An Analysis of Alternative Students' Attitudes Enrolled in "Exploring the Construction Industry" at the Virginia Beach Career Development Center

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AN ANALYSIS OF ALTERNATIVE STUDENTS' ATTITUDES
ENROLLED IN "EXPLORING THE CONSTRUCTION INDUSTRY"
AT THE VIRGINIA BEACH CAREER DEVELOPMENT CENTER

A Research Paper
Presented to
The Faculty of the School of Education
Old Dominion University

In Partial Fulfillment
Of the Requirements for the Degree of
Master of Science in Secondary Education with
A General Emphasis in Industrial Arts Education

By
Martin M. Fay
This research paper was prepared by Martin Michael Fay under the direction of his Advisor/Instructor in Problems of Education VIAE 636. It is submitted to the Graduate Program Director for Vocational and Industrial Arts Education in partial fulfillment of the requirements for the Degree of Master of Science in Education.

Date: August 5, 1980

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For her incalculable aid, and critical analysis of this paper, the author wishes to express his love and appreciation to his lovely wife.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENT</td>
<td>1</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>iv</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>v</td>
</tr>
<tr>
<td><strong>CHAPTER</strong></td>
<td></td>
</tr>
<tr>
<td>I Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Statement of Problem</td>
<td>2</td>
</tr>
<tr>
<td>Hypothesis</td>
<td>2</td>
</tr>
<tr>
<td>Background and Significance of the Study</td>
<td>2</td>
</tr>
<tr>
<td>Basic Assumptions</td>
<td>4</td>
</tr>
<tr>
<td>Limitation of the Study</td>
<td>4</td>
</tr>
<tr>
<td>Procedures for Collecting Data</td>
<td>5</td>
</tr>
<tr>
<td>Procedures for Treating Data</td>
<td>6</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>7</td>
</tr>
<tr>
<td>Summary</td>
<td>9</td>
</tr>
<tr>
<td>II REVIEW OF LITERATURE</td>
<td>10</td>
</tr>
<tr>
<td>The Turn of the Century</td>
<td>11</td>
</tr>
<tr>
<td>Alternative Education in the Sixties</td>
<td>12</td>
</tr>
<tr>
<td>Plurality in the Seventies</td>
<td>19</td>
</tr>
<tr>
<td>Alternative Education in Virginia</td>
<td>24</td>
</tr>
<tr>
<td>Summary</td>
<td>24</td>
</tr>
<tr>
<td>III METHODS AND PROCEDURES</td>
<td>26</td>
</tr>
<tr>
<td>Population</td>
<td>26</td>
</tr>
<tr>
<td>Restrictions</td>
<td>27</td>
</tr>
<tr>
<td>Teaching Methodology</td>
<td>27</td>
</tr>
</tbody>
</table>
Data Collecting and Recording................................. 29
Summary.............................................................. 30

IV FINDINGS............................................................ 31
Summary.............................................................. 41

V SUMMARY, CONCLUSIONS, RECOMMENDATIONS............... 42
Summary.............................................................. 42
Conclusions.......................................................... 43
Recommendations................................................... 50

BIBLIOGRAPHY........................................................ 51

APPENDICES.......................................................... 53
Appendix A............................................................ 53
Appendix B............................................................ 56
Appendix C............................................................ 58
Appendix D............................................................ 60
Appendix E............................................................ 62
LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Comparison Between the Placement and Summative Evaluation for the Control Group</td>
<td>32</td>
</tr>
<tr>
<td>II</td>
<td>Comparison Between the Placement and Summative Evaluation for the Experimental Group</td>
<td>33</td>
</tr>
<tr>
<td>III</td>
<td>Comparison of Attendance and Grades for the Control Group</td>
<td>39</td>
</tr>
<tr>
<td>IV</td>
<td>Comparison of Attendance and Grades for the Experimental Group</td>
<td>40</td>
</tr>
<tr>
<td>V</td>
<td>Experiment Mortality</td>
<td>41</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figures</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Comparison of Results Obtained From the Placement and Summative Evaluation For the Control and the Experimental Group</td>
<td>35</td>
</tr>
<tr>
<td>2</td>
<td>Comparison of Weekly Evaluation Between the Control and the Experimental Group</td>
<td>36</td>
</tr>
<tr>
<td>3</td>
<td>Comparison of Individual Exploratory Activity Evaluation Between the Control and the Experimental Group</td>
<td>37</td>
</tr>
<tr>
<td>4</td>
<td>Comparison of Group Exploratory Activity Evaluation Between the Control and the Experimental Group</td>
<td>38</td>
</tr>
</tbody>
</table>
CHAPTER I
INTRODUCTION

Alternative schools, freedom schools, free schools, schools without walls, walkabouts, and many others, first became evident in the late 1960s and the early 1970s. Although many of these independent schools were short-lived, they did point out a growing dissatisfaction with the public school system in the handling of students who had educational and behavioral problems.

What did grow out of these early years was an idea that became the foundation for a new program for students who displayed behavioral problems, poor performance, erratic attendance records, and who might drop out of school. These students now had an "alternative" in education.

The newly opened Career Development Center in Virginia Beach offered such a program. The overall program aim of the Career Development Center was to provide productive citizenry for special needs students who resided in the school system of the City of Virginia Beach (Pilot Study, 1979, p. 2).

In the area of pre-vocational preparation, a curriculum entitled, "Exploring the Construction Industry" was offered. This curriculum was designed to help alternative students gain a positive attitude toward the world of work and expose them to a wide range of career opportunities within the construction industry.

It was the goal of this study to experiment with instructional methodology with the overall objective of developing self-reliance and a positive image of oneself within the alternative student
population. Additionally, it was hoped that occupational related attributes such as work habits, work attitudes, and work-related decision-making abilities would increase as a result of the guided discovery methodology.

STATEMENT OF THE PROBLEM

The problem of this study was to analyze the alternative students enrolled in "Exploring the Construction Industry" at the Career Development Center. The study centered on improving the alternative student's self-reliance which included: positive self-image, pride in one's work, increased exhibition of craftsmanship in both group and individual activities, and, above all, increased decision-making skills.

HYPOTHESIS

The basic hypothesis of this study was that there would be a significant difference between the control group and the experimental group in how they perceived themselves as a direct result of instructional methodology. The instructional methodology employed was the "guided discovery teaching methodology" which placed heavy emphasis on questions and answers which would ultimately lead to positive decision-making attitudes. These attitudes were measured by placement evaluations, weekly observations, group activities, individual exploratory activities, and finally by a summative evaluation.

BACKGROUND AND SIGNIFICANCE OF THE STUDY

The General Assembly concludes that a goal of public education must be to enable each student upon leaving school, to continue successfully a program of advanced education or to enter the world of work. Those students not completing their public school education should possess the basic skills and attitudes
commensurate with their capabilities, to obtain employment upon leaving school (Standards of Quality, 1976-78, Pilot Study, Appendix I, p. 1).

In accordance with the first part of this Virginia legislative mandate, The Public School System of Virginia Beach should be preparing our youth for either college or work pursuits. The answer to this statement was questionable at best in preparing our youth for entering the world of work.

The second part of this mandate was the underlying basis for the Career Development Center, Virginia Beach, Virginia. The alternative students who enrolled in the Career Development Center usually arrived with poor grades, erratic performance, and attendance records that would predict failure in a normally vocational-technical milieu. Perhaps these poor credentials were due in part because the decision-making processes in most schools were essentially dishonest and closed (Glatthorn, 1975, p. 187).

It was, therefore, the purpose of this study to probe into the attitudes of the alternative students to find out why alternative students have such poor self-reliance and decision-making capabilities. It was hoped that through the media of instructional methodology and individualized counseling in the experimental group that signs of self-reliance in the form of improved attitudes, improved attendance, pride in oneself, and pride in group activities would develop. The major vehicle for evaluating attitudes was accomplished by the use of student/instructor evaluating forms on a weekly basis. Other areas that were measured were: placement evaluation, individual exploratory activities with major emphasis on pride and craftsmanship, group activities, and summative evaluation. It was further hoped that these newly-found positive attitudes would build self-reliance and positive self-images so that when the
alternative student sought and gained employment, that he or she would ultimately satisfy the goal in the second half of the Standards of Quality, successful employment. Then, the goal of providing basic skills and attitudes necessary for obtaining employment upon completion of school would have been met by the Career Development Center.

**BASIC ASSUMPTIONS**

The basic assumptions that were associated with this analysis were as follows:

1. That the control group would not be offered the opportunities for decision-making by conscientious design.

2. That the control group's teaching methodology would be highly structured and tightly monitored.

3. That the experimental group would, without interference from the researcher, in fact, make the decisions in their work tasks and not be influenced.

4. That the self-made placement evaluation, weekly evaluations, evaluations of group activities, individual exploratory activities, and the summative evaluation would be as objective as humanly possible.

5. That the researcher's version of the guided teaching methodology was concurrent with that which was being proposed by the learning psychologists.

**LIMITATIONS OF THE STUDY**

The findings and conclusions reached in this study were limited to the course entitled "Exploring the Construction Industry." The limitations surrounding the study were as follows:

1. The inability of the alternative student to read or write at a
comprehensive level would hamper constructive feedback in the form of student/instructor evaluations.

2. The duration of the experiment would last only sixteen weeks as opposed to a longitudinal study.

3. The adding and deleting of students in both the controlled group and the experimental group throughout the duration of the experiment would occur.

4. The probability of lack of continuity in the guided discovery methodology, whether it be with the experimental group or the controlled group would occur.

