To the Graduate Council:

I am submitting herewith a dissertation written by Donna Carol Morrison Browning entitled "Creative High School Dropouts' Experiences of Learning: A Phenomenological Study." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Education.

Marla P. Peterson

Marla P. Peterson, Major Professor

We have read this dissertation and recommend its acceptance:

Deborah S. Tigano

H. E. Parker

Michael C. Thomas

Accepted for the Council:

Lew Minkel

Associate Vice Chancellor and Dean of the Graduate School

Creative High School Dropouts' Experiences of Learning: A Phenomenological Study

A Dissertation
Presented for the
Doctor of Philosophy
Degree

The University of Tennessee, Knoxville

DONNA CAROL MORRISON BROWNING

May, 1999

Copyright © 1998 by Donna Carol Morrison Browning

All rights reserved

DEDICATION

It is to the memory of my grandparents and to the honor of my parents that I gratefully dedicate this dissertation. These six creative and unique individuals were my first and most profound teachers in the school of life.

Sara Winn McConnell Neville, teacher, 1894-1993
&
Lloyd William Neville, miller, judge, & postal worker 1887-1983

Agnes Adams Morrison, home-maker and cook par excellance
1900 - 1992
&
Rondal Morrison, farmer, philanthropist & storyteller
1894 - 1970

And To:

Nancy Helen Neville Branch and Leonard Gene Morrison, my young parents, who never hesitated to take me anywhere, introduce me to anyone, or to have patience to answer any of a million questions. My mother, Nancy, an artistically talented, intuitive thinker who also has a consistently gracious consideration for the feelings of others, has taught me things too numerous to mention and supported my education in ways too powerful and delicate to explain in a few words.

My father, Gene, a creative, spiritual, civil engineer has taught me self reliance, instilled a love of adventure and exploring the world, and has shown by wonderful example the importance of listening to the stories others, whether they be presidents of companies or janitors.

ACKNOWLEDGMENTS

To the many creative high school dropouts I have known and worked with, I owe deep appreciation, respect, and affection. They are the fascinating individuals who have inspired and shaped this study. To my co-participants in this study I want to express thanks for trusting me enough to tell their stories and for spending a considerable amount of their time with me during the data collection phase of this study.

To my committee members, I express sincere thanks for their challenge, support, and mentoring interaction. I have particularly appreciated Dr. Marla Peterson, Chair, for her patience, understanding and considerable divergent thinking skills, Dr. Howard Pollio, for his vision, insight, and unique way of approaching learning and the world, Dr. Deborah W. Tegano, for opening my eyes to the complexity of creativity in its many forms and for her intuitive friendship and belief in my work beyond the dissertation process, and to Dr. Michael Hannum for his empathy, technological expertise, and spiritual support.

To my graduate student friends, Don, Doris, Gail, Jackie, Rosa, Nancy, Trish, Teresa, Sally, Beverly, and Kim, as well as members of the Dissertation Support Group -- my gratitude for your diverse perspectives, laughter, tears, and general support. To Dr. Sue Newbold and Dr. Victor Barr, facilitators of the dissertation support group, your wisdom and words have sustained me even after I was no longer in the group.

To my other friends I owe various debts of gratitude too numerous to mention. Most especially to Ernestine King, for opening her home to me in continuing hospitality, to Ann Perkinson, whose unfailing support and pragmatic perspective helped at every step of the process, and to Sue Greene who truly epathizes, I am most thankful. To Jim Carpenter who provided equipment when it was needed, every type of support, and unending affection and personal caring at each "year and a half" step of the process, I will be forever grateful.

Especially to my parents, sisters Janet Scott, Sara Knight, and Pam Intartaglia, as well as to other family members, thank you for the love, prayers, and unending love and support. To my husband, Christopher who has cooked for me, loaded and unloaded my computer numerous times, and provided love and support, especially at the end, I render my heartfelt thanks.

TABLE OF CONTENTS

CHAPTER PAGE

I. NATURE AND SCOPE OF THE STUDY 1
Introduction 1
Focus of This Study 1
Statement of the Problem 3
Purpose of the Study 3
Rationale for the Study 4
The Research Question 7
Definition of Terms and Instrumentation 7
Assumptions 11
Limitations 12
Organization of the Study 14

II. REVIEW OF THE LITERATURE 16
Organization of the Literature Review 16
High School Dropouts 16
History of the Dropout Problem 17
High School Dropouts in Tennessee 18
National and Tennessee Dropout Statistics 19
Creativity and Dropouts: Historic and Current Perspectives 22
Definitions of Creativity 22
Creativity and Dropouts 24
Creativity, Dissonant Learning Styles and School Dropout 26
Individual Differences in Learning and Learning Styles 27
Learning Style Theories and Instruments 28
The Multi-Modal Paired Associates Learning Test-Revised 30
Assessment of Creativity and Learning Styles of Dropouts 31
Multi-Media, Emerging Technologies and Dropouts As Learners 31
Quantitative and Qualitative Approaches 33
The Existential-Phenomenological Approach 33
Phenomenological Studies Designed To Investigate the Experience of Learning 34
Basis of the Phenomenological Approach 35

Abstract

This study examined descriptions of learning experiences and the meaning that learning has for 11 creative high school dropouts who had just completed a one-on-one computer assisted multi-media learning experience. For these individuals learning is an active experience full of challenge and rich complexity which is grounded in resilient self reliance. Personal experience is regarded as the most desired and effective way of learning by these individuals.

The 11 creative high school dropouts were selected from a population of 120 high school dropouts who were enrolled in GED or similar classes at five research sites in 3 East Tennessee counties. For selection purposes assessments of creativity and perceptual modality learning style were administered to all 120 high school dropouts, and from these, 11 were chosen for participation in a computer assisted multi-media learning experience and in-depth, phenomenological interviews based on 3 criteria. The 3 criteria were that the individual had: (a) Scored at the 84th National Percentile or above on the Torrance Tests of Creative Thinking, Figural Form A., (b) exhibited strengths in perceptual modality learning styles not rewarded in traditional school settings, based on scores obtained from the Multi-Modal Paired Associates Learning Test - Revised, and (c) volunteered to be interviewed.

The rich interview protocols were analyzed for meaning units and emergent themes by the researcher and a phenomenological research group. Themes are presented in three categories using the actual wording of the 11 co-participants. Categories are: (a) "How I learn", (b) "Why I learn", and (c). "What learning is to me".

The "How I learn" category includes descriptions of conditions and processes present during optimal learning; desired personal, social, and environmental resources; and feelings during learning. The "Why I learn" category describes the creative individual's motivation for learning and includes learning in order to understand yourself and your place in the world; to do, make, or survive; and to care for, or understand, others. "What learning is to me" describes the meaning that learning has for these co-participants and was described succinctly by one co-participant, " Learning is making the best of use of my instincts and experiences to understand myself and others, and to succeed in the world."

III. **METHODOLOGY** **37**
Introduction 37
Positivism and Phenomenology Require Different Methodologies 38
Why I Used Both Approaches In this Study 38
Defining Research Participants and Co-Participants 39
Recruitment and Selection of the Research Participants and Co-Participants 39
Recruitment and Selection of Research Participants 39
Procedures Used to Select Co-Participants for Phenomenological Interviews 41
Orientation, Consent, and Sequence of Assessment and Procedures. 41
Procedures One and Two: Assessing Creativity Levels and Learning Style Modalities 42
Instrumentation and Procedures Used to Assess Creativity Level 42
Torrance Tests of Creative Thinking (TTCT) 43
Assessment of Learning Style Profiles 47
MMPALT-II 47
Procedures Three and Four: Co-Participants Experienced Samples of Computer Assisted Multimedia and Were Then Interviewed In A Phenomenological Style 53
Procedure Three: The Macintosh Tutorial and Experiencing Learning By Computer Assisted Multimedia 53
Procedure Four: The Phenomenological Interviews 55
The Phenomenological Method of Understanding and Analysis 58
Bracketing 58
Data Analysis and Presentation Goals 59

IV. **RESULTS OF THE STUDY: CO-PARTICIPANT PROFILES AND UNIQUE STORIES OF LEARNING** **61**
Organization of the Results 61
Organization of this Chapter 61
Commonalities of Co-Participants 61

Co-participant Differences 62
Addressing the Research Question 62
Co-participant "Snapshots" 62
Brittany 63
Learning by Computer Assisted Multimedia for Brittany 64
Brittany's Stories of Learning Events 65
"The Importance of Being Up to Date In Learning" 66
Crystal 66
Learning by Computer Assisted Multimedia for Crystal 67
Crystal's Stories of Learning Events: Learning From Experience 68
Shortcuts in Learning 68
Learning in Drug Rehab. 69
Being Dyslexic and Using Learning Shortcuts 70
Crystal's Complex World of Learning 72
Carly 73
Learning by Multimedia and In General for Carly 74
Carly's Stories of Learning Events: Learning in Order To Care for Others; Learning as "Figuring Out" 75
"Learning in My Playhouse" 76
Dancy 79
Learning by Multimedia and in Other Technological Settings for Dancy 80
Dancy's Stories of Learning: Taking Action, Learning From Others' Mistakes 82
Learning To Choreograph 84
Arden 86
Learning By Computer Assisted Multimedia for Arden 87
Arden's Stories of Learning Events: Learning For The Benefit of Others 88
Learning To Care For the Mentally Retarded 88
Learning With Miranda 90
Learning Now Compared to Learning In The Past 91

Remarks Regarding the Women as Learners..... 92
Mac..... 92
Learning By Computer Assisted Multimedia For Mac..... 93
Learning and Reporting Using Computer Assisted Multimedia for Mac..... 95
Mac's Story of A Learning Event: Learning and Performing CPR..... 96
Timmy..... 99
Learning By Computer Assisted Multimedia For Timmy.....100
Timmy's Story of Relevant Learning Events: Learning That "You Can't Always Depend On Your Parents" and "Learning To Cook".....101
Timmy's Story of Learning To Write.....102
Time, Environment, and the Ideal School.....105
Drew.....106
Learning by Computer Assisted Multimedia for Drew.....106
Drew's Account of A Learning Experience: Learning to Do the Laundry.....110
Drew's Comments on Learning In School: It Should Be Like Learning To Do Laundry.....112
Rod.....114
Learning by Computer Assisted Multimedia for Rod.....115
Rod's Account of A Learning Event: Learning to Draw On a Computer.....116
Learning by Reading and Doing: Computer Repair.....118
Learning Math: Breaking It Down.....122
Chuck.....124
Learning By Computer Assisted Multimedia For Chuck.....125
Learning As A Way to Define Identity: Learning As A Way To Change Yourself.....126
Learning To Trust Your Intuition and Learning Art: Just Doing It.....128
Harmon.....131
Learning by Computer Assisted Multimedia for Harmon.....131

Harmon's Account of A Learning Event: Learning to Be A Point Guard in Basketball 134
Learning by Arguing: A Way of Extending Experience, Perceptions and Perspectives and "How I Learned I Was Learning" 136
Notes On Male Learners 140

V. RESULTS OF THE STUDY: COMMON THEMES AND THE ESSENCE OF THE LEARNING EXPERIENCE 142
Organization of this Chapter 142
The Thematic Structure of the Experience of Learning As Described By Creative High School Dropouts 142
Ways I Learn: Conditions and Processes 142
Conditions 143
I Want To Learn the Way *I* Learn": Personal Experience Is Everything 143
"Doing it my way", "No regrets" 144
"Others may not be there for me" 146
"Others do not teach me, I teach myself" 146
Learning From Grandmother 147
Why Learning By Computer Was Like Learning from Grandmother 151
" I Just Needed More", the Need for Intensity as a Condition ... 151
Dangerous or Painful Learning Behaviors, A Way of Gaining Intensity 152
Need for Color, Challenge and Details in Learning 153
Need for Privacy or "Alone time to Play Around With Things" 155
Need for Access to Material Resources: "Plenty of Stuff to Play Around With" 156
Access to Print and People Resources: "I Needed Something To Go By" or "I Found Someone To Ask" 157
"Libraries and Places Like That" 158

Processes 158
"What I Do While I'm Learning" 159
"I Was Always Havin' To Take Things Apart" 159
"I Just Work Backwards From How I Want It To Be and See What I Need To Do To Get There" 159
"Separate Reality" 160
"If I Can Just See It In My Head and Work It Around a Little, I Don't Have to Waste Stuff" 161
What I Feel While I'm Learning 162
Why I Learn 163
Learning How or Who I Am 163
Learning How Things Work 164
Learning How People Are 165
What Learning Is To Me 168

VI. DISCUSSION, CONCLUSIONS, AND IMPLICATIONS 169
Introduction 169
Discussion of Findings 169
The Ground: Resilience and Anarchic Approach 170
Resilience 170
Creative Self Reliance/Differentness or the Anarchic Approach 171
Thematic Structure of Creative High School Dropouts' Experiences of Learning Match 4 Educational Approaches 173
Adult Education 173
Gifted Education 175
Constructivism 177
Mindful Learning 178
Implications for Education and Programs 179
Recommendations for Identification of Creative, At-Risk Learners 180
Recommendations for Creative Learning Facilities And Programs 181
Recommendations for Designers of Multi-Media for Creative, At-Risk Learners 181

Suggestions for Further Research 183
Conclusion Future Issues 185

REFERENCES 186
APPENDICES 197
VITA 282

LIST OF TABLES

Table 1. National Dropout Rates in Percentages 21

Table 2. Actual high school dropouts residing in a selection of East Tennessee Counties 23

Table 3. MMPALT-II Profiles for Co-Participants 244

CHAPTER I

NATURE AND SCOPE OF THE STUDY

Introduction

The examination of early school leaving is one of the most prevalent topics of educational research. "In the 1980's alone, hundreds of books and articles were written on the topic of high school dropouts" (Roderick, 1993). Kennedy (1993) lists 35 possible categories of interest to those desiring to study dropout issues. The focus of the majority of research regarding high school dropouts has been concerned either overtly; or in more subtle ways, with the prevention of early school leaving (Cervantes, 1965; Kronick, 1989; Kronick, 1990; Orr, 1987; Roderick, 1993; Whelage, 1986). Most programs concerning high school dropouts have dealt with dropout prevention efforts. "For example, a nationwide survey in 1986 of dropout programs by the U. S. General Accounting Office found that 47 percent of all dropout programs served primarily potential dropouts, whereas only 22 percent served actual dropouts, with the remaining attempting to serve both groups" (U. S. GAO, 1987). There is little research concerning the experience or meaning of learning for creative high school students who choose to leave traditional schooling and finish their education in other ways or the particular educational needs of this special population.

Focus of This Study: How Creative High School Dropouts Experience Learning

This research focuses on furthering our knowledge about creative individuals who have already dropped out of high school but who, at some

point, choose to re-enter an educational second-chance program or class. These students may approach and experience learning in very different ways than students who remain in school. This descriptive study uses a phenomenological approach to attempt to enter, understand, and describe the ways that creative high school dropouts with learning styles that are not rewarded in traditional classrooms experience learning both in a technological context and in their everyday lives.

Creativity and learning style assessments were performed for 120 high school dropouts so that the researcher could select for phenomenological interviews, 12 co-participants who are creative, and who exhibit diverse learning styles. Actual selection was narrowed to 11 co-participants because one of the interview volunteers was unable to stay for the scheduled interview.

The 11 co-participants selected for the interviews all demonstrated above average creativity levels based on scores on the Torrance Tests of Creative Thinking, Figural Form A (TTCT), and exhibited a diverse range of perceptual modality learning styles as assessed by the Multi-Modal Paired Associates Learning Test, Revised (MMPALT-II). After conducting phenomenological interviews I attempted to describe the experience of learning from the first-person perspective of the creative high school dropout. Thus, I attempted to understand the ways in which these creative high school dropouts experience learning within a technological context, specifically by means of computer assisted multi-media, and how they experience learning in general. I was also interested in what learning means to them.

Statement of the Problem

Although there is an extensive body of research dealing with various descriptive and statistical factors related to predicting high school dropout and addressing the issue of dropout retention, there is considerably less research devoted to the learning needs of dropouts attempting to re-enter an educational setting. Even less extensive is research attempting to describe the individual learning needs of creative high school dropouts, as presented in qualitative descriptions and personal stories told by these individuals. Stories of important learning experiences, related in the actual words of dropouts concerning how they regard emerging technologies often found in second-chance educational settings, and how they experience learning in general are even more rare. In fact when I began the literature review for this study the descriptors "creative high school dropout" or "creative at-risk students" did not locate any studies. It was only when I began looking at "gifted disadvantaged" or "gifted underachievers" that I began to find the first clues for studying this particular population. I found few qualitative studies addressing the learning needs of early school leavers who were also creative and/or gifted.

Purpose of the Study

The purpose of this study is to discover the ways that creative high school dropouts with learning styles not typically rewarded in traditional school settings describe their experiences of learning after completing a one-on-one technological learning experience. The technological learning experience is not the primary focus of the study but was used as a way of establishing rapport and of providing a fresh and unreflected learning experience for co-participants to

talk about. The primary purpose of this study is to enter into and understand as clearly as possible the experience of learning for creative high school dropouts both in a technological setting and in the context of their every day lives, and to relate in the actual words of these creative individuals their stories of learning and the meaning of learning in their lives.

To select 11 high school dropouts for phenomenological interviews who were above average in creativity, and who exhibit a diversity in perceptual learning style patterns, I assessed perceptual learning style dominance patterns and creativity levels in a sample of 120 East Tennessee high school dropouts. Discovering and describing the ways that creative high school dropouts experience learning and the meaning that these creative high school dropouts may construct for learning both in the technological setting of computer assisted multi-media and in the context of their every day lives is the primary purpose of the study.

Rationale for the Study

Selection of this particular problem for investigation resulted from curiosity on the part of the researcher regarding the apparent phenomenon of traditional high schools losing some of the brightest and most creative students. I was formerly involved in a high school dropout, second-chance educational program funded under the Job Training Partnership Act (JTPA). In the course of knowing and attempting to educate these dropouts it was soon apparent that many of society's stereotypes regarding high school dropouts were simply wrong in many cases. As a result of observations, that many of these dropouts were bright and/or creative young adults, I began to talk to other professionals

working with dropouts and to research knowledge available that might address the issue of academic giftedness and/or creativity as it exists among the dropout population.

As will be elaborated in the Literature Review section, there is sufficient support to believe that there may be a group of high school dropouts who are academically able and creative and who may have perceptual modality learning style dominance patterns that show strengths in ways of learning not traditionally addressed in school instruction. Creative high school dropouts may enter into, perceive, and construct meaning for the experience of learning in different ways -- ways that those who would design learning interventions for them need to understand.

Although the reasons that dropouts leave school are many and varied, perhaps a dissonance between the modes that many bright and creative dropouts rely upon to learn and the modes in which teachers traditionally present materials may contribute to a dislike of, discomfort with, or dissatisfaction with learning in the traditional school setting. This does not mean that these individuals do not value and enjoy learning; rather, that they choose to learn in different ways and outside of the classroom.

High school dropouts have been perceived by most educators and by society at large, as a group of youth that are "losers", tuned out on life, not academically able, and even dangerous. Professionals who have had daily educational and counseling contact with high school dropouts that choose to return to "second chance" types of educational programs, have seen a different group of dropouts emerge; this group may be not only academically able, but also creative and innovative.

There may be learning style patterns that exist within this group of individuals that do not resonate with the preferred curriculum enactment methods prevalent within the public school systems. Therefore, this study will examine high school dropout populations along dimensions of creativity, perceptual learning style patterns, and ways that such individuals may perceive, describe, and make meaning for the experience of learning in general and for the experience of learning by way of computer assisted multi-media in particular.

The computer assisted multi-media learning experience was chosen for inclusion in this research because it is designed to appeal to a variety of learning styles and individual differences in learning, and because of the opportunity that co-participants would have to interact in visual, auditory, print, and haptic or hands-on ways with presented material. Ways in which learners may choose to approach material are varied, and much control over approach and pace is left in the hands of the learner. In addition, this method of learning is beginning to appear in General Equivalency Diploma (GED) programs with more frequency. Perhaps more importantly, I was seeking to interview in as fresh and timely a manner as possible, co-participants who have just experienced new learning so that the first-person perspective on learning would be as close in time to the interview as possible. The learning experience provided by the computer assisted multi-media materials also helped to establish rapport between the researcher and co-participant, and appeared to act as a reminder to the co-participant of other learning experiences.

The decision to use both quantitative and qualitative research techniques was made because neither method alone seemed to be able to answer relevant

questions as well or as fully as the two techniques in concert. Quantitative methods were used for co-participant selection and description only -- no attempt has been made to establish relationships in this study. The qualitative method utilized is the phenomenological interview because entering the first-person experience of the co-participant is the main aim of this study. In this type of methodology the roles of researcher and "subject" as co-participants lead to the development of the trust and rapport necessary for this sometimes suspicious and cynical population to present themselves as learners.

The Research Question

This study seeks to provide answers to this research question: How do creative high school dropouts with learning styles not rewarded in the regular classroom, who have just completeded a computer assisted multi-media learning activity, describe important learning experiences and the meaning of learning in their lives?

Definition of Terms and Instrumentation

ABE - Adult Basic Education, programs designed, usually by the local board of education, sometimes by other agencies, to provide literacy training, a high school diploma or GED preparation to adults who are dropouts.

Creativity - has been defined in terms of creative person, product, process, and press (environment) (Slabbert, 1994). It may be demonstrated by divergent thinking and the production of novel and/or useful ideas or products sometimes recognized in a specific field or domain or exhibited by a generalized creative

lifestyle approach (Davis, 1998, p. 6). In this research study because the Torrance Tests of Creative Thinking, Figural Form A was used to identify and select co-participants, and because this instrument is primarily an instrument that assesses divergent thinking, a divergent thinking definition was used.

Co-participant - in a phenomenological study "subjects" are usually referred to as co-researchers or co-participants (Stuhl, 1995) because the purpose of a phenomenological study is to enter the experience of another, not to "objectify" them or to manipulate their behaviors. In this study I will use the term co-participant to refer to the 11 individuals who were interviewed using phenomenological methods.

CourseBuilder© - is an authorware application developed by Discovery Systems International that permits one to create an interactive multi-media lesson that may include text, sound, graphics, animation, motion, and video clips.

Dropouts - are students who leave school before graduation from traditional high school.

JTPA - is the acronym for the Jobs Training Partnership Act, a federal act requiring that in each local service delivery area of a state, a Private Industry Council (PIC) comprised of local business leaders, owners, educators and other interested or qualified persons provide direction and oversee funding of local

job training programs funded by the Department of Labor and other government funding sources.

Learning Style - refers to a variety of individual differences in learning through the receiving, processing, and recalling of information from an outside source. There are three major types of learning styles: (a) Cognitive or information processing, which refers to encoding, processing, and storing information, (b) Affective or personality , the personal dimension of learning generally deals with attention span, motivation, interests, risk-taking, sociability, and related personal elements, and (c) Physiological or Perceptual Modality, concerns the ways that people use different sensory and bodily perceptions to learn.

Learning Styles Not Rewarded In Traditional School Settings - refers to a sub-set of perceptual modality learning styles that are not valued or rewarded in traditional school settings. These may be various combinations of visual, interactive, haptic (hands-on), kinesthetic, and olfactory learning styles, (James, 1998; Jonassen & Grabowski, 1993). In this study these patterns were identified using the Multi-Modal Paired Associates Learning Test, Revised (MMPALT-II).

Multi-media - refers to computer mediated presentations or lessons that may combine inputs from computers, diskettes, videodisks, CD-ROM, video cassette recorders, television, video cameras, and software packages (Bruder, 1991) that not only are used to instruct, but may be used by learners themselves to

create products attesting to learning experiences in which they have engaged. The availability of interaction between learner and instructional package is what makes multi-media different from drill and practice computer assisted instruction (CAI).

MMPALT-II - is the Multi-Modal Paired Associates Learning Test, Revised, which is a performance assessment of perceptual modality learning styles across seven modalities: print, aural, visual, interactive, haptic, kinesthetic, and olfactory (French, 1975a; Gilley, 1975; Cherry, 1981). This instrument is not commercially available and is used with permission from Dr. Russell French, The University of Tennessee, Knoxville, TN.

Phenomenological Interview - is an unstructured interview where the interviewer, by means of non-directive, reflective listening and open-ended questions, attempts to enter the experience of the individual being interviewed and to ascertain the meaning that the individual has constructed for a particular experience.

Research participants - I will refer to the 120 high school dropouts that I assessed for creativity and learning style in order to select my co-participants as research participants rather than "subjects".

TTCT - is the Torrance Tests of Creative Thinking. In this study, only Figural Form A is used. Developed by E. Paul Torrance, the TTCT is a divergent thinking measure of creativity with four sub-scales: fluency, flexibility, originality

and elaboration (Torrance, 1984). A composite "creativity range" score is also provided. National Percentile information is available from the publisher. This instrument is copyrighted and is available from Scholastic Testing Service, Inc., 480 Meyer Road, Bensenville, IL.

Assumptions

Assumptions about the East Tennessee high school dropout population sampled are that there may exist within the population a group of high school dropouts who:

1. May be academically able and/or above average in creativity level (Kennedy, 1993; McNeely, 1992; Morrison, 1992),
2. may have perceptual modality learning style patterns that show strengths in ways of learning not traditionally addressed in regular school instruction (Torrance, 1964; Krechevsky, 1990),
3. may have perceptual learning styles that differ from dropouts of average to low creativity levels, and
4. may exhibit a learning approach that is closer to that typically ascribed to creative or gifted learners (Davis, 1998) and adult learners (U. S. Congress, OTA, 1993).

Additional assumptions are:

5. The high school dropouts sampled are either enrolled in GED preparation classes, and/or employed, or are active in the arts community and, therefore, may not be typical of the East Tennessee dropout population at large.

6. The 120 high school dropouts sampled who volunteered from the available population of 360 may be different in some ways from the 240 who chose not to volunteer.

7. That all responses to testing instruments and interviews represent the best efforts of the participants.

Limitations

The population sampled consisted of approximately 360 high school dropouts currently enrolled in GED preparation or adult high school classes in the fall of 1994 and spring of 1995 at six research sites. Four sites were located in Knox County, Tennessee. These sites were (a) Pellissippi State Community College GED preparation classes, (b) Knox County ABE GED classes, (c) The Center School in Knoxville (a school for early school leavers that grants diploma credits rather than the GED), and (d) Knox County JOBS classes. Two additional sites were in Union and Greene counties. These were the Union County ABE, GED and JOBS classes and the Greene County ABE, GED preparation, and JOBS classes.

Research participants received oral invitations to participate voluntarily in the study from school or program staff and the researcher after access to the sites was granted. Flyers were posted at some sites before an invitation to participate was given (Appendix A).

The individuals who were interviewed were limited to 11 co-participants who were selected based on creativity and learning style criteria from the first 120 students who volunteered for creativity and learning style assessment with each site represented.

The 11 dropouts included in the interview portion of the study were chosen from the larger pool of 120 individuals. Research participants indicated on initial information questionnaires whether they chose also to volunteer for the multi-media and phenomenological interview portions of the study. From this pool, 11 co-participants were chosen who tested above average in creativity level (at or above the 84th national percentile of the Torrance Test of Creative Thinking, Figural Form A) and who exhibited a range of perceptual learning styles on the Multi-Modal Paired Associates Learning Test, Revised (MMPALT-II) that are not rewarded in traditional school settings. Because differences may exist between creative dropouts who volunteered to be interviewed and those who chose not to be interviewed, generalizations about all creative dropouts in this sample may not be made.

All data collection and interviews for the study were conducted between August, 1994 and May, 1996. Interview analysis and write-up began in September of 1994 and continued to the fall of 1998.

Creativity levels were determined using the Torrance Test of Creative Thinking, Figural Form A, which is a test of divergent thinking. Therefore, it is not assumed that every type of creativity has been assessed in research participants.

Learning style patterns were determined using the Multi-Modal Paired Associates Learning Test, Revised (MMPALT-II) and although precautions were taken to balance the level of difficulty across the seven elements of the MMPALT-II, that balance is not assured because item difficulty analysis is still taking place on this research-only instrument.

The MMPALT-II uses a paired associates testing procedure. That procedure measures a research participant's ability to remember or discriminate among information presented within a given framework. The procedure may not measure all factors which make up an individual's perceptual learning style.

While basic MMPALT-II procedures were followed, some wording was simplified to adapt to the needs of a dropout population. An MMPALT procedures manual was especially developed for this study (Appendix B).

Organization of the Study

This study will be presented in six chapters:

In Chapter I the introduction to the study, the focus of the study, the problem statement, the purpose of the study, the rationale for the study, and the research question are presented. Chapter I also contains a definition of terms, methodology, and instrumentation section; assumptions; limitations; a brief statement of data sources and procedures; and the organization of the study.

In Chapter II a review of the literature is presented. Set in an overall context of the high school dropout population, the review includes: (a) a brief history of the high school dropout problem and related statistics, (b) creativity and learning styles as individual differences in learning, (c) creative high school dropouts as "different" learners, (d) creative high school dropouts as an under-represented group in learning research, and (e) the suitability of phenomenological interviewing as a qualitative methodology to investigate and describe the learning experiences of this population.

In Chapter III the procedures and assessments used in this study are described. Sections include: (a) research participant recruitment and selection of co-participants; (b) the administration, scoring, and usage of the Torrance Test of Creative Thinking, Figural Form A, (TTCT) as a selection criteria; (c) the administration, scoring, and usage of the MMPALT-II as a selection criteria, and training of MMPALT evaluators and assistants; and (d) an overview of phenomenological research methodology including the importance of a bracketing interview, use of reflective, unstructured interviews, and the use of a phenomenological research group for interpretation of interview protocols and data presentation plans. A flow chart depicting steps in the phenomenological research sequence is presented.

