student a perception and process problem in the classroom. The student must perceive the information provided, whether sense, touch or thought, then process the

information provided and internalize the experience or information for later use (McCarthy, 1980).

Research indicates that a learning style tends not to change after age eighteen (18). Pre-secondary instructors need to assist students in developing weak styles by incorporating alternative teaching/learning activities (Knaak, 1983). Diversity is important in the development of physiological/psycho-motor methods of extracting information from the educational environment (James and Galbraith, 1985).

Cranton and Weston (1989) outline four instructional strategies, (methods), which can be used to diversify the educational environment with examples of methods for utilization. Every educational process has an execution system (does something requiring performance), content phase (requires the learning, modeling or performance of knowledge), and condition of abstraction, (the use of symbols to convey, demonstrate, or affect, learning) (Sanders, 1990; Baird, 1991; Sanders, 1992).

The purpose of integrating instructional style and students preferred/perceptual learning style is empowerment. Empowerment is the accommodation of individualized teaching and learning while recognizing variations among students. Variations are categories which identify special needs; gifted, handicapped, maladjusted, intellectually limited and culturally different students (Doll, 1992).

The educator in vocational technical education seeks to ensure the learner feels a need to learn, the environment is comfortable

and trustworthy, goal oriented, incorporates the student in the educational process, and is progressive (Knowles, 1970). Knowing that preferred/perceptual learning styles impacts the amount of in formation the student can process, retain, and utilize, the vocational educator is cognizant of the need to inventory the learning styles of the student (James and Galbraith, 1985; Sanders, 1990).

Summary

This chapter reviewed the current literature on juvenile delinquency within the framework of current treatments. Furthermore, a critical review was conducted of educational methodologies which may impact the juvenile delinquents treatment and subsequent return to society. Preferred/Perceptual learning styles research toward the development of instructional programs designed to meet the special needs of juvenile delinquents is needed.

Two primary learning style inventories provide the predominant structure for this chapter. The Perceptual Learning Styles Inventory based on the work of James and Galbraith from which a determination can be made by the individual on their preferred physiological/psycho-motor method of extracting information from the environment. The second learning styles inventory that gave direction for this chapter was Dunn and Dunn's development of a method for the inclusion of environment, emotional-motivational, sociological and physical preferences in learning styles.

Even though there is significant literature on the preferred learning styles of traditional students this review found little research on learning styles of (special needs) juvenile delinquents. Therefore, there is little data available on the effects of learning style and instructional strategies to meet the needs of adjudicated delinquents in treatment facilities.

CHAPTER III

METHODOLOGY

The purpose of this study was to identify the sensory intake perceptual learning styles of the following classes of secondary students: 1) incarcerated adjudicated delinquent vocational, 2) incarcerated adjudicated delinquent non-vocational, 3) traditional vocational, 4) and traditional non-vocational, to determine if significant differences in learning styles exist between those classes of students.

During the review of literature significant research was found on cognitive learning styles; however, data did not exist on the psycho-motor methods used by secondary students to extract information from the environment.

Sensory intake perceptual learning styles is a term developed by James and Galbraith (1985) which encompasses those psycho-motor methods of extracting information from the environment through the use of primary senses; Visual (V), Print (P), Aural (A), Interactive (I), Kinesthetic (K), Olfactory (O), and Haptic (H). Differences identified during the study were contrasted by comparing like information from each class of students; adjudicated delinquents whose education was continuing in a secure treatment facility whether enrolled in vocational technical education or not, students enrolled in vocational technical education at the secondary level, and high school students enrolled in English classes who are

not nor have been enrolled in vocational technical secondary education.

The design of this study was descriptive qualitative quasi-experimental. Selected educational facilities used in the study were form Arkansas, Kansas, and Oklahoma. Individuals selected to participate encompasses secondary students enrolled in the ninth (9th), through twelfth (12th) grades. Adjudicated delinquents were found in vocational technical education classes from the ninth (9th) through twelfth (12th) grade levels.

The purpose of this chapter was to describe the methods used to assess the sensory intake perceptual learning styles of the participants. It is broken down into four main sections: Section 1 identifies the type of research conducted. Section 2, the subjects by age, sex, race, grade level, and institution. Section 3, the instrument used and its validation. Section 4 represents the date collected and statistical analysis.

Type of Research

Descriptive qualitative quasi-experimental research was conducted during this study. Descriptive research is defined by Key (1974) as a description of "what exists with respect to variables or conditions in a situation" (p. 126).

The treatment existed as enrollment in a vocational technical secondary education program. While the critical issue was the determination of the learning style used by the student to extract information from the learning environment. There were two treatment

groups and two control groups identified. The treatment groups were adjudicated delinquents and traditional students enrolled in vocational technical secondary education programs. The control groups were adjudicated delinquents and high school English students not enrolled in vocational technical secondary education.

The design did not meet experimental requirements according to Campbell and Stanley (1963) because the selection of adjudicated delinquents was not randomized. The schematic design used by the research was:

R	X	O	(Traditional Voc-Ed)
R		O	(English Non Voc-Ed)
	X	O	(Delinquent Voc-Ed)
		O	(Delinquent Non Voc-Ed)

The sample for this study included all adjudicated delinquents enrolled in secondary education in secure treatment facilities (n=278) in Arkansas, Kansas, and Oklahoma. Vocational technical education students (n=234) were selected by district within each state and traditional English students from feeder high schools (n=208) within the vocational-technical district.

The sample of adjudicated delinquents was tested in mass while separated into the control and treatment group; non vocational technical education students and vocational technical education students.

Specific vocational technical education programs were not targeted in the study to preclude institutional or organizational bias. Vocational students were viewed as a class ranging from remedial skills training, traditional blue collar, white collar or skilled crafts person training.

School selection was determined by the identification of all secure treatment facilities in each state, vocational technical education schools, and comprehensive high schools. The process used was; (1) identification of seven (7) secure treatment facilities (Arkansas 2, Kansas 4, Oklahoma 1), (2) identification of all vocational technical schools in each state, (3) identification of all comprehensive feeder high schools from the randomly selected vocational technical schools. The American Trade Directory (1992) was used to identify the vocational technical education schools used in this study. Contact points, telephone numbers, addresses and programs conducted were listed in the directory. The American Correctional Association Guide to Agencies, Departments and Facilities (1992) was used in a like manner for juvenile secure treatment facilities.

Vocational technical schools from each state were listed in alphabetical position and then provided with a numerical designation. A random number table generated by computer was then used to select the vocational technical schools to be used in the study from each state.

Juvenile secure treatment facilities were identified for each state and contacted about the research study. A letter outlining the research project, Oklahoma State University (OSU) Institutional Review Board research approval letter, and copy of the instrument were furnished to the institutional administrators.

Project facilators, once identified for each vocational school, feeder school, and secure treatment facility, were contacted by

telephone. Any questions on methodology, reading of the instrument, or other concern were addressed at that time.

Instrumentation

A comprehensive review of current research in learning styles revealed numerous instruments which could be used to measure cognitive learning styles. Two particular instruments reviewed were the Myers-Briggs Type Indicator and the Kolb Learning Style Inventory. Neither of these two instruments specifically addressed perceptual sensory learning styles.

This study required an instrument that measured sensory intake perceptual learning styles. James and Galbraith (1985) developed a sensory intake perceptual learning style instrument that measured seven sensory/psycho-motor methods of extracting information from the environment. Galbraith was contacted for permission to 1) rewrite his styles inventory in behavioral statements and 2) use the inventory in this research.

Gilly and Eggland (1989) provided a discussion of the instrument; however, validation documentation could not be found. To insure the validity of the instrument, a validation study was conducted of vocational technical education students enrolled at Gordon Cooper Vocational Technical School, Shawnee, Oklahoma. Dr. Francine Soliday was the facilitator. Delinquent students from the Tulsa Street School were used for vocational and non-vocational reference. Mr. Pat Moran, the institutional educational counselor was the facilitator. Finally, the ninth (9th) through twelfth

(12th) grade English classes in Sapulpa Junior and Senior High School provided the non-vocational control group. Dr. Shannahan and Mr. Ligon were the facilitators. Results of the validation study can be found in Appendix H.