5. The inability to control all of the variables within the controlled group and the experimental group would persist.

6. The lack of qualified test and/or test personnel to evaluate the results would occur due to the newness of the program.

7. The newness of the laboratory and various facilities would pose certain uncontrollable variables in activities performed.

8. The erratic attendance within both the controlled and the experimental group would affect the evaluation of student progress.

PROCEDURES FOR COLLECTING DATA

The procedures used for collecting data were based on:

1. The initial placement evaluation that covered such areas as: (a) safety, (b) personal attitudes, (c) attitudes toward work, (d) positive or negative self-image, (e) why it is important for punctuality in a work environment, (f) leadership role desired, (g) the ability to make decisions, (h) degree of self-reliance, (i) whether or not appearance is important in a job interview, (j) attitudes toward public
property, and (k) designation of areas of responsibilities.

2. Daily observation of the alternative students while participating in group activities and individual endeavors.

3. Attendance records - which compared past attendance records with attendance from this semester.

4. Observation of alternative students' interest in the cognitive type lecture.

5. Self-evaluation by each alternative student on the group activity.

6. Self-evaluation by each alternative student on his or her personal exploratory activities.

7. Research into whether or not other grades improved.

8. Did the alternative student increase his personal safety standards or did they fall off?

9. At the end of this sixteen weeks course a summative evaluation was given.

PROCEDURES FOR TREATING DATA

In this type of study there were a number of variables which did not lend themselves to objective measurements. This study attempted to show a reduction of the behavioral signs that were usually associated with the alternative student. By comparing the controlled and experimental data, it was hoped that a basic, but descriptive analysis could be made. It was realized that the measurements used in this experiment would not stand up to the statistical analysis used in other studies, but due to the nature of the subject and limited resources, it was the best direction to follow.
DEFINITION OF TERMS

To avoid ambiguity, the following definitions are stated for clarification.

1. The term "alternative student" may be defined as those students whose grades, performance, and attendance records would predict failure in the regular program of vocational-technical instruction, but whose attitudes, preferences, and out-of-school behavior reflect a genuine interest in a non-academic vocation preparation (Pilot Study, 1979, p. 1).

2. The term, "schools without walls" may be defined as students who worked and studied within the confines of the community and who were not limited to the traditional classroom setting.

3. The term, "schools within a school" were those schools that had mini-courses or small personal units of perhaps 100 students and four teachers. Courses of study centered around special interest subjects such as engineering, art, and so forth.

4. The term "freedom school" applied only to the Christian Action Ministry Academy (CAM) in Chicago, Illinois and the Harlem Preparatory School in New York City, New York. Both schools were college preparatory in nature.

5. The term "free schools" were those schools that were created outside the public educational school system. Parents, teachers and children who left the public school system in disgust, created their own schools to meet the needs of the children.

6. The term "walkabout" and those concepts associated with it had been adopted from the aborigines of Australia. This program focused on areas such as adventure, creativity, service, practical skills, and logical inquiry by using "real life" experience as a broad base.
7. The term "vocational-technical schools", are those schools that are equipped to teach skills in preparation for the world of work.

8. The teaching methodology entitled "Guided Discovery Teaching Methodology" consists of four major parts:

a) In the first stage, the guided discovery was any idea, device, and so forth, that was used to get students' attention. An example of this procedure would be to have a finely crafted piece of furniture on display which would hopefully inspire students' interest, rather than a picture or even a transparency.

b) In the second stage, entitled teacher/learner, there is a de-emphasis on the teacher role. The teacher would, at any given moment, switch positions or roles with the student, but never sacrifice his role as "manager of learning".

c) In the third stage, entitled application, it was imperative that the alternative students should have more than enough hands-on experience in the area of construction and related areas.

d) The final stage, entitled evaluation, meant that instantaneous feedback was essential to ensure that the curriculum was, in fact, meeting the individual needs of the students.
SUMMARY

The preceeding chapter has given an overview of this research study dealing with alternative students. The major components: statement of problem, hypothesis, background and significance, basic assumptions, limitations, procedures for collecting and treating data, and definitions of terms were the topics of this chapter. The remaining chapters will expand and elaborate in detail on the existing literature, method and procedures, findings, and finally, a summary which will include conclusions and recommendations.
CHAPTER II

REVIEW OF LITERATURE

Historical Review of Alternate Schools

The main thrust of this study was to improve the overall attitudes of alternative students enrolled in the Virginia Beach Career Development Center, Virginia Beach, Virginia. These so-called alternative students were in reality dropouts and/or potential dropouts from the traditional monolithic public school system of the 1979/1980s. The educational system has a long history of turmoil and conflict which dates back to the nineteenth century. Prior to this time there were no problems per se with dropouts. During the early years as the colonies struggled for their independence, there were alternatives for the students. They had the choice of the formal Latin Grammar schools which later became the more simplistic dame school, or apprenticeship programs. Additionally, when a boy reached his fourteenth birthday he was considered a man in the eyes of his parents. Society looked upon them as men and expected them to perform a man's day of work. These feelings, coupled with the expanding westward movement, provided a solution for the potential dropouts which never materialized during this period of time. It must be remembered that there were no compulsory attendance laws before this period.

The fact of the matter was that the problem of dropouts within the educational milieu did not materialize until legislation in the nineteenth century passed compulsory attendance laws. It was at this point in time that the long history of turmoil and conflict, of charge and countercharge began (Hunt, 1975, p. 237).
By 1890 twenty-seven states had compulsory attendance and by 1918 every state had enacted compulsory attendance laws. Students were compelled to stay in school until they were fourteen. Even though the laws existed, it was estimated that 40,000 children of legal age were not in school in New York City in 1900 (Hunt, 1975, p. 238).

The reasons for compulsory attendance were many, but perhaps the most persistent reason was to protect society. It was felt that the compulsory attendance laws would ensure that lower class children, who were mainly emigrants, would go to school, become literate and moral, and pose no threat to society. As a result of these laws, the school inherited a problem which still persists today. The traditional school was forced to assume the roles of caretaker and custodian (Hunt, 1975, p. 239).

The Turn of the Century

By the turn of the century there were thousands not attending high school or elementary school. When surveyed, the dropout children of elementary age stated that poor health, lack of interest, and the need of their services at home were the reasons for leaving school. Older students who were dropouts from high school stated that the curriculum was too academic and was not relevant to them. It was proven that this prevalent feeling gave rise to the vocational education concept during the mid-twenties (Hunt, 1975, p. 239).

The early twenties also saw the rise of two movements which would ultimately shape all the educational programs in the United States. They were the Montessori movement and John Dewey's progressive education movement. The Montessori approach featured a highly structured
and stimulus-rich environment which assisted the student in developing autonomy and self-direction (Glatthorn, 1975, p. x). This movement had all of the prerequisites of a present-day alternative program. The fact of the matter was that the Montessori model became the one model that the alternative administrators were looking for in the 1960s.

However, the American educators of the day chose, instead, the rising progressive education movement sponsored by John Dewey and Harold Rugg. This progressive education movement placed stress on the student's emerging interest as the primary factor in the development of curriculums. Dewey felt that the interaction between the student and the teacher was more important than the curriculum. The progressive movement was prevalent throughout the twenties and thirties and started toward a slow decline in the forties and the fifties.

Although it was praised by many, the progressive education movement of John Dewey did not offer an alternative at the secondary level. Within the secondary level of education there were no choices - no alternatives to the monolithic public school systems of the day. The "no choice" system of education was built upon in the fifties and during the 1957-1960 era with the advent of the "curriculum specialist" who proposed "teacher-proof" curricula. The purpose of these curricula was academic rigor, not alternatives (Glatthorn, 1975, p. xi).

Alternative Education in the Sixties

As late as the 1960s, school administrators were still trying to make one unified curriculum that would work for all school systems; undoubtedly this was to prove to be an impossible task. With an unpopular war in Vietnam and the emerging black demand for equal rights,
the educational institution came under attack. The challenge against the education institution was incomprehensible to most educators. As a result of this challenge, the more militant blacks, backed by New Left white supporters, left the traditional school environment and opened their own freedom schools. These blacks, with a just cause, accused the public school system of perpetuating a racist society and not providing their children with alternatives. These new freedom schools, even though steeped in Marxist ideology, were emphasizing black culture and basic survival skills. On the high school level, the freedom schools took on the additional task of going out and recruiting school dropouts off the street corners and providing them a second chance.

One of the most famous of all "second chance" schools was the Christian Action Ministry Academy (CAM) in Chicago, Illinois which grew out of the freedom school movement. Christian Action Ministry Academy had a no-nonsense approach, coupled with an atmosphere that was markedly free. Students were able to smoke and had other liberties not normally found in the traditional school setting. The students drew up their own rules to abide by, which included such statements as "no reefers or alcoholic beverages allowed in the school building" (The Education Digest, 1969, p. 23). The curricula of the Christian Action Ministry Academy included a writing workshop, courses in Afro-American history, and at least one elective from the following subjects: psychology, sewing, art, drama, journalism, social problems, photography, music and economics (The Education Digest, 1969, p. 23).

Upon entering the Christian Action Ministry Academy, each student was given a diagnostic test in reading and mathematics. From the test
results, the student's ability level was diagnosed and he/she was placed on programmed instructional materials matched to his/her entry level. In approximately twelve weeks, it was not uncommon for a student in the Christian Action Ministry Academy to improve three grade levels in mathematics and at least two grade levels in reading. Even though enrollment was limited to one hundred students, the results of the Christian Action Ministry Academy in Chicago had only been surpassed by the Harlem Preparatory School in New York City.