In Chapter IV the findings of this study are presented in terms of unique and personal accounts of learning experiences that are prefaced by co-participant profiles or "snapshots". The findings from the phenomenological interviews related to the multi-media learning experience and unique stories of learning in certain contexts are discussed. The quantitative data used for the selection of the 11 co-participants who participated in the phenomenological interviews is presented in Appendix C.

In Chapter V the categories of emergent common themes are described and supported by various vignettes and quotations from the interviews. These themes present the essence of the learning experience for these individuals.

In Chapter VI the findings of the study are analyzed and discussed across the contexts of creativity and resilience. Ways that the learning needs of the co-participants match four approaches to education are discussed, as are implications for further research and application.

CHAPTER II

REVIEW OF THE LITERATURE

Organization of the Literature Review

In this chapter ideas and findings from five different bodies of research are presented. These are: (a) High school dropouts, (b) creativity and creative dropouts, (c) individual differences in learning and learning styles, (d) multi-media and other emerging technologies, and (e) background considerations for using phenomenological methods of interviewing to discover the meaning of personal experiences of learning. Because each of these bodies of knowledge is extensive, conciseness, clarity and focus will be sought. Limitations or special focus will be stated at the beginning of each major section.

High School Dropouts

Early school leaving is one of the most prevalent topics in educational research. Kennedy (1993), in her appendix, lists 35 possible categories of interest to those desiring to study dropout issues. For this reason, some limitations regarding this review of the literature are necessary for focus and clarity. The focus of most research regarding high school dropouts was concerned either overtly, or in more subtle ways, with the prevention of early school leaving (Cervantes, 1965; Kronick, 1989; Kronick, 1990; Orr, 1987; Roderick, 1993; Whelage, 1986). As stated in the introduction, most programs concerning high school dropouts have dealt primarily with dropout prevention efforts.

This review of the literature will begin with an historical perspective

concerning high school dropouts. Both national and State of Tennessee statistics will be examined. The literature review will focus on furthering knowledge about individuals who have already dropped out of high school, their individual differences in learning--specifically, creativity and perceptual modality learning styles--, the meaning of their learning experiences, and how they might experience learning by computer assisted multi-media. Ways in which emerging technologies may address the educational needs of dropouts who choose to re-enter some form of education also will be addressed.

History of the Dropout Problem

The Federal Government has been concerned with the education levels of its populace for quite awhile. The 1840 U. S. Census collected the first nation-wide literacy information. There was also the very basic idea that "our democratic system presumes an educated citizenry" (U. S. Congress, OTA, 1993, p.129). From the 19th to the early 20th century, most adult education programs were sponsored by churches, settlement houses, and charitable organizations for the purposes of "basic literacy", a term whose definition varied widely. In the agrarian society of those times literacy sometimes consisted of the ability to sign one's name (U. S. Congress, OTA, 1993). Concern for children's compulsory education was slow in reaching much of the United States, especially in the southern states. The Federal Government's concern about individuals who had serious basic literacy skills deficits reached a peak in the first half of the 20th century when great numbers of immigrants arrived and mass testing by the Army of recruits during World War I revealed serious literacy deficits among the general population (U. S. Congress, 1993).

High School Dropouts in Tennessee

Requiring students to finish 12 years of schooling came very slowly and inconsistently to many Tennessee counties. The rural and sometimes isolated geography of some counties made enforcing any type of compulsory education past the eighth grade very difficult. In 1890 the following recommendation was made to the General Assembly by the members of Public School Officers from Tennessee cities: "Gentlemen, We the members of the Public School Officers Association of Tennessee in a convention assembled at the University of Tennessee on the 9th through the 11th of December, 1890, do most respectfully petition your honorable body to pass at your next session an Act to empower the counties to establish and maintain high schools where children of the rural districts may receive opportunities for advanced education, such as is already provided for the children in our towns.", (Tennessee School Report of 1890, as cited in Holt, 1938, p.85).

The High School Act passed by the Tennessee State Legislature of 1899 included no provisions for support or enforcement of attendance. In 1902 the public school term was an average of 95 days in length. School was free to all students 6 to 21, but attendance was not required. Only 44 percent of the school aged population attended at that time (Holt, 1938). As late as 1928 reference was made to two types of high schools, two year and four year, that were common at the time. These were "common" for white students only.

At present, Tennessee has the Compulsory School Attendance Law which is part of the Governor's 21st Century Schools Program (Jacobs, 1994).

This law, although making it impossible for a dropout under the age of 18 to take the driver's license exam and receive a Tennessee driver's license, has few provisions for other types of enforcement. Many inner city dropouts are not motivated by this law since they customarily use public transportation. In addition, some rural counties do not fully report their dropouts because they feel to do so may cause undue hardship on the dropout and his or her family. Under this law, Tennessee's dropout rate had declined from 24.6 percent during the 1989-90 school year to 17.85 percent in 1992-93.

Another consequence of the Compulsory School Attendance Law is that dropouts, especially those under 18, are entering Adult Basic Education programs in ever increasing numbers. Most Adult Basic Education teachers chose to teach adults because they did not want to deal with adolescent students. Many of these teachers are currently experiencing frustration and feel untrained to deal with the burgeoning late adolescent population in their classes (TN State Department of Education, 1994).

National and Tennessee Dropout Statistics

At the national level in 1900, not more than three or four out of every 100 fifth graders would graduate eight years later. A summary of dropout rates from 1900 to 1988 is presented in Table 1 (Grossnickle, 1986; Roderick, 1993; National Center for Ed. Statistics, 1992).

The numbers of dropouts in a given county reported by the schools, or reported as dropout percentages do not take into account (a) those who move to the county from other counties or states, (b) those who dropped out before the

ninth grade, (c) those who are being home-schooled, or (d) those who dropped out of private schools. Rather than attempting to consider the various dropout rates and how they are calculated, I chose to look at the numbers of dropouts

Table 1.
National Dropout Rates in Percentages

1900	90%
1930	66%
1950	41%
1970	38%
1988	26%

by county, ages 18-24, living in the state of Tennessee. The 1990 Census records for the Tennessee counties in which research participants reside vary greatly by county for the number of 18 to 24 year old dropouts residing in the county and the percentages of the 18 to 24 year old population this represents. Table 2 reflects actual residents who are 18 to 24 old dropouts, not the dropout rate for the county.

It is clear that even though Tennessee's dropout rate is the lowest it has been, that there are still significant numbers of the young adult population who are dropouts. This can have a great impact on the economics of a county, especially the smaller and more rural counties. It may also have great impact on GED and ABE programs and their funding and staffing as previously mentioned. There are other reasons however, to be concerned with the state's young adult

Table 2

Actual high school dropouts residing in a selection of East Tennessee Counties

County	Total population 18-24 year olds	dropouts 18-24	% of 18-24 population
All	106,184	26,932	25.4%
Anderson 5,791	1,581	27.3%	
Blount	8,336	2,208	26.5%
Bradley*	8,860	2,738	30.9%
Cocke*	3,003	1,097	36.5%
Grainger* 1,839	614	33.4%	
Greene*	5,638	1,881	33.4%
Hamblen*	5,278	1,622	30.7%
Jefferson 4,336	911	21.0%	
Knox	42,296	7,593	18.0%
Loudon	2,831	761	26.9%
McMinn*	4,268	1,395	32.7%
Monroe*	3,336	1,206	36.2%
Roane*	4,182	1,256	30.0%
Sevier*	4,740	1,491	31.5%
Union*	1,450	578	39.9%

Note *These counties show over 30% of their 18-24 year old population as dropouts. Statistics from 1990 U. S. Census, National Center for Ed. Statistics (1992).

dropouts -- reasons that may have an even greater impact on the economy and vigor of future growth for our state and our nation.

Other reasons for concern have to do with the kinds of students who are choosing to drop out of school. Society's stereotypical view of high school dropout as loser, unmotivated or slow at learning may be incorrect in the present. Morrison, McNeely, & Kennedy (1992; Knoxville, TN.) at the annual meeting of the Mid-South Educational Research Association, presented evidence that many of the high school dropouts in three separate programs in Knox County Tennessee were either academically able, gifted, and/or creative. Indeed, the idea that our public school systems may lose some of our most creative students to dropping out is not a new one.

Creativity and Creative Dropouts: Historic and Current Perspectives

The body of research on creativity is very extensive. For purposes of this review, creativity will be defined and examined as an individual difference factor in learning. In addition, the characteristics and educational needs of creative high school dropouts will be presented, along with perceptions of educators regarding creative, but underachieving, students.

Definitions of Creativity

The most prevalent definitions of creativity usually involve the idea of novelty, insight, transformation, and in some cases, usefulness of a novel idea or product. Historical antecedents of creativity involve four approaches: (a) an

aspect of intelligence, (b) a largely unconscious process, (c) an aspect of problem solving, and (d) an associative process (Brown, 1989). Definitions also may be categorized according to whether the researcher perceives creativity in terms of (a) person, (b) product, (c) process, or (d) creative press--environmental conditions (MacKinnon, 1970). Some of these definitions are presented as a "sampler" for the reader.

Proponents of the novelty concept might say "Creativity implies invention" (Nicole, 1966, as cited in Lubeck & Bidell, 1988). J. P. Guilford's 1950 address to the American Psychological Association defines creativity in terms of person: "Creative personality is then a matter of those patterns or traits that are characteristic of the creative person." Koestler (1964) proposed a more cognitive, process oriented definition: creativity involves a "bisociative process", the deliberate connecting of two previously unrelated "matrices of thought" to produce a new idea or invention. Aspects of creativity considered by Guilford in his Structure of Intellect (SOI) model and measured by the Torrance Tests of Creative Thinking are: (a) fluency - number of ideas generated, (b) flexibility - producing a large variety of ideas, (c) elaboration - details and embellishments, (d) originality - use of ideas that are not obvious or that are statistically infrequent.

The controversies and differences of opinion that surround the difficulty of coming to universal agreement on "the definition" of creativity may also have to do with the value our society places on creativity. Our society "tends to respect creativity less than intelligence and academic ability, a bias particularly evident

in our schools." (Ford & Harris, 1992). Although every school district in the state assesses intelligence, few ever assess creativity. The few who do assess creativity do so to screen students for Talented and Gifted (TAG) programs. This idea, of course, leads back to one concern of this research: Does creativity have to do with differing experiences of school and learning?

Creativity and Dropouts

What does the literature tell us about creativity and dropouts who may be creative? In a study of over 400 eminent and creative men and women, Goertzel and Goertzel (1962) estimated that at least 60 percent of them had serious difficulties in schools. Many of them did not make good grades on examinations and many of them dropped out of school, at least for a time (Gowan, Demos, & Torrance, 1967). Catherine Cox's classic study The Early Mental Traits of Three Hundred Geniuses (1926) showed a strong negative correlation between education and the attainment of eminent leaders, and an inverted U relationship for formal education for eminent creators demonstrating that for these educators, either they had very high educational levels or very low levels. This relationship was updated and elaborated upon by Simonton (1981a, as cited in Simonton, 1984).

Gifted dropouts may be placed into at least three categories according to Betts and Niehart (1988): the divergently gifted (creatives), the dropouts, and the double labeled. The divergently gifted may not have ever been identified for gifted programming and may annoy teachers by constantly challenging information and authority. They may be frustrated and struggling with self

esteem. The dropouts may be similarly divergent but may be even more angry. These individuals generally have a set of very special talents away from the school setting and may not understand why school authorities do not know about their "outside" accomplishments, even though they do not communicate these accomplishments. The "double-labeled" are those gifted young people who may be either physically, emotionally, or learning disabled and face a multitude of barriers to realizing their creative potential.

Creative or talented young dropouts may exist in the ranks of the trouble-maker, (Supplee, 1989), the Alternative Learning Center, (Osborne and Byrnes, 1990), and other populations outside the traditional school setting (Bridgeman, cited in Khatena, 1982). In Knox County, Tennessee, academically able dropouts were identified at the Center School (McNeely, 1992), and creative dropouts at both the Alternative Center for Learning (Kennedy, 1993) and Project Launch (Morrison, 1992). McNeely (1992) found that 41% of the 164 dropouts in her Center School sample had IQ's above 110, with 38.5% at or above 116. Tests of Adult Basic Education (TABE) scores for her sample of 164 showed 47% scoring above the 12.8 grade achievement in reading and 44% scoring above 12.7 grade achievement in math. Morrison's (1992) sample of 72 dropouts in a JTPA funded program showed 32% scoring above 12.8 grade achievement on the TABE in reading and 33% scoring above 12.7 grade achievement in math.

Sternberg, as part of his description of creative styles, identified a group that he called anarchics (1988a, p. 140-141). "Anarchics have the ability to

remove themselves from existing constraints, ways of seeing things, ways of doing things. ... Anarchics are not to the taste of either teachers or parents, because anarchics go against the existing grain." Many times these "anarchics" become the dropouts described by Betts and Niehart.

Creativity, Dissonant Learning Styles, and School Dropout

Although the reasons dropouts leave school are many and varied, perhaps a dissonance between the perceptual modes that many dropouts rely upon to learn, and the modes in which teachers traditionally present materials, may contribute to a dislike of, discomfort with, or dissatisfaction with learning in the traditional school setting. This may be especially true for bright and/or creative dropouts.

Teachers may regard creative individuals as problems or nuisances. This is especially true if the individual's' IQ does not match his or her propensity for creativity. The "high creatives without high IQ's (are) often regarded as nuisances and they (are) somewhat estranged from other students" (Guilford, 1967). Even students who are not particularly creative, but who have different approaches to learning that may threaten teacher control may be thus estranged as well.

According to Whitmore (1980), the under-achievement patterns of many creative students with no apparent learning disabilities may be a result of their emotional rebellion against a perceived press for conformity and the devaluation of divergence and imagination. One result of this rebellion may be to use their creative skills in fantasy and imagination to escape learning

environments that are personally unrewarding (Toth & Baker, 1990). These studies invite one to examine the interaction of the creative or different learner and the learning environment.

Individual Differences in Learning and Learning Styles

Interest in the interaction of learner, learning and teaching methods and the learning environment is not a new one in education. This interest gave birth to the popular concept of aptitude-treatment interaction (ATI). Cronbach and Snow (1969;1977), developed the methodological and conceptual guidelines for the conduct of ATI research. Jonnassen and Grabowski (1993, p.23) define current ATI research as "a research methodology that explores interactions between alternative aptitudes (Cronbach & Snow, 1969), attributes (Tobias, 1976), or traits (Berliner & Cahen, 1973) and alternative instructional methods."

It is in this spirit that the present study seeks to describe the learning experiences of creative dropouts with perceptual learning styles that are not rewarded in traditional school settings and to describe how they experience multi-media as a delivery system for learning in a variety of sensory modes. The meanings that dropouts construct for such learning will be examined and related to meanings that they construct for learning experiences in general. This study assumes that dropouts may learn in ways that are different from those usually reinforced by traditional schooling and that creative dropouts may have a particularly different style of learning.

Khatena (1978) states that a lack of awareness exists among educators concerning the individual learning styles of highly creative students. He

postulates that the non-conforming behaviors and divergent thinking skills exhibited by these students may lead to conflict and confrontation in educational settings that do not provide instruction in learning styles preferred by these students (Toth & Baker, 1990). Conflict and confrontation often lead to expulsion and subsequent early school leaving. The term that Kennedy (1993, p. 15) uses for "high academic achievers who drop out" is the term "push-out", and she postulates that such individuals leave school "out of boredom as well as out of resistance to rigid school rules." This does not mean that they do not value and enjoy learning but, rather, that they choose to learn in different ways and/or outside of the classroom.

"If the reason for dropping out is learning related, a better knowledge of students' learning styles holds much promise in removing obstacles to learning" (James & Blank, 1991b). There is a growing body of literature supporting the notion of differing cognitive or learning styles (Jonassen & Grabowski, 1993), and the effectiveness of individualized kinds of instruction capable of assisting learners who have different learning styles (Heimstra, 1990). Before instructional experiences or curricula can be individualized, however, it is necessary to assess individual learning styles.

Learning Style Theories and Instruments

There are many learning style theories and just as many instruments to measure them. The three broad categories of learning style theory are the affective, cognitive, and physiological domains. Researchers who are

concerned with affective aspects consider personality dimensions such as attention, emotion, and valuing (Dunn, R., 1990; Grasha & Riechmann, 1975; James & Blank, 1993; Kolb & Goldman, 1973). Other researchers are more concerned with cognitive learning styles, and consider the information processing habits of the learner related to perceiving, thinking, problem solving, and remembering (James & Blank, 1993); for example, Hill's Cognitive Style Mapping, (Jonnassen, & Grabowski, 1993, p. 233-245) or, the Gregorc Learning Styles, (Gregorc, 1982b). Theorists who consider physiological learning styles consider "biologically based modes of response that are founded on accustomed reaction to the physical environment, sex related differences and personal health", (Keefe, 1987). Some instruments that measure the physiological aspects of learning style are the Barbe-Malone Modality checklist (Barbe & Malone, 1980), the Swassing-Barbe Modality Index (Barbe & Swassing, 1988), and the Multi-Modal Paired Associates Learning Test-Revised, or MMPALT-II, (Cherry, 1981; French, 1975a; French, 1975b; Gilley, 1975; Keefe, 1987).

This study will use the Multi-Modal Paired Associates Learning Test-Revised (MMPALT-II). This particular instrument was chosen for three reasons: (a) it is performance based; (b) it assesses both perceptual modality skills usually reinforced in traditional schooling, the print and aural modalities and those not usually reinforced in traditional schooling, the visual, interactive, haptic (hands-on), kinesthetic, and olfactory modalities; and (c) it is associative in method. That the MMPALT-II makes use of the associative aspects of encoding for short term memory, an initial step in learning, may make it

especially useful in examining creativity level and learning style. Mednick and Mednick (1965) define the creative process as the "forming of associative elements into new combinations which either meet specified requirements or are in some way useful. The more mutually remote the elements of the new combination, the more creative the process or solution." For this reason, it will be interesting to learn whether creative dropouts are especially skilled at making perceptual modality specific associations. A more detailed description of the MMPALT-II follows.

The Multi-Modal Paired Associates Learning Test-Revised

Many learning style instruments are self report of preference and/or "paper and pencil" instruments. The Multi-Modal Paired Associates Learning Test (MMPALT-II), however, uses a paired associates format to assess perceptual modality dominances and patterns. This assessment instrument is performance based and examines seven different perceptual learning modalities: Print, Aural, Visual, Interactive, Haptic, Kinesthetic, and Olfactory (Cherry, 1981; French, R., 1975b ; Galbraith, & James, 1986; Gilley, 1975 ; James & Blank, 1991b; Nix, 1983). Research indicates that there are significant differences between high school graduates and non-graduates on five of the seven perceptual learning style sub-tests (James & Blank, 1991b). This result may indicate that "dropouts might be less able to learn from the more common print and aural modalities used in most schools" (James & Blank, 1991b). In the present study, I chose as the co-participants to be interviewed, not only high school dropouts who are above average in creativity, but those who also exhibited learning style profiles that are either weak in the print or aural

modalities or especially strong in the visual, interactive, haptic, or kinesthetic modalities. Two co-participants were chosen because they scored above average on the creativity measure and they exhibited a generalized pattern. An additional co-participant showed a profile strong across several modalities, another's profile showed low scores across all of the modalities. On the MMPALT-II "especially strong" may indicate a dominance, and scores of dominance are different across the varying modalities.

Assessment of Creativity Levels and Learning Styles of Dropouts

To identify creative dropouts, The Torrance Tests of Creative Thinking, Figural Form A, was administered in addition to the MMPALT-II which showed learning style profiles. An above average level of creativity for this study is defined as a level at or above one standard deviation, or the 84th National Percentile on the TTCT, Figural Form A. Archival literacy level data available for the majority of dropouts included math and reading levels as determined by the Test For Adult Basic Education (TABE). This data was examined to assure that dropouts included in the study were able read at the 7th grade level or above.

Multi-media, Emerging Technologies and Dropouts As Learners

Assessing dropouts' perceptual learning styles and creativity levels and understanding their perceptions of the experience of learning could assist in designing more effective learning experiences for dropouts re-entering second chance educational training programs such as GED preparation or vocational training. Since dropouts may desire an approach to learning more like that of adult learners--that is, more self-directed--, emerging technologies would seem

to have great promise for delivering an individualized and learning style-sensitive curriculum (U. S. Congress, OTA, 1993). Such approaches leave control of the direction of the learning firmly in the hands of the learner. McNeely (1992) noted the success of academically able dropouts with computer assisted instruction in even the most rote learning situations. She hypothesized that it was the element of choice that appealed to these students. It would appear that learner control was valued by these at-risk students even in a technological environment that was not especially modern and that was very linear. If more modern technological contexts such as multi-media or hyper-text environments which are global, not linear, were available to these learners they might feel even more control over the learning experience and might be encouraged to stay engaged with content for a longer period of time.

Of these emerging technologies, multi-media, which allows a mix of sensory inputs may be particularly appropriate for dropouts and/or other adult learners. A review of the literature revealed no studies done using multi-media presented lessons for dropouts; however the report, Adult Literacy and New Technologies: Tools for a Lifetime (U. S. Congress, OTA 1993), cites the effectiveness of these technologies in adult literacy and education programs, the majority of whose members are high school dropouts. It also states that multi-media and other advanced technologies are available to only about 15% of literacy and adult education providers (U. S. Congress, OTA 1993, p.15). Multi-media as used in this research consists of "the integrated use of sound, text, graphics, animation, still images and motion video"(U. S. Congress, OTA 1993; Bruder, 1991) mediated or assisted by computer. Multi-media incorporates a mix of learning techniques and may be helpful in assisting

dropouts who do poorly with text intensive materials and who "may have developed alternate skills for understanding, organizing, and remembering information that draws on imagery, sound, and spatial memory (Gretes, 1989). Individualized instruction with private, unembarrassing feedback is also possible using computer assisted multi-media; a feature that dropouts and other adult learners value (U. S. Congress, OTA 1993).

Quantitative and Qualitative Approaches

In this project I seek not only to investigate the perception of computer assisted multi-media as a learning tool by those high school dropouts with differing levels of creativity and modes of learning, but also to determine the meaning creative dropouts construct for learning in this way and for the more general experience of learning in their lives. For this reason, quantitative approaches to measuring creativity and learning style were conducted with the 120 research participants and were then used to select a sample of 11 high school dropouts of above average creativity level and varied learning style profile on the MMPALT-II. The learning style profiles of interest excluded participants with strengths primarily in print and aural modalities, the modalities most rewarded in traditional classrooms. The profiles of selected co-participants show strengths in each of the other modalities, excluding the olfactory, and two show a generalized pattern -- one with strengths across several modalities and one with low scores across modalities. Profiles are presented in Appendix C.

The Existential-Phenomenological Approach

An existential-phenomenological approach was used to conduct interviews with these 11 participants in an attempt to understand the ways that

each experienced learning in a technological setting--specifically learning by computer assisted multi-media -- and how each experienced and made meaning for other important learning events in their lives. This method enhances the quantitative aspects of the study with the rich detail of the perceptions and experiences of dropouts voiced in their own words. A more complete description of this methodology appears in the next section. The phenomenological approach has been used to investigate the experience of learning with adults and children, but there have been few, if any, investigations of the high school dropout population. A description of a classic phenomenological study of learning follows.

Phenomenological Studies Designed To Investigate The Experience of Learning

Studies in the phenomenological tradition were conducted by Colaizzi (1969, 1973) and Giorgi (1975) as cited in Pollio (1982) in an attempt to capture the learner's experience while actually learning something new. Colaizzi's approach was fairly formal and structured wherein he asked 50 subjects to perform one of 10 tasks. Some tasks were verbal, such as learning word lists; others were more naturalistic such as learning to walk with crutches. The more interesting, and perhaps most illuminating task was that of assembling and disassembling a Colt .45 automatic pistol. After subjects had performed one of these learning tasks, they were asked to fill out a questionnaire which did not use the word learning. The questionnaire asked questions in terms of "changes that occurred" during the course of doing an activity (Pollio, 1982, p.161). Subjects also were asked to comment upon and describe the changes that

were occurring, to distinguish between changes in the activity and in themselves, and to describe what they believed to be the purpose of the investigation. When reporting and summarizing his subjects' statements, Colaizzi used his subjects' own words as far as possible to form a "fundamental structure of learning" from the "first person point of view".

Giorgi (1975) designed an investigation of learning where control of the learning task was determined by the learner instead of by the investigator (as in Colaizzi). In this study comments and descriptions arose from the learner's own experiences as Giorgi chose to interview his subjects about past experiences of learning. One of Giorgi's questions to his subjects was, " Could you describe in as much detail as possible a situation in which learning occurred for you?" This approach to learning about learning recognized that to examine learning from a first person point of view seemed to involve an interpersonal context (Pollio, 1982).

The present study combined the phenomenological approaches of Giorgi and Colaizzi. For a fresh, immediate, and unreflected experience of learning the co-participant was interviewed just after experiencing multi-media learning, a task set by the researcher. There also was an opportunity for co-participants to describe and elaborate on past learning experiences they chose to share.

Basis of the Phenomenological Approach.

The existential-phenomenological approach is based on the philosophical principle "that humans make meaning out of the events and experiences of their lives" (Stuhl, 1995). The purpose of the phenomenological interview is "to gather descriptions of the life-world of the interviewee with

respect to interpretation of the meaning of the described phenomena", (Kvale, 1983); in this case, the experience of learning by multi-media and that of other learning events.

The choice of a phenomenological approach with dropouts seemed to be an appropriate one because the researcher and respondent are assumed to be in positions of equality (Kvale, 1983). This is desirable because what dropouts report wanting more than anything else is respect from those around them. The decision to use this technique also was based on the desire to understand the participant's unreflected experience of learning by multi-media. Since the interview occurred immediately following the multimedia experience, the rich and immediate perceptions and meanings constructed by the dropouts themselves were shared before they began to relate other important learning events upon which they may have reflected to a greater extent.

CHAPTER III

METHODOLOGY

Introduction

The purpose of this study is to understand the ways in which creative high school students who drop out may experience and make meaning of important learning events in their every day lives as well as in more technological contexts. In this research study I assessed creativity levels and examined and described perceptual modality learning style profiles for a sample of 120 high school dropouts, for the purpose of selecting 11 high school dropouts who are above average in creativity level, and who exhibit learning style strength and weakness patterns not often rewarded in traditional classrooms.

After these 11 co-participants were selected, I assisted them in learning the basic Macintosh tutorial that is standard on the Macintosh Centris 650. As co-participants became comfortable with the equipment and familiar with the navigation metaphors, I presented four samples of multi-media learning programs for their exploration and interaction. Co-participants were encouraged to move through all four samples at their own pace, and to select any sequence that appealed to them. Following this, I interviewed them using a phenomenological approach.

In this chapter I present information concerning positivist and phenomenological approaches, recruitment and selection of research participants, the research sequence and assessments used for selection of the 11 co-participants to be interviewed, and a discussion of phenomenological

research procedures. A flowchart depicting the phenomenological method of inquiry is presented as well.

Positivism and Phenomenology Require Different Methodologies

According to Taylor and Bogdan (1984), there are two primary approaches to answering questions in the social sciences. One approach is that of positivism which "seeks facts or causes of social phenomena" (Taylor & Bogdan, 1984, p.1) in an objective sense. This approach developed out of the nineteenth century natural science tradition. An alternative approach is that of phenomenology, which seeks to understand the meaning or essence of experience and is necessarily subjective in nature. Subjective in this sense refers to the "internal, personal realm of experiencing" (Bugental, 1989, p. ix.) and the phenomenological approach developed out of these philosophical traditions, (Husserl, 1962; Heidegger, 1962; Merleau-Ponty, 1962).

Psychology itself was formerly defined as "the study of behavior and experience" (Bugental, 1989, p. ix) and reflects these two traditions in its own way. The behavioral or scientific-experimental tradition exemplified by Watson and Skinner contrasts with the experiential or psychoanalytic traditions exemplified by Freud and Jung. There is a place in educational psychology for both the objective and subjective approaches and since each approach chooses to answer different questions, each requires a different methodology.

Why I Used Both Approaches In this Study

In this study I chose to use both approaches for two very different purposes. I used the objective approach to select specific individuals of interest;

creative high school dropouts with learning style patterns not rewarded in the traditional classroom. However, because my primary goal is to understand the experience of learning from the creative high school dropout's perspective, a phenomenological approach is the predominant approach.

Defining Research Participants and Co-participants

In phenomenological research a "subject" is usually referred to as a co-researcher, research partner, research collaborator, co-author or informant (Polkinghorne, 1989) or co-participant (Stuhl, 1995). In this study I have chosen to refer to the 120 individuals who took part in the initial assessment and selection process as research participants, and the individuals I interviewed in the phenomenological part of the study as co-participants.

Recruitment and Selection of Research Participants and Co-Participants

Recruitment and Selection of the Research Participants

The participants I selected for creativity and learning style assessment were primarily young adults, aged 17 to 24 years, as well as a smaller number of more mature adults aged 25 and older, who are high school dropouts and who are living in Eastern Tennessee. This age range is of particular interest because it includes ages that dropouts are most likely to re-enter some type of educational experience (Roderick, 1993). Dropouts in this age range were most likely to benefit from research contact because I was able to refer these young dropouts to a re-entry educational program if they were not already participating in one.

I chose not to exclude more mature dropouts (those over the age of 25) because they comprise a realistic part of the dropout population in the "second chance" education population at these sites. Inclusion of this age range in the study may afford a more accurate picture of the "second chance" education population as it exists at the various research sites. I selected the first 120 participants who volunteered, with each research site being represented. There was a possible pool of 360 potential participants when enrollment at all sites was calculated.

All participants recruited were attending GED preparation classes at Job Training Partnership Act (JTPA), Adult Basic Education (ABE) agencies, or other literacy promoting locations. I looked for participants from a variety of adult education settings and from at least three counties in East Tennessee. There were six research sites represented.