The instrument was titled "Sensory Intake Skills Inventory". The inventory consisted of directions, demographics and inventory. In the directions each participant was informed on procedures for completing the inventory. Depending on the form used there were four or five demographic questions in Part I. Examples of the demographic questionnaire can be found in Appendixes C, D, and E.

Question 1 identified participant age

Question 2 identified gender

Question 3 identified secondary grade, 9-12

Question 4 identified ethnicity; African American, Asian/Pacific Islander, Hispanic, American Indian, White-Caucasian, and Other.

Question 5 identified vocational enrollment

Part II consisted of twenty eight (28) individual behavioral statements to complete the primary statement "I learn best when I:". Sensory intake perceptual learning styles for each participant was determined by matrixing individual responses. A copy of the skills inventory is provided in Appendix B.

Data Collection

The process of collecting data in the post instrument validation stage began September 1993 and was completed in December,

1993. In September the "Sensory Intake Skills Inventory" was provided to each institution or school participating in the research. A detailed directive sheet (see Appendix A), was provided to each proctor for use in administering the skills inventory. Project managers were provided an introductory letter (see Appendix F), copies of all forms of the skills inventory (see Appendix C), and a comprehensive orientation to the research objectives. Post paid mailers were provided for return of the completed inventories. Follow up was conducted with the project managers every two weeks until the inventories were returned.

Tabulation

The responses of each participant were hand scored and entered on a data spread sheet for computer entry. Each item of data was annotated in one of eleven blocks for tabulation.

Block 1 - Form A, B, or C enter the correct letter

Block 2/3 - Age, two numeric digits

Block 4 - Gender, M for Male, or F for Female

Block 5/6 - Grade Level, 09, 10, 11, or 12

Block 7 - Ethnicity - one numeric indicator
1 = African American
2 = Asian/Pacific Islander
3 = Hispanic
4 = American Eskimo
5 = American Indian
6 = White-Caucasian
7 = Other

Block 8 - Vocational Enrollment, Y for Yes, N for No

Block 9 - Primary Learning Style

Block 10 - Secondary learning Style

Block 11 - Third Learning Style

Statistical Calculations and Treatment of Research Data

The sub group populations in this study were divergent. The research population was designated as secondary education students enrolled in grades 9 through 12. The smallest sub group of this population consisted of adjudicated delinquents enrolled in vocational and non-vocational secondary education. This population consisted of 278 incarcerated secondary students broken down into two categories by gender, 212 male students and 66 female students. The vocational technical secondary education students sub group consisted of a population of 234, distributed between 131 males and 103 females. The traditional high school student population was 104 males and 104 females. The total population for the study was 720.

The Kruskal - Wallis One Way Analysis of Variance was used to examine the variance between the ranked learning styles of the four research groups. Frequency counts, mean scores, and percentages were also used to analyze the responses. Selected responses were reported on table formats according to type of questions tabulated.

The Kruskal - Wallis non-parametric test of significance requires at least ordinal level data so responses can be converted to ranks. The shape, curve, of the population does not require assumptions when using the Kruskal - Wallis Analysis of Variance.

The One Way Analysis of Variance (ANOVA) is the most widely used test for comparing more than two groups of ordinal level data in behavioral research.

For the Kruskal - Wallis test to be applied, the sample selected from the populations must be independent; the responses of the group must in no way influence the responses of other groups. The use of Kruskal - Wallis presupposes the use of a statistical non-parametric test is to be used in qualitative or descriptive research. Kerlinger (1986) in discussing the Kruskal - Wallis One Way Analysis of Variance states:

> Measurement is sometimes such that it is doubtful whether parametric analysis is legitimate. The Kruskal and Wallis test is most useful in such situations. It is also useful when data are irregular but amenable to ranking (p. 270-271).

Variance observed between the learning styles of the four classes of research participants was tested by the Kruskal - Wallis One Way Analysis H test. An alpha level of .05 was used to determine significance.

Research Hypotheses

The following four null hypotheses were developed to provide a framework from which answers to the research questions could be determined.

Ho_1. Differences do not exist in the sensory intake perceptual learning styles of traditional secondary students, vocational technical secondary students, and adjudicated delinquent secondary students.

Ho_2. Differences do not exist in the sensory intake learning styles of males and females enrolled in secondary education.

Ho_3. Differences do not exist in the sensory intake perceptual learning styles based on ethnicity of students enrolled in secondary education.

Ho_4. Differences do not exist in the sensory intake perceptual learning styles of students enrolled in secondary education in relation to age.

CHAPTER IV

PRESENTATION OF FINDINGS

Introduction

The purpose of this study was the identification of sensory intake perceptual learning styles of the following classes of secondary students: 1) incarcerated adjudicated delinquent vocational, 2) incarcerated adjudicated non-vocational, 3) traditional vocational, 4) and traditional non-vocational, to determine if significant differences in learning styles exist between those classes of students. The Sensory Intake Perceptual Learning Styles inventory was used to determine the preferred psycho-motor method used by each class of students to extract information from the learning environment. Differences detected were appraised by comparing various demographic and learning styles information correlated from the participants in three types of institutions: students enrolled in secondary high school English classes who were not nor had ever been enrolled in vocational technical education classes, secondary students enrolled in a program of vocational technical education, and adjudicated delinquents enrolled or not enrolled in vocational technical education within a secure treatment facility.

Vocational programs of a specific nature were not addressed in this study to alleviate bias. However, vocational programs ran the gamut from auto-mechanics to horticulture. Students who participated were all members of secondary programs at the ninth, tenth, eleventh or twelfth grade levels.

This chapter presents the analysis of data collected from 720 respondents between the period 1 September and 15 December 1993. Respondents were assessed in three categories, high school English classes (n = 208), vocational technical students (n = 234) and adjudicated delinquents enrolled in vocational technical education (n = 118), or not enrolled in vocational technical education (n = 160). The first section of this chapter describes the demographic characteristics of the subjects. The second section compares the subjects preferred perceptual sensory intake learning style by student class and gender.

Section 1: Responses

Nine hundred fifty (950) Sensory Intake Perceptual Learning Styles Inventories were sent to three (3) high schools, two of which incorporated vocational programs, one (1) vocational technical school, and four (4) secure treatment facilities offering vocational technical education in Arkansas, Kansas, and Oklahoma (S=950). The population for this sample was 404,604 public secondary students in three states (Table I).

Nine hundred fifty (950) Sensory Intake Perceptual Learning Styles Inventories were mailed, returns were received from 208

TABLE I

1993 SECONDARY STUDENTS BY GRADE AND STATE

Grade	Arkansas	Kansas	Oklahoma	Total
Ninth	36,045	34,025	45,278	115,348
Tenth	32,711	31,870	42,189	106,770
Eleventh	29,876	28,380	37,011	95,267
Twelfth	27,169	26,704	33,346	87,219
Total	125,801	120,979	157,824	404,604

English students, 234 Traditional Vocational students, and 278 Adjudicated Delinquents whether enrolled or not enrolled in vocational education. Table II depicts the average age, gender breakdown, and average education level of the participants of this study.

Seven hundred and twenty students completed and returned the Sensory Intake Perceptual Learning Styles Inventory for a return rate of 76%. One hundred percent return was not attained nor expected due to absences from class, enrollment of the student in two programs simultaneously, or refusal to participate in the study. A breakdown of individual returns by facility is provided in Table III.

Description of the Subjects

Three samples were taken from the total population of secondary high school students as participants of this study. Samples utilized were: two hundred eight (n = 208) students enrolled in English classes at the 9th through 12th grade levels, two hundred thirty four (n = 234) students enrolled in vocational technical education secondary classes at the 9th through 12th grade levels, and two hundred seventy eight (n = 278) adjudicated delinquents enrolled in secondary education classes in secure treatment facilities broken down into two categories-enrolled in vocational education classes (n = 118) and not enrolled in education classes (n = 160) (Table IV).