Unlike the Christian Action Ministry Academy, the Harlem Preparatory School was solely a college preparatory school. This school was sponsored by the New York Urban League and Manhattanville College. The New York Harlem Preparatory School was, in actuality, the final stage in a three-part school series. The student who wished to gain entrance first had to seek entry into one of the sixteen street academies scattered throughout the ghettos of New York City. From here the students graduated to one of two academies of transition and then finally to the Harlem Preparatory School. The curriculum of the academy emphasized both black identity and pride in being black. It fostered black unity through a strong feeling of solidarity. Perhaps the greatest asset was the headmaster, Edward Carpenter. Jonathan Kozol, in an article entitled "Free Schools - A Time For Candor" praised Carpenter for his remarkable and long-sustained success at Harlem Preparatory School (1972, p. 54). Carpenter's success was, in part, due to the fact that "every kid in this school gets warmth and affection and love" (The Education Digest, 1969, p. 22).

Both the Christian Action Ministry Academy and the Harlem Preparatory School operated outside the educational system with remarkable success.
Both institutions drew financial support from foundations and committed individuals. What grew from these freedom schools was the free school movement.

Jonathan Kozol, who, in many circles, is considered the leading expert of free schools, started what was considered to be the first free school in Boston, Massachusetts (Kozol, 1972, p. 51). What happened in Boston was unprecedented and had never happened before. People withdrew their children from the traditional school and set up their own school system outside the framework of the established educational institutions. Kozol's free school was a corporation. Parents drafted statements of what they wanted their children to learn and these were further broken down into short and long term goals which became the group's manifesto (Kozol, 1972, p. 52). The hardships that were endured by all concerned were numerous. Since all the children were black and poor, the school had a waiting list of, not only poor blacks, but white families who lived both in the city and outside. The curriculum followed the same criteria that the Christian Action Ministry Academy and the Harlem Preparatory School followed: small groups, independent study, free choice of subjects, individual instruction, love and warmth, decision-making, and strong solidarity.

Unfortunately, most free schools were operated by young radical whites of the New Left who were convinced that the American society was sick. The schools were strongly influenced by a Freudian view of human nature and a Marxist view of society (Glatthorn, 1975, p. xiii). Kozol's and other free school movements have come under heavy attack recently due to the lack of leadership roles of the teachers within the confines of the classroom
setting. Although Kozol does not come out and state it publicly, he does not like the reference to the Marxist ideology nor to any other derogatory remarks about the free school movement. In another article, "Free Schools - A Time For Candor", Kozol adamantly defends his position with an unprecedented definition of their goals with absolutely implacable precision. In making this stand, he was obviously aware of the economic dangers and the possibility of losing allies (Kozol, 1972, p. 51). Kozol's stand was both idealistic and strong. His statement:

This is what we are like, and this is the kind of place that we are going to create. This is the kind of thing we mean by freedom, this is the sort of thing we had in mind by words like "teach" and "learn". This is the sort of thing we mean by competence, effectiveness, survival. If you like it, join us. If you don't, go someplace else and start a good school of your own (Kozol, 1972, p. 51).

The question at this point was whether or not Kozol's free school movement was truly an alternative. Laurence Cremin, President, Teachers' College, Columbia University, New York City did not agree. In a perspective concerning the progressive education movement as compared to the free school movement, he stated: "Even Johathan Kozol's Free Schools, which was written explicitly to help people form alternative institutions, was egregiously thin in its programmatic suggestions" (Cremin, 1974, p. 73). He further postulated that children come to class already educated and miseducated. This education comes from television, churches, synagogues, street corners, Boy Scouts and so forth. The best the educational institution can do is to complement, extend, accentuate, challenge, neutralize or counter (Cremin, 1974, p. 73). Cremin's concluding remarks
about peer pressure were commendable. He postulated that adolescents should be grouped with adults in factories, businesses, banks, doctors' offices, lawyers, shops, and so forth, to counteract the peer group pressure of a drug-orientated adolescent society. His final remarks were a compromise between the Dewey progressive movement and the Free School movement. Cremin's vacillation between the two movements was offset by his sympathy with the authentic aspirations of both movements (Cremin, 1974, p. 74).

An alternative that emerged from Kozol's free school was the Parkway Program in Philadelphia, Pennsylvania. This school gained the distinction of being the first public alternative school. Parkway alternative school, which was often referred to as the "school without walls", took advantage of the many available resources within the city limits. Since money was at a premium during this period of time, the proposal was to use the Museum of Art and the Franklin Institute of Science as classrooms. This concept was the basis for other types of alternative schools within the city limits of Philadelphia. The theme was to make use of all the community resources and provide alternatives. From this concept, "schools without walls" became a wide variety of alternative secondary schools. One of these new alternatives was the "walkabouts".

The concept of "walkabouts" was associated with the aborigine of the Australian outback. Originally, the walkabout was a test of a boy's survival skills in the wilderness. Upon completion, the boy was welcomed back into the tribe as an adult. The aborigine's experience has been compared to the test of an adolescent's readiness for adulthood in our
own society. In the case of the aborigine, the young native had to demonstrate the knowledge and skills in order to survive, so that when he came back to the tribe, he became an intricate part of the aborigine society. By contrast, young American students face a series of written and verbal tests to demonstrate their knowledge and skills. What was seriously lacking was the decision-making skills that were needed for actual experiences they would face in real life. This "walkabout" philosophy has been incorporated into the general theme of many alternative schools. The question, "What would an appropriate and challenging walkabout for students in our society be like?", has been asked (Gibbons, 1974, p. 598). This challenge could perhaps consist mainly of demonstrating knowledge, skills, and meaningful achievements. Modern-day walkabouts consisted of five major categories, namely: adventure, creative-aesthetic field, community service, practical-vocational, and finally, logical inquiry. Within each of these categories, a program was developed for the student to meet the specific objectives. All five programs were combined into a modern-day walkabout which had all the adventurous flavor of the Australian walkabout.

The Oregon Board of Education, which implemented the walkabout concept, stated:

An Oregon student in the Class of 1978 will be expected to demonstrate the competencies to function effectively on the job, as a citizen, as a learner, as a consumer, as an individual, and as a family member (Parnell, 1974, p. 205).

Using Abraham Maslow's hierarchy of human needs as a cornerstone for an innovative modern walkabout, the Oregon Board of Education adopted resolutions and prescribed requirements for the class of 1978.
(Gibbons, 1975, p. 206). To demonstrate this particular competency, the student would be:

Given an opportunity to select an issue for which he feels support or concern, the student will write a letter explaining his opinions to the appropriate elected representative at the local, state, or national level (Gibbons, 1975, p. 206).

In establishing this concept, the State of Oregon did not replace its traditional disciplines, only offered another alternative so that students' needs could be met in order that they could live within a complex society.

Plurality in the Seventies

In the early 1970s, a cry for "public schools of choice and the plurality of publics" was being voiced within the confines of the educational institutions (Fantini, 1971, p. 585). This cry for reform called for closer cooperation between parents, students, teachers, and administrators. Fantini postulated that parents, students, teachers, and school administrators - those closest to the learning front - have traditionally been those farthest from participation in educational decision-making (Fantini, 1971, p. 586). The real enemy, he stated, was the outdated nature of the institution we call - the school. Fantini stated that instead of forming alternative schools outside the public school system like the freedom and free schools, we should propose a new system of public schools of choice (alternative schools within the public school system).

One of his educational alternatives listed was:

In early childhood a single school might use as options: (a) established kindergarten program; (b) a Montessori program; (c) a British Infant School program and (d) a Bereiter-Englemann program. On the high school level they could offer: (a) a prep
school; (b) a community school, and finally (c) a school without walls similar to the Parkway School in Philadelphia (Fantini, 1971, p. 591).

Fantini's desire to stay within the confines of the public school system was important but another author, Dunn, felt that what was also equally important was how the alternative student learns and what programs were required (Dunn, 1974, p. 275).

To intensify the need for alternative programs to meet the needs of all students, whether they were ordinary students or potential dropouts, Dunn postulated that, "each student may learn through different perceptual strengths and often under diametrically opposed conditions" (Dunn, 1974, p. 275). Normally, a student was admitted to an alternative high school program under duress because he was not succeeding in the traditional program. He may have volunteered, or he may have been pressured by his parents. Since most of these factors could bear upon the student's success, it was imperative that his learning style be identified and analyzed. Learning style being defined as:

The manner in which at least eighteen different elements from four basic stimuli affect a person's ability to absorb and retain. They are: 1) the physical environment, 2) the emotional framework in which they are functioning, 3) the sociological setting, and 4) their own physical being and needs (Dunn, 1974, p. 275).

It became imperative that any program in an alternative environment must take into consideration the four basic stimuli, if not, the learning outcome would succeed or fail on a "hit or miss" basis. These different learning stimuli can be readily seen in Cambridge, Massachusetts.
Cambridge, Massachusetts claims to be the alternative school capitol of the world. In the Spring of 1970, Cambridge School System was plagued by chronic bomb threats, false alarms, student strikes, bitter racial overtones, low teacher morale and so on. Cambridge's innovative programs that have put an end to the problems of the early seventies can be summed up in two words, "alternative schools." Cambridge boasted of seven alternative schools in a city with a population of 102,000 and approximately 2,800 students of high school age. The first alternative school (called a pilot school) was established by appealing to the liberal segment of the community that felt the traditional school program had failed. This pilot program offered popular courses such as Science Fiction and Fantasy in Creative Writing, and periodic field trips which stressed skills like wilderness survival, which is very similar to the walkabouts theory. (Lipman, 1978, p. 34).