I visited each site and talked with teachers and counselors to become familiar with the rules, hours, and general environment of the sites before I began to recruit volunteers. At some sites I posted flyers (see Appendix A) letting potential participants know I was coming and that I would be recruiting for a research project concerning learning and creativity. At other sites teachers or directors allowed me to come into their classes and solicit volunteers spontaneously. Most persons present when I asked for volunteers were willing to participate. Many told their friends and acquaintances who were not present about the study and I was able to recruit them as well.

Procedures Used to Select Co-Participants for Phenomenological Interviews

All research participants, who volunteered were given participant consent form #1 (Appendix D) and invited to a group meeting or individual appointment to take the creativity and learning style assessments. At the same time they also were asked to provide demographic information by completing a personal information questionnaire, "All About Me" (Appendix E). In addition, they were invited to state their willingness to volunteer for participation in the multi-media and interview portions of the study. Their desire to volunteer for a possible interview was indicated on the personal information form.

Orientation, Consent, and Sequence of Assessment and Procedures

After the original sample of 120 dropouts had been oriented and consent obtained, the study went forward using four separate procedures. The first two data collection procedures were performed with all 120 research participants and included the (a) administration of the Torrance Tests of Creative Thinking, Figural Form A, to determine creativity levels; and (b) the administration of the Multi-Modal Paired Associates Learning Test-II, (MMPALT-II) to determine perceptual learning style profiles. After creativity levels and learning style profiles were determined, 12 co-participants were selected for the third and fourth procedures which involved experiencing computer assisted multi-media samples and then being interviewed on a one-to-one basis. These 12 co-participants, who met the creativity and learning style profile criteria, were selected from those of the original 120 who scored above average on the

creativity assessment and who exhibited learning style profiles not traditionally rewarded in the classroom. Unfortunately one individual selected to be interviewed had a work emergency on the day of the scheduled interview and could not reschedule. Therefore, I continued with 11 co-participants. It is interesting to note that some of the participants scoring the highest on the creativity measure were excluded either because their learning style profile was similar to that rewarded in traditional schools, or because their profiles were very high across all modalities.

Procedures One and Two: Assessing Creativity Levels and Learning Style Modalities

Each participant completed an assessment of creativity and an assessment of his or her perceptual learning style. The two instruments that were used in this study are: (a) the Torrance Tests of Creative Thinking , Figural Form A;hereafter identified as the TTCT, and (b) the revised Multi-Modal Paired Associates Learning Test, hereafter identified as MMPALT-II.

Instrumentation and Procedures Used To Assess Creativity Level

For the purpose of this study, I defined creative dropouts as those scoring at or above the 84th national percentile on the TTCT, Figural Form A. To assess creativity level I therefore administered, and had trained assistants administer, the TTCT, Figural Form A following standardized test administration procedures outlined in the TTCT administration manual. All TTCT's were administered in a group setting.

Torrance Tests of Creative Thinking (TTCT)

Development and method. The TTCT are based on Guilford's Structure of Intellect model (Hocevar, 1989) and were designed by E. Paul Torrance (Torrance, 1974) to measure four aspects of "creative thinking" -- fluency, flexibility, originality and elaboration. Fluency is simply the number of relevant responses given; flexibility is the number of different categories of response; originality is a sum of credits where commonplace responses count as zero, less common responses score one, and very rare responses get a credit of two; and elaboration is a count of additional details used in each response totaled over responses (Thorndike in Buros, 1972). The TTCT can be used with individuals from kindergarten to adult (Mitchell, 1983). It is available in two equivalent forms, A and B, for pre and post testing. The TTCT has a Verbal Test, "Thinking Creatively with Words" which provides scores on fluency, flexibility, and originality, and a Figural Test, "Thinking Creatively With Pictures", which provides scores on fluency, flexibility, originality, and elaboration.

I chose to use the TTCT, Figural Form A, (three sub tests), which can be administered in 35 minutes. The Figural Form was chosen because of the widely varying literacy levels of high school dropouts. The four scores that measure aspects of creative thinking -- fluency, flexibility, originality and elaboration are used to determine the Creativity Index. In this study I did not analyze individual sub scale scores but used the overall Creativity Index to sort participants into two categories: above average creativity level, (84th percentile or greater) and average or below average creativity level (lower than the 84th percentile).

Administration of the TTCT. Figural Form A consists of standardized batteries of three tasks which require the participant to draw or sketch with pencils. These tasks are: (a) the Picture Construction activity, (b) the Picture Completion activity, and (c) the Lines activity. The TTCT was administered to participants in small groups of less than 15, using standardized instructions. The total time to administer the TTCT is 35 minutes, five minutes for instructions and 10 minutes for each of the three tasks. The first task of Figural Form A, the Picture Construction activity, requires the participant to draw a picture or an object using a curved shape as a part of the drawing. The directions from the norms-technical manual (Torrance, 1990, p.2-3) are:

> On the opposite page is a curved shape. Think of a picture or object which you can draw with this shape as a part.
>
> Try to think of a picture that no one else will think of. Keep adding new ideas to your first idea to make it tell as interesting and exciting a story as you can.
>
> When you have completed your picture, think up a name or title for it and write it at the bottom of the page in the space provided. Make your title as clever and as unusual as possible. Use it to help tell your story.

The second task of Figural Form A is the Picture Completion task. This task requires the participant to complete 10 incomplete figures as creatively as possible within 10 minutes. The instructions from the norms-technical manual (Torrance, 1990, p.3) are:

> By adding lines to the incomplete figures on this and the next page, you can sketch some interesting objects or pictures. Again, try to think of some picture or object that no one else will think of. Try to make it tell as complete and interesting a story as you can by adding to and building up your first idea. Make up an interesting title for each of your drawings, and write it at the bottom of each block next to the number of the figure.

The third task of Figural Form A, the Lines activity, requires the participant to look at three pages of sets of parallel lines and to come up with as many different pictures and objects as possible incorporating the parallel lines into each of their drawings in 10 minutes. The directions from the technical manual (Torrance, 1990, p.3) are as follows:

> In 10 minutes see how many objects or pictures you can make from the pairs of straight lines below and on the next two pages. The pairs of straight lines should be a main part of whatever you make. With pencil or crayon add lines to the pairs of lines to complete your picture. You can place marks between the lines, on the lines, and outside the lines -- wherever you want to in order to make your picture. Try to think of things that no one else will think of. Make as many different pictures and objects as you can and put in as many ideas in each one. Make them tell as complete and as interesting a story as you can. Add names or titles in the spaces provided.

Scoring. Since research participants gave free responses to three semi-structured tasks, the test must be hand scored. For scoring I used a professional scoring service recommended by the Torrance Center at the University of Georgia. The tests were scored by trained psychometrists who typically spend as much as 20 to 30 minutes to score a single test (Torrance, 1990), and results were summarized using a special scoring sheet. Cost of having the protocols scored by this service was $5.00 per protocol. However, I felt the cost was well worth the additional objectivity that was obtained. Although many sub scales are available, only the Creativity Index will be used in this study. The TTCT scores only certain aspects of creative thinking and is not meant to include all creative behaviors.

Reliability. Creative thinking may be influenced by personality and situational variables (Buros, 1972) and motivational conditions affect test-retest reliability. The test-retest reliabilities of the TTCT range from .50 to .93 over one to two week periods, and from .35 to .73 over three year periods (Torrance, 1974). In 15 studies using equivalent forms or time intervals from one week to three years the majority of reliability coefficients exceeded .70 (John Holland in Buros, 1972). The diversity of studies and samples, which average about 240 cited per year in Mental Measurements Yearbook, would seem to indicate adequate reliability.

Validity. The technical manual summarizes over 50 studies concerning the validity of the test. Many of these studies involved differences between "high" and "low" scorers. Studies of the "middle" creatives are needed. The

TTCT has become the "industry standard" in discriminating creative individuals due to the sheer volume of studies. Over 125,000 records were used in the norm base (Torrance, 1990), and results seem to be consistent with behaviors occurring in the creativity literature.

Assessment of Learning Style Profiles

Following a break, I assessed perceptual learning style using the Multimodal Paired Associates Learning Test, Revised (MMPALT-II), a performance based instrument developed by Dr. Russell French of the College of Education, University of Tennessee in accordance with administration procedures developed by Dr. French, Dr. C. E. Cherry and Dr. Darryl Gilleyand adapted to this population (Appendix B). In most cases trained assistants were used to perform this assessment. In a few cases I administered all parts of the MMPALT-II .

MMPALT-II

Development and method. The MMPALT-II is based on the (French, 1975a;1975b) theory that each person has individual strengths and weaknesses in various sensory modalities that determine how he or she chooses to take in information from the environment. Using French's material, Gilley (1975) developed the initial MMPALT, an instrument intended to test an individual's perceptual learning style(s). This instrument was revised and refined by Cherry (1981) and at the time of this study was known as the MMPALT-II. The MMPALT-II has since been revised again and the new MMPALT-III is currently undergoing reliability and validity studies. A panel of

experts in psychology, reading, special education, science, curriculum, educational administration, educational media, and physical education offered suggestions regarding procedures during the six month revision period (Schaiper, 1983).

The MMPALT uses a paired associates method to identify seven different perceptual learning style elements in modality. "In modality" means that this is not a paper and pencil assessment, rather, for each sensory modality the participant performs a paired associates task that uses specific perceptual skills for that sensory modality. The seven learning style modalities are: print, aural, interactive, visual, haptic, kinesthetic, and olfactory. A procedures manual is included in Appendix B.

To explain how the assessment works I will use an example. During the haptic, or hands-on, sub-test, blindfolded participants are asked to take pairs of tangible objects in their hands. Each pair of objects, which consists of one unfamiliar object and one very common object, is presented by the examiner for 10 seconds. The participant may manipulate and handle the objects as desired and is instructed to remember them together. During the recall stage, the unfamiliar objects are presented to the participant in a different order for seven seconds each; the participant is then asked to recall the common object that was paired with the unfamiliar object. Each sub-test of the instrument generates a score ranging from zero to 10 in seven learning modalities; each modality has 10 pairs of stimulus-response items. Tests are administered individually with the exception of the print, aural, and visual sub tests which may be administered in groups. Scores are recorded on individual response sheets and summarized on a profile sheet.

Administering the MMPALT-II. The MMPALT-II was administered to small groups of participants. Because the interactive, haptic, kinesthetic, and olfactory modalities must be administered individually, stations were set up where participants rotated among the four modalities after taking the print, aural, and visual assessments as a group. Assistants who administered each of the modalities were trained in advance according to procedures developed by French, Gilley (1975); Cherry (1981) Schaiper(1983); and James & Galbraith (1991a); James & Blank, 1991b). The following 6-step procedure (used by Cherry, and later modified by Schaiper 1983, James & Galbraith 1991a, and Tindell, 1994), was duplicated by this researcher.

1. All research participants were introduced to the measurement procedures before the actual testing and an example was given in each modality tested.
2. Each assessment procedure consisted of one set of 10 stimulus--response pairs, and one example.
3. Print, visual, and aural measurements were completed in a group testing procedure, using 35 mm slides, an audio tape recording, and written response sheets.
4. Interactive, haptic, kinesthetic, and olfactory measurements were administered individually by either the researcher or trained assistants in areas where participants could not see each other. Responses were recorded by previously trained assistants. Order of testing was varied among the four modalities.

5. When stimulus-response pairs were presented to participants, a consistent spacing of seven seconds between each pair was maintained. Each participant was given 10 seconds to respond to the stimulus-only portion of the presentation.

6. After assessments were administered, each participant was presented with his or her results and any questions he or she had were answered.

Research, norming studies, reliability. A wide age range of individuals has been assessed using the MMPALT-II. The Gilley (1975) pilot study used third grade children. Cherry (1981) replicated these results with a large sample of adults of various ages. Schaiper (1983) assessed 53 college students from the areas of education and psychology. Probably the most prolific researchers who utilize this instrument are Waynne James, William Blank and Michael Galbraith (James, 1984 & Galbraith, 1984; James & Galbraith, 1985; James & Galbraith, 1991a; James & Blank, 1991b; James & Blank, 1993; Galbraith & James, 1986) who have worked with adults of many different ages and education levels. These researchers have done most of the norming and reliability studies on the MMPALT-II. Tindell (1994) used the MMPALT-II with adults in five colleges of one university to examine relationships between dominant perceptual learning style and selection of college major, and found positive relationships between assessed modalities and strengths needed for success in that major as compared to those predicted by deans and department heads for four of five colleges of the university investigated. The James (James & Galbraith, 1991a) norming study is the only study that included adults who had not finished high school. Sub test reliability was calculated during this study

through test-retest procedures. The reliability for each of the subtests was: Print r=0.85; Aural r = 0.80; Interactive r = 0.65; Visual r = 0.87; Haptic r = 0.74; Kinesthetic r = 0.67; and Olfactory r = 0.73. All researchers attempting to correlate the MMPALT-II with paper and pencil self-report measures of learning style have reported only weak relationships.

Validity. Validity information (especially construct validity) is difficult to obtain for this instrument due to the complexity of the variables involved. Tests of perceptual learning styles available to attempt correlational studies are few. Future possibilities may involve correlational studies of the MMPALT-II and assessments used by Lowenfeld (Lowenfeld's Visual/Haptic Tests, Lowenfeld, 1982), and Kee & Davis, (1979) as cited in (Jonassen, 1993). Criterion validity seems to be indicated by the Tindell (1994) study where prediction of success in a college major may be possible on the basis of knowing the person's dominant perceptual learning style. Content validity at least for the short term memory processing of paired associates seems to be supported by nearly all the previous studies cited. It is interesting to surmise whether this instrument primarily measures short term memory (James & Galbraith, 1991a) and as such contributes to measuring the initial stages of learning, or whether it measures organizational processes related to learning. Future research needs to be done in this area.

I am making the assumption that the instrument is valid insofar as individuals seem to exhibit perceptual learning style dominances that are different from one another in ways that are greater than chance, and that there seems to be some evidence that such perceptual modality dominances are

related to success within a given major that requires specific perceptual skills supported by those subsequent perceptual strengths. Further, it is assumed that this information would be useful to young adult dropouts and to those who are seeking to teach and guide them in career choice and extending their education.

Debriefing research participants. After the creativity assessment and learning style measures were administered, participants were debriefed. Their learning style results were discussed with them and any questions they had about their own learning style profile were answered. In addition, they were informed that their creativity level results would be available in several weeks and that I would return to discuss the results with them.

Participants who indicated that they would like to volunteer for the computer assisted multi-media and interview portions of the present study were sorted by creativity level once TTCT scores were available. From the group of those scoring at or above one standard deviation above the mean on creativity, and exhibiting learning style profiles not rewarded in traditional classrooms, 12 co-participants were chosen. These 12 co-participants were contacted for an orientation appointment and given an oral review of the informed consent form #2 (Appendix F), by the researcher. After the co-participants had signed the consent, an appointment for the computer assisted multi-media experience and phenomenological interview was arranged for a future date. Eleven of the co-participants completed interviews.

Procedures Three and Four: Co-Participants Experienced Examples of Computer Assisted Multi-media and Were Then Interviewed In A Phenomenological Style

Following a brief orientation and the obtaining of informed consent, the 11 creative co-participants participated in the following procedures:

1. They were trained by the researcher using the Macintosh tutorial basic to the Macintosh Centris 650 computer,
2. They were encouraged to explore four samples of computer assisted multi-media, and
3. They were interviewed immediately following their multi-media experiences. By means of phenomenological interviews, I attempted to understand how creative dropouts reported experiencing learning by computer assisted multi media and how they reported experiencing other learning events in their lives.

Procedure Three: The Macintosh Tutorial and Experiencing Learning By Computer Assisted Multi-media

After TTCT and MMPALT-II scores became available, the 11 co-participants who were selected on the bases of above average creativity level and varied perceptual modality learning style profile, participated in a computer assisted multi-media learning experience "hands-on "

The Macintosh tutorial. Each participant selected for the computer assisted multi-media experience was given individual instruction by the researcher on how to use the Macintosh computer using the basic Macintosh

tutorial standard to the Macintosh Centris 650 computer. Co-participants were encouraged to fully explore the tutorial until they felt comfortable to proceed with the multi-media learning activity. I sat with each co-participant to offer encouragement and was available for questions.

Experiencing the multi-media examples. When the tutorial was completed, and the participant reported feeling confident to proceed, four examples of multi-media educational programs were presented. The computer assisted multi-media lessons were started by the participant and the participant then had the freedom to move through them at his or her own pace and in whatever sequence he or she chose. I was in close proximity to provide any assistance the participant may have required in moving through the examples.

The multi-media examples. The first lesson, "Looking at Mollusks", provides information on a science concept taken from the Pre-GED practice test. The second lesson is an overview of learning styles and an explanation of the MMPALT-II which the participant has already taken. These lessons have been prepared with CourseBuilder©, a software application which provides an environment rich in sound, color, text and animation and such programs are run from diskettes prepared by the researcher. The final two selections are commercially available multi-media programs on CD-ROM. From Alice To Ocean ©1992, Magnum Design and Apple Computer, details the trip made by Robyn Davidson alone across the outback of Australia, and Fall '93 Macintosh Promo CD presents selections of music, animation, and information from the popular media. Total time spent moving throughout the four selections including

time spent on the tutorial and chatting with the researcher averaged about one hour and 35 minutes across all co-participants.

Procedure Four: The Phenomenological Interviews

The bracketing interview. The purpose of a bracketing interview is to attempt to set aside any preconceptions or biases regarding the desired phenomena held by the researcher. Therefore, before interviewing co-participants I completed a bracketing interview which was conducted by an experienced phenomenological interviewer from the Tuesday afternoon research group headed by Dr. Howard Pollio. The interviewer asked me, and I responded to, the same types of interview questions that I had planned to use with my co-participants. A major difference in my responses to the interview questions as compared to the questions asked of my co-participants was that I was responding to questions concerning learning about multi-media and my participants responded to questions about learning from multi-media. After the bracketing interview I was able to examine my own experiences, meanings, and biases so as not to intentionally lead any co-participant in those directions.

After I completed the bracketing interview I presented it to the phenomenological research group. I then made additional notes of my own experiences, feelings, and biases regarding these questions after hearing the feedback of the group.

I returned to the bracketing interview several times after I began the interviews as the themes emerged and I began to feel as though my participants and I were relating similar experiences. The research group assisted in this endeavor as they are very quick to notice if any "leading' has occurred. The rigor of this group methodology depends both on a full commitment to stay with

the actual words of the co-participants as they share their experience and on a refusal to allow frames of reference not supported by the protocol to be used for interpretation.

Co-participant interviews. Interviews were conducted between February and July of 1995. All interviews were audiotaped. All interviews except one took place within 5-10 minutes after co-participants had completed the basic Macintosh tutorial provided on the Macintosh Centris 650 personal computer and had moved through four multi-media samples. One interview took place one half hour following the tutorial because the co-participant wanted to change locations for the interview. Location of the interviews varied; some were in my office, some in my home office, and some were conducted at the co-participants' educational or work sites. Every effort was made to insure the privacy, comfort, and ease of co-participants during their participation in the interview process.

Protocol analysis. Once interviews had been audio taped they were transcribed into text protocols by a professional transcriber. Transcribers signed a pledge of confidentiality (Appendix G). After I received a protocol from the transcriber, I would read the text while listening to the actual audio-tape to check for accuracy of transcription. It was very important to me to have the co-participants' exact words and flavor of expression. After this initial listening and reading of the transcription, I would read the transcription again to attempt to enter the experience of the co-participant. The third time I would close my eyes, lie back, replay the tape, and listen to the words, the affect, and intonation of the

co-participant and try to reconstruct an image of the interview with them. After I had completed this process I was ready to take the protocol to the Tuesday afternoon phenomenological research group conducted by Dr. Howard Pollio at the Learning Resource Center on the campus of the University of Tennessee at Knoxville.

The group protocol analysis. Five of my 11 interviews as well as my own bracketing interview were processed by the phenomenological research group. The interpretation procedure used by this group is as follows:

1. Research group members were asked to sign a pledge of confidentiality (see Appendix H).
2. I shared a brief summary of my research interests and research questions with the group along with a brief description of co-participants.
3. Protocols were then read aloud to the group. I would read the part of my co-participant and another member of the group would read my part. In this way I was able to share tonal expression, affect, and non-verbal information that I recalled from the interview with the group.
4. As protocols were being read, all group members followed along on their own transcribed copy of the protocol. After each paragraph or so, we stopped reading and group input concerning what the subject was experiencing was sought and discussed.
5. At the end of each protocol, after much discussion, the group attempted to summarize themes that had emerged for that particular co-participant.
6. After the group heard and had input on five interview protocols, we attempted to summarize themes and group them in meaningful ways.

7. After the themes were summarized by the group, I validated them with two of my co-participants, one male and one female. I did this by presenting the themes to them and asking if they felt we had accurately described their experiences. When the two co-participants had given their individual feedback indicating that we had described their experiences accurately and they had suggested minor changes, I completed the descriptions incorporating their suggested changes.

The Phenomenological Method of Understanding and Analysis

There are clear and specific steps taken to ready oneself to understand the phenomenological interview process, to conduct a phenomenological interview, and to analyze the resulting protocols properly.

Most phenomenological researchers would agree with Kvale's (1983) 12 aspects of the phenomenological interview, although all would not place these aspects in this specific order. Kvale's 12 aspects of the phenomenological interview are:

> "It is: 1) centered on the interviewee's life-world; 2) seeks to understand the meaning of phenomena in his life-world; it is 3) qualitative, 4) descriptive, and 5) specific; it is 6) presuppositionless; it is 7) focused on certain themes; it is open for 8) ambiguities, and 9) changes; it depends on the 10) sensitivity of the interviewer; it takes place in 11) an interpersonal interaction, and it may be 12) a positive experience." (Kvale, 1983, p. 174).

Bracketing

Bracketing is a very important part of the phenomenological process. It serves the purpose of helping the investigator attempt to set aside potential

biases in the interview. In Kvale's understanding it is what make the process "suppositionless". It represents an attempt to achieve what philosophers term "epoche", or the attempt to set aside or to suspend pre-existing beliefs and attitudes (Hergenhahn, 1992). Traditionally, a trained phenomenological interviewer initially interviews the researcher and uses the same questions to be used with co-participants. The themes and meanings that emerge from this interview make the researcher aware of any existing biases so she or he will not lead co-participants in those directions.

Data Analysis and Presentation Goals

The end goal of data analysis in the phenomenological process is to enable "the essence of the experience to be transformed into language so that it can be understood by others" (Eyring, 1992, p. 70). The process, from preparation of the interviewer and choosing a topic, to the point where findings can be meaningfully reported, is quite detailed as previously discussed. Figure 1 illustrates the steps of the phenomenological data analysis process based on a flow chart conceived by Pollio, Henley, & Thompson (1997).

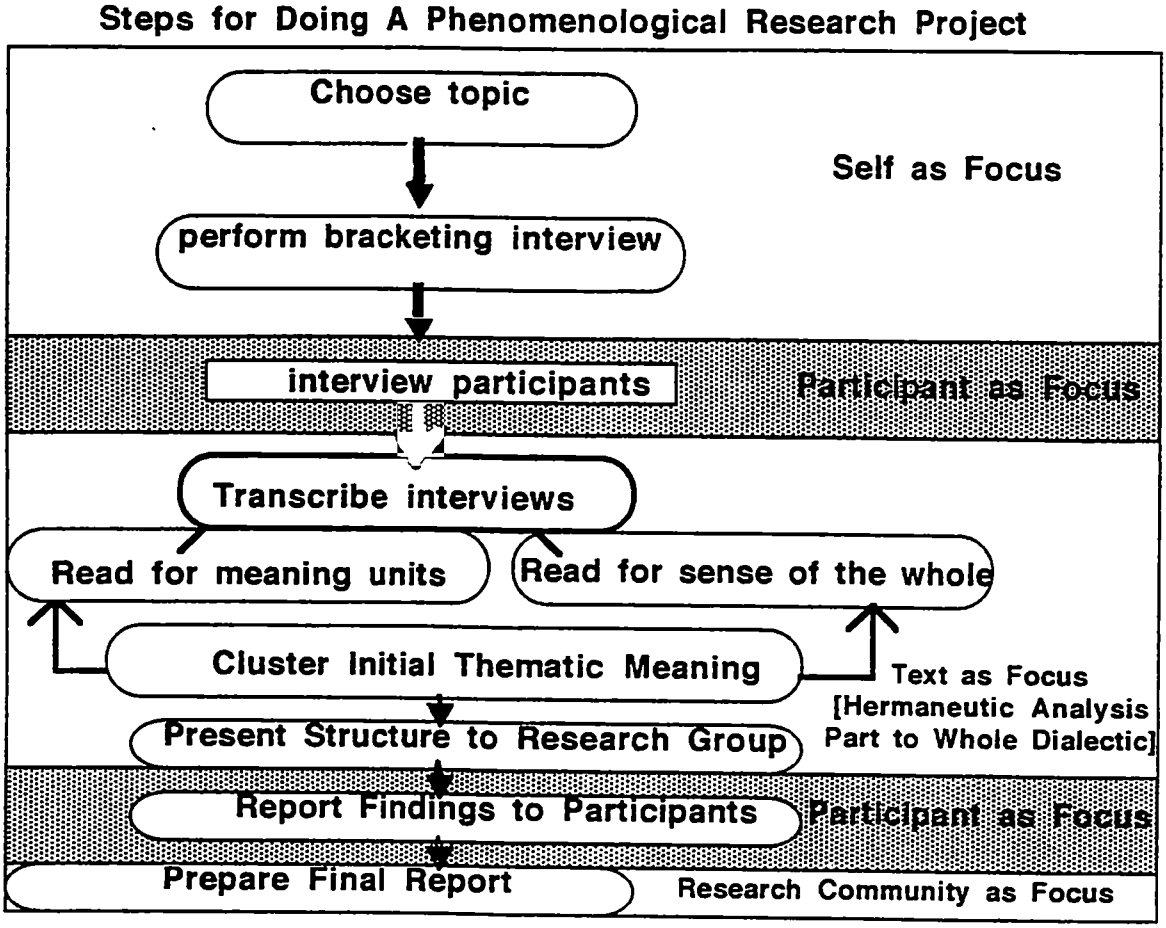


Figure 1 . Graphic depiction of Steps of the Phenomenological Method

This figure is an adaptation of a figure used by Pollio, Henley, & Thompson (1997).

CHAPTER IV

RESULTS OF THE STUDY: CO-PARTICIPANT PROFILES AND UNIQUE STORIES OF LEARNING

Organization of the Results

The results of this study will be reported in two chapters. In Chapter IV descriptions of unique and personal accounts of learning experiences along with co-participant profiles will be presented. In Chapter V emergent common themes and an overall thematic structure of the learning experience as described by these individuals will be presented.

Organization of this Chapter

In this chapter I will discuss commonalties and differences among co-participants, re-state the research question and seek to answer that question by presenting a brief description of each co-participant together with some narratives of learning in their lives. The stories I will present under each person's "snapshot", or vignette, are those that seem to represent some unique experience or meaning of learning for them, both in the multi-media learning activity in the present study, as well as in more general learning contexts.

Commonalities Among Co-participants

Co-participants had several things in common. They were all living in East Tennessee, had re-entered an educational program of some type, (predominantly GED classes), and were all remarkably self reliant. In addition, all consider themselves Caucasian although two of them stated that a

grandparent was Native-American. Four African American participants were invited to take part in the interviews but they all declined to be interviewed.

Co-participant Differences

The 11 co-participants ranged in age from 17 to 28 years of age for the men and 18 to 36 years of age for the women. Five of the men and three of the women were born in Tennessee. Seven participants were employed. Although there were several commonalties and differences, as their stories reveal, each described a varied range of learning experiences.

Addressing the Research Question

In this study I am seeking to answer the following research question: How do creative high school dropouts with learning styles not rewarded in the regular classroom, who have just experienced a computer assisted multi-media learning experience, describe important learning experiences and the more general meaning of learning in their lives?

Co-participant "Snapshots"

Each co-participant's story is rich, meaningful, and poignant. As I describe each co-participant I will present a brief demographic description as well as a few descriptors about them. If they commented upon their own personalities or ways of learning, I also included that information. Two or more stories of learning are presented for each co-participant. One story describes how they experienced learning during the computer assisted multi-media examples. The other describes an important learning event in their lives.

Profiles are presented by gender with the women presented first. Within each gender I present the "snapshots" in the order in which I interviewed them. Pseudonyms are used in all cases to guard confidentiality.

Brittany

Brittany is a short, round young woman of 22. She has three children ages six, five, and two. Only her two year old daughter lives with her as her aunt has custody of the two boys. I have known Brittany since she was 15 because she is the niece of a close friend. She was also my student when I taught GED classes. I was at her graduation which was a few months after we interviewed together.

Brittany's learning style profile shows a strength in the haptic or hands-on modality and her home environment reflects this strength. I interviewed Brittany in her home because she could not get child care for her two year old daughter. Everywhere in her home I see crafts that she has made. Once when she was my student, she made some needlepoint Christmas ornaments for me which I still have. As we interview, her hands are constantly in motion, sketching and describing in the air. She has a ceramic rendition of the "Praying Hands" on her coffee table.

The visual world is also important to her and she has made sure that her young daughter has as many children's videos as possible and many picture and story books. She is worried that "Barney" is too much of an influence in her daughter's life. She has a wonderful throaty laugh and a smile that has real spark and humor. She has grown up quickly, leaving home and marrying with

her mother's permission at 15. Her mother is deceased now. Her sorrow in this is evident.

Brittany aspires to be a nurse like her aunt or a business manager like her mother once was, and seeks further education to attain these goals. She has gotten distracted many times by relationships and the needs of others; yet, she persists in always valuing education. She works as a housekeeper for a maid service.