TABLE II

AVERAGE AGE, GENDER, AND AVERAGE EDUCATION LEVEL OF PARTICIPANTS BY CLASS OF STUDENT

Class of Student	Age	Male	Female	Grade
ENGLISH (N-T)	16	104	104	11
VOCATIONAL (V-T)	17	131	103	11
ADJUDICATED JUVENILE DELINQUENT (V-T/N-V)	16	212	66	10

V-T = Vocational Technical
N-T = Non-Vocational

TABLE III

FREQUENCY OF RESPONSES

Facility	Mailed	Returned	Vo-Tech V-T	Non-Tech N-T	Percent Returned
Beliot, KS	100	43	20	23	43%
Topeka, KS	105	95	22	73	90%
Alexandria, AR	100	46	15	31	46%
Sand Springs, OK	100	94	61	33	94%
			English	Tech	
Bald Knob, AR	125	106	46	60	84%
Dodge City, KS	125	95	61	34	76%
Okmulgee H.S., OK	125	97	97	0	77%
Green Country Vo Tech, OK	170	144	0	144	84%
Total	950	720			76%

V-T = Vocational-Technical
N-T = Non-Vocational

TABLE IV

BREAKDOWN OF SECONDARY STUDENTS BY TYPE

			Adjudicated Delinquent		
	English	V-T	N-T	V-T	Total
Number	208	118	160	234	= 720
Percentage	28.8%	16.3%	22.3%	32.6%	= 100%

V-T = Vocational-Technical
N-T = Non-Vocational

Age groups represented cover eight years, six teenage years and two adult years. Table V provides a pictorial representation of the age and gender of each student in the study.

Three hundred and fifty seven respondents were age 17 or older while three hundred and sixty three were 16 or younger. Sixty-two percent of all respondents were male. Table VI presents the study sample by age and class of student. Ethnic classification by age as reported by the respondents were as depicted in Table VII. Of the 720 respondents in the sample 389 represented themselves as white or Caucasian, 159 as African American, 83 as American Indian, 46 as Hispanic, 11 as Asian or Pacific Islander, 10 as American Eskimo, and 22 as Other.

Table VIII provides a breakdown of all respondents by age and race who participated in this study.

Traditionally high school years are broken down as 15, 16, 17, and 18 years of age. However, there were 23 respondents in the study aged 14 and 25 respondents 19 or older, these two groups of over or underage non-traditional year groups comprised 6 or 6% of the total sample.

Section 2: Preferred Perceptual Sensory Intake Learning Style by Student Class and Gender

Tables IX, X, and XI represent the ranked order of respondents to the Sensory Intake Perceptual Learning Styles Inventory by class of student. Table XII depicts those 208 students from the English only control group.

TABLE V

STUDENT BY AGE BY GENDER ALL STUDENTS

	Age								
GENDER	14	15	16	17	18	19	20	21	TOTAL
MALE	7	76	131	152	64	7	2	8	447
FEMALE	16	51	82	91	25	0	4	4	273
TOTAL	23	127	213	243	89	7	6	12	720

Mann-Whitney U Statistic = 67639.000 $p<.05$
Chi-Square Approximation = 6.446 with 1 DF

TABLE VI

RESPONDENTS BY AGE AND STUDENT CLASS ALL STUDENTS

Age	A English Students N-T	B Adjudicated Juveniles N-T	B Adjudicated Juveniles V-T	C Vocational Students V-T	Total
FOURTEEN	13	9	1	0	23
FIFTEEN	64	40	16	7	127
SIXTEEN	45	60	45	63	213
SEVENTEEN	70	41	37	95	243
EIGHTEEN	15	10	16	40	89
NINETEEN	0	0	1	6	7
TWENTY	0	0	1	5	6
TWENTY-ONE	1	0	1	10	12
		160	118		
Total	208		278	234	720

Kruskal-Wallis (H) Statistic = 97.215 $p<.05$
V-T = Vocational Technical
N-T = Non Vocational

TABLE VII

ETHNIC CLASS BY TYPE AND PERCENT ALL STUDENTS

Group	Number		Percent
1. White-Caucasian	389	=	54.02%
2. African American	159	=	22.08%
3. Native American	83	=	11.52%
4. Hispanic	46	=	6.38%
5. Other	22	=	3.05%
6. Asian/Pacific Islander	11	=	1.52%
7. American Eskimo	*10	=	1.38%

Note: *All selections for American Eskimo came from adjudicated Delinquents

TABLE VIII

BREAKDOWN OF RACE BY AGE ALL STUDENTS

ETHNIC ORIGIN	14	15	16	17	18	19	20	21	TOTAL
AFRICAN AMERICAN	5	27	55	50	14	2	1	5	159
ASIAN\ PACIFIC ISLANDER	0	3	2	1	0	0	2	3	11
HISPANIC	0	5	12	17	9	2	1	0	46
AMERICAN ESKIMO*	0	0	3	3	2	0	1	1	10
AMERICAN INDIAN	1	11	30	27	12	1	1	0	83
WHITE\CAUCASIAN	17	78	102	139	48	2	0	3	389
OTHER	0	3	9	6	4	0	0	0	22
TOTAL	23	127	213	243	89	7	6	12	720

Kruskal-Wallis (H) Statistic = 14.770 $p<.05$

Note: *All selections for American Eskimo came from adjudicated Delinquents

TABLE IX

SUMMARY OF RANKED ORDER OF LEARNING STYLES
ENGLISH STUDENTS MALE AND FEMALE

Learning Style	R1=104 Male	Percent	Learning Style	R2=104 Female	Percent
Visual	28	27	Visual	37	37
Haptic	23	22	Interactive	15	14
Aural	13	13	Print	15	14
Interactive	12	12	Kinesthetic	12	12
Print	11	11	Haptic	10	9
Kinesthetic	9	8	Aural	10	9
Olfactory	8	7	Olfactory	5	5
Total	104	100		104	100

This group of English students when separated by gender exhibit two distinctly different preferred perceptual learning styles. The males in this class indicate a preference for visual, haptic, and aural stimulation as their top three preferred style. While the females indicate a preference for visual, interactive, print stimulation as their top three preferred styles. When looked at as a class the English students most closely resemble traditional vocational students a validation of Dr. Soliday's 1992 study.

Table X, depicts those 278 responses obtained from adjudicated delinquents enrolled in secure treatment facilities. Of interest in this group is the matching of preferred perceptual learning styles by both male and female students in the top three pefereed styles.

This was the only class of respondents who matched preferred perceptual learning styles. Both male and female respondents indicated a preference for visual, print, and aural stimulation in the learning environment as their first, second, and third preferred perceptual learning technique.

Table XI, completes this section with a depiction of the 234 responses obtained from traditional vocational-technical education students. Except for a difference in ranking by males in this category traditional vocational students most closely resemble by preferred perceptual learning style the English only control group. Men in this category preferred haptic, visual, and aural stimulation while the females desired visual, interactive, and print stimulation.

TABLE X

SUMMARY OF RANKED ORDER OF LEARNING STYLES ADJUDICATED JUVENILE DELINQUENTS MALE AND FEMALE

Learning Style	Male R1=212 RANK	ORDER	Learning Style	Female R2=66 RANK	ORDER
Visual	92	43%	Visual	20	30%
Print	39	18%	Print	13	20%
Aural	34	16%	Aural	11	17%
Haptic	18	8%	Kinesthetic	3	4%
Interactive	16	7%	Interactive	6	9%
Kinesthetic	12	6%	Olfactory	7	11%
Olfactory	3	2%	Haptic	6	9%
	212	100%		66	100%

TABLE XI

SUMMARY OF RANKED ORDER OF LEARNING STYLES VOCATIONAL TECHNICAL STUDENTS MALE AND FEMALE VOCATIONAL TECHNICAL STUDENTS

Learning Style	MALE R1=131 Rank	Order	Learning Style	FEMALE R2=103 Rank	Order
Haptic	32	24%	Visual	27	25%
Visual	28	22%	Interactive	17	17%
Aural	21	16%	Print	16	16%
Kinesthetic	20	15%	Olfactory	15	15%
Olfactory	13	10%	Aural	14	13%
Interactive	12	9%	Kinesthetic	7	7%
Print	5	4%	Haptic	7	7%
	131	100%		103	100%

Section 3: Research Questions and Hypotheses

The research questions for this study asked, "What are the perceptual learning styles of institutionalized adjudicated delinquents enrolled in vocational and non-vocational secondary programs?", and "Does the preferred learning style of adjudicated delinquents in institutional settings enrolled in vocational and non-vocational secondary education differ significantly from non-vocational, non-institutionalized vocational and non-vocational secondary students?"