The second alternative school was called the achievement school. It was here that the Cambridge School System had traditionally "dumped" their slower students. The main emphasis at this particular alternative school was "urban survival." Ironically, the achievement school was specifically designed for high school age youngsters of normal or above average intelligence who, for any number of reasons, were failing on a high school level (Lipman, 1978, p. 34).

The third alternate program was an unusual enterprise co-op whose classroom was a sandwich shop and teachers' cafeteria. It was here that students learned English and mathematics in a realistic work setting which graphically demonstrated that English and mathematics were, in fact, relevant.
The fourth alternative program was a Cluster School whose basic philosophy was the development of responsible moral citizens (Lipman, 1978, p. 35).

The fifth alternative, which grew out of the back to basics philosophy was called "Cambridge Fundamental". The environment in this school consisted of heavy discipline, homework, and only traditional courses such as English, mathematics, and sciences. This particular alternative school was established because parents feared that permissiveness was becoming institutionalized within their public schools (Lipman, 1978, p. 35).

The remaining two other alternative schools were designed to prepare students for the work world. Courses were offered to foster job entry skill level in the following areas: carpentry, automobile mechanics, automobile body repair, and so forth.

All of these alternative schools taken individually may be unusual, but collectively, they represent a remarkable array of options for Cambridge's eighth graders (Lipman, 1978, p. 36). The key words were "array of options" or more simplistically put - alternatives. Cambridge's local problems were, in reality, the same problems that have plagued all schools in the United States, namely, dropouts and potential dropouts.

The dropout and potential dropout characteristics have created the need for even more alternative schools. By providing alternatives, both high school dropouts and potential dropouts are offered a "second chance". Only in the past few years have researchers begun to examine the individual and social consequences of dropping out of high school (Kelly, 1974, p. 5).
During the course of researching this particular project, "academic failure emerged as the strongest predictor of eventual high school dropouts" (Kelly, 1974, p. 5). More specifically, it was stated that:

by looking more rigorously at the independent effects of academic status (high school, accumulative grade point average), social involvement, and social origins on the percentage of dropouts (an average difference of 24.5, 6.5 and 1.5 percent, respectively), it becomes immediately apparent once again that while academic status is strongly associated with high school dropouts, both social involvement and social origins are associated only slightly with dropouts (Kelly, 1974, p. 6).

This in-depth research revealed many conclusions, but perhaps the most damaging conclusion reached was that dropouts were as likely to be employed as their high school graduate peers. Kelly and Pink's original hypothesis was that there would be a high correlation between dropouts and unemployment. This was not true. Another interesting factor that emerged from this study was that female dropouts did not fare as well as their high school graduate peers when seeking employment. In the past when a boy or girl dropped out of school prematurely, it usually affected society in the form of increased unemployment, welfare costs, crime, and increased juvenile delinquency (French, 1965, p. 123). Again this study brought out that a "lack of scholastic success" was the primary reason for leaving school.

In a similar study, Combs and Cooley surveyed approximately 7500 dropouts and control graduated students. Their findings, in the area of self-perceptors, demonstrated that the male dropouts scored higher in leadership and impulsiveness as opposed to their control counterparts who scored higher in tidiness, calmness, vigor, self-confidence, culture, mature per-
sonality, and sociability (Combs and Cooley, 1968, p. 348). From this data and previously mentioned studies, it became overwhelmingly clear that both academic failure coupled with poor self-confidence (brought upon by lack of self-image and decision-making skills) were the two major failings that a majority of alternative students possess.

Alternative Education in Virginia

The alternative needs of students have recently become apparent to the State Board of Education in Virginia. In order to provide an equitable alternative to high school dropouts and potential dropouts, this Board conceived the Standards of Quality and Objectives for Public Schools in Virginia for 1978-80. Part of the Standards reads as follows:

The General Assumby concludes that a goal of public education must be to enable each student upon leaving school, to continue successfully a program of advanced education or to enter the world of work.... Those students not completing their public school education should possess the basic skills and attitudes commensurate with their capabilities to obtain employment upon leaving school (Pilot Study, 1978-1979, Appendix IV, p. 1).

It was to support the latter half of this declaration that the Virginia Beach Career Development Center was established. The primary function of the Center was to serve the city's high school dropouts and/or potential dropout population.

Summary

In conclusion, Chapter Two has pointed out how alternative education has grown in the past twenty years or so. This growth pattern has mushroomed from freedom schools in Chicago to the newly created Virginia Beach Career Development Center in Virginia. Perhaps the underlying problem that
is facing the educational institution is its inability to communicate to all students. The system has grown so big that it has forgotten how to personalize and individualize instruction. In Chapter Three, data will be presented to show that individualized and innovative teaching methodologies are the answer to the above mentioned problems.
CHAPTER III
METHODS AND PROCEDURES

This quasi-experiment was conducted in the Virginia Beach Career Development Center, a new facility located on North Witchduck Road. The Industrial Arts laboratory was the typical type with the normal allowance of power and hand tools. With a student population of no more than fifteen per class, the facilities were more than adequate for this experiment. This chapter will address the following areas: 1) population, 2) restrictions, 3) teaching methodology, and finally, 4) data collecting and recording.

Population

The subjects of this study consisted of ten alternative students in the morning class and thirteen alternative students in the afternoon class. The morning class consisted of two fifty-minute bells with a four minute break between them. The students were allowed to leave the classroom for this four-minute break, but had to be back in class on time for the second period. This second half of the morning class was classified as the homeroom period. The afternoon session was similar in nature to the morning class in that it consisted of two fifty minute bells, with a four-minute break between them.

The classroom setting and population lends itself perfectly to conducting a quasi-experiment. The curriculum entitled "Exploring the Construction Industry" was offered to both the morning and afternoon classes. There were no random selections of students for this experiment since the entire population had been arbitrarily assigned by the school counselors. To avoid biases, the toss of the coin was employed, and the outcome was that the morning class would become the controlled group and the afternoon
class would become the experimental group.

Restrictions

The experiment was conducted under arduous conditions in that in the beginning the laboratory was not completed. During the course of February, March, and April, classroom settings were often interrupted by deliveries of equipment or workmen working in the area. In addition to the lack of ideal laboratory conditions, the research project was further plagued by poor academic performance by the alternative students. The mean reading level of most alternative students was at the third grade level which prevented the use of any type of norm reference testing. In addition to poor reading, a majority of the alternative students did not write legibly. Other complications encountered were the shifting of alternative students by counselors and the expelling of disruptive students throughout the entire experiment.

Teaching Methodology

With identical curriculums for both the morning and afternoon classes, the independent variable became the teaching methodology. The teaching style adopted with the morning class was a highly structured one with little or no chance for decision-making skills to be cultivated. The group project selected was the standard eight-by-eight utility barn. This group project was selected because of the "standardization" and readily available resources which included a step-by-step curriculum. There were no opportunities to exercise creative or decision-making skills. The class organization was established by the teacher and remaining students were divided into two crews. Each crew was assigned a straw boss and both straw bosses answered to the shop foreman. However, due to the nature of the alter-
native students, those introverted students who did not wish to participate in the group activities were allowed to work on individualized exploratory projects. The individualized exploratory project was a "Colonial mail box." This exploratory project was designed as an exercise in the use of the radial arm saw (cross-cutting grain), table saw (ripping with grain), scroll saw, band saw, use of doweling jig, use of 3/8" variable power drill and a brief introduction to wood joining, namely, the dado cut.

The afternoon class, the experimental group, was presented with an unstructured, free environment with an open-ended curriculum. The teaching methodology employed was entitled "Guided Discovery Teaching." This methodology had the teacher leaving the traditional role as a teacher and assuming the role of "manager of learning". The methodology consisted of four stages, namely, 1) the guided discovery, 2) teacher-learner, 3) application, and finally 4) evaluation or feedback. By conscientious design, the afternoon class was offered a choice between two group projects. The two group projects were the traditional eight-by-eight barn or a log storage shed from Popular Mechanics. The class made the decision to build not one, but two log storage sheds. Their rationale, which was accurate, was that more members could work on two sheds as compared to one. The afternoon group was asked to come up with an individual exploratory activity to meet criteria measurements for minimum competencies. After two weeks of procrastination, the group made a decision to build the Colonial mail box.

In both the control and the experimental group, the researcher continued to employ maximum individualized instruction as stated by the Virginia Beach Career Development Center's objectives. When individ-
ualized instruction was implemented in the afternoon class, maximum use of the Guided Discovery Teaching Methodology was employed. At no time was advice or corrective action to alleviate problems offered, either on the unplanned log storage sheds or the Colonial mail box. This was not the case with the morning control group, where advice and corrective action were performed.

Data Collecting and Recording

Because of the restrictions imposed by the poor academic performance of most alternative students, the data collecting and recording were severely hampered. An initial placement evaluation (Appendix A), which placed heavy emphasis in the affective domain, was given. These placement inventories were designed to measure certain tendencies such as safety, attitudes, both general and specific, leadership roles desired, level of socialization, and designations of responsibilities. In addition to the initial placement, emphasis was placed on the self-evaluation by each alternative student on the group project (Appendix C), and individual project (Appendix D) in order to measure minimum competencies and changes in attitudes. The major evaluation vehicle for this experiment was the weekly evaluation (Appendix B). These evaluations served two major purposes, namely, evaluation of oneself as to skills learned, and finally, feedback in the form of attitudes and violations of safety rules. A summative evaluation/final examination (Appendix E) was given at the end of the semester. This instrument was almost identical to the initial placement evaluation and was designed to measure attitudinal changes as objectively as humanly possible. Other measurements which were subjective in nature were daily observances as to behavior patterns,
enthusiasm, endurance, work habits and so forth.