Learning by Computer Assisted Multi-media for Brittany

As we moved through the multi-media samples her eyes were wide and her speech was punctuated with "Oh, Wows". I wished I had a tape in the recorder to catch all the sounds of amazement. She is surprised by the clearness of the graphics and describes the samples as "really wild." She say that if she had access to this kind of learning she would never leave the computer, that it would be "addicting". She believes that a computer can be used to create as well as to learn from and talks excitedly about the possibilities. She describes the computer as though it were alive; "It can create pictures, movies, songs!" She tells me that if she were designing lessons she would use more pictures than words. She likes the experience because as she says, "I'm like a hands-on, visual kind of person" and "I'd rather watch it and then learn it instead of hear it or read it." About books she says" I couldn't get nothin' out of it". She prefers example and practice.

She also values being able to "do it over" and "rewind" (using the VCR metaphor), and sees the potential to learn pleasantly from a computer that

would not humiliate or judge her. She was eager to "play" with the computer once she became comfortable with it.

She speaks of not being shy about asking for the information that she needs and is likely to seek information from others in her environment or community as her first strategy to learn. She commented that a computer "could be a new expert to ask" for her. She differentiates easily between people who are educated and those who are not and consistently consults the more educated people with whom she comes in contact. She exhibits an amazing persistence and patience in learning and is regretful she left high school so early.

Brittany's Stories of Learning Events

An important learning event for her involved learning to go through childbirth and care for her first baby. She sought this information on her own and evidently went through the birth experience on her own as well. She says" I kind of grew up in an old fashioned family, we didn't talk about havin' babies, or doin' drugs or drinkin', or anything like that, so, I was kind of like in the dark when I had my first baby." She got some books from the doctor and talked about how "weird to hear and see the things changing with my body," but she mastered the experience before her baby was born so was not caught by surprise. She talks of the importance of planning and setting goals, although she is regretful and wistful that she has been distracted from her own so many times.

"The Importance of Being Up-to-date in Learning"

Being up to date in her learning is important to Brittany. As she relates the following story her vocabulary is a surprising mix of her "old" neighborhood language and her "new" more educated vocabulary. She says of learning math:

> ...in GED class I, uh, knew what I'd learned in high school and in middle school, but there was things goin' on and new stuff comin' out like in math, new techniques to work on the problems that I didn't know back then, or that no one taught us but they was comin' up and was more up to date. And there's probably things now that I don't even know that's comin' up, or that maybe not anybody knows yet, maybe just the mathematicians know, 'cause they're comin' up with, inventin' these new ways to work math problems. And if you stay in the past, that's not gonna help you in the future. You've got to stay up to date with the future. So, if you know what's goin' on now, 10 years from now I won't be behind. I'll be right up with 'em in the future.

She hates to be "behind" and has great hopes that she will stay well informed in the future and won't "be seen as ignorant anymore." Learning for Brittany means that she won't miss out or be made a fool of. She perceives education as being the ticket to a better life and also of understanding those she cares for better. While she cares for others she takes great pride in learning for herself.

Crystal

Crystal is a 25 year old mother of an 11 month old girl. She left school in the 10th grade because she needed to go to work and also was into the party scene. She states that school was easy but that teachers did little "to keep my

interest aroused". She says that "school was not that hard for me, You know, I jus' decided to party for awhile...so I did." She shared that she had been using drugs since she was 10 years old but at the time of the interview she had gone through rehab and was not using. In fact one of the important learning experiences she related had to do with going through rehab.

I interviewed Crystal in a conference room at her educational site. Crystal's learning style profile shows a strong generalized pattern with a dominance in the visual modality but significant strengths across all modalities except olfactory. She has a very "in the moment" temporal orientation but states that one of her goals is to be more planful and to think before she acts. She is concerned about this primarily because she knows that this is what will help her attain a more comfortable life for her and her child. Because she has been involved in Alcoholics Anonymous and Narcotics Anonymous perhaps her "one day at a time orientation" is influenced by the philosophy of these organizations.

She is self reliant in many situations but remarkably passive in others, sometimes taking action, other times waiting for things to happen to her. She chose to "pick really interesting people" to hang out with "thugs, ex-cons" because they were exciting and she really wanted to learn some things from others who were exciting. She had several abusive relationships but when the father of her child threatened the baby, she chose to leave.

Learning by Computer Assisted Multi-media for Crystal

Crystal was not very impressed with learning by multi-media. Although she liked the "little special effects and everything", she says if she's sitting down to learn something she'd rather just "read information and or hear somebody

explain it to me." When she speculates about learning material for the GED in this way, she said that everyone is different but "For me, I don't think it would work 'cause computers are more like a game, not something I learn with." She talks abut using computers as a tool when she works for her Daddy. She feels that a computer to help you learn would probably be boring.

She did like the National Geographic multi-media selection but says she could learn that just as well watching a film or TV. The ability to interact was not very meaningful to her.

Crystal's Stories of Learning Events: Learning From Experience; Shortcuts in Learning

Crystal's stories of learning had a very "present tense" quality about them and centered around learning about childbirth, learning from negative experiences with others, learning to use drugs, learning through drug rehab, learning Algebra, and learning from the Discovery Channel. It as though she related her stories of learning in a kind of Maslow's hierarchy of needs way, starting with the basic kind of biological learning about childbirth and survival and ending with learning Algebra and about archaeology on the Discovery Channel. As she stated "my learning process comes from experience".

Although she values learning from experience she also talks about how hard it is and berates herself for her own "hard-headedness" in not listening to others: "I don't know...I'm kinda hard-headed, you know, things has got to be drilled into my mind, somebody can't just tell me somethin' and I'll jus' do it, I'm like...well, I don't believe you, I'm gonna go out and ...I've gotta experience it before I'll believe anybody, it's jus' I'm hard headed." Many learning

experiences consist of "getting the hard part over with" first. Almost as though learning is relief from tension.

Learning in Drug Rehab

She talks about needing to learn in a "different way to accomplish more: Now I just try doin' the right thing instead of what my mind tells me to do...I jus' try to think things through more thoroughly, clearly." This shift in consciousness grew out of her experiences in drug rehab. Although Crystal has not trusted anyone else to teach her, she does talk about the "drug rehab people " teaching her to change her habits and behavior. She also talks about needing to be ready to learn and change and yet there is a "just do it" quality about the experience.

C: They just explained to me, like why I was the way I was and, helped me just learn how to change.

I: So, what's it like to learn how to change?

C: Actually, it ain't that bad, 'specially if you're like I was, I mean, you're welcome to change.

I: So you were ready.

C: Mmm-hmm.

I: What kinds of things did you do to learn ways to change?

C: I don't know, it's like when you change you don't learn, it's somethin' that you got to want and somethin' that you need and you've got to have the will power to do it ...and you don't learn it,

you practice it every day so it becomes a habit, jus' like the old habits were.

I: When you were first starting to learn how to change your habits, about how much time went by before you started to feel like it was becoming a new habit?

C: That's hard to say because, it's like, I wanted it so bad it was like a relief for me, so it was easy for me to do.

I: So talk to me about relief and what that feels like.

C: Well, like drug addicts, they have a tendency to lie about everything and then you just quit lyin' and you don't have to worry about somebody catchin' you in a lie or catch you doin' this because you know you told the truth so you don't have to worry about it.

I: That's a relief!

C: Yeah and it's like the pressure of the world is lifted off your shoulders.

Being Dyslexic and Using Learning Shortcuts

Crystal shared that she was dyslexic in a matter-of-fact kind of way toward the end of the interview. She talks about having to wear a watch to tell her left from her right, writing a paper and knowing there are missing words but that "it looks perfectly fine to me." Her way of memorizing and using shortcuts are seen by her as efficiency.

Well, for me I like to get straight and direct to the point...I don't like to get off to the side...I like to goin in and get 'em done, I mean get it over with...and I guess I just force my brain to do it cause I like to get it done, get it over with and that's why those computers in that other room made me so mad, cause they're like drawing all these pictures and I'm like...look I don't care about this and I'm sittin' there mashin' that enter button...I wanna get it DONE and over with.

She talks quite extensively about how it feels to "force your brain to do something" and appears to use a lot of self talk to get herself to "re-memorize things." I asked her if she thought memorizing was a short cut to learning. The expression "short-cut" seemed to resonate for her and she related the following:

C: That's what Algebra's about too, you know, and I think that's why I get into Algebra, it's a short cut and it's direct and to the point and it's about gettin' it done and gettin' it done right and that's why I love Algebra 'cause there ain't no foolin' around in there, you know, it's direct and to the point, you know.

I: And there's only one answer.

C: Mm-Hmm and it's like pfft! pfft! there it is!

I: What do you think of problems that have more than one answer? Do you like to think of those?

C: Oh, yeah...Mmm-hmm. That kind of stuff I seem to really get into...I like to take the shortest cut I can, though, you know it's like when my Mom had my little girl's birthday party, you know, and I had all those little plastic table cloths, you know. And Mom's like spray em down with some 409, well, I just threw those little suckers out on

the side fence and just hosed 'em down and let 'em set there and drip dry.

Crystal's Complex World of Learning

It was interesting to me how Crystal made the leap from talking about problems in Algebra to talking about more complex problem solving with ease, that the common denominator was an ability to see your way to the shortest solution. We talked about short cuts in learning and then she talked about how hard it is for her to make a career decision because she is interested in many things. At the end of the interview she briefly let me in to her world of learning, it was as though she'd been testing me throughout the interview to see whether I'd be shocked or critical of the ways that she'd lived and approached the world. After her relating of the basic kind of learning of life I was fascinated at how her world of learning is complex and thought provoking.

C: Mm-hmm..yeah, I love stuff like that. And I love...like the Discovery Channel. I love watchin' that I know about pirates and stuff that happened from the war and stuff like that and about other religions and just I've seen some neat stuff...there's like a clear octopus 'cause he lives way down under and he can't get the light to make color out of 'im.

I: It sounds like the world is a pretty interesting place to you?

C: Mm-hmm. Oh, yeah. I get into a little bit o' everything, I'm not like one particular...get into one thing. I specially like...what are them people that go around diggin' up everybody's arche? archeologists? Oh, I love that and I swear if I didn't have a child, that's what I would get into because that just amazes me...like

> these one people that built their waterway to go through to keep their town from floatin' a million years ago and how they leveled it out jus' perfect with just a bowl and a stick in it that they were lookin' through to level that out. You know it's like ,God, these people were so intelligent! People think they are so intelligent now but, they learned all this stuff from people a million years ago! Those people were already doin' it and they didn't have like computers or fancy equipment, really, you know, those people were highly intelligent. I love that...just to see what makes the world tick.

Carly

Carly is an attractive, capable woman of 36. She has recently been laid off by a sewing manufacturer. She had worked in this field for about 18 years. She is seeking her GED and is in re-training program and hopes to go on to a community college. She left school at 15 and to deliver her baby. She is feeling very alone now that her son is 21 and out on his own. The early part of her life was devoted to learning so she could care for her son who is a hemophiliac. Like Crystal, there is a sense that her education began with the birth of her child.

I interviewed Carly in the conference room of her educational site. Carly has a generalized learning style pattern with strengths in visual, print, and aural and supplemented by haptic, kinesthetic, and interactive modalities. She has quite a sophisticated approach to learning, thinking and problem solving. She also uses metaphysical visualization to attempt to know and understand her world. She does not rely on others and finds ways to "send them away" if they interfere with her problem solving process.

She has a positive attitude towards books and uses them either for escape (fiction) or as references (non-fiction). She doesn't perceive that she learns from them, she uses her reference books as an auxiliary to "figure things out". There is the sense that the learning for her is in the figuring out or problem solving, not in gathering information. She also has confidence in her mental processes and feels that solutions to problems will "come up at the right time" or "if you stop worrying about a problem, then soon you will know what to do about it."

Learning by Multi-media and In General for Carly

Carly was impatient with learning by computer assisted multi-media and didn't care for it at all. She thought it was attractive but not helpful. This is probably because of her preference for print and problem solving as a primary way to learn. Her usual approach to learning something new is, "look it up, and then if I can't figure it out I get on the telephone and find someone who can tell me about it, if the person fails her or she still can't figure it out, she "sits and thinks" and plays with alternatives in a logical way, by eliminating alternatives and things that won't work. Once she generates a solution she plays with it by mental visualization and also tries to eliminate things that don't work. She is a powerhouse when it comes to problem solving. In a sense she doesn't need the computer for visuals because her own powers of visualization are so efficient.

She says, "I want the quickest way from point A to point B. When the computer is like drawin' things, I'm like 'won't it hurry up and finish' so I can go on to more information." Since Carly makes a great distinction between reading for pleasure which is an escape for her and reading for facts to help her in

problem solving, the multi-media lessons verge too much into the entertainment realm and distract her from the direct work of "figuring things out". It is harder for her to use the computer as a reference during a multi-media lesson. She would, however, probably love using it for Internet searches.

Carly's Stories of Learning Events: Learning in Order To Care for Others; Learning As "Figuring Out"

Carly related several fascinating stories of learning, beginning with learning how to give birth and learning how to care for a hemophiliac infant. Continuing closer to the present she described how she learned to install paneling at her rental house. She also provided great insight into her learning experiences as a child. It was and is important to her to have privacy to "figure things out" because others may be too judgmental and critical if they are around. She relates how this got her in trouble when she was young.

C: Uh, I don't know, Mom always says I wanted to find out how things work 'cause when I was young, I took everything apart, you know."

I: Can you remember an experience where you took something apart to learn more about it?

C: Well, one thing that stands out was...got in trouble. Me and my cousin took the whole swing set apart. We didn't understand how it was held together. Took the whole thing apart, every screw, every bolt...(Laughs).

I: So did you put it back together too?

C: No. We got in big trouble. That's when we was real young. We were spoiled. And you come to the conclusion that sometimes things just work out and happen for no...it just happens...and there is nothing (dynamic) that really makes it happen.

"Learning in My Playhouse"

The private learning that Carly did in her playhouse at her grandmother's home was very important for her in a number of ways. It was where she first discovered books, even one on metaphysical visualization; it was also where she could try things out without fear of punishment. Let's examine for a moment, Carly's account of her playhouse.

C: Well, that's neat. And when you were talking about getting into the metaphysical area of visualization. How did you first learn about that?

I: Mmm. Books.

C: Can you remember where you were?

I: My playhouse. (laughs) Where I grew up it was like way out in the country and I had a playhouse as big as this room.

C: Neat!

I: And it was part of the storage areas, too, and it was just books that'd been there forever, and I can remember lookin' though 'em and they disappeared one day..

C: How strange.

I: Yeah. And then um, actually when my divorce... when I was 25 is when I really started to...lookin' for answers and different things...that's when I started really studyin'...it seemed like I had more time, you know, and different things.

C: Tell me about your playhouse.

C: It was kind of neat. It's still there. Things are kind of turned upside down, it's a storage building now. If you go in, um, there's like an ancient old trunk now to the left, it's full of dolls now, my dolls was all over. It had a window on the right...it had tables and chairs and it had one long shelf across the top and um.. It's a nicer place.

I: Yes.

C: The back part of it was all storage...canning jars, and there was a deep freezer...and there was a curtain that had, uh...it's still there...it's been there all these years...and the curtain separated the canning jars from all the vegetable stuff and it had like, uh, rams on it...it was a real old design...old material. And there was a big picture. I don't know whatever happened to it, I don't know if somebody asked for it or somethin' It had a big Archangel. I've seen copies of it at the mall.

I: Is it the guardian angel picture?

C: Yeah.

I: I have a copy of that same picture hanging over my bed.

C: But this was an original...It was hangin' there...I'm like, "Mom you need to find out where that is" you know.

I: So the picture was like hanging where you go in..

C: It was on the door...when you walked in the door, if you looked on the left, it was on the wall right at the door.

I: So, tell me about being in your playhouse and things you learned there when you were little.

C: It's where I went to do everything like, cut paper stuff out, or make things. One day they had some wallpaper left over from the house and I wallpapered half the room... things like that. That's still there, too.

I: You were talking about looking through the books that were stored there. Does anything stand out in your mind that you learned from any of those books or remember seeing?

C: At the time it didn't, but I found one in the library years and years later, and the reason I recognized it...I recognized the covers and I recognized the letters it had big letters like this where it started out each chapter and stuff. You see, at the time when I was real young all I could do was look at stuff and a lot of the words, I didn't understand, a lot of things, you know I really didn't understand about it.

Carly goes on to relate how when her son was in the hospital and they were trying to teach her self hypnosis for relaxation, she recognized some of the ideas from those early books that were in her playhouse. To Carly learning goes on in a secret place. It changes things and even though you don't initially understand, when you encounter it again in the future you are ready to deal with it and can achieve a new understanding. Learning links the past with the present in interesting ways for her.

Carly's playhouse is almost a metaphor for her mind: a place where things are stored even though "they're turned upside down now", a place where you can try things out and manipulate the environment in private. There are partitioned off spaces and lots of resources for experimenting, playing and "figuring out."

Dancy

Dancy is a charming, dynamic young woman of 18, very beautiful in a natural sort of way. She was raised in Wisconsin and left school in her junior year. She and her brother had been living with their father and he died that year. They decided to get an apartment and stay in Wisconsin so they both quit school, took jobs, and made it on their own for awhile. However, they weren't compatible and after briefly trying another roommate, Dancy moved to Knoxville and is living with her mother. She is employed as a reservationist with a hospitality corporation.

I interviewed Dancy in the graduate lounge of the University Center on a Sunday afternoon. She has a very strong sense of her own efficacy and values her current educational site because "they let you come and go as you wish". She is a hard worker and intends to go to college and pay for it herself. She perceives her educational site as sympathetic to those goals and feels that they will give her the resources to finish her high school credits. The site staff is also seen as genuinely interested but she likes it that they leave her alone to work in the ways and times that are best for her. She has a learning style profile that shows a strong visual, interactive, and kinesthetic orientation. The kinesthetic orientation is obvious in her interview and in her physical presence. During the interview she changes positions, moves her head and arms dramatically, and

almost "acts out" some of her stories. She speaks matter-of-factly that she regrets that her father will not be there to see her graduate, marry, or accept her Academy Award.

Learning by Multi-media and in Other Technological Settings for Dancy

Dancy uses a computer for her job so it is very difficult for her to relate to it as a teaching tool. Her prior exposure was through learning word processing, trying to learn Lotus, and using it as information coordinator at her place of employment. The multi-media was novel to her and she saw "possibilities" but felt that the Internet "would probably be quicker and of more use" for her because she could more easily and quickly follow her own interests in many different directions.

She and her Mom have recently purchased a personal computer and she has played with the CD-ROMS some but wanted them to be more "fast paced and game-like". She doesn't have much patience with the programs. She remembers thinking when she was younger that computers were just "like Atari's" and thought they were just for games. Her philosophy on learning computer software packages is "just sit down and play around with it". The manuals are "frustrating and have too small print". She is frustrated when she needs to learn a new computer "tool" and feels she doesn't have the time to learn it in a playful kind of way.

She likes the Internet chat rooms. She likes being able to talk with a wide variety of people about nearly anything (common for people with an interactive orientation). She is especially conscious of wanting to appear knowledgeable,

> This is it, and it just kind of sparked my interest in different people I've met we'll be talking about well, there's this and there's this, and I'm like 'Oooh, you know, so then I start messing around and I want to know what they know. I want to know a little bit of everything.

She is impressed with the sound and graphics of multi-media and compares the progress of technology with "those little Apple IIC's" they had in her school. She says "I mean the graphics are excellent, sound is excellent, just, it's amazing what they can do. I never would have thunk it"(Laughter). She is amused about her original ideas of CD's as things that went in stereos and played music and now she has learned a whole new concept for them. She does not see them as relevant to her present education, however, and says, "They're just something I use to learn for myself, not for school or the job." When asked if she learns "for herself" a lot she says:

> Rare. It's very rare, because I've got so much stuff goin' on. If it doesn't have something to do with what I'm doing, I don't have a lot of spare time just to do stuff for me. But if I am going to get off my butt and do something for myself, I'm going to do it 100%, I'm going to read up on it, if it's on the computer, I'm going to spend as much time as is necessary until I get it down to where if I brought somebody in who had no idea I could show them and I could have that knowledge.

It is interesting that she does not perceive her learning for the job or her learning for her diploma as "learning for herself". It is as if learning in order to survive, work, and have a career is very different than just learning something for interest, and is somehow for "others". She is quick to say that she has

learned so much on the computer at work that it would take " a week and a half to talk about it" because of all the "looking, and testing, and playing" that she's done to learn everything.

Dancy's Stories of Learning: Taking Action, Learning from Others' Mistakes

Dancy's stories of learning have primarily to do with taking action: learning from others, which for her is actually learning from the experiences of or with others, or learning to dance, which is what one might expect from an interactive, kinesthetic learner. She has a vicarious approach to learning from the mistakes of others. She speaks of having learned a lot about herself from the men in her life, as the following excerpt illustrates.

D: But each one taught me something. You know the first one taught me that I have a lot more self worth than to put up with someone telling me constantly that I was ugly, that I was an idiot, that I was trash, whatever the case may be.

I: Nice guy.

D: He's my favorite. (laughs) He's only one of many on a trophy wall. And then there was the next one that taught me I shouldn't have to compromise anything that I want to make anybody else happy, and ummm, I think there's one guy I went out with when I came back to _____, his name is Joe, and on the negative side he kind of showed me the drinking, the fast life, so to speak, I'm one of the only girls I know that can do six shots of whiskey consecutively, and I didn't learn that on my own, but he went... about four months after we started going out, he violated probation and went to jail, and that kind of taught me that I can't be slacking off, that I can't

just sit on my butt and expect something to come my way because it's not gonna happen if I keep goofin' around, if I don't take responsibility for my actions, I'm going to end up where he's at. And that is when I started going to the _____ school more diligently.

I: So you kind of learned from his mistakes?

D: Yeah I learned from his mistakes, and thankfully, they weren't my own. But, he, you know, taught me to have respect for myself and that, you know, bettering yourself is not a bad thing. And you know when he went to rehab as part of his jail thing, him doing that kind of taught me that nobody is above the law, nobody's above any sort of failure, and all you have to do is bite the bullet and take it and learn from it and use that to better yourself. Which he did and I did kind of simultaneously.

Taking action is also literal for her when she speaks of learning a new dance routine. Dancy continually uses the figure of speech "get off your butt and do something" if you want to improve your life. Just doing it and taking that risk are figural for her. She also has an amazing sense not only of how motion looks to others but of when her own body movements are "out of sync". She speaks of this awareness: "You have to think about how it's gonna look, how the end product is gonna look if I do it this way, how's it gonna look if I'm stiff here; how's it gonna look if I'm just bobbing my head over here. You kind of take yourself out of your body and pretend you're watching it. Which is what I do in my bedroom because I don't have any mirrors."

Learning To Choreograph

The playful approach is vital when Dancy is attempting to learn something difficult, as is the willingness to take risks. She relates this in the following vignette about the first time she tried to learn to choreograph a dance routine for pom squad national competition.

I: So tell me about the first time you tried to choreograph something.

D: Oh. I think the first time I really formally tried to choreograph something I had choreographed stuff for the clubs back in Wisconsin and stuff like that. But I had to choreograph our camp routine for poms and I was the oddball on that squad anyway because everyone was so stiff and perky., and I was just very loose kind of, you know, everybody else would be sitting in their chairs all stiff and straight if the music would be going I was just kind of bobbing my head and swerving around. And if you watch me driving I do the same thing every day when I drive to work. But I just remember thinking, I've got to do this so these stiff asses look good doing it, but then I can't make myself look like an idiot doing it because I can't dance the way they dance, but I know they can't dance the way I dance either. And I had tc think about, well, it's a camp. It's a pom pom camp. How we do here is going to determine, do we go to state? Do we go on to nationals. So I've got to think about what do these people want. And then I stopped worrying about it, and it was like, I'm gonna have a good time with it. They're giving me this, I'm gonna have a good time with it and I'm gonna try to let everybody else know it's not what you win or what you lose, it's are you having a good time? Are you smiling when you're dancing because you're enjoying yourself or because you know you have to smile? And there's a big difference when I'm dancing, if I'm smiling because I'm having a good time. If I'm smiling because I have to, it's fake and everybody knows it's

> fake, and it's one of those I hate this, I just want out of here, I just want to go home, types of smiles and everybody can see straight through it. So, I just had a good time with it, I had a deejay friend of mine mix some music up and showed up and a lot of people didn't like what I came up with, but, I was like well, we have three days to learn this. Can you guys come up with anything? I kind of won by default. But it turned out we took third and the hip-hop portions of the routine were the ones the judge liked the most. The ones where I was like, screw it, lets just do this. Let's do something off of it.....Nobody on the squad ever congratulated me on that but, the judges did. The judges came up to me afterward and thought it was really cute and they loved it and blah, blah, blah. But nobody on the squad ever said a word.

After hearing this story I asked Dancy how long she had been dancing and if she had had a lot of lessons. She stated that she had never had any lessons, she just "did it" and that she had been dancing "...since I was four or five . I used to dance in my back yard. Like a weirdo. Huey Lewis. My friends and I used to put on little shows. Five cents for my Mom, two cents for my dad because he was a senior citizen." She speaks of learning new ways of dancing as "a rush" and says she is blessed with a body that just "knew what to do once the rhythm (of the music) began."

We speak of her future and I ask if dance has a place but she says, "Well right now it's more of a hobby, bringing home a paycheck and getting an education are the two most important things. And if dancing can be in there somewhere or it can be related to one of the two, great if not, that's OK". Dancy values academic learning for its survival value but it is apparent she values "learning for herself" and "learning dance routines" as pleasure.

Arden

Arden is a blonde, enthusiastic 22 year old. She is the mother of two children ages 21 months and 8 months. She left school in the 9th grade for a complex set of reasons. She felt labeled as a "druggie type" because she wore short skirts and a leather jacket and was very popular. She felt constantly judged and persecuted at school even stating that she was getting A's and B's on tests but the teacher would give her a C for the grade period. She says "they wouldn't let me go to the bathroom because they thought I was snorting coke." She also received special education services for mathematics and enjoys one-on-one tutoring. She was born and raised in Pennsylvania.

Although her mother was a strong advocate for her at school, home-life was becoming unbearable for her. Her stepfather was abusive to her mother and her 17 year old stepsister and when Arden intervened she got beat up too. The mother told the girls they would have to leave and go to a shelter because they caused problems between her and her husband. Arden felt that this was the ultimate betrayal. She quit school and got two jobs to support herself, her stepsister, and the stepsister's infant. One of the jobs was working with the mentally retarded which she loved and the other was waitressing in a truck stop.

After being in an abusive relationship herself she decided that she'd had enough. Soon after she met a truck driver who is now the father of her children. He is a good, kind man and is wonderful to her and their children. He moved her to _____. She felt bad about leaving the stepsister to make it on her own and her family disowned her because the truck driver is African American. She often does not know how to take the goodness and kindness of her

husband and is uncomfortable because "he does everything for me". She feels she should be more self-sufficient.

Arden originally entered GED classes to receive child care for her children "who were driving me crazy". Now she is excited about learning for the sake of learning and also is excited that "learning seems easier now than when I was in school". Her learning style profiles shows a dominance in the interactive modality and no strengths in the other modalities. She uses terminology that seems to indicate that the visual mode is important to her but perhaps her learning disabilities kept her from forming the strong associations needed to score high in the visual modality. Her preferred way of learning is to be social and to get others to tell her about things or to have someone explain the steps of how to do something. Her social skills and personable presence have made it possible for her to elicit help from many different people. Her husband also helps her learn but, she feels as though "he just wants to do it for me, won't let me do it". She needs explanation and practice.

Learning By Computer Assisted Multi-media for Arden

Arden loved the whole computer experience. She liked it because "it was so clear and it tells you what to do, I think that's why I like it so much, it tells you what to do". She shared that it helped her remember things better than reading them in a book, "Uh, I remembered things that I usually can't remember, ...I guess because it's so visual and you could see everything about it, and it was a lot more interesting on the computer than it would be in a black and white book." Use of color was essential to her enjoyment and remembering. Learning this way was exciting to Arden because it enhanced her memory and that gave her

new hope that she could really learn. She has much self doubt when it comes to her ability to learn in school.

She perceived the computer as "another person that could tutor me" and the advantage was "I could turn it on and ask it anytime, I wouldn't have to wait until it was convenient." Since Arden had related how much she enjoyed one-on-one tutoring, It was difficult for me to differentiate whether the computer was central to her enjoyment, or whether because she and I were doing it together, the attention and explanation I gave were more important. Perhaps it was some of both.

Arden's Stories of Learning Events: Learning For The Benefit of Others

Others are of paramount importance in Arden's life. When she learns it is usually for one of three reasons: to care for others or her family, to convince the people she loves that she is knowledgeable, or to further her goals toward self sufficiency (not depending on others). The following story reveals her delight in learning to care for mentally retarded persons in a group home.

Learning To Care For the Mentally Retarded.

A: I loved it. I loved it. I got to cook dinner for them, and help teach them how to eat with spoons and stuff. You know, we bathed them, and stuff. They were adults but I even enjoyed bathing and changing their diapers and stuff, because (sigh) there are just no words to describe what that feels like. You know, and they're so happy, you know, and you've never seen anyone so happy, you know? And you're thinking..

I: They're happy because you did something for them?

A: Yeah, but they're happy all the time, not just because you did something for them. I mean they get happier, but they're happy all the time. And you just think, how could they just be so happy all the time? You know, and you think, we have our problems, but they have a lot worse. You know (sigh).

I: They were so happy.

A: And they're just so happy. I got attached to those kids, I mean, I cared for them, we were allowed to take them home on holidays. And I just loved that job.

I: Sounds like you miss it.

A: Yes, I do. I miss it a lot. And, I have even tried to find a job here for that, and I can't find one. But, you know they used to have goals, and their goals were, some of them had toilet training goals, and some of 'em had eating goals, and like some of them just had clapping or whatever. You always had to write down if you had to provoke them to do it or if you had to, you know, if they actually did it by themselves. But it was a good job and I had special training.

I: You had special training.

A: I had to go through orientation for a week. It was about how to restrain them if they went off. And you had to learn how to restrain them so they wouldn't hurt themselves or others.

I: So how did you learn that?