In the attempt to discover the preferred perceptual learning styles of three classes of students four (4) hypotheses were utilized to conceptualize this research. The decision rule was to accept the null hypotheses (Ho) if p. > .05.

Hypotheses 1 was: There are no significant differences in the sensory intake perceptual learning styles of traditional secondary students, vocational technical secondary students and adjudicated delinquent secondary students enrolled or not enrolled in vocational technical education.

The sensory intake perceptual learning style responses for each class of students was evaluated for differences. A comparison based on Kruskal-Wallis for the ranked data of three or more independent samples was performed utilizing Systat. Table XII presents the summary of the data analysis. There were significant differences between the classes of students at the .05 level. Therefore, the null hypotheses is rejected and H1 is accepted: Significant

TABLE XII

PRIMARY LEARNING STYLES BY FORM ALL STUDENTS

Primary Learning Styles	English VHI	Adjudicated Juvenile Delinquents Tech VPA	Adjudicated Juvenile Delinquents Non-Tech VPA	Vocational Students VHA	Total VAP
Visual	65	43	49	55	232
Aural	23	18	27	35	103
Interactive	27	6	14	29	76
Print	26	23	29	21	99
Kinesthetic	21	11	8	27	67
Haptic	33	12	9	39	93
Olfactory	13	5	4	28	50
Total	208	118	160	234	720

Kruskal-Wallis (H) Statistics = 28.346 $p < .05$

differences do exist between classes of students in their preferred perceptual learning style.

Since there were two genders in each sample, males and females, data were evaluated to determine if differences existed by gender.

Hypotheses 2: There is no significant difference in the sensory intake perceptual learning styles of males and females enrolled in secondary education. Data were evaluated utilizing the Mann-Whitney U Test and Chi-Square approximation. The decision rule of .05 was employed. Based on the data analysis no significant difference exist in preferred perceptual learning style based on gender the null hypotheses was accepted. Table XIII presents those findings.

Data were collected from seven (7) ethnic types during the study. Analysis was conducted to determine if differences existed between ethnic groups.

Hypotheses 3: There are no significant differences in the sensory intake perceptual learning styles of individual ethnic types in secondary education.

Utilizing Kruskal-Wallis for ranked data for three or more in dependent samples, significance of differences was determined, therefore, the null hypotheses was rejected and H1 was accepted, Table XIV. Significant differences do exist in the preferred perceptual learning styles of individuals based on ethnicity.

TABLE XIII

PRIMARY LEARNING STYLES BY GENDER

Form	A English		B Adjudicated Juveniles		C Vo-Tech		Totals	
Gender	F	M	F	M	F	M	F	M
	VIP	VHA	VPA	VPA	VIP	HVA	VPI	VAH
VISUAL	37	28	20	92	27	28	84	148
AURAL	10	13	11	34	14	21	35	68
INTERACTIVE	15	12	6	14	17	12	38	38
PRINT	15	11	13	39	16	5	44	55
KINESTHETIC	12	9	7	12	7	20	26	41
HAPTIC	10	23	3	18	7	32	20	73
OLFACTORY	5	8	6	3	15	13	26	24
SUB TOTALS	104	104	66	212	103	131	273	447
TOTALS	208		278		234			720

Mann-Whitney U Statistics = 60067.500 p>.05
Chi-Square Approximation = .128 with 1 DF

TABLE XIV

PRIMARY LEARNING STYLES BY RACE
ALL STUDENTS

ETHNIC ORIGIN	VIS1	AUR2	INTR3	PRIN4	KINE5	HAP6	OLF7	TOTAL
AFRICAN AMERICAN VAP	62	34	11	24	8	8	12	159
ASIAN/ PACIFIC ISLANDER VAP	3	3	0	2	0	2	1	11
HISPANIC VKI	15	4	6	4	7	5	5	46
AMERICAN ESKIMO VAH	3	2	0	0	0	3	2	10
AMERICAN INDIAN VAP	28	17	5	10	8	8	7	83
WHITE/ CAUCASIAN VHP	111	41	53	55	44	64	21	389
OTHER VPH	10	2	1	4	0	3	2	22
Total VAP	232	103	76	99	67	93	50	720

Krusal-Wallis (H) Statistic = 14.770 $p<05$

V = Visual
A - Aural
P = Print
K = Kinesthetic
I = Interactive
H = Haptic
O = Olfactory

Hypotheses 4: Significant differences in the sensory intake perceptual learning styles do not exist in relation to age. Table XV presents those findings for this hypotheses.

Within the study respondents in eight (8) age groups provided data for analysis on preferred perceptual learning style. Data were analyzed using Kruskal-Wallis for ranked data from three or more independent samples. Significant differences were determined therefore, the null hypotheses was rejected and H1 accepted. Significant differences do exist in the preferred perceptual learning styles based on age.

TABLE XV

PRIMARY LEARNING STYLES BY AGE ALL STUDENTS

PRIMARY LEARNING STYLE	AGE 14 n	15 n	16 n	17 n	18 n	19 n	20 n	21 n	TOTAL N
VISUAL	7	43	68	88	22	1	2	1	232
AURAL	1	15	32	37	16	1	1	0	103
INTERACTIVE	1	15	19	28	11	1	0	1	76
PRINT	6	20	33	30	7	1	0	2	99
KINESTHETIC	4	10	21	18	9	1	1	3	67
HAPTIC	3	15	29	28	14	2	1	1	93
OLFACTORY	1	9	11	14	10	0	1	4	50
TOTAL	23	127	213	243	89	7	6	12	720

Kruskal-Wallas (H) Statistic = 16.160 $p<.05$

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This study was conducted to identify the sensory intake perceptual learning styles of the following classes of secondary students:

1) Incarcerated Adjudicated Delinquent Vocational,

2) Incarcerated Adjudicated Non-Vocational,

3) Traditional Vocational, and

4) Traditional Non-Vocational.

Secondarily, the study was conducted to determine if significant differences in learning styles exist between those classes of students. The study was qualitative descriptive quasi-experimental action research. Caution should be used as the preferred perceptual sensory intake styles indicated by the respondents should be generalized only to the population sampled.

A Sensory Intake Perceptual Learning Styles Inventory, constructed in behavioral statements, based on the work of James and Galbraith (1985) was used to determine the preferred sensory intake, physiological psycho-motor, method used by each class of students to extract information from the learning environment. Three high schools, two with embedded vocational programs, and one with a direct support vocational technical school were contrasted to four secure treatment facilities which provided vocational and non-vocational secondary education to adjudicated delinquents. The

control group for this study was comprised of English students in the ninth, tenth, eleventh, and twelfth grades who were not nor ever had been enrolled in vocational-technical secondary education. The study population of over 404,000 secondary students in the states of Arkansas, Kansas, and Oklahoma provided the population from which the sample was drawn.

A comprehensive review of the literature was conducted to discover prior research. Little research could be found on the subject of sensory intake perceptual learning styles and juveniles. In the state of Oklahoma one study by Dr. Francine Soliday dealt with secondary students and learning styles while Dr. Tom Friedman conducted research into correctional education and learning theory. No research could be found on sensory intake perceptual learning as it applied to adjudicated delinquents in secondary education. Therefore, little could be stated in the review of literature on the current approaches utilized to enrich the learning environment, through the use of sensory intake perceptual learning styles instruments, to insure cognitive, affective, or psycho-motor growth occurs for individual students in any class represented in the study.

The literature review was conducted in the following areas; delinquency and the adjudication process, writings on the origins of delinquent behavior, human deficiency motives, education and the delinquent student, and sensory intake learning styles. This study affords the vocational educator in secondary education and in correctional education with qualitative statistical research to

support efforts to enrich the instructional process and facilitate individual student growth.

Seven Hundred twenty (720) respondents were surveyed between the period 15 September and 15 December 1993. Respondents were assessed in three categories:

- High school English students (208),
- Vocational-Technical students (234)
- Adjudicated delinquents
    1. Enrolled in vocational technical education (118),
    2. Not enrolled in vocational technical education (160).

Two major questions guided the research in this study:

1. What are the perceptual learning styles of institutionalized adjudicated delinquents enrolled in vocational and non-vocational secondary programs?