Summary

With the data collected from both the control group and the experimental group, it was hypothesized that the data would reveal that the afternoon session, with their freedom to exercise decision-making (because of the Guided Discovery Teaching Methodology), would have a greater positive image and attitudes as compared to the morning session.
CHAPTER IV

FINDINGS

The basic purpose of this study was to determine if the "guided discovery teaching methodology" would produce a change in attitude, namely, self-reliance and decision-making, of alternative school students. The control group was highly structured with little or no opportunity for decision-making, whereas, the experiment group was unstructured with ample opportunities for decision-making and development of self-reliance.

To achieve this evaluation of attitudes objectively, a placement evaluation, daily observation, weekly evaluations, individual exploratory activities, group exploratory activities, and finally, a summative evaluation were used.

To minimize the effects of the alternative students' inability to express themselves either verbally or in the written form, an attitude scale similar to the Likert-scale was employed. This revised Likert-scale simplified the evaluation process and added to the objectivity of the experiment. The attitude scale utilized was as follows:

<table>
<thead>
<tr>
<th>Attitude Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 = Excellent</td>
</tr>
<tr>
<td>4 = Very good</td>
</tr>
<tr>
<td>3 = Good</td>
</tr>
<tr>
<td>2 = Poor</td>
</tr>
<tr>
<td>1 = Very poor</td>
</tr>
</tbody>
</table>

The following collected data for these experiments was presented in the remainder of this chapter.
The data in Table I was obtained from the placement evaluation instrument which was compared to the data derived from the summative evaluation. These were compared to see whether or not positive or negative attitudinal changes had occurred. This information was reported in Table I and was collected using the attitudinal instrument found in Appendixes A and E. The positive and negative attitudinal changes were added algebraically to indicate improvement. The questions that were answered in a positive manner but did not produce any change between the two evaluation instruments were not counted.

The results of Table I indicate the ability to make meaningful decisions was not essential for gainful employment. The question pertaining to abundance of skills/no interest produced positive reactions whereas the question concerning punctuality in a work environment declined.

**TABLE I**

**COMPARISON BETWEEN THE PLACEMENT AND SUMMATIVE EVALUATION FOR THE CONTROL GROUP**

<table>
<thead>
<tr>
<th>Question</th>
<th>Placement</th>
<th>Summative</th>
<th>Attitudinal Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you plan to finish high school and receive a diploma?</td>
<td>6/1</td>
<td>6/1</td>
<td>no change</td>
</tr>
<tr>
<td>2. Do you feel the ability to make decisions is essential for gainful employment?</td>
<td>6/1</td>
<td>5/2</td>
<td>negative change (-1)</td>
</tr>
<tr>
<td>3. Do you think that being on time on the job will help?</td>
<td>7/0</td>
<td>6/1</td>
<td>negative change (-1)</td>
</tr>
<tr>
<td>4. Do you think it is all right to drink on the job?</td>
<td>2/4</td>
<td>2/4</td>
<td>no change</td>
</tr>
</tbody>
</table>
Question Placement Summative Attitudinal Change
5. If you had to hire someone, would you rather he/she have no skills but plenty of interest or lots of skills and no interest? 5/2 6/1 positive change (+1)
6. Do you feel craftsmanship is old-fashioned and has no place in modern industry? 0/7 1/6 negative change (-1)
7. Opinion of the Virginia Beach Career Development Center? 6/1 6/1 no change
8. Were you happy in this class? 7/0 7/0 no change

Total algebraic sum: Negative two (-2)

In Table II, the data obtained from the placement evaluation instrument was compared to the data obtained from the summative evaluation. This information was reported in Table II and was collected using the attitudinal instruments found in Appendixes A and E. The procedure for finding an algebraic sum was the same used for the control group in Table I. The question about drinking on the job indicated a positive shift in attitudes whereas the question relating to decision-making and whether it was essential for gainful employment produced negative answers. The question about how the students felt about the Virginia Beach Career Development Center and whether or not they were happy in the class indicated a shift in attitudes.

TABLE II

COMPARISON BETWEEN THE PLACEMENT AND SUMMATIVE EVALUATION FOR THE EXPERIMENTAL GROUP

<table>
<thead>
<tr>
<th>Attitudinal Change (positive/negative)</th>
<th>Placement</th>
<th>Summative</th>
<th>Attitudinal change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question</td>
<td>Placement</td>
<td>Summative</td>
<td>Attitudinal change</td>
</tr>
<tr>
<td>1. Do you plan to finish high school and receive a diploma?</td>
<td>5/3</td>
<td>4/3</td>
<td>Both positive and negative changes noted. (see note 1)</td>
</tr>
<tr>
<td>Question</td>
<td>Placement</td>
<td>Summative</td>
<td>Attitudinal Change</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>-----------</td>
<td>-----------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>2. Do you feel the ability to make decisions is essential for gainful employment?</td>
<td>8/0</td>
<td>5/3</td>
<td>negative change (-3)</td>
</tr>
<tr>
<td>3. Do you think that being on time on the job will help?</td>
<td>8/0</td>
<td>8/0</td>
<td>no change</td>
</tr>
<tr>
<td>4. Do you think it is all right to drink on the job?</td>
<td>3/5</td>
<td>1/7</td>
<td>positive change (+3)</td>
</tr>
<tr>
<td>5. If you had to hire someone, would you rather he/she have no skills but plenty of interest or lots of skills and no interest?</td>
<td>8/0</td>
<td>8/0</td>
<td>no change</td>
</tr>
<tr>
<td>6. Do you feel craftsmanship is old-fashioned and has no place in modern industry?</td>
<td>8/0</td>
<td>8/0</td>
<td>no change</td>
</tr>
<tr>
<td>7. Opinion of the Virginia Beach Career Development Center?</td>
<td>7/1</td>
<td>8/0</td>
<td>positive change (+1)</td>
</tr>
<tr>
<td>8. Were you happy in this class?</td>
<td>7/1</td>
<td>8/0</td>
<td>positive change (+1)</td>
</tr>
</tbody>
</table>

Total algebraic sum: Positive two (+2)

Note 1: Student in placement evaluation was positive he would not finish high school but on the summative evaluation he indicated that perhaps he would now go on and finish high school. Another student indicated he would probably quit this summer and not return in the fall.

The data indicated in Figure 1 graphically illustrates the attitudinal changes within the control group and the experimental group. Questions that produced no significant changes were indicated with a neutral line (zero in this case). In each group, the total number of positive and negative numbers were added algebraically. It can be seen in Figure 1 that the experimental group with a plus three (+3) showed a greater positive attitudinal change than the control group with a negative one (-1).
COMPARISON OF RESULTS OBTAINED FROM THE PLACEMENT AND SUMMATIVE EVALUATION FOR THE CONTROL AND EXPERIMENTAL GROUP

Attitudinal change - Control Group

<table>
<thead>
<tr>
<th>Questions</th>
<th>Attitudinal Scale</th>
<th>Total Algebraic Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 #2 #3 #4 #5 #6 #7 #8</td>
<td>+3 +2 +1</td>
<td>+2 -3 = -1</td>
</tr>
</tbody>
</table>

Attitudinal change - Experimental Group

<table>
<thead>
<tr>
<th>Questions</th>
<th>Attitudinal Scale</th>
<th>Total Algebraic Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 #2 #3 #4 #5 #6 #7 #8</td>
<td>+3 +2 +1</td>
<td>+7 -4 = +3</td>
</tr>
</tbody>
</table>

Figure 1
In Figure 2 it was necessary to establish a mean for each group. The total points derived from the attitude scale discussed earlier were totaled and then divided by sixteen (sixteen weeks duration) to obtain a mean average attitudinal rating per student for the semester. The mean for each student was totaled and then divided by the number of individuals in that particular group. The results of this comparison could be readily seen in Figure 2 and was collected using the attitudinal instrument found in Appendix B. As indicated, the mean score for the experimental group was 4.36 as compared to 3.53 mean score for the control group.

**Comparison of Weekly Evaluation Between the Control and the Experimental Group**

![Graph showing comparison](image)
In Figure 3 it was necessary to establish a mean for each group. The same procedure employed in the comparison of weekly evaluations was used in this comparison. The results of this comparison could be seen in Figure 3 and was collected using the attitudinal instrument found in Appendix D. As depicted, the experimental group mean score of 4.25 exceeded the 4.0 mean score of the control group.

**COMPARISON OF INDIVIDUAL EXPLORATORY ACTIVITY EVALUATION BETWEEN THE CONTROL AND THE EXPERIMENTAL GROUP**

![Graph showing comparison of scores for control and experimental groups.](image)

---

*Figure. 3*
In Figure 4 it was necessary to establish a mean for each group. The same procedures for establishing a mean in the weekly and the individual exploratory activity were used in this comparison. The results of this comparison could be seen in Figure 4 and was collected using the attitudinal instrument found in Appendix C. The experimental group's mean score of 4.5 far exceeded the control group's mean score of 3.78.