A: Oh, well we watched a tape and they showed you how to do it and we practiced, and then they tested us on it. I practiced on my sister (laughs) and I passed.

Arden really likes being told and shown and having the opportunity to practice. It seems to build her confidence that she can learn. She relates how hard learning has always been for her and that it was much easier to be social than to learn. It wasn't that she was not interested in things, but that before she "learned how to learn" that it was just too much of an effort. Even though she is enjoying learning now she still depends on her husband or her sister-in-law to explain things to her orally. The learning strategy she has learned that seems to help the most is that, if she will read aloud to herself, it helps her reading comprehension. She has recently discovered this and is excited about the possibilities. The following two excerpts illustrate her preferred way of learning and her new attitude toward learning now that she is "learning how to learn".

Learning With Miranda

Comprehension for Arden begins with "When I know what to do. When I know how to write it out, when I know how to figure it out". Even when she is relating her story of learning she does it in a kind of dialogue as though the give-and-take of conversation were very important to her learning process. Miranda is a pseudonym for her sister-in-law.

I: What happens before that?

A: I'm frustrated, real frustrated. I'm ready to quit but I won't quit until I get it, and if I can't get it by myself, I'll call somebody to come and help me. (laughs)

I: Ok. Tell about when you called someone to help.

A: Umm, I just call up my sister-in-law, and say 'Miranda, can you come down here?' She'd say 'why?' and I'd say 'I need help with my geometry formula' (laughter) and she'd say 'ok, I'll be down in a minute' and she came down and helped me.

I: When she helps you, what does she do?

A: I don't know but she is good let me tell you, she is good, she is better than my husband. She just sat there and explained everything to me, and then she said, 'do it'. Whereas, R. (her husband) would have said, 'here this is how you do it' and he would have done it himself.

Learning Now Compared to Learning In The Past

A: Now learning is wonderful. I love to learn. And I didn't realize it until about a year ago, but I've learned a lot of things in my life and I'm only 22 years old. But, it took the hard way, the long way, but now I know the difference between right and wrong. But, now I love to learn and that's probably it. I just, you know, my main goal is to learn all I can possibly learn in my lifetime. Cause you never know when you're gonna go (laugh), you know?

I: That's true. Well, listen, I sure appreciate the time that you've spent sharing your learning experiences with me.

A: Well, thank you, but, you know, I've learned a lot from you too.

Arden was personable and interactive all through our interview, even when I felt that it was difficult for her to share some of her story. The most meaningful part of learning for her recently is to know that it is not important how you learn but that you do learn. This has been very freeing for her.

Remarks Regarding the Women as Learners

Several common themes stand out for the co-participants who are women. All but one of them are mothers and mention childbirth as an important learning experience. All mention the importance of learning things about themselves in the context of their relationships, whether positive or negative. Although self-reliance is a common theme for all co-participants, the women were more likely to perceive this as the necessity to be strong in order to care for others in their lives. As the following "snapshots" of the men reveal, their experiences and meanings are somewhat different.

Mac

Mac is a 26 year old man robust and bursting with health and vitality. He is determined to get his GED despite a learning disability. He is interested in golf, fishing, and racing. He works in maintenance at a mortuary and is also on a volunteer rescue squad. His career goal is to become an emergency medical technician. He has several unique approaches to learning. Although all the co-participants are above average in creativity his creativity index is one of the highest.

His learning style profile indicates a strong visual orientation with a mild haptic supporting style. His print modality score was 0, probably due to his fairly severe dyslexia. His self reported reason for leaving school was, "I did not like being there plus I was stubborn and bullheaded. Also, I enjoyed art a lot but felt I wasn't getting nothing out of anything else." He left school in the ninth grade and had only just begun working on his GED when I interviewed him.

Learning By Computer Assisted Multi-media For Mac

Mac was very enthusiastic about learning using multi-media primarily because of its visual qualities and vocal explanations. Reading is sheer torture for Mac and makes him very frustrated and angry at himself. He found it refreshing to be able to learn something in a visual way. He learned to use the Macintosh tutorial very quickly and asked many questions about how the multi-media visuals had been designed and how the electronic drawings and paintings had been created. I showed him a few techniques using my draw/paint software which he enjoyed very much.

He was very surprised by the actual experience with the computer and more than a little wistful about having never known about this type of learning before, his reaction follows:

> Well, when I first started looking at the computer, when it first came up on screen, I thought it would be awesome, I mean it really was. Learning how to operate one, a computer has been something I've never been really been that interested in it, and to learn how to get into a computer, how to get out of a computer, umm, it was definitely different. It was enjoyable, it was real enjoyable. Uhm, what I saw was a world beyond belief, what is being actually done on computer as far as the graphics, the work, the things that are happening. It's beyond belief.

> You know I'm 26 years old and Uh, I'm way behind I feel. I wish I'd learned this I'd learned this stuff earlier.

Mac enjoys learning new things but has done so by experience, observation, and television. His perception of the computer assisted multi-media was that it would be a great "new tool" to learn with. Learning by seeing is "direct" for him as opposed to learning by reading which he sees as "indirect". He also has trouble focusing his attention and he thinks the computer helps do that. In the following excerpt he is talking about how it would be to learn medical information using computer assisted multi-media as compared to learning it from a book.

> If I could pick any topic...I'll say it would probably be in the medical part, I mean the way the medical part came up, it was just awesome. There's nothing worse, I mean, I just do not care for reading and to be able to see it in that form and to be able to read it from a screen is more interesting than having to hold a book and read it, I mean eventually I am goin' to lose interest. But watching something up on a screen that has....uhm, color, that catches your eye, I mean your attention is going to direct right in on that screen. As opposed to having to read over it, more or less having to point your finger, or whatever you have to do as far as reading.

For Mac "catching the eye" is catching the attention. He talks about how great it would be to motivate himself with the computer. He explains that he is always excited about learning something new but quickly loses interest if he has to labor over reading it. He felt that if he could express himself by using electronic drawing and paint programs that he might enjoy doing reports and that he could "get himself to read the information from the screen" if he knew he

could "play with the paint part after". He gets quite excited about being able to translate the print information into a visual form. His ideas about how he would do electronic learning and reporting follow:

Learning and Reporting Using Computer Assisted Multi-media for Mac

M: When I have to read it out of a book? Uhm, generally at the beginning I will be excited about it but, eventually I will lose interest in it. And the reason being, I am never going be one to read a bunch of books. I have to have somethin that keeps my attention span...magazines, uhm, I enjoy automobiles, I enjoy fishing, oh just anything that deals with sports, like that but when you get into like uh, a fiction or non-fiction book, or something to that effect, uh I will not be interested at all. But something that I 'm real interested in, my, my attention span will stay more on that, than something that somebody hands me and says like, here, you have to do this and I want a report out of this by a cert..well , No! Nine times out of 10 I'll end up bringing out of the book onto the paper what they want, what they ask for and they'll catch on to it, they'll catch right on to it. But for me to create somethin out of what I've read from that book and put it on paper, I wouldn't be able to do that for the simple fact that I'll lose interest from the book to the paper.

I: What if they asked you to read the book and do, like an electronic report, like this with drawings?

M: (Laughs) That....would be I uh , think that uh, if I knew that I had the second stage would be the electronic part with drawings. I know I would have to complete like this first part first and OK, and I would want to definitely complete this first part so I could move on to the second part because its so interesting to work with that..

I: So, you might get lost in it...

M: Oh, yeah, I could definitely get lost in it. I really do. For the simple fact is, I know if I pass this first deal I'll get to play with what I'm looking forward to, its like a toy (laughs).

I: So you're going to reward yourself?

M: Oh, yeah, exactly, exactly. (Speaks very rapidly) You're gonna complete the first part because if you skip the first part you're not gonna be able to work with the second the part. So you, you're gonna to picture on this first part what you're gonna, and think, hey, what do I have to draw, to bring out of this , say the book, to put on the computer. I mean you're gonna have to, I mean as I say you're gonna have to put your thinking cap on and think back and really study on what you're gonna bring out.

Mac becomes very animated when discussing these possibilities. It was difficult for him to proceed with the interview for awhile because it was evident he was thinking about the possibilities. He has a very embodied style of communicating and learning which comes across in his story of an important learning event in his life.

Mac's Story of A Learning Event: Learning and Performing CPR

The important part of learning CPR for Mac was its relevance to life, "you might be able to save someone's life" and "you never know what you' re going to come up on as a member of the volunteer rescue squad". Learning for him requires life and movement as opposed to anything static, it also needs visual components. This is his account of learning and performing CPR.

I: You mentioned CPR, tell me about learning about CPR.

M: Well, learning about CPR, number one can save someone's life, number two you never know when you're gonna need CPR, Uh, basically what they show you... in my situation I need Uh, all the CPR I can possibly get from infants to children and on up to adults. I have to have it all because the field that I'm in with the rescue squad, I have to know all CPR. And anyone really should know all CPR because the reason bein', you never know what you're gonna experience coming up on anything. But learning about it was a real experience, and what I enjoyed about it most was learning how to give someone CPR such as a cardiac situation, learning how to do the Heimlich maneuver, to get an object unstuck, whatever the case may be, working with the mannequins, uh, listening to the instructors.

I: Tell me about the first time you worked with the mannequin.

M: Woo, it was a very eerie feeling, number one (laughs nervously, clears throat), uh, you don't do a mouth on mouth situation in these days and times. Uh, when you work with a mannequin, you do have to place your mouth over their mouth, it was an eerie feeling, it reminded me of a mannequin you saw in a store and you go up and start kissin or somethin (laughs). That would be my experience.

I: So what does eerie feel like to you?

M: Eerie? Just like you don't want to touch it, you don't want to have a part to do with it. If you have like a human form, like a body lying there, I mean like you think of warm flesh, a person, and you know when touch this person it reminds you of a person that's passed

away, uh, they're stiff, they're hard, there's no soft, there's nothing there, not a heart beat, nothin.

I: You look and sound like your own body feels different in response to whether its a mannequin or a person...

M: Right, if I was helping a person as opposed to a mannequin, with a person, if you have that 99% chance of livin', you're gonna watch life come back into this person. A mannequin, nothin will ever happen, once you finish with it you'll put it up. With a human being, once you start, a CPR, once you start mouth to mouth you'll have the heart, if it's quit it'll start pumping again, if its meant to be the blood will start flowing through this heart, the person will start breathing through the mouth and through the nose and oxygen will start going back to the brain.

I: Say something about how that physically feels for you when that its going on.

M: It's great, it really is, it's a rush, it <u>is</u> a rush. Because your adrenaline is flowing so quickly, to know that you have a human life in your hands, and its up to you to try to administer CPR to this person, but its not your choice if he lives or dies, that's what a lot of people don't understand. You do your job, but, it's God's choice whether they live or die.

The idea that during intensely engaging learning there is an adrenaline rush or some kind of total body excitement was common for many of the co-participants and I will discuss this in the common themes section. For Mac however, the visual components and the "feel" were the basis of the excitement in learning.

Timmy

Timmy is a tall, slender 17 year old with a rather androgynous air about him. He was the youngest co-participant interviewed. He was born in Greene County, Tennessee and has a thirst to know more about the world. He left school in the 10th grade, with his mother's permission, to attend evening GED classes because "I just wasn't learning nothing there. I didn't like none of my classes except art, just played around mostly." His mother was attending evening GED classes at the time and he came to class with her. His dominant learning style was visual and he was constantly looking at and commenting on the displays and posters in my testing room as well as doodling while he chatted with me. Although his interactive learning style score is low, I had the impression this was due somewhat to shyness, and that he enjoys one-on-one contact very much. While I was doing the learning style and creativity testing Timmy was very interested in everything I was doing. On his break, and at the end of the evening he would come down to the room where I was testing . He asked many questions and was especially interested in knowing more about Knoxville and the University of Tennessee. Whenever he would come to class he would stop by and show me things he had been working on because he knew I was interested in creativity. Some evenings he brought drawings, sometimes he brought me chapters of the biographical novel he was working on, and one evening he brought me some photographs and poetry he had created. He always showed up at the end of the evening to help carry my equipment out to the car.

Learning By Computer Assisted Multi-media For Timmy

Timmy was very surprised and delighted by the multi-media samples. He said "It was makin' me feel groovy (laughs). Yeah, I didn't think anything like that would ever be on a computer. It was something I never thought of!" He had many ideas about how multi-media could be used to teach young people. He said the cheerful colors and music helped saying, "Well, I paid more attention to it than a science book because of the bright colors, and it's funner to read because of the bright colors in the background."

He commented on the fact that the computer could teach more individually than the teacher. Timmy really likes one-on-one attention and commented on how hard it was to learn when the teacher had to "run around the room and teach each person a little" while he had to wait and wait to get his own questions answered. He liked the fact that the computer "would be there, just for me."

He thought that someone should design multi-media to teach teenagers practical things like how to keep track of paying bills, figuring percentage off on clothing sales, and how to drive better. He felt learning experiences that could mimic life in other places would be appealing to teens in small towns. He said " you know, those are the things teenagers care about." Learning falls into two categories for Timmy, learning that is relevant to life and survival and learning that helps him be more creative or socially proficient. Social proficiency is an area of special concern to Timmy. The following two stories illustrate both categories.

Timmy's Story of Relevant Learning Events: Learning That "You Can't Always Depend On Your Parents" and "Learning To Cook"

Timmy related this poignant story rather matter-of-factly. He is proud of his ability to learn to look out for himself and to provide not only for himself but for his Mom and others. Learning is important to Timmy if it is relevant to his life.

I: That's pretty cool, anything else that you've learned that is important to you that you want to tell me about?

T: You can't always depend on your parents!

I: So tell me about how you learned that.

T: Well sometimes they're not there for ye, and you expect them to be, and if they're not, you just have to practically learn stuff on your own..

I: Sounds a little disappointing.

T: Really wasn't that bad. (pause)

I: So, you've sort of gotten to like doing things for yourself.

T: Well, I got to where I figured out, well, I said, she's not gonna be here for me, so I've got to do it myself and it wasn't really no big deal after I got to doin it, I had a job, I went to school, I washed my clothes, I cooked for myself, I done my homework. Done everything.

I: About how long have you been doing that?

T: Oh, since I was about 11 or 12.

I: So how'd you learn to cook for yourself?

T: (Laughs) I watched my aunts and my grammaw, and stayed with them when they cooked.

I: So do you have any favorite things that you make?

T: Spaghetti.

I: So tell me how you learned to make spaghetti.

T: Well, unh, I watched my grammaw, practically, and she's a good cook. And I'd just be like be standing beside her when she cooked and see what she'd put the stove on and see how long she leaves it on there and later on when you get used to it and you know how long to leave it and how long to leave stuff in the oven. Now I can cook really good.

Timmy had quite a bit to say about learning by observing his older female relatives, however, since one of the commonalties among co-participants were related incidents of learning from a grandmother, I will group all experiences related to "learning from grandmother" in that section. The story that follows is Timmy's account of the "other kind of learning" which is a more emotional, embodied kind of intuitive learning.

Timmy's Story of Learning To Write

Timmy's story of how he learned to write is very different from how writing is taught in the traditional classroom. He talks about the inter-relationship of poetry, music, feelings, and prose in his learning to write.

I: That's great. I want you to think about a time when you learned something that was really easy for you to learn.

T: Well, I started writin poems. And well the first three or four, I'm like I'll never be able to do this, this is what I want to do but I'll never be able to do it and I was kinda gettin disappointed but I figured , I'm gonna do it, it's what I'm gonna do so I'm gonna do it. So I started writing and its a lot easier now. I mean I can just go through there and put it down. I mean I can be out drivin and somethin will come up in my head and I'll just write it down, I'll make a poem out of it.

I: That's pretty neat. (Pause) When you're writing a poem, I mean when you're thinking about it when you're out driving around how are you feeling, how is your body feeling?

T: Whatever kind of music is on the radio, er if like if a word, like if a song comes on I pay attention to the words, and if there's this word that comes up like, let me think of something here, uhm. Well I've got this one poem I wrote, it was like "Wherever you may go, whatever you may do, I think my heart is meant to be with you. And just because your heart feels like an overloaded cart it does not mean we have to stay apart, If you want to start by telling me a part of your overloaded heart, that would really be smart." I wrote that one..

I: So did you just hear a word that got you started on that? Or..

T: Mainly music. Cause music, sometimes it gets you, well it depends on the song, if its depressing then it gets you depressed, and if its like "Footloose, kick off your Sunday shoes", well that really gets you in a good mood. Gets you feelin good, gets you feelin better about yourself, then you'll start wantin to do somethin for yourself.

I: So when you're feelin really good, how does that feel?

T: Dancing. Singing, dancing, calling your friends up, saying do you want to go to town? (Laughs)

I: OK, anything else you want to tell me about learning things that are easy?

T: Well, I'm writing a book too. And I was really havin a hard time of it and everything but after I got to writin, I got it in my mind, this could be like a different life, it's not true or anything. But I thought I could go a little bit by my life and a little bit by some other peoples' lives but not a whole lot and people who want you to use their name in your book, well you can do that. I started all over again about a half a month ago and I've got my first two pages done. It's called "One Life of California".

I: So how did you learn how to write?

T: I didn't. I just , I thought of a way I wanted my life to be. And then even though it didn't turn out that way, I just thought, well, I can write about it, cause I know how I want it to be, so I can just write about it.

Timmy's writing is surprisingly grammatical although his speech is typical of the local Appalachian speech patterns. I asked him about how he wrote so differently from how he spoke and he told me that he was "really bad at grammar and all that stuff", but, that he read how people talked in novels and just "began to write that way." This was much easier to him than "a boring old English class".

Time, Environment, and the Ideal School

Time for Timmy is very future oriented and he constantly speaks in terms of future possibilities and the kind of life he will live "someday". Novelty in the environment is very important to his learning experiences and he had quite a bit to say about "how schools should be". He suggested rooms with interesting geometric shapes and unusual colors. His constant hunger for visual stimulation also emerges in his description of the "ideal school"

T: They'd be wantin to come to school because it was fun, interesting, and creative. And have like, well I guess if it was the same all the time that would get boring too. (Pause) well I guess you could have one of these schools that rotates, you know, different views from windows, and you could have your windows, like if you had a triangle shaped room you could have a round window. Like squares and circles and ovals and like that.

Timmy also thought math texts could be colorized to help in understanding. Something happens for him in learning math that makes it hard to categorize different kinds of concepts. His suggestion for greater understanding follows.

I: Now I want you to think about a time when you had to learn something that was really hard for you to learn.

T: Uhm, (laughs), Math! Well those little ole bitty numbers can really get you confused, there's like different kinds. There's like each, let me think here, it's like fractions, if they could be like in your math book in a bright color of purple or somethin, all your fractions in the whole book, then you'd know what fractions are. I mean like you

> could keep 'em separated. But all these ole black numbers on white pages, it's boring as crap. You can't, you're just not interested in it, cause it's black and white and dull, a boring, old teacher standin up here talkin. And you're just back there asleep not paying no attention.

Almost all the co-participants seemed to think that it is the teacher's responsibility to capture and hold their attention. I will explore this theme more thoroughly in a separate section. Timmy valued the learning experience if it helped him survive, or if enhanced his quality of life. He wanted learning to be a unique blend of the practical and the sensory.

Drew

Drew was the next young man I interviewed. He is 17 and has a humorous, impish quality along with a kind of twinkle in his eye. I interviewed him in the storefront classroom site of his GED class. Drew grew up in Union County, Tennessee and lives with his mother. He left school in the 9th grade because of "violence". He has always felt "different" His learning style profile shows a strong visual dominance, but his aural, interactive, and haptic modalities support the visual. Sounds, voices, and music are very figural for Drew.

Learning by Computer Assisted Multi-media for Drew

The novelty and surprise elements were important to Drew. Humor is another element that he found engaging, but, he really was very hard on himself for not "knowing about this before." His own words immediately after the tutorial say it all.

D: Well when the man, the cartoon man came out it really surprised me. I guess I didn't expect the colors and sound and all. And the mouse felt weird, and Oh, Wow, was it ever great when I clicked on the fish in the bowl and bubbles came out. It was great, super great. I didn't expect to laugh so much when I was learning it. I'm feeling so stupid I didn't know about this before.

Although he was enthusiastic, he continued to put himself down in a variety of ways throughout the interview. He was most animated when sounds and visuals were paired. He also has an unusual way of listening to "the voice in my head", which I think is his way of reasoning aloud, only it is completely mental. I did not get the impression that this "voice" was the result of any kind of disturbance. Here are several examples of his reaction to visuals and sound. He also likes the complex and challenging aspects of learning, the unexplained gives him a "shivery mystery feeling."

D: Not just that, it was the whole thing. I was kind of like staring at it like when MTV is real cool. When I heard your voice coming out of the computer it was way cool, and the ocean sound, man I could listen to that all day.

I: Tell me more about how the sound was for you.

D: Cool, the Mac Talker, yeah, is that what you called it?

I: Mac-in-talk.

D: Yeah, well it was weird like a robot voice. It could tell you things to do. Sometimes I tell myself things to do but I wish I had a robot voice like that.

I: What kinds of things do you tell yourself?

D: Oh, just general stuff you know, stuff I need to do. My mom does it too.

I: Tells you stuff to do?

D: No, tells herself, (laughs), I guess you think that's weird, that we talk to ourselves.

I: Does it help you remember what you're supposed to do?

D: We've always been like that, talking out loud to ourselves. Whenever I hear the voice in my head telling me stuff I pay real close attention, cause I know its gonna be important. It's like it just says "take notice".

I: Do you actually hear your voice or is it like a thought?

D: Its more like a sound, 'course, I know that nobody else can hear it. Unless I say it out loud too. Well, anyway, I know it's stupid but that's what that robot voice reminded me of. But, on the computer it was kind of like a reward.

I: Is your own voice ever like a reward?

D: Boy that really is a joke!

I: Could you say more about that?

D: Well, mostly it makes me feel real stupid, and like it has to be reminding me to look out all the time, but I don't want to talk about it any more it must make me sound like a wacko or something.

I: OK, well would you like to talk about any of the other sounds?

D: Well, I thought it was cool that you could put your own voice in there. That would be good for someone to learn to read, to hear the words. And, the music CD-ROM was way cool. I like being able to pick the different stuff to see and hear. There wasn't no country music though. Some of that rap stuff just turns me off. But I liked the Japanese cartoon. It was like a riddle I think.

I: Oh?

D: Yeah when the little dragon came out and flew around and he didn't want to get caught and the Japanese magician came too soon and he almost was caught. The mystery was when he turned into a drawing. I dint really understand it, but, it gave me a shivery mystery feeling, like I knew that it meant something really strange and important but I wasn't sure what.

Drew liked it that he and I could talk while he worked on the computer. He talks of "being in trouble for talking in school all the time." He thought it would be great if a computer could actually have a conversation with you because "it would be safer than a person." He commented on the "jerkiness" of the Quicktime videos and would have preferred "real video" movement. His strongest response was to the English accent of Robyn Davidson in the "From Alice to Ocean" CD-ROM.

D: I would really like that. I liked it on the Alice CD when you could hear Robin's story or Rick's story or change back and forth. But the movie parts looked too jerky. And the still pictures were great but it would be better if it was movies like on TV. Her voice was killer though.

I: Her voice?

D: Yeah, Robin's voice. That English accent was like, real sexy (laughs) she could train my camels anytime.

I: So you liked Robin?

D: Yeah she had a lot of guts to do all that desert stuff. If I was all by myself like that, I would really have to talk to myself so I wouldn't be scared.

I: Talking to yourself makes you feel less afraid.

D: Yeah, well, I really don't want to talk about it.

Drew enjoyed almost all sound and visual aspects of the multi-media and learning to use the mouse was a nearly sensual experience for him. He liked being able to manipulate visual images by clicking and dragging them.

Drew's Account of A Learning Experience: Learning to do the Laundry

Like several of the participants Drew mentions learning a survival skill from his grandmother as an important learning event. It was an experience of empowerment that he could "do for himself" and also a different way of learning to categorize, something he found very interesting. His description is almost

Zen-like in its "here and now" absorbed approach and how a simple act "set him free".

I: I'd like you to tell me a story about when you learned something important to you.

D: Well, you're gonna think it's weird, but it was laundry.

I: Laundry?

D: Yeah, my grandmother taught me how to do my own laundry last week. I felt so stupid because I didn't know like this simple stuff. I was so tired of not having any clean clothes (my mom has been sick you know). I really like to feel clean. But anyway, I went over to my Memaw's and asked if she'd wash some of my jeans and stuff. But she said, I am almost a man and I need to learn to do for myself. I guess she's right (laughs), well anyway she told me to bring all the laundry, my mom's too.

I: So you did?

D: Yeah, and like there was something cool about learning about laundry. It kind of set me free in a way. My Memaw, she showed me about the washer dials and how to set the dryer for different stuff, and how to empty the lint place. I never realized how complicated laundry was, but you know I don't think my mom ever did laundry the way my Memaw does it. Well anyway, I was feeling real dumb in the middle of all these clothes and towels and stuff. My Memaw, she showed me how to sort the stuff first. I never knew you couldn't wash white stuff in with your jeans. It would make it gray she said. So she left me there to sort it, I was telling myself out loud, this goes with this that goes with that. Kind of talking through it really helped me get it right.

I: So what was it like for you while you were learning it?

D: Well, I felt real dopey. It took me four and a half hours to do five loads of stuff. But, while one thing was drying another thing was washing and when I wasn't having to pay real close attention I was trying to figure how the washer and dryer worked so the time went by real fast. I mean I wouldn't want to do it for a living or anything but it felt great to take all those things home clean and folded. It made my Mom happy too. I guess I'll never forget that my Memaw taught me this. I'll teach my own kids (when I have em) how to do laundry when they get about 10 or something so they don't ever have to be dirty.

Drew's Comments on Learning In School: It Should Be Like Learning To Do Laundry

Drew enjoys drawing and painting. He recalls one teacher yelling at him in front of the class for doodling, however, as he puts it ,"I never would've been able to concentrate on those old boring things if I couldn't do my drawings while I listened." He continually talks of visual things helping him to listen and "sounds helping me to see how it is." There appears to be a strong interaction between these two sensory modalities for him. He doesn't think teachers do a very good job of "sorting things out" and he uses the sorting laundry metaphor to say how he thinks it should be. He also values harmony and doesn't like conflict in the classroom.

D: I wish it was as easy to learn this GED stuff as how to do laundry.

I: Talk some more about that.

D: Well, I just hate to read all this stuff that don't make no sense and never will. It's just a waste. Like that politics stuff. It just gets people mad. If somebody could just tell you how to sort out some of this stuff (like I was learning to sort the laundry) and just let you know what stuff went with what other stuff it would be easier. I'd like to have somebody to talk about it with instead of just read the workbook and fill it in.

I: So you like to talk about what you're learning.

D: It just got me in all kinds of trouble in school. I'd be like repeating after the teacher and saying stuff and she'd be like hush and keep quiet and stuff like that. I almost just can't. Be quiet that is. I gotta say it out loud to somebody or even to myself.

I: Did you like classes where there was discussion when you were in high school?

D: Well, you know I never actually went to high school just middle school. They never let us talk very much there. I was glad to quit though, it was just a waste. But, I do hate to be so dumb. I did like art though, it was more free in there.

For Drew learning almost always involves talking or drawing. The talking to another does not seem as important as the talking itself, as if somehow just hearing his own words helps in understanding. Even when he talks to others, with the exception of his grandmother, it is as though he is talking to hear himself. There are three kinds of learning for Drew; "boring old school learning", learning so you can have a better life and be independent, and learning that is challenging and mysterious. This challenging and mysterious learning is the

kind that gives the "shivery mystery feeling" where he is aware of learning something important, but not quite sure yet what it is.

Rod

Rod is a striking, 28 year old with very long hair and piercing eyes. He is married. He has a five year old daughter to whom he is very attached. He left school in the 10th grade because, "I was tired of learning the same things over and over for eight years." Rod works as a screen printer and "messes around" with building computers. His learning style profile shows no distinctive strengths, all seem to work together for him. He is both an artist and a musician although his visual and aural modalities are low. He practices martial arts and is interested in all things Native American. His grandmother is Native American and is the only person he thinks he has taught him something, although he also speaks of learning by watching or "hanging out" with others. He rides a motorcycle most often but also likes nice cars and has a Camaro with a sophisticated security system.

He is very capable in the electronics area and many people use his services. Because he has no official credentials, he is not paid very well for his expertise. He is working on his GED but only does so sporadically because making a living and living an interesting life are greater priorities. Figuring things out for himself and learning from experience are both important to Rod. Rod is the person who showed me how to break my computer down into its components so I could effectively transport it to various research sites. He taught me this in a clear, engaging manner as though it were no big deal. He

was very patient and kind enough to let me practice dismantling it while he gave feedback.

Learning by Computer Assisted Multi-media for Rod

Rod liked learning by multi-media because it "is constantly moving and changing". Repetition is death to learning for Rod. If something is repeated and he already knows it, he simply tunes out and moves to a separate reality. He did master looking attentive and says of the regular classroom, "There's more to it than just a pencil, a book, and someone standing there talking to you. Because I can sit and look directly at the board and be a million miles away and still have 'em convinced that I was actually learning something, when I was bored out of my mind."

Challenge is an element of learning that is important for Rod. Challenge helps him maintain attention and makes the experience of learning interesting. He perceives multi-media as a way of adding this element of challenge, "if its done right". He made the point that "there are a lot of 'lame' video games", too, that are boring. Rod differs from some of the other co-participants in that learning doesn't have to be related to a survival skill to be important. He is concerned with deeper understanding of life and the spiritual aspects of living and any learning experience that enhances his way of living and being in the world as a spiritual man is important.

Rod's way of learning is to use all his senses and he experiences multi-media as a medium that employs several senses at once. When we were discussing the various elements of multi-media; sound, video, movement, text, he felt that no one element was more important. In his words, "They all work

together, they all form one, one team, they all work as one function." This "one-ness" of senses in learning is relevant to the ways that he learns in general as well and is reflected in his learning style profile.