2. Does the preferred learning style of adjudicated delinquents in institutional settings enrolled in vocational and non-vocational secondary education differ significantly from non-vocational, non-institutionalized vocational and non-vocational secondary students?

Data for the study was collected from students enrolled in high school English classes, traditional vocational-technical classes at there respective high school or centralized vocational school, and within secure treatment facilities. Sensory Intake Perceptual Learning Style Inventories were completed by secondary students between the ages of 14 and 21. Within secure treatment facilities program directors, cottage supervisors, or resident psychologist

administered the instruments. The overall return rate for completed inventories was seventy six (76) percent. Traditional high school students and vocational-technical education students had an average return rate of eighty (80) percent while returns from adjudicated delinquents in secure treatment facilities on average were sixty-eight (68) percent. Of those who completed and returned the inventories four hundred and forty seven (447) were male while two hundred and seventy three were females. An individualized breakdown explains the under representation of females in the study as caused by lower incarceration and enrollment in traditional vocational-technical education courses. The average secondary grade level for all participants was the eleventh grade.

Gender data for the study was as follows;

- 104 males and 104 females in secondary English,
- 131 males and 103 females in vocational-technical,
- 212 males, and 66 females in secure treatment facilities.

Traditional vocational-technical education students comprised thirty two (32) percent of the subjects for this study, English students twenty eight (28) percent, vocational technical delinquents sixteen (16) percent and non-vocational delinquents twenty two (22) percent. Secondary students in the study were from eight age groups covering six teenage years, fourteen (14) to nineteen (19), and two adult years, twenty (20) and twenty one (21). Students participating reported their ages as follows:

- Fourteen - 23
- Fifteen - 127
- Sixteen - 213
- Seventeen - 243
- Eighteen - 89
- Nineteen - 7
- Twenty - 6
- Twenty one - 12

The traditional ages for high school students are 15, 16, 17, and 18. In the sample for this study there were 23 respondents aged 14 and 25 respondents aged 19 or older, these two groups of over or underage non-traditional year groups comprised 6.6% of the total sample.

Ethnically of the 720 respondents in the sample who completed the sensory intake perceptual learning styles inventory three hundred and eighty-nine (389) represented themselves as white or Caucasian, one hundred and fifty-nine (159) as African American, eighty three (83) as American Indian, forty six (46) as Hispanic, eleven (11) as Asian or Pacific Islander, ten (10) as American Eskimo, and twenty-two (22) as Other.

Results of the Study

The results of this study on the preferred sensory intake perceptual learning styles of adjudicated delinquents enrolled or not enrolled in secondary vocational-technical education courses are summarized in the following ten findings:

1. Secondary students enrolled in English classes who had not, nor were, enrolled in vocational technical education courses incorporate two distinctly different preferred sensory intake perceptual learning styles when separated by gender. Males in this

class of student indicated a preference for visual, haptic, and aural stimulation (VHA) in the learning environment while females indicated a preference for visual, interactive, and print stimulation (VIA).

2. Secondary students enrolled in vocational-technical secondary education closely mirror the English only students in preferred sensory intake perceptual learning styles; males indicated a preference for haptic, visual, and aural stimulation in the learning environment (HVA) while females matched the English female group indicating a preference for visual, interactive, and print stimulation (VIP).

3. Secondary adjudicated delinquents, both male and female, as a class of students indicate a preference for visual, print, and aural stimulation as their preferred sensory intake perceptual learning style.

4. Secondary English students as a class indicate a preferred sensory intake perceptual learning style of visual, haptic, interactive.

5. Secondary vocational-technical students as a class indicate a preferred sensory intake perceptual learning style of visual, haptic, aural.

6. Secondary students enrolled in high school, vocational-technical education, or as adjudicated delinquents indicate a preference as a class of students for visual, aural, print (VAP) as their preferred sensory intake perceptual learning style.

7. Secondary females students enrolled in high school, vocational-technical education, or as adjudicated delinquents indicate a preference as a class of students for visual, print, interactive (VPI) as their preferred sensory intake perceptual learning style.

8. Secondary male students enrolled in high school, vocational-technical education, or as adjudicated delinquents indicate a preference as a class of students for visual, aural, haptic (VAH) as their preferred sensory intake perceptual learning style.

9. The preferred perceptual learning styles based on ethnic background are:

- African American - visual, aural, print
- Asian/Pacific Islander - visual, aural, print
- Hispanic - visual, kinesthetic, interactive
- American Eskimo - visual, aural, haptic
- Native American Indian - visual, aural, print
- White/Caucasian - visual, print, haptic

10. The preferred perceptual learning styles based on age are:

- 14 - visual, print, kinesthetic
- 15 - visual, print, haptic
- 16 - visual print, aural
- 17 - visual, aural, interactive
- 18 - visual, aural, haptic
- 19 - haptic, visual, aural

- 20 - visual, aural, kinesthetic
- 21 - Olfactory, kinesthetic, print

Conclusions

Conclusions from this research are:

1. It was found that significant differences exist in the preferred perceptual sensory intake learning styles between traditional high school students, vocational-technical secondary students and adjudicated delinquent secondary students enrolled or not enrolled in vocational technical education. Therefore, it may be concluded that teaching methodologies, methods of enriching the learning environment and sensory stimulation should be designed to meet the needs of individual students by utilizing a multiplicity of teaching styles in the classroom.

2. Based on the sample analyzed no significant differences exist in the sensory intake perceptual learning styles of males and females enrolled in secondary education as a class of student.

3. Analysis of responses indicates significant differences do exist in the preferred perceptual learning styles of individuals based on ethnicity. Therefore, it is concluded that instructional methods, curriculum design, and the learning environment should be enriched to insure sensory stimulation of the widest variety is utilized in each unit, lesson, or course of instruction by utilizing a multiplicity of teaching styles in the classroom.

4. Statistical analysis evidenced significant differences in the sensory intake perceptual learning styles do not exist in relation to age. It is therefore concluded that sound pedogological techniques coupled with the enrichment of the sensory learning environment meets the needs of all ages of students.

Recommendations

Pedagogical Recommendations

A. The findings and conclusion of this study have wide ranging significance for educators within vocational technical education and traditional secondary education. Furthermore, its specific emphasis on the preferred sensory intake perceptual learning styles of adjudicated delinquents provide a foundation for use in secure treatment facilities educational programs. The inclusion of teaching methodologies, curriculum design, human factors involving the environment and learning facilities to maximize the sensory learning styles of the secondary student to meet individual needs will insure an enrichment of the learning process. This study provides a vehicle for further research.

Based on current practice it is recommended:

That teaching methodologies be flexed in the presentation of instructional materials to facilitate individual learning by maximizing sensory stimulation.

That individual students be tested to determine their preferred perceptual learning style yearly in all pre-secondary, and secondary educational institutions.

That curriculum(s) be designed to incorporate as many sensory learning activities as possible to maximize sensory intake learning.

That educators be trained in the identification of strong and weak sensory learning styles on the part of individual students.

That educators provide opportunities for students to develop weak styles into strong styles.

B. Based on the findings for each class of student the following recommendations for inclusion in the sensory enrichment of the learning environment are made:

For traditional secondary high school students, and vocational-technical education students instructors should incorporate visual, haptic, interactive, and aural activities to stimulate learning.

For adjudicated delinquent students enrolled in traditional or vocational-technical secondary education instructors should incorporate visual, print, and aural activities to stimulate learning.

That instructors develop programs which incorporate all seven primary sensory intake learning styles; visual, interactive, print, olfactory, aural, kinesthetic, and haptic, for use in the classroom.

Further Research Recommendations

A. Explore the dynamics of sensory intake perceptual learning styles, in the ninth, tenth, eleventh, and twelfth grades, at

comprehensive high schools, vocational technical schools and secure juvenile treatment facilities on nation wide basis.

B. Assess the possibility of identifying a sensory taxonomy which could be utilized during the curriculum design process to enrich integrated teaching methodologies.

C. Conduct applied action research in secondary programs at the vocational and non-vocational level in secure treatment facilities to determine if sensory stimulation and enrichment enhances educational success and reduces recidivistic delinquent behavior.

D. Conduct further studies to determine if there are preferences in sensory intake learning styles based on ethnic, gender, or age parameters.