COMPARISON OF GROUP EXPLORATORY ACTIVITY EVALUATION BETWEEN THE CONTROL AND THE EXPERIMENTAL GROUP

![Bar chart showing the comparison between control and experimental groups. The control group's mean is 3.78 and the experimental group's mean is 4.5.](image)
In Table III, the control group's attendance and grades for the Fall semester were compared to the Spring semester to see whether or not positive or negative attitudes had affected attendance and grades. In the control group, four of seven alternative students showed improvement in attendance, whereas the grade improvement of the control group was one.

**TABLE III**

**COMPARISON OF ATTENDANCE AND GRADES FOR THE CONTROL GROUP**

(SCHOOL YEAR 1979–1980)

<table>
<thead>
<tr>
<th>Student</th>
<th>Attendance Improvement (yes/no)</th>
<th>Grade Improvement (yes/no)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>B</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>C</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>D</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>E</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>F</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>G</td>
<td><strong>yes</strong></td>
<td><strong>yes</strong></td>
</tr>
</tbody>
</table>

Total number of improvements. 4 of 7 1 of 7

In Table IV, the experimental group's attendance and grades for the Fall semester were compared to the Spring semester to see whether or not positive or negative attitudes had affected attendance and grades. In the experimental group, only two alternative students showed improvement in attendance, whereas grade improvement was indicated in five of the eight students.
TABLE IV

COMPARISON OF ATTENDANCE AND GRADES FOR THE EXPERIMENTAL GROUP

(SCHOOL YEAR 1979-1980)

<table>
<thead>
<tr>
<th>Student</th>
<th>Attendance Improvement (yes/no)</th>
<th>Grade Improvement (yes/no)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>B</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>C</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>D</td>
<td>no</td>
<td>no change</td>
</tr>
<tr>
<td>E</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>F</td>
<td>unknown (see note 1)</td>
<td>yes</td>
</tr>
<tr>
<td>G</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>H</td>
<td>no</td>
<td>no</td>
</tr>
</tbody>
</table>

Total number of improvements: 2 of 7

5 of 8

Note 1: Student F spent 21 days at Tidewater Psychiatric Institute (TPI) for drug detoxification.

Due to the poor academic standing and poor attendance of alternative students, Table V was submitted to show the exceptionally high degree of experimental mortality that was experienced in this study. With a long waiting list of applicants for enrollment in the Virginia Beach Career Development Center, those students who did not live up to their responsibilities which they had agreed to prior to entering school, were asked to leave.
TABLE V

EXPERIMENT MORTALITY

Control Group

1. Experiment started with eleven (11) students, January 30, 1980:
   a. Control group lost four alternative students for various reasons.
   b. One student was assigned to home study after a stabbing incident.
   c. One student transferred from experimental class to the morning class (control group) and subsequently dropped from school due to poor attitude and academic failure.
   d. Other alternative students who arrived after February 22, 1980 were not included in this experiment.

Experimental Group

1. Experiment started with twelve (12) students, January 30, 1980:
   a. Due to shifting in schedules, lost two experimental students to morning class (control group).
   b. Lost one alternative student because of poor attitude and academic failure.
   c. Lost experimental student last month of semester to the Virginia Beach Public School System maintenance department.
   d. Other alternative students who arrived after February 22, 1980 were not included in this experiment.

SUMMARY

This chapter has presented data from both the control group and the experimental group during the period January 30, 1980 to June 13, 1980. In Chapter Five there will be the summaries, conclusions, and recommendations reached as a result of this experiment.
CHAPTER V

SUMMARY, CONCLUSIONS, RECOMMENDATIONS

This study centered on improving alternative students' decision-making capabilities and ultimately improving their self-reliance through the instructional methodology entitled "Guided Discovery Teaching Methodology". This chapter summarized, provided both objective and subjective conclusions, and finally recommended ideas for future studies.

Summary

The basic hypothesis of this study was that there would be a significant difference between the control group's and the experimental group's attitudes as a result of varying the teaching methodology between them. As a result of a random selection (flip of the coin) the afternoon session (labeled experimental group) was to be subjected to an open curriculum and the guided discovery teaching methodology. The reason an unstructured or open curriculum was used with the experimental group was because it was felt that the unstructured curriculum would create additional problems which could then be solved with decision-making skills. This rationale proved to be correct when the experimental group selected a "log storage shed" project from Mechanix Illustrated, October, 1978. The experimental group decided additionally, that not one but two log storage sheds would be built in order that everyone would be able to work. The experimental group decided that in order to make this project portable, the basic plans would have to be modified. The original plan called for the structure to be anchored to a concrete foundation through the use of anchor bolts. Once the decision was made to make the log storage sheds portable, the experimental group ran into numerous structural
problems. These problems required a high level of thought process that had not been anticipated. All of the problems incurred complemented this experiment because they provided ample opportunities for the alternative students in the experimental group to demonstrate decision-making skills and build self-reliance. The guided discovery teaching methodology, on the other hand, had the teacher primarily as a resource person or manager of learning, rather than a teacher. The manager of learning inspired the alternative students to make decisions for themselves instead of the teacher doing it for them. At no time during this experiment did the manager of learning offer advice or leading statements to assist the experimental students in arriving at solutions.

The control group used a highly structured curriculum entitled, "Exploring the Construction Industry". This curriculum was followed explicitly throughout the experiment. An eight-by-eight utility barn was built during this period of time. The instructional methodology employed was highly structured with little or no opportunity for decision-making. The individual exploratory projects were pre-selected as well as the group exploratory project. The teacher was the only individual that made decisions throughout the entire semester.

Conclusions

The overwhelming conclusion reached was that the instructional methodology "Guided Discovery Teaching" was a success. The experimental group did in fact undergo an attitude change as well as gaining increased self-reliance.

The data in Table I, II, and Figure 1 shows a comparison between attitudes when the semester began and attitudes when the semester ended.
The placement evaluation instrument (Appendix A) was designed with this quasi-experiment in mind. The questions were designed to elicit attitudinal patterns which could be later compared to see if an attitude change did indeed occur. One question asked was whether or not they were enrolled in the Virginia Beach Career Development Center by their own choosing and if not, by whom? This question was designed to find out whether or not they were there by their own volition. It was felt that if the student was enrolled in the Career Development Center against his or her will, that the data gathered as a result of this experiment would not be valid.

The summative evaluation instrument (Appendix E), which included a final examination was identical in nature to the placement evaluation. Questions were placed in different order with some wording changed, but both instruments were basically identical. This was done by conscientious design in order that attitudes could be measured with some degree of objectivity. In the control group it was discovered that attitudes in the area of craftsmanship, which the student took as doing the job to the best of one's ability, decreased by one. In the area of drinking, even though the results indicated no change, there should have been a positive response to this particular question. Interesting was the negative response to the question whether or not the ability to make a decision was essential for employment. Since the control group was not allowed this particular freedom, their responses were superior to those of the experimental group. This particular question drew the most startling results other than the drinking question. It was hypothesized that this response would be a positive answer due to the
teaching methodology employed. Perhaps the experimental students viewed this question in a different light other than what was intended. Many discussions were conducted on the trades and what job opportunities were available and perhaps the experimental group did not equate decision-making skills with obtaining employment.

The question pertaining to whether or not the alternative student planned to finish high school produced both positive and negative results. One student, as a result of this experiment was seriously considering finishing high school. On the other hand, another student was planning on quitting and trying for a G.E.D. certificate. One other student, who was eighteen, quit in the last month of this experiment to work for the city. It was discovered that maturation and age are factors which work against alternative students completing their high school education.

The results shown in Figure 1 indicated that the experimental group's attitudes were more positive than the control group's. One factor that emerged from these attitudinal instruments was the questions that produced no significant change. The question pertaining to the Virginia Beach Career Development Center and its objectives, as well as the question about being on time were answered in an extremely positive fashion.

The data collected as a result of the weekly evaluation instrument (Appendix B) once again indicated that the unstructured free-thinking atmosphere produced positive attitudes. It was felt that perhaps the chronological age of the experimental group was higher than the control group, resulting in a higher maturation level. This was not true. In tabulating the data and reviewing past academic records, the date of
birth was recorded for each student and surprisingly enough, the mean age of seventeen was prevalent in both classes. If this were not the case, then perhaps a high maturation level would have created a variable that might have caused a loss of validity.

Each student's weekly attitude was plotted to depict an attitudinal trend. The weekly evaluation was designed for limited verbal and written expression. Since most alternative students cannot express themselves in the written form, an attitude scale similar to the Likert scale was employed. This data did not take into consideration the written portion of this weekly evaluation. The limited comments, pictures drawn and so forth were both positive and amusing. It was extremely evident that both groups enjoyed their classes. This data also indicated which students participated with gusto. Those students with high degrees of positive attitudes were those students who worked the hardest. Conversely, the lower attitudes were exhibited by the hostile and/or apathetic problem students. Even though the instrument used was primitive and the scale of rating attitudes was crude, the naiveness and basic honesty of the students must be taken into consideration here. These attitudinal trends (numerical data) were then evaluated to produce a mean for each student and then a total mean for each group was devised. These two basic means were indicated in Figure 2. The results of this comparison showed that the experimental group, with a mean score of 4.36, outperformed the control group with a mean of 3.53, in positive attitudinal changes.