Rod's Account of A Learning Event: Learning to Draw On a Computer

Like Mac, Drew, and Timmy, art is important to Rod. Learning to draw on the computer provided a "rush" or "high" for Rod. Since the "rush" of learning is a common theme for many co-participants I will discuss this theme in a separate section. Being able to "play" while learning or "mess around" with a new skill is a favorite way for Rod to learn. He liked the fact that he could experiment without destroying or messing up anything and the fact that this was in a non-judgmental setting was also important.

His account of learning Paintbrush™ for Windows© follows.

I: I want you to think about a time when you had to learn something that was real easy for you, what was that like?

R: Real easy, for me. Computers.

I: Tell me about that.

R: I just sat down and a friend of mine said here let me show you this, it was a paint program, and I said 'what if I mess it up", and my friend said "there's nothing you can do that I can't undo". So I just sat down and started drawing, it took awhile to get the hang of the mouse and the control keys but it was a lot easier than learning math. I still have trouble with math!

I: So the first time you were introduced to a computer, it was through a draw program?

R: Uhm, yeah, it wasn't Corel, it was the little Paintbrush that comes with Windows, he and I were both artists in school, and he said , you'll love this, you've got to check it out and we both started on it and I said what else will this thing do? He said "sit down and I'll show you", from there I was hooked. From that point on.

I: Do you remember when you first did that drawing, how your body was feeling.

R: Oh, Good grief, Uhm, it was a rush, it was a rush that was unreal, you were on the edge of your seat, you were just tingling, and you're like wow, it was unreal, it was cool, and what really blew my mind, I still have a copy of this, just geometric designs, but he printed it out on the laser printer and to this day I still have that paper, somewhere.

I: Pretty neat.

R: It was the first drawing I ever did with a computer, it made no sense whatsoever, but I was proud of it.

I: Sounds like you had a good time with it.

R: It was a blast, a blast! Well it was about that time when I finished that that I thought, wow, if I had had something like this in school maybe I would have put 120% effort into it and finished school. And went on to do better things than what I'm doin now.

I: Wonder why that was so easy for you to learn to use?

R: Honestly, I'm not sure, its almost as easy as working on computer repair. I guess it was because I could have the hands on experience, it was right there. Instead of his trying to sit down and explain to me "how to draw", with, how this paint program works, with me havin to flip through pages in a book and him standin there talkin to me and me fallin asleep at the same time. I actually had hands on, I could see what he was talkin about, if he said you can draw a perfect circle, and I had to look at a circle in a book, you know, that circle's been drawn with something, maybe even a computer but, I didn't actually see how it was drawn. There's a difference between seeing how something's drawn in a book and seeing how it is drawn on a computer. Right in front of you, there is a difference, a big difference.

I: What's that difference like?

R: It's easier to catch, because that picture in a book does nothing, it just sits there, but on the screen, you can see from the point from where the cursor starts to where you can make it as large as the screen. Yeah, that's it.

Rod likes to learn "from experience" like most of the co-participants, but, he supplements experience with reading and research, and uses others as a resource. He is quick to tell you that "others do not teach me, I watch them and I figure it out". Sometimes he says they "help him along".

Learning by Reading and Doing: Computer Repair

Although Rod enjoys reading for pleasure, he makes a real distinction when it comes to learning something. Although he needs and uses "manuals and instructions" as reference points, they have no "movement or function" and

therefore are of limited use. Computer repair is a skill Rod taught himself by doing and reading and it is clear the "doing" is what helps him focus and maintain attention. He also has a curious way of anthropomorphising the computer to be repaired, first as a "patient", then as a small child. Like other co-participants he likes to "break things down" in order to understand them. Excerpts from his account of learning to repair computers follow.

I: You mentioned computer repair, how did you learn to do that?.

R: I worked in electronics for two and a half years and, I'd been into computers before that, but not the repair and maintenance end of a computer, and I got a bunch of computers that was in a network from a guy, he was goin to junk em, so I told him I'd give him like 40 bucks for em, there was like five computers, a lot of printers and I don't know how many monitors. None of em worked so I started takin 'em apart piece by piece and building computers out of em. I ordered books, I had to have the manuals because it was entirely different from working on a VCR, a TV, or a satellite system or something like that. Its an entirely different world so, I'd sit down and start with the book, and read the basics and the mathematics, and I had the basic view of electronics but like I said a computer is completely different from like a TV or VCR.

I: In what way?

R: Uhm, a VCR and TV has components , electronic components, it also has mechanical mechanisms, and its not like a computer, a computer has its own language of highs and lows, a binary code of ones and zeros, and its a language its almost like English or Spanish, that you have to sit down and learn so you can communicate with the computer, be like uh, uhm an American Dr. that cannot understand any Spanish, whatsoever, trying to treat

that patient, and all the patient can do is point to his head, and then they do brain surgery and then they find out he was just scratching his head. You know, its , you have to be able to communicate with it before you can repair it, you have to really understand its symptoms, it's like a baby, a small child, they'll cry when they're sick or hungry, but you don't know where they're hurtin until they get old enough to talk and can communicate, they can tell you, well, I have a tummy ache, or I'm hungry or you stepped on my foot or whatever.

I: So did you learn computer language just from the manuals and books you had or...

R: Yeah, from reading. The guy that I worked for, the man is a genius, I give a lot of credit to him, he helped me along a lot. He helped me a lot, he was the one with TV's and all that would, I had hands on experience with it.

I: Well, I hear you talking about hands on learning, but I also hear you talking about reading manuals.

R: If I had to sit down and read that manual to try to figure out how to repair a computer, I might as well try to learn trying to fly an airplane by reading a book. Cause I can sit there and I can look at that book and I can read, and even if it has an exploded diagram, of a computer, I'm seeing a drawing, I'm not seeing that part of that computer, I can look at that picture and it can give me an ID number and it can even tell me it was made by Motorola , and what year it was made in, and even cross reference and find out what it does, and it'll tell me what it does, but looking at that drawing, it can be anywhere on that board, and that's why it's easier for me to have that board and say this the Central Processing Unit here on this picture and here's 15 million

components, which one is it course it says CPU on the chip, but with just the book...

I: You like the reading part as a supplement?

R: Yeah.

I: I've heard you say several times that you looked up something or that you've read something, so it doesn't sound like reading is unimportant but you don't want to do it all by itself?

R: Reading is, I love to read. I love to read, but if I'm reading for enjoyment, if I'm reading some fantasy, you know, or somethin about dragons and wizards, I can read for months, but , what was it one of my friends said, "real men don't use instructions" (laughs). But we definitely don't throw 'em away either. Its good for a reference, to actually sit down and read it and try to understand it. You know if you don't understand it ask somebody who knows, but if you've got something you can work with, some hands on experience, its easier for me to remember that way. Its a lot easier, plus I'll pay more attention, I can read a book, and maybe even remember it but if I have the actual equipment, its a lot easier, I can see what it is where it's place is and what its functions are.

This distinction between reading for fun and "reading to do" is similar to Carly's account of differences in reading. The hard part about reading for Rod and Carly is relying on mental processes to "break it down" rather than being able to "actually" break it down. Rod sees great potential in a computer program that has movement and simulation helping him to do this. He had a lot of difficulty with math in the past but talks about how the computer at his GED site has helped him. Here the computer becomes an idealized "teacher".

Learning Math: Breaking It Down

R: Uhm, the two things I have problems with, my spelling is not the greatest in the world, but mathematics is absolutely terrible, but since I have been going to classes, they gave me a book and like I said, I could sit there and look at that book, and no matter how many times its been broken down on that page, it still don't sink in. It doesn't function, I don't understand it. They put me on the computer and the computer's basic format, DOS I think, it breaks down the problem, Ok and it goes to each point and you have to subtract and put your number here, and it goes directly to carrying the next numeral, it will break the problem down and it makes it easier. Which is good, that helped, that helped me to understand it..

Then we come to why a computer is better at breaking it down than a book or person. It seems that the computer is not likely to judge or to "think you're an idiot", it removes the apprehension from interaction. Rod's words say it all.

I: What is the difference between that and having it broken down in a book?

R: I have to look at that in the book and I have to try to figure it out. It would be like, let me give you an idea, it would be like me takin your computer apart and sayin, now put it back together.

I: I would be lost!

R: That's the way it is when I set and look at that. A person can explain it to me, but I think my biggest problem is that , its not that I'm not intelligent enough to ask a question, I'm too shy, I feel like

an idiot. Its always been like that, even when I was in school I've always been afraid to say, I don't understand that, hey, come here a minute. You know, but I never would do that.

I: Sometimes you know that you need to know something but

R: I wont' ask. Yeah. I don't want to be an idiot but is that gonna blow up if you set that on fire there, but I never would ask that question, I felt uncomfortable, I felt like an idiot. But now not.

I: It's different to ask a question from a computer?

R: If its somethin that I didn't understand it would be different. But like with the example that I gave you about the problem being broken down on the computer if it had voice assist, like with the Sound Blaster Pro, then it could actually tell you what it did, then that would help, but if there was an animated character that would keep my attention long enough, just some goofy little character, that would go through the steps so you could hear, so you could see, then you could like you could incorporate some animation of the hand to where you could actually take the mouse and work the problem, you could have some hands on experience also. You wouldn't be actually running your hand in through the monitor, but, uh with the little board with the mouse pen. You could sit there and it'd be interactive, so you sit there with the professor and arm wrestle if you got bored. But that would have kept my attention long enough and I would have learned more, you know. But a computer, just the basic thing they had, has helped my mathematics quite a bit.

Again, Rod makes the computer "like a person" when he says "you can sit there with the professor and arm wrestle if you got bored. " In other words if

repetition became boring you could add a personal element of challenge for a while.

Learning for Rod is fun and interesting as long as it can be self directed and not repetitive. Challenge is important as well as being able to "operate or function" with several senses. Challenge focuses the attention and permits persistence. As long as there is challenge, there is no need to "fake it and look interested". The "separate reality" that is Rod's retreat during times of boredom is his way of refocusing on something more engaging and challenging. He is fully capable of seeking out and making use of a variety of learning experiences and resources but this kind of exploratory learning was not available at his high school.

Chuck

I interviewed Chuck on a Saturday afternoon on the sunporch of Ruby Tuesday's Restaurant because it is near his home and work. He seemed to feel more comfortable there than in an office setting. At the time of day we were there they had no other customers. The setting produced a relaxed, conversational tone. Chuck's learning style profile showed strengths in the visual, interactive, and print modalities. The aural modality was very low. Chuck did not exhibit a dominance in olfactory but did show a greater strength than other co-participants.

Chuck, who is 20, values hard work and builds doors for a living. He is also very artistic and likes to design costumes and clothing. He left high school in the 11th grade because he "didn't get along" and was referred to his educational site. Chuck values process in learning and speaking and admits

that sometimes "it takes me longer to learn because I have to re-hash everything." He says he "thinks primarily in visual images". It was very difficult to interview him in some ways because his comments are so recursive.

Learning By Computer Assisted Multi-media For Chuck: "Big Brother is Watching"

Chuck thinks primarily of computers in two ways, as a way to deliver games and as a potential threat to privacy. Learning for him has to do with defining his own identity and learning by computer was no exception. He liked the fact that one of his educational site's computers has a 17 inch screen but he is really concerned about where computers "are headed" and that they may be used for surveillance. When his brother who is in the Air Force visits he brings his laptop and has shown Chuck many applications. In one way he finds this interesting; in another way he says with true concern," sometimes I get kind of scared and worried about, like I don't know, I have this weird thought that computers may be the end of us and everything like that you know." When we discussed this for a while I tried to steer the interview in the direction of his reaction to the multi-media but he clearly wanted to talk about his concerns. His apprehensions follow.

C: It's, I don't know, because you just can do so... OK, this is something weird. OK? Have you ever seen the eye in the microphone on the computer, tracking for talking about these hackers, how they have their own (chat) room or something, their own channel, or whatever, they told me how these hackers came in and just like chaos or whatever, and on in there they had that eye in it. I said someday somebody's gonna turn that eye on us. And they said, no, no you have to have a special code. I kept

telling them, yeah, we'll be able to, after that, after a few months or whatever, they were telling me how it happened, how somebody turned on the eye and watching them while they were, you know just messing around, and they were being watched the whole time.

I: There's a real kind of invasion of privacy there?

C: Oh, yeah, you know, Big Brother is watching. Especially after, uh, well her brother like carried a microphone and somebody was listening to him. I don't know if it was like hours or minutes....So, like sometimes that stuff scares me. I think, man, that stuff scares me, but then, I don't know, maybe it's fate that I'm not good at computers, maybe I'm right.

Chuck was the only one of my co-participants that didn't want to "play around a little bit" with the computer. We moved on to other learning experiences fairly quickly.

Learning As A Way to Define Identity: Learning As A Way To Change Yourself

Chuck was very proud of the fact that he had totally changed his identity between the time I first assessed him and the interview. There was about a six week interval between when I assessed him and when we completed the multi-media sample and interview. He talked of "learning to have will power" and "will power helping to define his body and self". The day I interviewed him, I did not immediately recognize him, he had lost weight, begun working out, and dyed his curly brown hair black and had it straightened. He had also had several very

elaborate tattoos and his tongue had been pierced. Of learning to have will power he says he "sort of taught myself."

C: Yeah, just kind of like the Nike slogan, just do it, you know. So I just kind of cold turkey quit like, instead of lounging around or whatever, I like cut out a lot of my eating and stuff like that...I just kind of said, you know, just the only way is the hard way, I guess, I just watched what I ate, and I work out five days a week, and then when I got that job at _____, it was kind of a physical job.

He talked a little about thinking of becoming a personal trainer but he is unwilling to "look like a jock, or like how you have to look to work there." He is very curious that people will judge him by appearance. Like Arden, it hurts his feelings that people don't "give him a chance or get to know what he's like on the inside." He says of his lifestyle, "I don't do anything like, I don't do any drugs, I don't smoke, nothing like that, and but, I mean first impression, everybody looks at me and thinks I'm a drug addict." He talks about the first high school he went to being in a rural area and he really didn't fit in. Each time I led him back to talking about learning, he brought the conversation back to appearance and identity. He briefly spoke about learning in the context of his work.

C: And, I mean that was easy to learn because I learned it so fast. I learned a lot on that job, it was a factory, kind of monotonous, but I worked on a machine, a pretty important..

I: So it was easy to learn how...

C: Yeah, I mean I would just do it and go away in my own little world while I was doing it, just kind of relax, and people would always ask what I was thinking, Its like I think several different things all at

once. I'm just having so much going on in my head when I learn, some of the stuff is personal, I don't think you want to hear about that.

Learning To Trust Your Intuition and Learning Art: Just Doing It

Chuck talked about learning to trust his intuition. At first it made him "feel different" but, he has had many experiences of thinking about something that subsequently happens, or of someone and then he runs into them. So "gradually, I learned to trust that about myself." There is a feeling of destiny or fatalism, when he talks of learning this about himself.

C: Yeah, I mean, like, I don't know I never really regret anything, I mean even if I say or do one thing and then like that one thing branches off all of these things happen because of this one thing. Learning is kind of like that too, you never know where it is taking you like."

The idea of not knowing exactly "where it is taking you" is similar to Chuck's experience of taking a particular art class. He hated art history in school, but liked the studio classes and since has taken a class in the community. He isn't conscious of how his drawing improved but he knows that it did.

I: I want you to think of a time when it was hard for you to learn something.

C: Well, my Mom said I didn't start walking until I was 2, but I don't remember much about that.

I: Anything else?

C: Yeah, See, I just thought of this as something, it's like easy for me to learn but it's hard, too. That's another thing about the _____, I took one of their art courses, and I'm like its not like the boring art history classes...She came in and taught us different things like, using like, how to draw negative space and all that and that was, I mean I improved my, I mean like I know this, I'm sure if somebody that was a real great artist, they'd see all my flaws and stuff, like that but I just improved my drawing skills a lot just from that.

I: Tell me how you did it.

C: Just from what she was telling us how to do it, and stuff like that. It was like you know, just drawing negative space and instead of like.. Do you know what I'm talking about?

I: Sort of like you draw the spaces between things instead of...

C: Yeah, you know where I'm at. I don't really do much of that either, I guess its like before, let's say I wanted to draw this scene here, I'd just draw it like that and it wouldn't be to scale where you use the thumb and the pencils thing, where there was measuring and the thing, the other things, and just I wish I could remember her name. She probably doesn't remember me at all but the art teacher, she.. I don't know. Pottery would be something neat to do, have you tried that?

I: No, but I always thought I'd like to. So you were telling me about art class. Was it easy or hard to learn there?

C: It was both, but I mean because , it was like bowling, I mean almost overnight I improved, but I mean before, it just seemed like I didn't make too much improvement.

I: So, it just sort of happened?

C: Yeah, it was, like, I mean I can't even remember like everything she said but now I just do it....I don't even realize I'm doing it. ...I just know, I just look at it like it's someone else's and I just compare really, and I'm like, yeah, this is more scaled and I, you know, like more correct than before.

Chuck is constantly comparing and evaluating what he does both with his own past performance and with the performance of others. He uses these comparisons in order to help him know when he has learned something: there is a difference, but he is unaware what happens in the intervening process.

Learning to Chuck is "just something that happens when you do stuff". Learning is also about managing pain and sorrow and about how pain can bring pleasure in ways. He talked about how he chose one of his tattoos from an art book of the pictures of H. R. Geiger because of its uniqueness and aggressive qualities but he "is not a violent person at all". He talked of having his tongue pierced to "get the endorphins and cover up the pain" of breaking up with his girlfriend. He is very careful to have his tattoos done where they will not show very much because he is conscious of how he must "look to get a job and survive".

Harmon

Harmon is a 22 year old man with liquid eyes and long, flowing brown hair. He is probably the most articulate of the co-participants. I interviewed Harmon in my office at Pellissippi State Community College and his interview seemed to exemplify most of the themes presented by the previous co-participants. Harmon left school in the 11th grade to go to work and "to learn new things". He is married and talks of how marriage has "settled him down"; that it has reduced or limited his risk-taking behaviors of the past. Learning by experience and by conversation with trusted others are his favorite ways to learn. Harmon's learning style profile showed strengths in the interactive, haptic, and kinesthetic styles.

Like Rod, Harmon has a very philosophical approach to life. Learning is very important to him. He sees it as "an essential part of life." He has, as do several of the co-participants, a need for inductive reasoning. He wants to "break everything down", think about it, then interact with others to gain new perspectives. He wants learning to be challenging, fast-paced, and stimulating. Elements of fear and danger in the learning situation serve to make it more challenging and stimulating.

Learning by Computer Assisted Multi-media for Harmon

Harmon liked the fast-paced aspects of the multi-media samples and he liked the ability to move through the samples at this own pace. He preferred video clips and photographs to drawings and electronic paintings because "they are more realistic, more what I'm used to from life". He feels that to be most effective computer assisted multi-media would need to be paired with human

interaction. He believes that people must be "ready to learn" and that they must want to do it for it to be effective. To Harmon learning is its own reward although he acknowledges that others might need to be motivated somehow. He shares his thoughts on this "motivation and 'pairing'" in the following excerpt.

I: What did you think about the multi-media stuff?

H: I liked it. I think I liked the CD-ROM a lot. I thought it was neat. It really keeps your attention with all the neat graphics and people moving around, and I think, if, I think it would have to be paired with something else.

I: Like?

H: To be effective in learning. I guess it depends on the age group. If the people, if the students want to learn, then they will learn it and you won't have to pair it. I mean, you can go in, because you can get all kinds of information off those things, and I love, I love to learn things. I love to just gather information, but if they don't want to learn you'll have to pair it with something else to keep their attention.

I: What do you think that "something else" might need to be?

H: Probably human interaction. Well, human interaction would probably be first. Maybe in a group. Maybe look over the information and then look over it in a group and talk about it, further questions. Because you can't, I mean, you can get a lot of information from it but they can't put in all the information an individual would want to know about one thing.

I: So it would be good to be able to discuss as well?

H: Yeah, because a lot of times I find I have kind of odd questions that really, for me, they have a lot to do with what I'm learning, but, they may not for other people, but it helps me to truly understand.

Harmon was apprehensive at first about approaching the computer because it was something he "hadn't done in a while". Competence is important to him. He likes to feel like he "knows how to use stuff", even before he's actually done it. He moved through the samples very quickly "to see what was there", then went back "to the parts I liked". This has been a pattern for him in the past. He related his style to the way he first studied for his GED on computer. He moved very quickly because the material was "too simple at first". In the following excerpt he shares his approach to learning by computer for the first time and his need for "more stimulation."

H: My first reaction as soon as I, well, I was apprehensive because I didn't know how to use it right off the bat, you know, and I want to know how to use stuff. I want to know before I do it, and when I actually get into the program I remembered doing something similar before, like when I first started working on computers, they had the, the thing where the diver goes down, I'm sure you've seen it, the diver goes down, and it reminded me of that.

I: Say some more about that.

H: It, in, like whenever you start a computer class here they start you out real basic and they start you out on that. It just kind of helps you, teaches you how to use the mouse and stuff like that. I don't know, I found myself clicking through it real quick, though, because I just wanted to get through it.

I: Just to see what was there?

H: Yeah, and it, I just needed more. There wasn't a whole lot so I just kept on going through it.

I: When you needed more, more what?

H: More, I don't know, stimulation I guess.

Harmon had much more to say about learning by multi-media being closer to "life experiences" and what a great resource it is, especially CD-ROMs. He is quite excited over the possibilities of computer assisted "learning resources" that would let "a person move at their own pace." Movement is quite important to Harmon as well as interaction and the ability "to go back to the parts I like."

Harmon's Account of A Learning Event: Learning to Be A Point Guard in Basketball

I chose to start with Harmon's account of the difficulty and challenge of learning to be a point guard in basketball because it exemplifies several ideas that are important to him in learning. This learning experience involved movement, interaction, intuition, holding several ideas simultaneously, learning by experience, and the importance of "being able to mess up while learning."

I: So tell me about learning something that was hard for you.

H: I think all the different plays that we had in basketball. That was kind of tough, and I was a point guard so I had to know all of them and I had to call them out and I had to recognize when this was

working or wasn't working and plus I had to be playing all at the same time. There was a lot of variables that I had to deal with. I mean, I had to worry about the guy that was right on me, you know, because I had the ball and they were always trying to get the ball away from you, and I had to worry about the guy that I was going to pass it to, I had to worry about what play was going to work, you know, what was going on down on the paint, and what does the coach want. I mean there was a lot of different things, and I guess learning to use the plays was hard, and it was hard to remember all the plays, too, because we had a bunch of plays, you know, that everybody was involved in and I had to know who was going where at all times because that's like, if the guard cuts down and the forward sets a pick and he comes back down under the goal, I've got to know exactly where I can hit him, you know, with the pass there, and I have to remember the individual players, too, what they can and can't do, what they're good at and it was tough.

I: So how did you go about doing that?

H: Uh, I had a play book and I memorized the plays and just, in practice, you know, we would scrimmage a lot in practice so I could get used to using them and I guess just jumping right in and doing it. Being there and messing up really. And that's I guess what practice is for. Because I would go in and mess up, I'd hit the passes at the wrong time, and everything, and I guess after got used to it, then it was okay.

Harmon spoke a great deal about being able to experience, mess up, and learn from it. To him "messing up" is not perceived as failure but as a way of gaining an ever larger "data bank" of feedback about people, things, physical laws, and multiple perspectives. He feels his great flexibility developed as a result of having to adapt to many people and places when he was young. He

talked poignantly about how his" poor mother was so apologetic that we had to move 24 times," but says it was okay with him because" I wouldn't change any of it because that's what made me who I am, it's part of my life. I wouldn't change it. I wouldn't be the same person."

Learning by Arguing: A Way of Extending Experience, Perceptions and Perspectives and "How I Learned I Was Learning"

One of Harmon's favorite ways of learning is by having long marathon discussions with others, especially his best friend D. In fact the times of most intense enjoyment in learning is when Harmon and D. are involved in rather heated arguments. Harmon says others tend to move away because they appear so hostile but that it isn't really hostility it is "just intensity". In the following dialogue Harmon explains what learning in this way means to him.

H: ...But, I've always loved to learn, and I love to talk to people, and I like to get information from them, and my best friend, his name is D. and he's really smart. I can talk to him and he understands the concepts that, I mean, we're on the same level, I mean we're really connected, I mean, I've known him for awhile but we've always been friends like we are now.

I: I've heard you talking about learning from things, now I'm hearing you talking about learning from a person. What's the difference?

H: I'm not sure there is one. I mean I enjoy learning from a person, the interaction with a person. Other than that, I can't really see a difference. I think learning is learning. I would much rather talk to D. because I get so much more from him because he knows things that I don't know or he can see it in a different way than I can see it.

I suppose if I could learn from something, I would rather learn about something with somebody else because they can see it in a way that I can't, and if I can see it in the way that I can see and in the way they can see it by talking to them, then I have a better understanding.

I: It's like you get twice as much knowledge from the difference in perspectives.

H: And that's I think, a definite strength, I think that everybody should use that. Because you see all the points of view, or not all of them, but you see things in a better light when you can see it from different angles, and that's one thing I definitely, I mean, I love talking to D. because he's got... even if we agree on something on a view, he can, you know, we both do it, we don't, we agree on a lot, but we don't ever, you know, say we agree because there's always another side to it that he can show me and I can...

When Harmon and D. are arguing there does not seem to be enough time. They really don't want the conversation to ever end. Sometimes "time to go to bed" is what ends a discussion. Harmon says he's learned so much in this way it is hard to separate out what the various "subjects" were. However, he speaks of being conscious for the first time that he was learning while in one of these discussions. He also mentions being conscious that learning in this way helps in recall.

H: I've learned so much. I guess when I finally realized that I can learn so much, and he helped me to realize that, I guess he, by talking with him about certain things and, you know, it came naturally, and I guess after so long of talking to him like this I finally realized, it hit me that what I was doing was learning and how I

was learning. So I guess that's, I'd say that's the most important thing I've learned, I realized what I was doing.

I: Can you share that with me?

H: Share it with you? How?

I: Can you describe what happened for you when you realized that?

H: Well, I knew I was learning but I realized how I was learning and I figured out that I could use that more to my advantage to learn more, and to help put it in my mind in a way that I can bring it back whenever I need it. That's the trick. I mean, you can learn things all the way through your life but then being able to recall is a whole other story.

I: So how did learning in this way make it easier to recall?

H: Well, I guess by understanding basic concepts, because when we talk about things we'll break them down to understand exactly what we're talking about, which is tough. It gets really complicated and people don't understand that. I mean, we argue, I mean we get, you know, hostile sometimes, and people don't, they don't really like, when we start to argue, talk, they'll just kind of move away from us because we get kind of excited.

For Harmon learning is a joy, a priority and a definite, centered feeling. When he is learning, he feels "Useful, bright, and smart," like he is "doing what I'm supposed to be doing". He describes his experience of learning as follows.

H: How it feels to learn? Oh, great. Getting stronger, smarter. I love it. I mean after D. and I talk or come to a certain realization about

something I feel great. I mean, I feel like I'm doing something that I should be, something that we're all supposed to do.

He also tried very hard to explain the difference between "learning by being inside your head" and "learning through interaction" and how the two processes interact for him.

I: When you're into your head, what's that like for you? What do you mean by that?

H: I'm just, I'm not really turned inward because I am, I do, I like, well I am and I'm not. I'm both. I like thinking about things in my head and being in, you know, concentrating on that, but then I like taking in other information. I love looking at things, I like talking to people. So I'm kind of half and half, I guess. I don't know. I guess I like getting information and thinking about it and getting more information and then thinking about it, but then I like thinking about my own information, too. Things that I don't...I don't share a whole lot. I wouldn't really call them private, I guess I share everything in time, I just like to think about it for awhile before I do.

I: So you take some processing time that you want to keep all to yourself, maybe, before you share it?

H: And also after I share it sometimes. I take their point of view and I assimilate it and just kind of leave it alone for a little while.

I: Oh?

H: I don't know, you can't really describe it. It's not really like a body feeling, I mean, I don't like get an adrenaline rush from it or anything. Well, maybe I do, kind of, but not as, not quite as much

> like repelling or something like that. Those are big adrenaline rushes, but I feel good. I mean it, I feel good inside. I feel like I'm doing what I should be doing. I feel like I'm on track or something.

This description by Harmon sounded very like Csikszentmihalyi 's description of "flow" or optimal experience (1993). From this bit of introspection, he then began to describe vivid, action-packed experiences of learning to ride a mountain bike at 90 miles per hour down a Smoky Mountain trail and learning to repel off the side of a mountain. He moved so rapidly back and forth between lively, embodied learning experiences and deep, intellectual learning experiences like his experience of thinking, that it was a dizzying experience to follow the narrative. I now see in re-reading this protocol that the movement back and forth between "inner- world" learning experiences and "outer-world" learning experiences is the main metaphor for his ways of learning: getting information, jumping right in, messing up, processing, discussing, processing and starting all over again in an ever widening spiral. Learning for Harmon is adventure .

Notes On Male Learners

For male learners, learning in order to operate on the world and learning as a way to know and understand themselves was particularly important. Risk taking behavior in learning among the male participants took the form of doing dangerous acts (feats) or pushing equipment or self to farthest bounds. Risk taking among the female participants tended to be expressed in risky acts with others, entering unfamiliar environments, or trying things that males usually do. Five of six male learners found the multi-media learning experience appealing

Only two of the five female learners felt multi-media was an enjoyable, effective way to learn.

In this chapter I have presented some very personal and unique accounts of the experience of learning for these creative individuals in both technological and general contexts. In the following chapter I will present themes that emerged from their accounts of learning experiences that are common to these co-participants.