E. Perform a survey of teacher education institutions to determine courses, units of instruction, or programs which facilitate an understanding of sensory intake learning styles and educational enhancement.

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APPENDIXES

APPENDIX A

DIRECTIONS FOR ADMINISTERING THE SENSORY INTAKE PERCEPTUAL LEARNING STYLES INVENTORY

DIRECTIONS FOR INSTRUCTORS - PROCTORS ADMINISTERING

THE SENSORY INTAKE SKILLS INVENTORY

1. The Sensory Intake Skills Inventory will be given to: 1) adjudicated delinquents in secure treatment facilities enrolled in secondary education programs, 2) traditional secondary students enrolled in high school English courses, 3) and traditional secondary vocational technical students. If at all possible the inventory should be given on one selected day. However, if you must give the inventory more than once insure it is given at the same time.

2. The students in this study are all secondary students. Therefore, if you have any students who have obtained a high school diploma or general education diploma do not administer the Sensory Intake Skills Inventory to them. For the purpose of this study high school is defined as 9th, 10th, 11th and 12th grade levels.

3. Data will be interpreted/analyzed as it relates to each class of student. Student names will not be used. Inform student participants that completion of the skills inventory is voluntary. Also, inform the participants that completion of the skills inventory evidences their permission to use the data collected for research purposes.

   ***NOTE: ANY STUDENT WHO DESIRES NOT TO PARTICIPATE SHOULD NOT BE GIVEN A SENSORY INTAKE SKILLS INVENTORY.**

   Please explain to any student who desires not to participate that they may at a later time participate if they desire. Do not draw any undue attention to those who don't participate.

4. When introducing the sensory intake Skills Inventory do not call it a test. Use inventory or questionnaire. The Inventory is not an achievement or aptitude test.

5. Inform the student there are no right or wrong responses to any question.

6. Please read the directions on the cover page verbatim to the students.

7. It is permissible to read the Skills Inventory to poor readers. It this is necessary, please remember to sound open minded about their choices.

8. DO NOT PROVIDE DEFINITIONS OR EXPLAIN WORDS TO THE PARTICIPANTS FROM THE SKILLS INVENTORY.

9. The Sensory Intake Skills Inventory is not a timed instrument. Pretesting of the instrument showed it was usually completed in less than seven (7) minutes.

10. The students should read each question carefully and mark their answers directly on the Inventory.

11. After each group of participants completes the Skills Inventory place the completed inventories in the prepaid envelope provided and mail the next business day.

12. The skills inventory comes in three forms.

    Form A: is administered to secondary English classes only.

    Form B: is administered to adjudicated delinquents in secure treatment facilities only.

    Form C: is administered to vocational technical secondary students only.

APPENDIX B

SENSORY INTAKE PERCEPTUAL LEARNING STYLES INVENTORY

Directions: The Sensory Intake Skills Inventory ask questions in two broad areas: questions about you (Demographics), and questions about how you think you learn best (Perceptual Learning).

To complete the Sensory Intake Skills Inventory follow the directions provided in each of its parts. You will have as much time as you need because this is not a timed inventory. If you need assistance ask your instructor or proctor.

Part I - Demographics

Part II - Perceptual Learning Styles Inventory

DO NOT SIGN YOUR NAME TO ANY PART OF THE SKILLS INVENTORY

COMPLETION OF THE SKILLS INVENTORY INDICATES YOUR PERMISSION TO UTILIZE THE RESULTS IN THE COMPLETION OF THIS RESEARCH STUDY.

MARK YOUR ANSWERS DIRECTLY ON THIS INVENTORY SHEET

WHEN YOU ARE DONE GIVE THE SENSORY
SKILLS INVENTORY BACK TO YOUR INSTRUCTOR OR PROCTOR

Page 1 FORM A

SENSORY INTAKE SKILLS INVENTORY

PART I: DEMOGRAPHICS

Directions: Please complete this section by following the instructions given for each question asked. You will either place a check mark in the space provided or circle your answer.

1. What is your age? (Please circle only one answer)

   (15) (16) (17) (18)

   (19) (20) (21)

2. What is your gender (sex)? (Please check only one answer)

   Male ( ) Female ( )

3. What grade are you currently in at your school? (Please check only one answer)

   ( ) 9th Grade ( ) 10th Grade

   ( ) 11th Grade ( ) 12th Grade

4. What is your ethnic background? (Please check only one answer)

   ( ) African American ( ) American Eskimo

   ( ) Asian/Pacific Islander ( ) Hispanic

   ( ) American Indian ( ) Other

   ( ) White/Caucasian

5. Are you now or have you ever been enrolled in Vocational Technical Education? (Please place a check mark in the space provided.)

   ( ) YES

   ( ) NO

Thank you for completing Part I. Please continue with Part II.

Page 2

SENSORY INTAKE SKILLS INVENTORY

PART II: PERCEPTUAL LEARNING STYLES INVENTORY

Directions: Please place an "X" in the space provided if you think you learn best by doing one of the actions listed below. Mark "X" for each statement that you believe applies to you. You may select one, more than one, or as many answers as you desire.

I learn best when I:

1. _____ Watch motion pictures.
2. _____ Listen to lectures or information giving programs.
3. _____ Participate in group discussions.
4. _____ Do reading assignments.
5. _____ Associate in role playing activities.
6. _____ Participate in project construction.
7. _____ Am required to use odor discrimination.
8. _____ Watch television programs.
9. _____ Listen to audio tapes.
10. _____ Participate in panel discussions.
11. _____ Write reports.
12. _____ Observe nonverbal body movements.
13. _____ Draw, paint, or sculpt objects.
14. _____ Am required to taste something.
15. _____ Look at slides or pictures.
16. _____ Listen to records or compact discs.
17. _____ Am a part of question and answer sessions.
18. _____ Conduct independent reading.
19. _____ Do physical motion activities.
20. _____ Build models.
21. _____ Use scented materials (scratch and sniff)
22. _____ Use paper and pen/pencils to construct graphs, tables and charts.
23. _____ Listen to recitations by others.
24. _____ Conduct an interview.
25. _____ Write things.
26. _____ Participate in physical games.
27. _____ Touch the objects I am learning about.
28. _____ See photographs.

(James & Galbraith)

Thank you for completing the Skills Inventory

APPENDIX C

DEMOGRAPHIC INFORMATION SHEET FOR ENGLISH, NON-VOCATIONAL STUDENTS

Page 1 FORM A

SENSORY INTAKE SKILLS INVENTORY

PART I: DEMOGRAPHICS

Directions: Please complete this section by following the instructions given for each question asked. You will either place a check mark in the space provided or circle your answer.

1. What is your age? (Please circle only one answer)

   (15) (16) (17) (18)

   (19) (20) (21)

2. What is your gender (sex)? (Please check only one answer)

   Male ( ) Female ( )

3. What grade are you currently in at your school? (Please check only one answer)

   ( ) 9th Grade ( ) 10th Grade

   ( ) 11th Grade ( ) 12th Grade

4. What is your ethnic background? (Please check only one answer)

   ( ) African American ( ) American Eskimo

   ( ) Asian/Pacific Islander ( ) Hispanic

   ( ) American Indian ( ) Other

   ( ) White/Caucasian

5. Are you now or have you ever been enrolled in Vocational Technical Education? (Please place a check mark in the space provided.)

   ( ) YES

   ( ) NO

Thank you for completing Part I. Please continue with Part II.

APPENDIX D

DEMOGRAPHIC INFORMATION SHEET FOR VOCATIONAL STUDENTS

Page 1 FORM C

SENSORY INTAKE SKILLS INVENTORY

PART I: DEMOGRAPHICS

Directions: Please complete this section by following the instructions given for each question asked. You will either place a check mark in the space provided or circle your answer.

1. What is your age? (Please circle only one answer)

   (15) (16) (17) (18)

   (19) (20) (21)

2. What is your gender (sex)? (Please check only one answer)

   Male ( ) Female ( )

3. What grade are you currently in at your school? (Please check only one answer)

   ( ) 9th Grade ( ) 10th Grade

   ( ) 11th Grade ( ) 12th Grade

4. What is your ethnic background? (Please check only one answer)

   ( ) African American ( ) American Eskimo

   ( ) Asian/Pacific Islander ( ) Hispanic American

   ( ) American Indian ( ) Other

   ( ) White/Caucasian

Thank you for completing Part I. Please continue with Part II.