The data pertaining to the individual exploratory activities was interesting. The experimental group excelled in group projects but appeared to waver when they were working on individual projects. Since
the experimental group chose to build two log storage units, it cut into the time allocated for individual exploratory projects. This caused the experimental group to fall behind the control group in progress. Even with being rushed and having attitudes that appeared to waver, the data in Figure 3 was extremely positive. With the exception of two students, one of whom was a functional illiterate, all attitudes tended to be very high. Even though the experimental group had a free choice of individual projects they elected to build what the morning group (control group) had already started, namely, the Colonial mail boxes. For their second individual exploratory projects, both groups became extremely excited and pleased with the prospect of building a Colonial wall clock with pendulum clock movements. This project was a tremendous success for both groups because of its complexity and sheer beauty. It was interesting to note that this same project was used on a university level to train prospective Industrial Arts teachers.

The data obtained from the group project could have been predicted early in the experiment. The experimenter, who assumed the role of manager of learning in this unstructured and free-thinking environment created a homogeneous atmosphere which was, in this instance, conducive to group participation. The original eleven, plus those that followed were placed in two crews. These two crews were headed up under a straw boss who answered to the shop foreman. The manager of learning funneled all questions to the shop foreman and/or straw bosses. This rationale not only strengthened the chain of command within the class but increased the decision-making process which ultimately led to pride and increased self-reliance among the experimental group. One exception to this was a student who was extremely introverted and would not part-
icipate in any group projects. The results of this data, unlike that collected for the individual activities, was more pronounced in favor of the experimental group. This data which was shown in Figure 4, indicated that the experimental group's attitude was more positive, with a mean score of 4.5, than those of the control group with their mean score of 3.78.

At the beginning of this experiment it was hoped that attendance would improve as a result of the guided discovery teaching methodology. What was not taken into consideration at this time was the health of most alternative students. It was assumed that alternative students were academically slower than most students, but in many cases this was the result of continuing medical problems. One student spent a month in the Tidewater Psychiatric Institute (TPI) for drug detoxification. (See Table IV, Note One).

What did emerge as a result of comparing attendance and academic grades (Table III and IV) with those of the preceding semester was that the experimental group showed a sixty percent increase in grade improvement over past performances. Both the control group and experimental group suffered from high absenteeism. In too many instances, students, when presented with an opportunity to work, would feign illness and not come to class. This lackadaisical attitude toward school was usually supported by their parents.

This problem, along with others, became evident when Table V, "Experiment Mortality", was reviewed. Alternative students came to the Virginia Beach Career Development Center with long histories of emotional, health, and other serious problems. In almost all cases, alternative students do not find education relevant to the world in which they live.
An excellent example was reading. These alternative students, who lived in a highly technological society where heavy emphasis was placed upon television, could not, or, in some instances, would not read. Their typical reaction was, "Why read when I can look at television!" Other problems encountered during this semester was that a total of twelve students in both groups were either dismissed for poor attitudes, quit to go to work, or left because of health reasons.

The final data presented was the subjective opinion of the experimenter. It became overwhelmingly clear half-way through this experiment that there was a tremendous difference between the two classes. The experimental group could have operated without a teacher, whereas the control group became increasingly dependent on the guidance of the teacher. The control group asked endless questions concerning both the individual and group projects, whereas the experimental group answered their own questions. Each question that was asked of the manager of learning was manipulated and turned around in the form of a question back to the experimental student. In every instance, the experimental student would make his own decision and quietly go about his business.

The experimental class became so organized that even the mundane task of clean-up became an easy task that was usually accomplished in record-breaking time, and without prodding.

Another, but equally important discovery which was applicable to both the control and experimental groups was the value of individualized instruction. The scheduling of two class periods, back to back, enhanced the amount of individualized instruction that could be given to each student. Another important factor that contributed to individualized
instruction was that no more than fifteen students were assigned to a class. The overall results of this study far exceeded the expectations of the experimenter.

Recommendations

Based on the data presented in this research study, the following recommendations were offered for consideration.

1. That better attitudinal instruments be developed that do not require special training to administer.

2. That a data bank of information on similar case studies be established for comparison of this study.

3. That guidelines be established for conducting experiments of a similar nature, which suffer from high experimental mortality.

4. A comparison study of this quasi-experiment to another similar experiment.

5. That the guided discovery teaching methodology be adopted as a delivery method while engaged with alternative students.

6. Conduct similar experiments in rural settings and compare with results obtained from urban studies.

7. That the guided discovery teaching methodology be used with handicapped children as a means to re-build self-image and reliance.

8. Follow-up on students' employment records after a five-year period of time.

9. Visit other alternative schools to discuss methods of instruction and student self-attitude.
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Appendix A

Virginia Beach
Career Development Center

Placement Evaluation

1. Are you here at the Career Development Center by your own choosing?
   Yes__________________  No__________________
   If not, who did? ________________________________

2. What problems did you have at your last school? ________________________________

3. What job entry skills do you possess now? ________________________________

4. Do you plan to finish high school and receive a diploma?
   Yes__________________  No__________________

5. If you do not plan to finish high school, what type of work do you expect to do?
   ________________________________

6. How much do you expect to be paid at this job?
   ________________________________

7. Do you feel that the ability to make decisions is essential for gainful employment?
   Yes__________________  No__________________
   If no, please explain ________________________________
8. Do you feel that craftsmanship is old-fashioned and has no place in the present day construction industry?

Yes__________________  No__________________

If yes, please explain________________________________________

__________________________________________________________

If no, give an example________________________________________

__________________________________________________________

9. Do you think it is OK to smoke on the job?

Yes__________________  No__________________

10. Do you think it is OK to drink a six-pack of beer during lunch time?

Yes__________________  No__________________

11. What occupation do you see as the place to make big money?

Please explain________________________________________

__________________________________________________________

12. Would you rather have someone who has no skills but has the interest as opposed to one who is skillful but does not have the interest?

No skills/has interest___________

Skills/no interest___________

13. If you had your choice, would you rather be the Shop Foreman, Straw Boss, Tool Foreman or a worker. Circle one.

Shop Foreman  Worker

Tool Foreman  Straw Boss

Please explain your choice________________________________________

__________________________________________________________
14. Do you feel being on time is important?
   Yes ______________________  No ______________________
   Please explain your answer ____________________________

15. What do you expect from this course? Please explain.

16. Are you happy in this class?
   Yes ______________________  No ______________________
   Please explain ____________________________

17. What does "working on the job" mean to you? Please explain.

18. What is your opinion about the Career Development Center and its role in the community?
   Please explain ____________________________

19. Do you talk to your parents about your construction class?
   Which one:  Father  Mother  Circle one.
   If not to parents, who else ____________________________
   If no one, check here ______

20. What are your immediate goals in life? (What do you plan to do in the next few years?) Please explain.
   ____________________________
Appendix B

Virginia Beach
Career Development Center

1. Name: ____________________________________________

2. Subject: __________________________________________

3. Instructor: Mr. M. M. Fay

4. Semester: _______________________

5. Evaluation of last week: (Scale of 5 to 1) ____________
   a. The things you liked best about the class last week were:
       __________________________________________________
       __________________________________________________
       __________________________________________________
   b. The things you liked least about the class last week:
       __________________________________________________
       __________________________________________________
       __________________________________________________
   c. Did you make any decisions last week?  Yes____ No____ 
      What were they? ______________________________________
      If no decisions made, why not? __________________________
   d. Did you observe safety rules? Yes______ No______ 
      If not, why not? ______________________________________
   e. What particular skill did you learn that you feel you could use on a construction site?
      __________________________________________________
      __________________________________________________
f. How many times were you absent last week?____________
   Were you sick or just didn't feel like coming to school?
   Sick_________ Didn't feel like coming to school_______

   g. Did you arrive on time for class? Yes____ No_______
      If not, why not____________________________________

   h. Did you arrive back from your break on time? Yes____ No____
      If not, why not____________________________________

   i. Did your work show craftsmanship and pride? Yes____ No____
      If yes, give example________________________________
      If the answer is no, why?______________________________

   j. What did you think about the lessons last week. Circle one.
      a. Exciting  b. Meaningful  c. Not meaningful  d. boring

   k. If you had to assign a grade to your week's work, what would
      it be? Circle one.
      Why? Justify your grade________________________________

   l. Notes:______________________________________________
Appendix C

Group Project Self-Evaluation Questionnaire

Date

1. Name

2. Subject

3. Instructor: Mr. M. M. Fay

4. Semester

5. Group project name


(Use back side of this sheet)

7. Indicate with x's on the drawing above where your crew had problems.

8. Explain one or two of the problems your crew encountered and the solutions you used to correct them.

9. What particular things did you learn on this project as a result of being part of a work crew? List them.


11. What did you like best about this group project?

12. What did you like least about this project? Explain.
13. If you had to assign a grade for your participation in this group project, what would it be? Circle one.

14. Justify your grade.

15. What would you change about this project if you were the teacher? Explain.


17. Any additional comments you feel will assist this class.
Appendix D

Exploratory Activity Self-Evaluation

Questionnaire

Date_____________________

1. Name _______________________________________

2. Subject _______________________________________

3. Instructor: Mr. M. M. Fay

4. Semester ______________________________________

5. Project name ___________________________________

   
   (use back of this sheet)

7. Indicate with x's on 3-view drawing the areas you had problems with.

8. Explain the problems you had and the solutions you used to correct them.

9. What particular skills did you learn or reinforce with this project? List them.

10. How do you feel about your project? Circle one.
    Outstanding 5  Very good 4  Good 3  Fair 2  Poor 1
11. Explain your choice.