CHAPTER V

RESULTS OF THE STUDY: COMMON THEMES AND THE ESSENCE OF THE LEARNING EXPERIENCE

Organization of this Chapter

In this chapter I will seek to answer the question of how participants experience learning by presenting the results of the study in two ways. First, I will present a description and discussion of common themes that emerged from co-participants' descriptions of learning. Each theme will be documented by quotations or vignettes taken directly from interview protocols. I will then describe as concisely as possible, the essence of the experience of learning for co-participants.

The Thematic Structure of the Experience of Learning As Described By Creative High School Dropouts

The purpose of this study is to describe the experience of learning in the lives of creative high school dropouts whose perceptual learning styles are not rewarded in traditional schooling. For these individuals learning is an active experience, full of challenge and rich complexity. The experience of learning for these individuals emerges from the ground of resilient self reliance and their creative differentness. Personal experience is the preferred source of learning. In their stories of learning there are clear distinctions between "learning" and what happens as a result of another's teaching. Three categories of themes emerged as stories of learning were related: "Ways I Learn", "Why I Learn", and "What Learning Is To Me".

Ways I Learn: Conditions and Processes

The present set of individuals describe the ways in which they learn in terms of conditions and processes. The "Ways I Learn" category includes the conditions needed for optimal learning, and the processes used during learning. Conditions are described as the need for self direction and control of the learning process; the need for intense experiences, color, details and novelty; and the need for access to people and material resources. Privacy or alone time " to play around with things" is also a condition for optimal learning. Processes are described as "what I do while learning", "what is taking place 'in here' and 'out there' while I'm learning" , and "how and what I'm feeling while I'm learning". Both conditions and processes were richly described by the co-participants.

Conditions

Conditions are described as "what is necessary in order for me to learn best" and include the following themes each of which I have labeled with a brief quotation from the interviews: Need for self-direction and control of the learning experience, "I want to learn the way *I* learn"; need for privacy, "I just need to get off somewhere by myself to do it"(self); need for access to others as learning resources or guides, not teachers, "others do not teach me, I teach myself" (others); need for intense experience, challenge, and complexity "I just needed more"; need for material resources, "having plenty of stuff to play around with", "tools", "libraries and places like that" (world or environment).

"I Want To Learn The Way *I* Learn": Personal Experience Is Everything

The primary condition for learning described by the co-participants is

learning from experience, and personal experience was described as an expression of self reliance, self direction and control. All 11 co-participants were adamant that learning from their own experiences was the best way to learn. They wanted to choose the problems or topics which they would learn, set their own goals, and have their own vivid experiences. Knowledge gained from personal experience was seen as the most valued knowledge. "Experience is the best teacher. You've got to just do it to know about it, " says Dancy about learning to dance. She also says, "I've got to call my own shots, when I learn, my own experience makes it like I've lived many lives."

Although personal experience was highly valued, some participants envisioned ways to make education more "real" and like actual experience. Rod says, "Education should be as real as possible, not that zombietized boring classroom _____." He made a few comments about virtual reality maybe being safer than learning from experience, "kids could have a hallucinating experience in virtual reality and like the technician could bring it to life, so they could experience it without damaging their body." He was eloquent when he talked about designing a learning experience about archaeology, "I would try to have it as real as possible, they would have to lay out the area, map it out, do the dig, you know if they dug down to a piece of pottery and hit it, they would experience the disappointment of destroying it, and they would have to experience the tiredness, it would be that they were put out in the hot sun, doing that dig."

"Doing It My way", "No Regrets"

Co-participants describe themselves as "stubborn", "bull-headed", "hard-

headed" and as "wanting to learn things my own way". They describe knowing that their own way might not make sense to anyone else and that sometimes the consequences of "doing it my way" are harsh; however, they reported being willing to take the negative consequences and to savor them just as much as the positive ones.

Chuck says "Yeah, I mean, like I don't know, I never really regret anything. I mean even if I do something like, say, do one thing and that thing branches off and all these things happen, good and bad, because of that one thing, you just can't waste time regretting, you just learn and that's what makes you who you are." Crystal shares, "My learnin' process comes from experience, I don't know, I'm kinda hard headed, you know, things just has to be drilled into my mind, somebody can't just tell me somethin', I'm like, 'I don't believe you', I'm gonna just go out and... I've gotta experience it before I'll believe anybody, it's just, I'm hard-headed." She shares details about how she learned to be a fast food manager, "You know what needs to be done, and you get it done, and if people get pissed off, well, they get over it!" Arden says" I had to learn for myself, cause I just wouldn't listen to nobody. I've learned the hard way you know, about everything." Carly says "my whole life has been a learning experience, seems like I've always got somethin' goin' on. Of some type, it's like whether it's good, whether it's bad, whether it turns out all right or turns out wrong. It's your own experience and you learn from it."

Although they value and enjoy learning, they don't want anyone else to teach them. Their perceptions are that most "others" are too judgmental, unavailable, or unreliable to teach them anything. There is one exception. For 10 of the 11 co-participants a grandparent was mentioned as an important "teacher"

although I never asked any question that might directly elicit information about a parent or grandparent. A few mentioned trusted friends or employers as "guides" or "someone who helped me learn". Most other individuals are regarded as resources with varying degrees of reliability. Even when describing the multi-media learning experience, the computer was valued for not being judgmental and the multi-media samples as allowing them to control what and how they would learn. What others thought did not matter much to them. Most had learned that important others in their lives "might not be there" for them on any consistent basis and that "learning to do for oneself" is the best way to live in the world. Ultimately they trust and rely upon themselves.

"Others May Not Be There For Me"

Carly, who at 14, had moved in with her brother, 17, after her father died says, "And when we moved out of the apartment it wasn't on good terms, and its been about four years since I've talked to him, because we just went out with a bang, to say the least, and it kind of taught me that it doesn't matter if you're blood related or, you know, people... you can't count on somebody just because you think they're always going to be there for you." Her wistful tone made me think she was not only talking about her brother but her father who also had died. Timmy said about his mother, "pretty soon I just learned she wasn't gonna be around and so I set out to learn how to do for myself." Drew says, "I guess I haven't minded learning to look out after myself, you know my Mom has been sick a lot".

"Others Do Not Teach Me, I Teach Myself"

The theme "others don't teach me, I figure it out by myself" was repeated

many times and seems to be perceived as self experimentation, learning from the modeling of others, and trusting in one's own processes. When he had just described learning to change a semi-tire, I asked Rod if his friend had taught him how to do it. He replied, " Oh, no, he didn't teach me. I just watched him do it and asked him questions, then I figured it out for myself." When Brittany had talked about being exposed to computers in elementary school, I asked her how she had learned to use the computer. She replied, " well nobody was a teachin' us about 'em, they was just in the back of the room and if we finished our work, we could go use 'em. I just turned it on and played around with it until I could play games and type stuff on it." When asked to describe an important learning experience Timmy said "well, I learned that my Mom was just not going to be around for me so I better learn to do stuff for myself. I watch my grammaw and my aunt a lot"

Learning from Grandmother

Descriptions of learning from grandmother were related from one of two perspectives: Those who saw grandmother as "someone who taught me" and those who saw grandmother as a resource to be observed or emulated. The following descriptions of learning from a grandmother are just a few descriptions from the many that were related. These experiences were related after I had asked, "Tell me about a time when you learned something important to you."

Timmy's story: "Well, my grandmother lived right beside of me. So, and if I had to find a way to town or anything, I could like go with my grammaw and that's how I could pay attention to her, see? She would like pay her bills and see how much she had left and she'd like count and figure and it was pretty neat." He

describes her procedure and then finishes with "so that's what I do."

Drew's story: "Yeah, my Meemaw taught me how to do my laundry last week. I felt so stupid because I didn't know like this simple stuff. I was so tired of not having any clean clothes, my Mom has been sick, you know. I really like to feel clean. But anyway I went over to my Meemaw's and asked if she'd wash some of my jeans and stuff. But she said, I am almost a man and I need to learn to do for myself. I guess she's right, (laughs), well anyway she told me to bring all the laundry, My mom's too."

I: So you did?

D: "Yeah, and there was something cool about learning about laundry. It kind of set me free in a way. My Meemaw, she showed me about the washer dials and how to set the dryer for different stuff, and how to empty the lint place. I never realized how complicated laundry was, but you know, I don't think my mom ever did laundry the way my Meemaw does it. Well, anyway, I was feeling real dumb in the middle of all these clothes and towels and stuff. My Meemaw, she showed me how to sort the stuff first. I never knew you couldn't wash white stuff in with your jeans. It would make it gray she said. So she left me there to sort it, I was telling myself out loud, this goes with this, that goes with that. Kind of talking through it helped me get it right"

I: So what was it like while you were learning it?

D: "Well, I felt real dopey. It took me four and a half hours to do five loads of stuff. But, while one thing was drying, another thing was washing" he goes on to describe a rather elaborate process then ended with "I'll teach my own kids how to do laundry when they get about ten or something so they don't ever have to be dirty. When I made the statement, "so it was easy to learn when your

grandmother showed you how", he replied, "Yeah, she's real different and stuff but she really loves me and always has some great soup cooking at her house. I wish it was as easy to learn this GED stuff as how to do the laundry."

Drew went on later to describe how much better school would be if there was "just someone to help you sort everything out, like my Meemaw showed me how to sort laundry".

Carly related how her grammaw taught her to sew. Arden spoke of her grandmother's kindness and Christian treatment of others. Brittany spoke of her grandmother's teaching her to get groceries. Rod spoke of how his Native American grandmother taught him about healing plants and herbs and used riddles to teach him about conduct toward others. As I write these bare descriptions I am aware of how much rich and deep description I am deleting and how much poignant meaning learning from a loving, caring grandmother has meant in the lives of these creative individuals. I included Rod's complete story as an example of how vibrant and rich these particular stories of learning are.

Rod's story as lifted from the interview protocols follows:

I: Can you think of anything else like that, that you've learned that's important to you?

R: I learned about Native American medicine from my grandmother, my grand father didn't live long enough to for me to spend, you know, a lot of quality time with him, so my grandmother, she taught me a lot of things about life in general.

I: Would you talk about that.

R: Sure. Uh, she taught me one thing, the most important thing that I can tell you about the whole subject, is one day we were sittin' and

we were tryin' to, she was tryin' to show me how to tell when it was going to rain, and I caught on after a while, but she was , she is really different. I'll never forget this as long as I live, she made me promise her one thing, and the one thing she made me promise 'er, she told me, she said, " do me a favor", So, well what's that? She said, "Son, as long as you live, never take the one thing that you can't give back." And I thought and I thought, and I thought well, if I take money, I can get a job and give it back, or if I take, you know material, or you know, but what's the one thing you don't take away you can't give back and that's a human life, and that's always stuck in my mind ever since I was a kid.

I: Sounds like a pretty important thing..

R: It is.

I: When you were learning things from your grandmother, how did you do that, did you sit and chat or...

R: As far as like the herbal and medicinal parts of things, like that, plants and things, she would take me and show me the plants and I would have to do this from memory, and the spiritual aspects she told me. You know and worked with me on different things. And It was from visual , uh, touch, hearing, and even tasting parts of the medicine, as bad as it tasted, that's what so, I guess, amazing is that it actually worked. And there was all sorts of ways that she taught me things, there was seeing, hearing, tasting, smelling, touching..

I: She was keying in to all those senses..

R: Yeah, she was the only person I think I've ever seen in my life that could walk outside and animals would actually come to her, wild animals, I've saw squirrels would come up to her, and birds would

people would say, but, uh my grandmother is really., really religious. And, I think that has a lot to do with it too.

I: What other things did you learn from her? Sounds like quite a bit,

R: There's a lot, I could go on forever, but there'd be guys in white coats takin' me away pretty soon. (Laughs)

I: I don't think so..

R: She was always like, she was never prejudiced against anybody, color, race, nothin'", she respected all the people, plants, animals, no matter what . She had respect for everything, and, you know, she tried to teach me the same thing, which I tried my best to learn. I don't know, she's just altogether a different teacher, I could sit and listen to her you know all day and not be bored, but you know when it came time to go to school, it was a different story.

Why Learning By Computer Was Like Learning from Grandmother

It struck me as I just reviewed these individual's experiences of learning from their grandmothers that some aspects they described liking about learning using the computer were similar, there was no judgmental person, you could make a mess, you could do things over as many times as you needed to, and it was always challenging, yet reliable. Interesting.

" I Just Needed More", the Need for Intensity as a Condition

In addition to the need to learn in their own way, co-participants also mentioned the need for intensity in the learning experience most frequently. Speed, color, complexity, challenge, and novelty were seen as essential for

optimal learning and sometimes risk-taking or danger were necessary as well. The ideas of "pushing beyond all boundaries", "pushing the envelope", and "walking the edge" were frequently mentioned. Traditional school was described in terms of "too slow" or too repetitive, " we'd done all that before it was the same text book with just a different cover".

Dangerous or Painful Learning Behaviors, A Way of Gaining Intensity

Harmon talks about leaving school even though he was an honor student, "I don't know, I just wanted more. I wanted to go to college, but even after I did quit school, I waited for awhile. I don't know, I just wanted to see other things, to know what it felt like -- I'm bad about that, experimenting with myself, really. Just doing things to see how I feel. I guess to gain a better understanding about things."

Chuck talks about getting his tattoo's. "I like it because it's like no two are alike, it's like it's your own thing. I still like this, but I mean this is Geiger's, you know, one of his pictures, but no one has this. I mean they'll have tribal but it's not exactly the same, it's like aggressive, I mean not that I'm a violent person. I got this tattoo to learn about how physical pain would cancel out the mental pain I was feeling (over his girlfriend). Well, anyway, I was pretty rocked, I was pretty much hating life at the last 20 minutes of it, like chewing my shirt and all, but time heals and you learn." He goes on to talk about getting his tongue pierced and how it is so painful it is nearly sensuous " and you learn a lot about yourself."

Intense, dangerous or risky behaviors took different forms for the women co-participants than for the men. While the men tended to go for learning thrills resulting from rappelling, motorcycle riding, mountain biking, bungee jumping,

rock climbing, or riding scary rides at the fair, four of the five women tended to seek risky relationships for some very intense learning situations. Crystal wanted to "hang out with thugs, and cons", Carly wanted "every bad boy as my trophy", Brittany likes "guys that look dangerous, you always learn really weird things from them", and Rebecca said "I wanted a really mean looking guy so I'd feel protected, and experience some wild things, but they always ended up being the ones I needed protection from! Arden wanted to do "things women usually weren't allowed to do."

Need for Color, Challenge and Details in Learning

Most co-participants mentioned color as enhancing different kinds of learning. Timmy says of learning fractions, " Well those little bitty old numbers can get you really confused. There's' like each. I let me think, it's like fractions, if they could be in your math book all in purple, then you'd know what fractions are. I mean you could keep 'em separated. But all these boring old black numbers on white pages, it's boring as crap. You can't, you're just not interested in it cause it's black and white and dull." Arden says, "If they would just colorize the computer keys, it would be easier." "Why cant the geometry shapes be bright colors?" asks Arden. Mac said after viewing the multi-media samples, " I saw a whole new world beyond belief in there. Everything just vibrated with color. Maybe if I could have learned with a little color, I wouldn't have been so frustrated in school. By watching something on a screen that has uhm, color, that catches your eye, I mean attention is going to be directed right there." Carly recalled, " I could remember those old books with the big capitals all done in a different color. I can see 'em in my head even now. All books should have a little color you

know. Pictures don't hurt either." Brittany, "I'd rather watch and see what's goin' on, than have somebody tell me well read that in this book. If there was some color and action in this GED class, then so much the better."

Challenge and complexity were also mentioned in various ways as being desirable in an optimal learning experience. Rod says, "challenge is a real important, well, it had to be a challenge, because if it was too simple, then it was boring. There had to be something to it." When he talks about learning to play video games, "it's got to be fast. I like the violent ones myself", but he worries because his young daughter likes to play these violent video games too. He wishes someone would design one "more for girls" but "it would still have to be challenging, she's like me , very quick, catches on real fast, it would have to be constantly changing, action packed." Brittany says, "when I'm learning somethin' new, I just want to see more and more about it, all the little things, and the big things. I like to learn things that make your mind move quick, things like that don't lose your attention." Dancy's reference to learning pom-pom routines, " we would have never won the contest if I hadn't combined some steps to make it challenging. Those other girls hated when I added all the hip-hop 'cause they had to learn new steps but the judges loved it, it was quick, snappy and cute. I really love that kind of challenge, especially when I have to make up a dance routine under pressure."

The kind of detail that each of the co-participant's liked seemed to vary with their learning style modality strength. Drew loved all the cricket sounds in the "From Alice to Ocean" CD-ROM as well as the different voices. Mac, Timmy, Rod, Harmon, Carly, Crystal, and Dancy looked for complex visual details and loved animation. Dancy liked complex dance routines and says "I'm aware of it

coming together, guess you could say, I'm aware, I know that if I do something that looks good from the waist down. If I think my leg did something goofy or my hand did something funky, I'm aware, but when I start dancing I love it when all the little things start to come together. If you mess up, the people right in front of you might never see it, but you know you did it"

Need For Privacy or "Alone Time To Play Around With Things"

Many co-participants spoke of the need for privacy when learning something difficult or, when trying to solve a problem. They felt the need for a "place to mess around in that won't disturb anybody and where nobody cares if I make a mess." Carly was trying to master hanging paneling in her house when she became so impatient with the man supposedly helping her that she told him, "why don't you go to the store or somewhere. Once he had gone I could sit there and look at it from all angles and really see what needed to be done. It's hard to do that with people around." Mac said, "sometimes when I'm trying to learn something I get stubborn, like a child who has to have it's own way. I can just cut you out of conversation, I can go days without speaking to someone, I can go months without speaking to someone... When I'm trying to figure something out, I'm basically a loner". Crystal, "I had to get off to myself before I could really learn it (her math), I don't want anyone watching me!

To these individuals, to not know is to be vulnerable or powerless. If they are learning something new they want to be alone and "protected." When Harmon first went through the Mac tutorial he described his first reaction, "I was apprehensive because I didn't know how to use it right off the bat., you know and I want to know how to use stuff. I want to know before I do it. But that's what's

good about computers, you can go at your own pace with no one around until you learn it."

Need for Access to Material Resources: "Plenty of Stuff to Play Around With"

Having materials or resources with which to be creative is a condition of learning for these individuals. This does not mean they have to buy new or expensive things. Found or re-used materials are actually regarded as "better somehow". When Carly talks about important early learning she describes her playhouse, "It was kind of neat. It's still there. Things are kind of turned upside down, its a storage building now. If you go in there's like an ancient old trunk now to the left, its full of dolls now. ... It's where I went to do everything like cut paper stuff out, or make things. One day they had some wallpaper left over so I papered half the place. It's good to have a secret place to try a lot of things in." Rod loved it when he was able to buy some old junk computers and take them apart. He described this wealth of resources with reverence, "I got a bunch of computers that was in a network from a guy, he was goin' to junk 'em, so I told him I'd give him forty bucks for 'em, there was like five computers, a lot printers, and I don't know how many monitors. None of 'em worked so I started takin' 'em apart piece by piece and building computers out of 'em." Chuck had found "all this bunch of material, I don't know who it belonged to, but started making costumes, you know to wear out to clubs and such. There was so much material, I wasn't afraid of messing up so I could be free about what I made."

Access to Print and People Resources: "I Needed Something To Go By" or "I Found Someone To Ask"

Access to print and people resources was also a condition of optimal learning. When Rod was rebuilding those computers he "ordered books, I had to have the manuals because it was entirely different from working on a TV or VCR or satellite system." Carly used her "library of home improvement books to look up how to do and fix things around the house." She also "sent away for pamphlets, and called organizations" to get information to learn to care for her hemophiliac child. Brittany's son was born a Phenylketonuric so she had to "read all this stuff, and call all around so I knew how to make the right food for him." Brittany and Mac valued being able to ask others to demonstrate techniques they were trying to learn. For Mac it was having "a guy demonstrate how to do CPR" and for Brittany it was asking for help with her crafts or her English, " I just needed to see how someone else would do it a couple of times. I'm not afraid to just go right up and ask someone if I need to know something."

When co-participants referred to others as aids to learning, the others were described as "guides", "mentors", or "experts" to be consulted. However, the only one to say they learned directly from another, other than grandmother as previously described, was Arden who actually hired her sister-in-law to be her math tutor. Her description of "Learning from Michelle" can be found in Chapter 4 of this report. Others are used for "vicarious learning" as when Carly and Dancy learned from their boyfriends "how not to go to jail" and "how not to mess up my life. I saw what happened to _____, and I decided I was never going to do that."

"Libraries and Places Like That"

Co-participants saw "museums", "libraries and places like that," and electronic resources, such as the "Discovery Channel," as important sources of information. They chose to visit these places because there was something they were interested in or working on for which they could not locate print or people resources in more direct ways. Many had never visited a library other than at school and regarded their first visits to public or university libraries and museums with "awe" that was similar to how they described finding material resources. Rod said " I knew I was finding a whole treasure store that I could come back to time and again. That was after I got over bein' lost." Brittany's accidental discovery of the art museum was "so cool, I never dreamed they was a place like that, where you could go and look at paintings and art by people for free or real cheap. I always thought places like that were for only rich people. I'm gonna take my little girl lots so she can have the benefit of seeing what all these different artists can do." Crystal says, "If I want to think about something new, I just tune right in to the "Discovery Channel", that's where I learned about pirates and archaeology. Most of the co-participants had not actually tried the Internet yet, but were aware that it was something they wanted to try.

Processes

Processes were described in terms of "what I do while I'm learning"; "what is taking place 'in here' or 'out there' while I'm learning, and "how and what I'm feeling as I learn." I have chosen the words of the participants as titles for these themes.

"What I Do While I'm Learning": " I Was Always Havin' To Take Things Apart"

Co-participants were constantly "breaking it down", "tearing it up", "getting multiple perspectives," to satisfy their curiosity and figure things outs. They look at a "whole" and immediately want to understand it in terms of how its parts work together. It may be a physical thing I as when Rod took the computers apart or as Carly and her cousin "got in trouble for taking the swing set apart and putting it back together a different way." Or it may be a concept as when Harmon describes arguing with his friend, " We get loud and sort of intense, Other people just move away, but we have to explode each others ideas about something to get enough angles to understand what we're even arguing about. It's so hard to understand another person's perspective, but if you make yourself take it apart, you always extend your own knowledge."

Taking things apart is also a way to satisfy the condition of need for detail and complexity. Harmon says "sometimes I need to know odd things to truly understand the whole picture. It's just I end up asking stranger and stranger questions. I like to know, I have to know how things work. I love to know how things work and certain weird things help me understand, I can't really explain it." He goes on to relate "the only thing I didn't tear apart as a child was a wind-up train that played a little song and I still sing that song sometimes and it was clear and I could see all the gears inside."

"I Just Work Backwards From How I Want It To Be And See What I Need To Do To Get There"

Ways of problem solving; and strategies to organize information for easy

memory, recall, and operation are global and intuitive for some co-participants and very linear and sequential for others. Brittany describes learning about anatomy and physiology "I kind of understood what I needed to know and then I worked backward from there, readin', watchin', and talkin' to other people until I got where I knew I needed to be. But it wasn't like no outline in a book, I learned bits and pieces and began to hook 'em all up." In contrast Carly is very specific about logic and order, "if you skip steps, you're gonna miss out. Why did you get this for this you know. That's been my frustration with this place (the GED program). _____ gets mad with me all the time. He says 'everything's gotta make sense to you. You've gotta understand *why* everything's the way it is. Because I may ask him something and he'll say 'just because' and I'll say 'there's a reason'. He said, 'Everything's gotta be logical to you, the world is not like that' and I said '. *well, mine is!* If it don't make sense then I'm gonna find out why it don't!" In fact she can describe very specific process steps she went through to figure out how to hang paneling in her home. Carly has a very powerful strategy to think about things very logically, however, if she hits a snag or it's not working she switches to "thought release. It's like if you're thinking like if you hold a thought, it stays with you, then if you sort of forget it, it goes on and on, and you know, that's when things start happening that leads you to the answer. I stop trying so hard and pretty soon I know what to do."

"Separate Reality"

Attention and figure-ground switching constantly is a balancing game that these individuals play while they are learning something. They have a clear sense that there are two realities, the one "out there" and the private or separate

one "in here". This seems very related to the need for privacy while learning and is seen as a protective device. Rod says, "I can really have 'em fooled, I look like I'm paying attention to what they're (the teachers) saying but I'm really 'up in my own head' figuring it out and playing with it in my own way." Harmon says "I can pay attention. I can focus, you know, and process information and think about something else, too. But it's not as prominent. I mean I pay, I pay more attention to that, but sometimes I have to watch it because it'll skip, I'll start thinking about the other, you know, I'll get off track real quick and I have to watch. I did that today.

I asked him "How are you aware of that? How do you catch yourself?" He replied " I don't know, I just realize that I'm not concentrating enough on what's going on up front or when I'm doing something and, I guess it switches from that, when the voice goes from being what I'm concentrating on, when I realize that it's in the background, that's when I have to switch back." Carly says, "it's just an in-and-out game, I focus on them then I get to thinking about how what they're saying is important to me and sometimes I realize that I've missed half of what they're saying because I'm thinking about it in my head."

"If I Can Just See It In My Head and Work It Around a Little, I Don't Have To Waste Stuff"

The process of problem solving using imagery, visualization, and intuition was described as serving these participants well while they learn. They also regard the process itself as important as it gives them a sense of economy and of control. Carly describes this very articulately, "Yeah. and what can I do to make it go this way? What can I do to change this before that happens? You know it's

like all these things are like relays... it's a little like a domino thing. Everything that happens causes something else and if you don't want it to happen, if you stop it back here, then it's not gonna keep goin' and you can change it you know." "I can actually see the steps and possibilities and rearrange them." Rod says, " I just get this schematic in my head although its better than a picture because I can see all the angles and twist around or make it upside down if I want to. That's helpful because if you're putting together something it doesn't always look like the picture in the diagram. Arden and Carly both have learned to use visualization for relaxation and stress relief. Carly learned it when she was in the hospital with her son but she soon learned to use it for other things. She is pleased that "if I can just see it in my head and work it around a little, I don't have to waste stuff" trying it out in reality. Economy of mental effort is meaningful to Carly.

What I Feel While I'm Learning

The feelings and sensations co-participants report while learning range from feeling tense, anxious, and exhilarated to feeling centered and "on target", it is almost as if the act of learning produces a kind of tension during the process and then it is as if when mastery occurs there is a relief from the tension that produces excitement in some and a feeling of "centeredness" in others. The feelings they experience are very embodied. Mac shares, "I was breathing faster and thinking clearer as I learned it" (CPR). "I knew I was pushing it on the mountain bike, I was almost out of control and I got that adrenaline rush", say Rod. In fact 9 of the 11 co-participants described important learning in terms of a "rush" of one sort or another. Harmon's description says it all " I feel like I'm on track, I feel good, I feel like I'm doing what I should be doing."

All of the conditions set the stage for meaningful and optimal learning. The various processes assist the co-participants in learning things are important to them. Why they choose to learn has to do with their reasons for learning. This is the next category of themes.

Why I Learn

There are reasons for the co-participants to learn and some of the reasons appear to be unique to the individual. However, most stories of reasons for learning could be sorted into three themes:

1. How and who I am (learning to understand yourself and your place in the world).
2. How things work (learning to do, make, or survive).
3. How people are (learning to care for or understand others).

Learning How or Who I Am

This type of learning dealt with personal insight and understanding and was very connected to the identity of the person. Chuck shared, "I realized that if I was gonna make any changes in my life, I had to take control and 'just do it' as the ad says." Crystal talks about the personal insights she gained in drug rehab, "Mmm, I still do it everyday, I mean I try doin' the right thing every day instead of doin' what my mind tells me to do, I just try to think things through more clearly and thoroughly. And believe me, I had to learn to do that the hard way!" Brittany says, " I never had no one to tell me the important things in life so I set out to learn 'em for myself, like what I'm supposed to be doin' and why I do the things I do."

Learning How Things Work

This type of learning was learning in order to do, to make, or to survive. This type of learning was more skills-based and stories shared related to learning to drive, to choreograph, to arrange flowers, to fix the kitchen plumbing, to ride a mountain bike, to silk-screen, to rappel and learning to give birth.

Learning to do. Learning math to pass the GED was described by Arden, " I just needed to be able to do this stuff. Use math to solve problems and to get my GED." "I had to learn to use the washer replacement kit" says Carly " to fix my bathroom sink." "I needed to learn the special math and language to be able to program a satellite system" shares Rod. This type of learning was related in a very straightforward and factual kind of way, as though the need for this type of learning was an obvious thing.

Learning to make. Stories of learning that had to do with learning to make or create something were related with mention of skills, but also with a little sense of wonder. Brittany shares about learning to make Christmas ornaments; "I just got one of them needlepoint books with patterns, I hadn't never done any thing like that before, but I followed the instructions and just tried it out a little and actually found out I was real good at it. Now I have great Christmas ornaments and have some to sell, too." Mac tells of learning to arrange flowers, "now if people would just tell me or show me a picture of what they wanted them to look like, I learned I could duplicate it, and people were real complimentary. It's the first time I realized that I had a talent but I'd been thinking about how to do the flowers better for a long time and then when I tried it I learned I could really make

a good arrangement." Rod says " I wanted to make a picture for my daughter's room, a really amazing one so I looked through these fantasy calendars and tried some sketches, then I just kept thinking of ideas for her and the drawings got better and better. I ended up doing a lot of them." Learning in order to make art, a craft, or a useful object was described as very satisfying to these individuals.