APPENDIX E

DEMOGRAPHIC INFORMATION SHSET FOR

ADJUDICATED BELINQUENTS

Page 1 FORM B

SENSORY INTAKE SKILLS INVENTORY

PART I: DEMOGRAPHICS

Directions: Please complete this section by following the instructions given for each question asked. You will either place a check mark in the space provided or circle your answer.

1. What is your age? (Please circle only one answer)

   (15) (16) (17) (18)

   (19) (20) (21)

2. What is your gender (sex)? (Please check only one answer)

   Male ( ) Female ( )

3. What grade are you currently in at your school? (Please check only one answer)

   ( ) 9th Grade ( ) 10th Grade

   ( ) 11th Grade ( ) 12th Grade

4. What is your ethnic background? (Please check only one answer)

   ( ) African American ( ) American Eskimo

   ( ) Asian/Pacific Islander ( ) Hispanic

   ( ) American Indian ( ) Other

   ( ) White/Caucasian

5. Are you now or have you ever been enrolled in vocational technical secondary education? (Please place a check in the space provided).

   ( ) YES

   ( ) NO

Thank you for completing Part I. Please continue with Part II.

APPENDIX F

LETTER SENT TO EACH IDENTIFIED CONTACT PERSON IN THE HIGH SCHOOL, VOCATIONAL SCHOOL, OR SECURE TREATMENT FACILITY SECONDARY PROGRAMS

CENTRAL OKLAHOMA
Area Vocational Technical School

Administration
Drumright Campus
3 CT Circle
Drumright, OK 74030
918-352-2551
Fax 918-352-4117

Sapulpa Campus
1720 S. Main
Sapulpa, OK 74066
918-224-9300
Fax 918-224-3190

5 October 1993

Mr. Tom Turner
Okmulgee High School
415 W. 3rd
Okmulgee OK: 74447

Dear Mr. Turner

First of all let me thank you for agreeing to assist in the completion of my doctoral study. Without your help and support I could not collect the data necessary to complete my study.

I have attached to this letter a copy of the Institutional Review Boards' approval for this research, a copy of my doctoral proposal, and the directions for administering the instrument. Please have the students place their answers to the questions right on the inventory itself.

If at all possible try and have the inventory completed at the same time by all the participants. One class of English students in the 9th, 10th, 11th, and 12th grades should complete the instrument.

Again thank you for your help. If you have any questions please call me during the day at 918-224-9300 ext. 29, or in the evening at 918-224-2840. Finally, I have also enclosed a prepaid mailer for the return of the instruments.

Sincerely,

Danial R. Baker
Law Enforcement Instructor

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Contact Letter

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Mr. Tom Turner
Okmulgee High School
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Dr. Ronald Willis
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Beloit, Kansas 67420

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Mr. Carlin Louks
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Danne Spurlock
Green Country Vocational Technical School
104 W. 3rd
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Dr. Carrol Mills
Youth Center at Topeka
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Dr. Stephen Grissom
Lloyd E. Rader Intensive Treatment Prog.
Rt. 4 Box 9
Sand Springs, OK 74063

APPENDIX G

THANK YOU LETTER

13 January 1994

Dr. Dwayne Colvin
Dodge City High School
1601 First Avenue
Dodge City, Kansas 67801

Dear Dr. Colvin

I would like to thank you for your participation in the Learning Styles Inventory study that you recently completed for me. It has been a tremendous help and will hopefully validate the theories presented in my doctorial study. Again, your participation has proven invaluable in forwarding my efforts.

Please accept my sincere thanks and gratitude.
If I may ever be of assisstance to you, please call on me. I will be sending you a copy of my findings in late June of this year.

Sincerely,

Danial R. Baker

Address List of Contact Persons
Contact Letter

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APPENDIX H

PILOT STUDY STATISTICS

(1)

KRUSKAL-WALLIS ONE-WAY ANALYSIS OF VARIANCE FOR **179** CASES.
DEPENDENT VARIABLE IS **PRIMARY**
GROUPING VARIABLE IS **FORM**

GROUP	COUNT	RANK SUM
ADJUDICATED JUVENILES	48	3795.500
VOCATIONAL EDUCATION	71	6767.500
ENGLISH CLASSES	60	5547.000

KRUSKAL-WALLIS TEST STATISTIC = 3.153.
PROBABILITY IS 0.207, ASSUMING CHI-SQUARE DISTRIBUTION WITH 2 DF.

(2)

DEPENDENT VARIABLE IS **PRIMARY**.
GROUPING VARIABLE IS **GENDER**.

GROUP	COUNT	RANK SUM
MALE	105	9480.000
FEMALE	73	6601.500
ENGLISH CLASSES	60	5547.000

KRUSKAL-WALLIS TEST STATISTIC = 1.481.
PROBABILITY IS 0.477, ASSUMING CHI-SQUARE DISTRIBUTION WITH 2 DF.

(3)

DEPENDENT VARIABLE IS **PRIMARY**.
GROUPING VARIABLE IS **GRADE**.

GROUP	COUNT	RANK SUM
NINTH (9)	39	3835.500
ELEVENTH (11)	69	6668.000
TENTH (10)	21	1497.000
TWELFTH (12)	50	4109.500

KRUSKAL-WALLIS TEST STATISTIC = 6.291.
PROBABILITY IS 0.098, ASSUMING CHI-SQUARE DISTRIBUTION WITH 3 DF.

(4)

DEPENDENT VARIABLE IS **PRIMARY**.
GROUPING VARIABLE IS **RACE**.

GROUP	COUNT	RANK SUM
WHITE/CAUCASIAN	137	12523.000
AFRICAN AMERICAN	19	1599.500
OTHER	5	417.500
HISPANIC	12	252.500
AMERICAN INDIAN	13	1178.000
ASIAN		

KRUSKAL-WALLIS TEST STATISTIC = 6.291.
PROBABILITY IS 0.098, ASSUMING CHI-SQUARE DISTRIBUTION WITH 3 DF.

TABLE OF *PRIMARY LEARNING STYLES BY FORM*

ALL STUDENTS
SAMPLE GROUP

PRIMARY LEARNING STYLES	ENGLISH VIK	ADJUDICATED JUVENILE DELIQUENTS		VOCATIONAL STUDENTS VHI	TOTAL VPH
		TECH IAV	NON TECH VPA		
VISUAL	20	1	13	22	56
AURAL	2	2	9	7	20
INTERACTIVE	13	3	4	9	29
PRINT	6	1	10	5	22
KINESTHETIC	8	0	3	13	24
HAPTIC	8	1	1	15	25
OLFACTORY	3	0	0	0	3
TOTAL	60	8	40	71	179

TABLE OF PRIMARY LEARNING STYLES BY GENDER

SAMPLE GROUP

FORM:	A ENGLISH		B ADJUDICATED JUVENILES		C VO TECH		TOTALS	
GENDER:	F VHP	M VIK	F PVI	M AVI	F VHP	M VKH	F VIP	M VKA
VISUAL	10	10	6	8	6	16	22	34
AURAL	0	2	2	9	2	5	4	16
INTERACTIVE	8	5	4	7	4	5	16	13
PRINT	5	1	7	4	3	2	15	7
KINESTHETIC	3	5	0	3	3	16	6	18
HAPTIC	6	3	0	2	6	12	8	7
OLFACTORY	2	1	0	0	0	0	2	1
SUB TOTALS	33	27	19	28	21	50	73	106
TOTALS	60		48		71		179	

TABLE OF *PRIMARY LEARNING STYLES BY RACE*

ALL STUDENTS
SAMPLE GROUP

ETHNIC ORIGIN	VIS **1**	AUR **2**	INTR **3**	PRIN **4**	KINE **5**	HAP **6**	OLF **7**	TOT
AFRICAN AMERICAN VAP	6	4	1	3	4	1	0	19
ASIAN/ PACIFIC ISLANDER V	0	0	0	0	1	0	0	1
HISPANIC AVI	1	2	1	0	0	0	0	4
AMERICAN ESKIMO	0	0	0	0	0	0	0	0
AMERICAN INDIAN VAI	5	2	2	1	2	1	0	13
WHITE/ CAUCASIAN VIH	44	11	25	16	15	23	3	137
OTHER PKA	0	1	0	2	2	0	0	5
TOTAL VIH	56	20	29	22	24	25	3	179