12. Does your project show pride and craftsmanship? Circle one and rate from 5 to 1.

Yes     No

5. Outstanding
4. Very good
3. Good
2. Fair
1. Poor

13. Why does your project show or not show pride and craftsmanship? Explain.

14. What did you like best about this project? Explain.

15. What did you like least about this project? Explain.

16. If you plan to sell your project, what price will you ask for?

$________________


18. If you had to assign a grade to your project, what would it be? Circle one.

Appendix E
Virginia Beach
Career Development Center

Final Examination/Summative Evaluation

Name______________________________
Bell_______________________________

1. The primary purpose of the radial arm saw is:
   a. to cut with the grain.
   b. to cut across the grain.
   c. to cut diagonally across the grain.
   d. none of the above.

2. How was the doweling jig used on the mailbox? To attach:
   a. the sides to the back.
   b. bottom to the back.
   c. cover to the back.
   d. back to the top of the back.

3. The primary purpose of the table saw is:
   a. to cut across the grain.
   b. to cut diagonally across the grain.
   c. to cut with the grain.
   d. all of the above.

4. What is the best safety factor when using the router.
   a. use guard when possible.
   b. use safety glasses.
   c. secure to table.
   d. all of the above.

5. The scroll saw can be used for:
   a. inside curve cuts.
   b. outside curve cuts.
   c. both inside/outside curve cuts.
   d. none of the above.

6. The band saw can be used for inside curve cuts.
   true__________    false__________

7. The blade of the radial arm saw should be 1/8" above the stock you are going to cut.
   true__________    false__________
8. Safety is the most important factor in the shop.
   true__________  false__________

9. When changing the blade on the table saw, the power should be secured.
   true__________  false__________

10. What is a surform used for?
    a. removing stock.
    b. setting nails.
    c. measuring stock.
    d. cutting stock.

11. What is a try-square?
    a. used by a draftsman.
    b. a measuring device.
    c. to remove stock.
    d. to stir paint.

12. Framing squares are usually used by:
    a. plumbers
    b. electricians
    c. carpenters
    d. auto and body men

13. Wood mallets are usually used with wood chisels.
    true__________  false__________

14. What is the best difference between a 16 penny nail and a 4 penny nail?
    a. weight
    b. color
    c. material
    d. size

15. A stud is usually found in the:
    a. walls
    b. floors
    c. ceiling
    d. foundation
16. A joist is usually found in the:
   a. wall  
   b. floor  
   c. siding  
   d. foundation

17. What was the name of the joint we used on the mailbox?
   a. dado  
   b. dovetail  
   c. rabbet  
   d. miter

18. The butt joint is the worst joint of all for joining two pieces of stock together.
   true_________  false_________

19. The clock used two different types of joints. They were:
   a. dado/rabbet  
   b. dado/miter  
   c. rabbet/butt  
   d. blind rabbet/dovetail

20. A 2" x 4" is not really a 2" x 4". It is larger.
   true_________  false_________

   a. pre-made walls  
   b. pre-made floors  
   c. pre-made roof rafters  
   d. pre-made garages

22. When you hear that stock is kiln dried, what does that tell you?
   a. it was dried in a kiln.  
   b. it was dried outside.  
   c. it was dried inside a large warehouse.  
   d. it was dried using fire.

23. When you run a piece of stock through a planer you should normally take off:
   a. 1/16 of an inch at a time.  
   b. 1/4 of an inch at a time.  
   c. 1/2 of an inch at a time.  
   d. 5/8 of an inch at a time.
24. When you run a piece of rough stock first through a planer it becomes true or square.

true___________ false__________

25. Plywood is always in odd number of layers.

true___________ false__________

26. 1/2 inch CDX plywood is used for interior use.

true___________ false__________

27. A piece of number three pine 1" x 12" x 16' is:

a. 16 inches long  
b. 12 feet long  
c. 1 inch long  
d. 16 feet long

28. A piece of number three pine 1" x 12" x 16' is normally ______ thick.

a. 1/2 inch thick  
b. 5/8 inch thick  
c. 3/4 inch thick  
d. 9/16 inch thick

29. In the construction of the barn or log storage shed, what was the TL-11 used for?

a. roof  
b. floor  
c. walls  
d. none of the above

30. What are templates used for?

a. mistakes are not costly.  
b. to trace out parts.  
c. ease in construction.  
d. all of the above.

31. The top of the back on the mail box was designed to test your skills on the:

a. band saw - inside curve.  
b. scroll saw - outside curve.  
c. radial arm saw.  
d. table saw.
16. A joist is usually found in the:
   a. wall
   b. floor
   c. siding
   d. foundation

17. What was the name of the joint we used on the mail box?
   a. dado
   b. dovetail
   c. rabbet
   d. miter

18. The butt joint is the worst joint of all for joining two pieces of stock together.
   true__________    false__________

19. The clock used two different types of joints. They were:
   a. dado/rabbet
   b. dado/mer
   c. rabbet/butt
   d. blind rabbet/dovetail

20. A 2" x 4" is not really a 2" x 4". It is larger.
   true__________    false__________

   a. pre-made walls
   b. pre-made floors
   c. pre-made roof rafters
   d. pre-made garages

22. When you hear that stock is kiln dried, what does that tell you?
   a. it was dried in a kiln.
   b. it was dried outside.
   c. it was dried inside a large warehouse.
   d. it was dried using fire.

23. When you run a piece of stock through a planer you should normally take off:
   a. 1/16 of an inch at a time.
   b. 1/4 of an inch at a time.
   c. 1/2 of an inch at a time.
   d. 5/8 of an inch at a time.
32. The mail box top, cover, back, and top of the back were in some cases beautified with the use of the:
   a. miter box
   b. doweling jig
   c. coping saw
   d. router

33. On your mail box, what came first in the finishing process?
   a. sanding sealer
   b. polyurathene
   c. stain
   d. wax

34. What kind of angle was the crown mold cut at?
   a. 60 degrees
   b. 90 degrees
   c. 22 1/2 degrees
   d. 45 degrees

35. The stock used for the clock door was_________ thick.
   a. 1/2 inch
   b. 5/8 inch
   c. 3/16 inch
   d. 3/4 inch

36. What was the most important consideration in the door?
   a. that top and bottom were exactly 7 inches.
   b. that the door sides were exactly 20½ inches long.
   c. that the total width was 10½ inches wide.
   d. none of the above.

37. What was the masonite used for in the construction of the clock?
   a. to support the clock dial and movement.
   b. to give the carcass strength.
   c. to ensure that there is exactly 8½ inches between the sides.
   d. none of the above.

38. Does the miter box give you a true or square 90 degree cut?
   true__________    false__________
39. Why is it important to lay out your project on paper first?
   a. in order to see how much stock to use.
   b. You will know how much stock to buy from the lumber yard.
   c. if a mistake is made, it's on paper and not the stock.
   d. all of the above.

40. In laying out a piece of stock, you would not use a try-square.
    true ___________ false ___________

41. Can you rip stock with a radial arm saw?
    true ___________ false ___________

42. How fast does the router turn?
    a. 33 RPM
    b. 330 RPM
    c. 3,300 RPM
    d. 33,000 RPM

43. What is the most important factor when using the doweling jig?
    a. hole is in the middle of the stock.
    b. hole is to the right.
    c. hole is to the left.
    d. does not matter where the hole is.

44. In order to make an outside cut on the scroll saw, the blade must be removed.
    true ___________ false ___________

45. You should always turn the small wheel on the scroll saw to ensure that the blade will go up and down without any problems.
    true ___________ false ___________

46. Why is it not a recommended practice to back the blade out of a curved cut on the band saw?
    a. it will knock the blade off the track.
    b. it will curse the blade to come out of the lower chuck.
    c. it will cause the blade to come out of the upper chuck.
    d. none of the above.
47. Hand tools have no place in an Industrial Arts Laboratory.

true___________  false___________

48. What is the difference between a finishing nail and a flat head nail?

a. the finishing nail does not have a flat head.
b. the finishing nail is cement coated.
c. the finishing nail is used to nail studs together.
d. all of the above.

49. The miter gauge on the table saw should be checked for 90 degrees with a:

a. nail set
b. surform
c. smooth plane
d. carpenter's square

50. The arbor screw on the table saw is left-hand threaded.

true___________  false___________

51. What was the most enjoyable part of this course. Be specific and explain why.

52. What was the least enjoyable part of this course. Explain why and be specific.
53. What skills did you learn? List them.

1) 
2) 
3) 
4) 
5) 
6) 
7) 
8) 
9) 
10) 

54. If you were to go into the construction industry, what position do you think you will start off at?

   a. laborer
   b. apprentice program
   c. journeyman program
   d. carpenter's helper

   Explain your choice.

55. Do you think that being on time will help?

    yes__________    no__________

56. Do you think it's O.K. to drink a six-pack of beer at lunch?

    yes__________    no__________

57. Do you feel smoking a joint will affect you on the job?

    yes__________    no__________

58. If you had to hire someone, would you rather he/she had:

   Circle one.

   a. no skills/has interest
   b. lots of skills/ no interest
59. Do you plan to finish high school and receive a diploma?
   yes___________ no___________

60. Do you feel that the ability to make decisions is essential for gainful employment?
   yes___________ no___________

61. Did you learn to make decisions this semester?
   yes___________ no___________

62. Were you happy in this class?
   yes___________ no___________

63. Do you feel that craftsmanship in old-fashioned and has no place in modern industry of today?
   yes___________ no___________

64. When you get a job, what do you expect to be paid at this job?

65. If you do not plan to finish high school, what are your immediate goals in life? What do you plan to do in the next few years? Please explain.

66. What is your opinion about the Career Development Center and its role in the community? Please explain.