APPENDIX I

LEARNING STYLES INVENTORY INFORMATION

WORK SHEET

INVENTORY INFO SUMMARY

INVENTORY INDEX

BLOCK

1 _____
ENTER FORM A/B/C

1 / 8 / 15 / 22 / 28
VISUAL = 1

2/3 _____
ENTER TWO DIGIT AGE

2 / 9 / 16 / 23
AURAL = 2

4 _____
ENTER GENDER M/F

3 / 10 / 17 / 24
INTERACTIVE = 3

5/6 _____
ENTER H.S. GRADE
(9/10/11/12)

4 / 11 / 18 / 25
PRINT = 4

5 / 12 / 19 / 26
KINESTHETIC = 5

7 _____
ENTER ETHNICITY 1-9

1=AFRICIAN AMERICAN
2=ASIAN /PACFIC ISLANDER
3=HISPANIC
4=AMERICAN ESKIMO
5=AMERICAN INDIAN
6=WHITE/CAUCASIAN
7=OTHER

6 / 13 / 20 / 27
HAPTIC = 6

7 / 14 / 21
OLFACTORY = 7

8 _____
ENTER Y/N Y=IS ENROLLED
N=NOT ENROLLED

9 _____
PRIMARY STYLE

10 _____
SECONDARY STYLE

11 _____
THIRD STYLE

APPENDIX J

OTHER MATHEMATICAL DATA

TABLE XVI

FREQUENCY DISTRIBUTION OF STUDENTS BY AGE

Age	All Students	Age	English	Age	Vo Tech	Age	Adjudicated Delinquent Tech	Age	NonTech
17	243 = 34%	17	70 = 34%	17	95 = 41%	16	60 = 38%	16	45 = 38%
16	213 = 30%	15	64 = 31%	16	63 = 27%	17	41 = 27%	17	37 = 31%
15	127 = 18%	16	45 = 22%	18	40 = 17%	15	40 = 24%	15	16 = 14%
18	89 = 12%	18	15 = 7%	21	10 = 4%	18	10 = 6%	18	16 = 13%
14	23 = 4%	14	13 = 6%	15	7 = 3%	14	9 = 5%	14	1 = 1%
19	7 = 1%	21	1 = 1%	19	6 = 2%	19	0 = 0%	19	1 = 1%
20	6 = 1%	19	0 = 0%	20	5 = 2%	20	0 = 0%	20	1 = 1%
21	12 = 1%	20	0 = 0%	14	0 = 0%	21	0 = 0%	21	1 = 1%

TABLE XVII

STUDENT BY GRADE

Grd	English	Grd	Vo Tech	Grd	Adjudicated Delinquent Tech	Grd	NonTech
12	61 = 29%	12	121 = 52%	09	66 = 41%	10	39 = 33%
11	52 = 25%	11	98 = 42%	10	43 = 27%	11	32 = 26%
10	50 = 24%	10	9 = 3%	11	40 = 25%	09	30 = 26%
09	45 = 22%	09	6 = 3%	12	10 = 6%	12	17 = 15%

TABLE XVIII

STUDENTS GENDER AND CLASS

Gender	English	Vocational	Adjudicated Delenquent
Male	104 = 50%	131 = 60%	212 = 76%
Female	104 = 50%	103= 44%	66 = 24%

TABLE XIX

STUDENTS BY ETHNICITY

Ethnic Origin	All Students
White Caucasian	389 = 54%
African American	159 = 22%
Native American	83 = 12%
Hispanic American	46 = 6%
Other	22 = 3%
Asian\Pacific Islander	11 = 2%
American Eskimo	10 = 1%

TABLE XX

FREQUENCY DISTRIBUITON OF STUDENTS BY LEARNING STYLE

	English		Vo-Tech		Adjudicated Delinquent	
LS	Male	Female	Male	Female	Male	Female
Vis	28 = 27%	37 = 37%	32 = 24%	37 = 25%	92 = 43%	20 = 30%
Hap	23 = 22%	15 = 14%	28 = 22%	17 = 17%	39 = 18%	13 = 20%
Aur	13 = 13%	15 = 14%	21 = 16%	16 = 16%	34 = 16%	11 = 17%
Int	12 = 12%	12 = 12%	20 = 15%	15 = 15%	18 = 8%	7 = 11%
Pri	11 = 11%	10 = 9%	13 = 10%	14 = 13%	16 = 7%	6 = 11%
Kin	9 = 8%	10 = 9%	12 = 9%	7 = 7%	12 = 6%	6 = 9%
Olf	8 = 7%	5 = 5%	5 = 4%	7 = 7%	3 = 2%	3 = 4%

VITA 2

Danial Ray Baker

Candidate for the Degree of

Doctor of Education

Thesis: PERCEPTUAL LEARNING STYLES OF ADJUDICATED DELINQUENTS IN SECURE TREATMENT FACILITIES ENROLLED IN VOCATIONAL AND NON-VOCATIONAL SECONDARY EDUCATION

Major Field: Occupational and Adult Education

Biographical:

Personal Data: Born in Fort Brag, California on May 5, 1949, the son of Robert and Gertrude Baker.

Education: Graduated from Washington High School, Broderick, California on May 16, 1966; Bachelor of Arts degree in Sociology, Culver-Stockton College, Canton, Missouri, 1973; Master of Arts degree Webster University, Webster Groves Missouri, 1975; Advanced certification in Police Administration, University of Southern California, Los Angeles, California, 1983; Advanced Police Certification, Council on Law Enforcement Education and Training, State of Oklahoma, 1992, completed requirements for the Doctor of Education degree at Oklahoma State University in May, 1994.

Professional Experience: Basic Law Enforcement Patrolman Republic of Vietnam 1968-1969; Scott Air Force Base, Bellview, Illinois, 1970-1974, Non-Commissioned officer in Charge Base Police; Non-Commissioned Shift Commander 1974-1975, Nakon Phanom Royal Thai Air Base; Non-Commission Shift Commander base Police Kadena Air Base, Japan, 1976-1978; Commissioned Regular Officer, Shift Commander Base Police Services, Carswell Air Force Base, Fort Worth Texas 1978-1980; Aide De Camp, Commanding General United Nations Command Air Force Republic of Korea, 1980-1981; 13 Air Force Police Liaison Officer to the Philippine Constabulary, Republic of the Philippines, 1981-1983; Assistant Professor of Aero space Science, Oklahoma State University, 1983-1985; Chief of Police, Vance Air Force Base, Enid Oklahoma, 1985-1989; Chief of Police, Watonga, Oklahoma, 1989-1990, Law Enforcement Instructor, Central Vocational Technical School, Sapulpa, Oklahoma 1990 to December, 1993; Lecturer, Oklahoma State University, School of OAED, 1994 to present.

OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
FOR HUMAN SUBJECTS RESEARCH

Date: 04-29-93 **IRB#:** ED-93-087

Proposal Title: SENSORY INTAKE PERCEPTUAL LEARNING STYLES OF ADJUDICATED DELINQUENTS IN SECURE TREATMENT FACILITIES ENROLLED IN VOCATIONAL AND NON VOCATIONAL EDUCATION

Principal Investigator(s): Ray Sanders, D. R. Baker

Reviewed and Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved

APPROVAL STATUS SUBJECT TO REVIEW BY FULL INSTITUTIONAL REVIEW BOARD AT NEXT MEETING.
APPROVAL STATUS PERIOD VALID FOR ONE CALENDAR YEAR AFTER WHICH A CONTINUATION OR RENEWAL REQUEST IS REQUIRED TO BE SUBMITTED FOR BOARD APPROVAL. ANY MODIFICATIONS TO APPROVED PROJECT MUST ALSO BE SUBMITTED FOR APPROVAL.

Comments, Modifications/Conditions for Approval or Reasons for Deferral or Disapproval are as follows:

Revisions Received and Approved

Signature: Marcia K. Tilley Date: April 29, 1993

Chair of Institutional Review Board