Learning to survive. Timmy's stories of learning to cook and pay bills and Drew's story of learning to do his laundry are two of the most poignant stories of this study. This type of learning was very related to surviving at an early age. Timmy learned to cook at age 10, and to pay bills at age 13. Drew learned to do the laundry at 17 so "I could be clean." Dancy and Carly both "learned how to survive by being charming to men". Brittany moved out of her mother's home and into a car with her future husband to try and improve her life. " I was just 15 and I didn't know, but it was all messed up at home and I wanted to be with _____, and so he lived with us awhile but then we just moved out and was living in his car. It was hard, I had to learn how to sleep in the car and to try to find places where I could wash up and brush my teeth." These are very hard lessons; however, none of these individuals were whiny or complaining, most made meaning from the experience and felt it made them who they were. Harmon say of learning to adjust when his family moved around a lot, "My mom was real apologetic. But I'm glad we moved so much. I got to meet new people and do new things, it made me who I am today."

"Learning How People Are"

"Learning how people are" is a quote from Arden's interview. I have

chosen this as the title for themes of learning that relate to learning in order to understand others or learning in order to care for others. Sometimes learning in order to understand another had survival implications. "I had to learn what to say or do so he wouldn't beat me, but sometimes there didn't appear to be no connection." In Harmon's case, learning to understand his friend through arguing not only made for greater understanding between the two of them, but also extended Harmon's own learning by providing him another perspective. Timmy speaks of learning about other people both to understand them and to extend his own knowledge as well. An excerpt from his interview illustrates this:

T: You can learn from different people. I mean everybody that you're around, I mean if you learn one thing from everybody that you're around, like , pretty soon you're gonna get pretty smart. You get to know them and how they are and you get to know yourself, too.

I: Yeah, learning from other people is kind of neat.

T: And it's like really different, like you can go to someone's house and spend the night and like they're Seventh Day Adventists , some of my friends are and they can like wear shorts to church. So I wore shorts to church for the first time. I liked it because you could wear shorts to church. Now if I was going to my regular church you could not wear shorts, period, and it was kind of boring and dull. And, I don't think God cares what you wear as long as you show up.

I: Probably not.

T: And I was like, are you sure you can wear shorts to church and they were like that ain't nothin. It was really different for me.

I: So you can experience different things by being around different people.

T: And they cook delicious. Cook delicious.

I: So you learned some different things to cook.

T: Egg omelets. For breakfast, They can cook 'em a lot better than people in Greeneville . What people cooks tell you a lot about 'em.

Brittany and Carly related stories of learning in order to care for their children. Brittany's son was born a Phenylketonuric so she had to learn to prepare special foods for him and how to read nutritional labeling carefully. Carly's son was a hemophiliac and so she read everything she could to better assist her son in having as normal a life as possible. Drew learned skills to help care for his Mom who was ill much of the time. Co-participants regarded this kind of learning as obligatory and seemed to derive great meaning from learning in order to care for another. However, they differentiated between learning for the benefit others and learning something "for myself". It is as though learning to care for another was not learning for themselves but learning for others.

Mac's story of learning to perform CPR was a curious mixture of learning for himself "you never know what you're gonna come up on out there, I really like being an EMT" and learning to benefit another -- "you can really have to do with saving someone's life, whether they live or not, that's really up to God." All the stories related to learning either to care for another or to understand another were described by the co-participants with a rather heavy air of responsibility. They exhibited a completely different affect than when describing other types of learning. It was as though learning to care for others or to understand others

involved a kind of weariness on their part.

What Learning Is To Me

"What learning is to me" is the title I have chosen to communicate the essence of the learning experience is for the co participants. It has two parts: (1) Learning is important to me and (2) Learning is making the best of use of instinct and experience to understand myself and others and to succeed in the world.

That these individuals love to learn leaps from the interviews, Harmon sums it up nicely: "Learning, that's tough to prioritize. I think, I don't know, I can't prioritize it. I couldn't put my wife in front to f it or anything like that, but I know that it's always, it's just a part of me. It's completely necessary to me. If I couldn't learn, if I couldn't learn something I wouldn't be worth much. If they put me in a room I'd probably go crazy if I couldn't learn. Well, no I wouldn't, I have stuff in my head to think about. I'd just think about that stuff. I don't know, *it's very important to me!*! "

Co-participants reported finding meaning in every learning experience. Harmon also has the final word on what learning is to most of these individuals: "Learning is making the best of use of instinct and experience to understand myself and others and to succeed in the world."

CHAPTER VI

DISCUSSION, CONCLUSIONS, AND IMPLICATIONS

Introduction

At the beginning of this study I was interested in describing the ways in which creative high school dropouts with learning styles not rewarded by traditional schooling experienced learning. I felt sure I would hear some unique descriptions that would indicate that these creative high school dropouts would have very unique perceptual modality learning style patterns in common. What I learned from my co-participants is that their resilient self reliance and creative attributes colored their descriptions of learning far more than their perceptual learning styles. That is not to say that their perceptual modality strengths did not influence their stories of learning. However, their resilient self-reliance and creative attributes are what gave their stories of learning integrity and commonality. The experience of learning for this group of creative individuals is a far richer and more personal experience than I ever could have predicted.

Discussion of Findings

As I looked for ways to group the elements, meaning units and themes of the diverse experiences of learning related by these creative individuals, I noticed that one of the co-participants related her own experiences from three roughly defined perspectives. "Ways I learn, " Why I learn", and "What learning is to me" are the words she used for these perspectives. I decided to see if this structure would work for categorizing the themes that emerged for all co-participants and they seemed to work very well. All themes are grounded in the

concepts of resilient self reliance (resilience) and creativity or "differentness" of approach (anarchic).

The Ground: Resilience and Anarchic Approach

As our phenomenological research group began to read and process the interview protocols one thing stood out. Everyone was struck by the fact that although these individuals had lived very hard lives and in some cases had somewhat tragic stories of growing up, not one of them appeared to complain, whine, or blame others for their circumstances. Co-participants would relate some extreme story of hardship but would end the narrative with comments such as; "but it has made me the way I am" or "I guess I am the way I am because of this, so I'm really not sorry about it". Our group came up with the term "stoic self reliance" to describe this particular phenomena.

Resilience

I searched for research related to self reliance and could not find much information that seemed to fit the idea of an at-risk person making the best of a bad situation. Imagine the "aha" experience I had one morning while preparing to teach an educational psychology class to a group of pre-service secondary teachers. Right there in my textbook (Eggen & Kauchak, 1998) leaping off the page from the heading "At-Risk Students: Promoting Resilience" was this statement, "The study of resilience focuses on youth who have survived and even prospered despite obstacles of poverty, poor health care, and fragmented services. Resilient children have well developed 'self-systems', including high self esteem and feelings that they are in control of their destinies. They are good at setting personal goals and they have positive expectations for success and

good interpersonal skills (Bernard, 1993; Wang et al, 1995)," Well, there it was, the descriptor I had been searching for.

I will discuss the idea of resilience in more detail in the 'Implications for Further Research' section of this chapter.

Creative Self-reliance/Differentness or the Anarchic Approach

The other phenomena that seemed apparent to the research group from the beginning was that these individuals perceived themselves as "different", "stubborn about their own approaches" and very innovative or creative in their approaches not just to learning but in their very lifestyle. They perceived themselves as "staying in trouble" with most institutions and authority figures. Again, after this theme appeared I searched the literature to see if others had observed or described the same phenomena. Again, while preparing for my class on psychology of creativity and giftedness, I located this reference. "Sternberg included in creative intellectual styles an anarchic form of mental self-government, characterized by a potpourri of needs and goals, a random approach to problems, motivation from "muddle", lack of clear goals, , tendencies to simplify, an inability to set priorities." (Davis, 1998). Sternberg (1988a, pp. 140-141) states that, "Anarchics have the ability to remove themselves from existing constraints, ways of seeing things, ways of doing things, ...Anarchics are not to the taste of either teachers or parents, because anarchics go against the existing grain." Once again I had discovered a descriptor for the phenomenon that my co-participants had described relating to their own "differentness". It is from the ground of their own resilience and

anarchic approach that the themes of my co-participants' experiences of learning emerge

Thematic Structure of Creative High School Dropouts' Experiences of Learning

The "Ways I learn" category separates themes into two strands, conditions and processes. Conditions describe what is necessary for optimal learning; processes describe the operational processes the individual experiences while learning. Conditions were described in terms of needs for: (a) self direction and control of the learning experience; (b) access to others as learning resources or guides, not others as directors or teachers; (c) intense personal experience, full of challenge and complexity; and (d) varied material resources which included both places and things. Processes were described in terms of: (a) Strategies "What I do while I'm learning"; (b) attentional issues "what is taking place 'in here' versus 'out there' while I'm learning"; and (c) affective events "how and what I'm feeling as I learn." I have chosen the words of the participants as titles for these themes. I was continually amazed by the level of awareness that my co-participants had and were able to articulate.

The "Why I learn" category of themes describes co-participant motivations for learning and includes learning to understand yourself and your place in the world; learning to make, to do, or to survive; and learning to be able to care for or understand others. The "What learning is to me" category of themes includes summative and metaphorical descriptions of what the totality of learning means in the life of the co-participant.

The Learning Themes Match Four Approaches to Education

When I looked at the themes that emerged and began to examine how these related to existing learning models or theories, I was first struck by how well the needs for optimal learning conditions described by these creative high school dropouts matched four current approaches to education. I found that approaches recommended by adult education, gifted education, and constructivist education were approaches that would supply the learning condition needs of my co-participants. In addition, the more recently emerging idea of "mindful learning" proposed by Ellen Langer of Harvard University (1997) seemed to fit even better than constructivist theories.

Adult Education

The need for self direction and control of the learning process is an idea that is mentioned repeatedly in the adult education literature. Self directed learning has a long history and defines the way many of our founding fathers educated themselves. Kidd (1973, p. 47) stated that "the purpose of adult education, or any kind of education, is to make the subject a continuing 'inner-directed', self operating learner." As I was reflecting on what might move creative, at-risk youth to decide to leave the regular classroom and begin learning other things on their own, I didn't have far to look.

Brockett & Heimstra (1991) present self direction in learning as "a way of life", an instructional method, and as a personality trait. They mention that Boshier (1983) makes a distinction between self directed learning, "an internal change process" and education, "a process for managing external conditions that facilitate the internal change of learning" and sees confusion between

these two ideas as contributing to the ambiguity some experience when they try to understand self-directed learning. Brockett believes that an understanding of self direction in learning can be understood best within the social context and that there are power issues at stake. He seems to be speaking specifically about my co-participants when he states, " ... many individuals, especially those considered 'hard-to-reach', may believe that formal educational settings can reinforce conformity while stifling creativity. For such persons, institutions may be perceived as antithetical to the self directed learning process" (Brockett & Heimstra, 1991, p.33).

The idea that the desire for self directed learning grows out of a set of personality characteristics has exciting implications. Kronick & Hargis (1990) found that academically able students who had been referred to an alternative learning center had a primarily internal locus of control. Fellenz (1985) sees self direction as a role that becomes adopted during the process of learning or as a psychological state attained by an individual in personal development. If this desire arises from a constellation of personality characteristics (Brockett & Heimstra, p.23) such as inner directedness (Reisman, 1950), self actualization, (Maslow, 1954), locus of control, (Rotter, 1966), autonomy, (Erikson, 1964), and field independence, (Witkin et al 1971), then screening at-risk learners for these characteristics, as well as for creativity, might lead to early identification of learners who prefer self direction and appropriate interventions or programs could be designed.

In addition, adult education approaches recommend relating an adult's wide variety of life experiences to his or her classroom experiences (Brockett & Heimstra, 1991). Gender differences in learning experiences that emerged from

these interviews are affirmed by research included in Belenky, Clinchy, Goldberger & Tarule's (1986) contribution to adult education, Women's Ways of Knowing. Personal experience, it would seem, is valued in adult education contexts.

The role of the teacher in adult education settings is seen as that of co-learner (Belenky et al, 1986) rather than as an authority figure who dispenses a pre-determined product. This view of teacher as guide, mentor, or co-learner would seem to match the needs of creative co-participants. Part of this role includes demonstrating tools and providing resources appropriate for self directed learning. Therefore this model meets two of my co-participant needs for optimal learning conditions; access to caring people as learning resources, and access to the right "tools", material resources, and/or places that enhance learning. It is little wonder that so many creative high school dropouts much prefer androgogy to pedagogy. What is unfortunate is that they may delay accessing adult education resources because of their disaffection with anything that appears to be like a traditional school. Word of mouth is a very important way for these individuals to come to hear about and accept adult education opportunities.

Gifted Education

According to Davis (1998, p. 244) "every state in the United States has enacted legislation which (a) recognizes that gifted students exist, (b) acknowledge that they have special needs, which are not usually met in traditional classrooms, and (c) recommends or requires differentiated educational programs for them." Various program models utilized for gifted

education include Renzulli's Enrichment Triad Model (1977), which recommends general exploratory activities, group training activities, and individual and small group investigations of real problems and Betts' Autonomous Learner Model (1985, 1991) which proposes orienting parents and students toward an understanding of giftedness, individual development, enrichment that would include intense problems and "adventure trips", seminars in which students would research and present projects, and complex, long range research problems chosen and investigated by students. Both of these models would supply all four of the creative high school dropouts' needs, the need for self direction, intensity of experience, access to personal guides, and availability of material resources.

The problem then seems to be, why do these creative individuals never make it into talented and gifted programs? Perhaps because most schools emphasize IQ scores and teacher nomination as criteria for admittance to Talented and Gifted (TAG) programs. Research by Renzulli and Reis (1991) recommended targeting a broader range of students, 15 to 20 percent (those at or above one standard deviation of intelligence) rather than the more restrictive 3-5 percent (those at or above two standard deviations) for services. In addition they recommended using a five step selection strategy that would use not only intelligence measures and teacher nominations but also parent, peer, or self nominations combined with more objective measures of creativity. Current teacher nominations are noted as being biased, especially against the more non-conforming type of creative student.

Constructivism

Constructivism is an educational approach that promotes active or discovery learning. The idea is that as a learner interacts with his or her environment he or she is constantly connecting new information in meaningful ways with concepts already held; the learner is "constructing" if you will, their own knowledge anew even as they are learning. This contrasts with the traditional approach to education in which the teacher selects, organizes and packages information which the learners are to dutifully record and remember. (McKay, on-line, 1993).

Constructivism has grown out of two traditions. The approach to Constructivism that has arisen from the work of Piaget emphasizes Piaget's metaphor of "child as scientist." The learner acts on the environment constantly trying and experimenting and verifying until new ideas are accepted. This of course grew out of his ideas of adaptation; which included assimilation and accommodation; and organization.

The other tradition in Constructivism is that promoted by the work of Lev Vygotsky. Vygotsky saw learning as being constructed based on the social interactions of the learner with the primary tools being language and interaction. Each learner constructed new knowledge based on experience and his or her own experiences which were obtained or clarified through social interaction or communication (Eggen & Kauchak, 1998).

Key precepts of Constructivism which arise from a synthesis of both traditions are situated or anchored learning, social negotiation of knowledge, and collaboration. Sener (on-line, 1997) defines these precepts as follows: situated or anchored learning presumes important learning experiences derive

from authentic activities such as projects, cognitive apprenticeships, case-based learning environments or actual experiences away from the school setting. Social negotiation of knowledge is a process by which learners form and test their constructs in a dialogue with others and the society at large, and collaboration is a principal focus of learning activities so that verification of knowledge can occur.

In comparing the conditions that my co-participants desire in optimal learning all three of these precepts seem to apply. They want to learn through their own experiences (situated learning), want others as resources or guides to learning and love to argue (social negotiation), and like to learn by observing and interacting with others (collaboration). One thing that I do not think these co-participants would want is to be forced into cooperative or collaborative learning groups not of their own choosing. The collaborations would have to occur spontaneously and naturally based on the interests and affinities of the collaborators.

"Mindful Learning"

In her book, The Power of Mindful Learning, (1997) Ellen Langer describes three approaches to learning. Top-down methods where a packaged "product" is delivered to students via lecture are contrasted with bottom up methods which rely on direct experience and repeated practice of a new set of skills in a systematic way. The third alternative, and the one promoted by Langer, is an approach she calls "sideways learning". Sideways learning is learning that tries to maintain what Langer calls mindfulness during learning. Mindful learning as described by Langer is learning that is done not

automatically or like a well rehearsed program, but learning that is sensitive to changes in an ongoing situation. I think this approach would be particularly harmonious to those who value their own experiences and whose resilience has grown out of constantly changing circumstances.

As I read Langer's (1989) description of the psychological states involved in mindful learning, I was struck by how similar they were to my co-participant's descriptions of their own learning needs, not only of the conditions, but also of the processes. "The psychological states of mindful learning are described as: (1) openness to novelty; (2) alertness to distinction; (3) sensitivity to different contexts; (4) awareness of multiple perspectives; and orientation in the present" (Langer, 1997, p.23). According to Langer each of these states leads to the others and then back to itself, creating a kind of creative situational alertness. Mindful learning also creates a "rich awareness of discriminatory detail". This approach to learning requires a state of mind similar to play, where learners are free to try things in their own ways and to develop multiple perspectives that keep their attention. My co-participant's stories of attentional switching and "messing around" in order to learn are very resonant with this idea of mindful learning.

Implications for Education and Programs

Given that all four of the approaches described above -- adult education, gifted education, constructivist education, and mindful learning -- could adequately serve the needs of creative individuals who desire to direct their own learning, the question is how can schools identify and accommodate these creative individuals with learning preferences not served in traditional

classrooms. Why must they have the stigma of becoming a "dropout"? Or perhaps an even more controversial question is how could schools be reformed to accommodate many different types of learners?

Since school reform is underway but unlikely to happen quickly enough to serve most creative individuals who will be dropping out over the next ten years, perhaps the answer lies in having different settings that could serve the creative learner. The problem then becomes identification and referral of creative at-risk learners and the availability of different kinds of learning settings. It also presumes that our communities need to be pro-active in educating their most creative members even if they are found among at-risk, marginal, or non-conforming groups.

Recommendations for Identification of Creative At-Risk Learners.

1. These learners could be identified before they drop out. Since we have described resilience and an anarchic creative style as indicators of learners who desire more self-directed, experiential learning environment, it seems logical that assessments of resilience and creativity could be given to all at-risk students.

2. Assessments of creativity and resilience could be administered to all GED and ABE participants to determine what alterations to these programs might be necessary.

3. Community outreach programs, if sufficiently innovative, could be funded to "find" creative individuals who have dropped out but are not enrolled in any second chance program and refer them to a community learning facility.

Recommendations for Creative Learning Facilities and Programs

Creative learning facilities could be developed to meet the educational needs of creative and innovative students who choose not to stay in the regular school setting. These facilities should meet the needs of their learners by providing the following:

1. Experiential learning opportunities.
2. A nurturing and supportive environment.
3. Training in the use of emerging technologies.
4. Opportunities for completing their basic education using mutli-media, Internet, collaborative and/or self directed methods as the learner prefers.
5. Career counseling concerning careers in innovative fields and the arts and instruction on how to arrive at a career decision when convergent thinking is not an easy matter.
6. Supervised work experiences in challenging, complex, and fast paced settings.
7. Mentoring by other creative, resilient people who are making successful contributions to their communities.
8. Assistance with supportive services such as housing, transportation, child care, health care, or mental health counseling.

Recommendations for Designers of Multi-media for Creative, At-Risk Learners

Although this study used the multimedia learning experience to establish rapport and give co-participants a new learning experience to begin talking about in the interview, there were many perceptions and comments related to

learning by multi-media that would seem to be useful to those who seek to design multi-media curricula for creative, at-risk students. The implications of those comments are:

1. Full action video is preferable to still photographs. Photographs are preferable to drawings. The complexity and multiple perspectives that these learners desire can best be met by having graphic representations be as realistic as possible.

2. Graphic representations should be interactive or have the ability to be manipulated by the learner.

3. When text is presented, large clear fonts are desirable. Having attractive color backgrounds or borders draw the eye of those who do not particularly like to engage text.

4. As far as possible, sound should accompany visuals. Voice, music, and realistic environmental sounds were particularly noted and commented upon.

5. Intuitive, easy navigation metaphors are meaningful to these learners who want to do it their own way and at their own pace. The ability to quit or start over quickly was valued.

6. Learners who liked to learn by reading were less likely to perceive multi-media as an effective learning resource. They perceived that reading information was quicker. Possibly these learners would value Internet learning more than packaged multi-media curricula.

7. Learners who did not like to read perceived multi-media as a whole new world of learning resources and as a way to make engagement with text somewhat more palatable.

8. Most learners commented upon wanting to learn to draw or paint electronically. Some viewed this aspect as a possible reward for having written a report or read a lengthy passage.

9. Learners all enjoyed the ability to branch to definitions or more complete explanations by clicking on hyper links.

10. Seven of the 11 learners commented that designing multi-media for others to use to learn would be a "cool" thing to do. This could have implications both for using the actual design of multi-media as a learning tool and as a possible career direction

Summary

Although I applaud all those diligent individuals who are seeking to prevent learners from dropping out of traditional school, it is my belief after conducting this study and based on personal experiences with education of high school dropouts that a different approach is now called for, an approach that not only provides educational opportunities for different and creative learners but which nurtures them as well. "Personalized learning environments are important for all students; for at-risk students, they may be essential." (Eggen & Kauchak, 1998. p. 142)

Suggestions for Further Research

There is much future research that needs to be done to further information about why some of our most creative individuals drop out of school and society for awhile and what interventions or educational settings would serve their needs. Some possibilities follow.

1. Assessments of resilience need to be examined and refined. These could then be used to identify resilient and less resilient individuals who could then be interviewed to assist in understanding why some individuals become resilient under adverse conditions and others become helpless or passive.
2. GED and ABE populations need to be assessed for creativity to determine the prevalence of creative individuals in this population.
3. Studies should be conducted to determine why many creative individuals choose to stay in schools and why others choose to drop out.
4. Once groups of creative high school dropouts are identified, a focus group approach could be used to poll their preferences regarding an educational program and so help to design appropriate learning settings.
5. Individuals who once participated in TAG programs could be located at the point where they may have been expected to graduate from high school to determine how many former TAG students are lost as dropouts.
6. Studies examining learners with GED who successfully complete college could be conducted to determine whether some type of early or advanced placement program might benefit certain creative dropouts.
7. Research comparing creative and resilient attributes could be performed to determine whether these are two discrete qualities or are perhaps related.
8. Studies examining the influence of a grandparent or other key adult relative other than parents on a high school dropout's decision to return to an educational setting could be done.
9. Emerging technologies could be explored to determine which types of media design are most effective for learners desiring complex, fast paced, and self directed learning experiences.

Conclusion and Future Issues

As our society undergoes the changes that advanced technology will make possible, it is no longer sufficient that students be trained as "Medieval clerks" (West, 1991). In the past industrialization supplanted the human arm, the computer can now do clerical tasks and perform arithmetic skills with great speed and accuracy. Where then is the future role for people? The global village of which people are rapidly becoming a part requires multi-cultural sensitivity, effective cooperation, electronic communication and many generalist skills in evaluating information and adapting to change and chaos (Jones, 1991).

Among these generalist skills will be the ability to adapt, thrive, and create even in the midst of great chaos and possible adversity. Adaptation to change and chaos may be best accomplished by resilient, creative members of our community. They will be the leaders who create the products and provide innovations in the processes that shape the daily lives of their fellow citizens. It is my belief that providing our creative, resilient members with adequate learning experiences is a worthy goal and will be an advantage to us all.

REFERENCES

References

Asmuth, L. Y. (1987). The Experience of learning for the sake of learning in adulthood: A phenomenological study. Doctoral dissertation, Virginia Polytechnic Institute.

Belenky, M. F., Clinchy, B. M., Goldberger, N. R., & Tarule, J. M. (1986) Women's ways of knowing. New York: Basic Books.

Bernard, B. (1995). Fostering resilience in children [On-line], http://ericps.ed.uiuc.edu/eece/pubs/digests/1995/bernard95.html.

Betts, G. (1985) Autonomous learner model. Greely, CO: Autonomous Learner Publications and Specialists.

Betts, G. (1991) Autonomous learner model. In N. Colangelo & G. A. Davis (Eds.), Handbook of gifted education (pp. 142-153). Boston: Allyn & Bacon.

Betts, G. T., & Niehart, M. (1988). Profiles of the gifted and talented. Gifted Child Quarterly, 32.

Boshier, R. (April, 1983). Adult learning projects research: An alchemist's fantasy? Invited address to American Educational Research Association, Montreal, Quebec.

Brockett, R. G. & Heimstra, R. (1991) Self direction in adult learning: Perspectives on theory, research, & practice. New York: Routledge.

Brown, R. T. (1989). Creativity: What are we to measure? In Glover, J., Ronning, R. R., & Reynolds, C. R. (Eds.) Handbook of Creativity. New York: Plenum Press.

Bruder, I. (1991). Multimedia: How it changes the way we teach and learn. Electronic Learning, 11, 22-26.

Bugental, J. F. T. (1989). Foreword in R. S. Valle and S. Halling (Eds.), Existential-phenomenological perspectives in psychology (pp. 41-60). New York: Plenum.

Buros, O. K. (Ed.). (1972). Mental Measurements Yearbook (7th ed.). Highland Park, NJ: Gryphon Press.

Cervantes, L. (1965). The dropout: Causes and cures. Ann Arbor, MI: The University of Michigan Press.

Cherry, C. E. (1981). The measurement of adult learning styles: Perceptual modality. Unpublished doctoral dissertation, University of Tennessee.

Clark, B. (1997). Growing up gifted. Upper Saddle River, NJ: Merrill.

Colaizzi, P. F. (1969). The descriptive methods and the types of subject matter of a phenomenologically based psychology: Exemplified by the phenomenon of learning. Ann Arbor MI: University Microfilms.

Colaizzi, P. F. (1973). Reflection and research in psychology: A phenomenological study of learning. Dubuque, IA: Kendall/Hunt.

Cornett, C. E. (1983). What you should know about teaching and learning styles. Bloomington, IN: Phi Delta Kappa Educational Foundation.

Cox, C. (1926). The early mental traits of three hundred geniuses. Stanford, CA: Stanford University Press.

Cronbach, L. J., & Snow, R. E. (1969). Individual differences in learning ability as a function of instructional variables. (Final report, Contract No. OEC-4-6-061269-1217, U.S. Office of Education). Stanford, CA: School of Education, Stanford University. (ERIC Document Reproduction Service No. ED 029 001).

Cronbach, L. J., & Snow, R. E. (1977). Aptitudes and instructional methods. New York: Irvington.

Davis, G. A. (1998). Creativity is forever. (4thEd.). Dubuque, IA: Kendall/Hunt.

Dunn, R. (1990). Understanding the Dunn and Dunn Learning Styles Model and the need for individual diagnosis and prescription. Reading, Writing, and Learning Disabilities, 6, 223-247.

Eggen, P., & Kauchak, D. (1998) Educational psychology: Windows on classrooms, (4th Ed.). Upper Saddle River, NJ: Merrill.

Erikson, E. (1964) Insight and responsibility. New York:W. W. Norton.

Eyring, M. O. (1992). More than feeling good: Investigating college students' experience of well-being. Unpublished doctoral dissertation, University of Tennessee, Knoxville.

Fellenz, R. A. (1985). Self direction: A clarification of terms and causes. In Proceedings of the 26th Annual Adult Education Research Conference (pp. 164-169). Tempe, Arizona.

French, R. L. (1975a). Teaching strategies and learning. Unpublished paper, University of Tennessee, Knoxville.

French, R. L. (1975b). Teaching style and instructional strategy. Unpublished paper, University of TN, Knoxville.

Frey, D. K. (1989). A hypermedia lesson about 1875-18885 costume: Cognitive style, perceptual modes, anxiety, attitudes, and achievement. Unpublished Doctoral Dissertation, Iowa State University.

Ford, D. Y., & Harris, J.J. (1992). The elusive definition of creativity. Journal of Creative Behavior, 26, 186-198.

Galbraith, M. W., & James, W. B. (1984). Assessment of dominant perceptual learning styles of older adults. Educational Gerontology, 10, 449-457.

Galbraith, M. W., & James, W. B. (1986). Techniques for assessing perceptual learning styles: Implications for the activities manager. Activities, Adaptation, and Aging, 8, 29-38.

Gilley, D. V. (1975). Personal learning styles: Exploring the individual's sensory input processes. Unpublished doctoral dissertation, University of Tennessee.

Giorgi, A. (1975). An application of phenomenological method in psychology. In A. Giorgi, C. T. Fischer, & E. L. Murray (Eds.), Duquesne studies in phenomenological psychology, 2, Pittsburgh: Duquesne University Press.

Giorgi, A. (1985). Phenomenology and psychological research. Pittsburgh: Duquesne University Press.

Grasha, A. F., & Riechmann, S. W. (1975). Student Learning Styles Questionnaire. Cincinnati, OH: University of Cincinnati. Faculty Resource Center.

Gregorc, A. F. (1982b). An adults guide to style. Maynard, MA: Gabriel Systems, Inc.

Gretes, J., &. S., T. (1989). Validation of the learning style survey: An interactive videodisk instrument. Educational and Psychological Measurement, 49, 235-241.

Goertzel, V., & Goertzel, M.G. (1962). Cradles of eminence. Boston: Little, Brown.

Gowan, J.C., Demos, G., & Torrance, E. P. (Eds.) (1967). Creativity--Its educational implications. New York: John Wiley.

Grossnickle, D. R. (1986). High school dropouts: Causes, cures, and consequences. Bloomington, IL: Phi Delta Kappa Educational Foundation.

Guilford, J. P. (1967). The nature of human intelligence. New York: McGraw-Hill.

Guilford, J. P. (1950) Creativity. American Psychologist, 5, 444-454.

Heidegger, M. (1962). Being and time. New York: Harper & Row.

Heimstra, R., &. S., B. R. (1990). Individualizing Instruction. San Francisco, CA: Jossey-Bass.

Hergenhahn, B. R. (1992). An introduction to the history of psychology. Belmont, CA: Wadsworth Publishing.

Hocevar, D. (1979d). The development of the Creative Behavior Inventory No. ERIC Document 170350). University of Southern California.

Hocevar, D., &. B., P. (1989). A Taxonomy and Critique of Measurements Used in the Study of Creativity. In . R. J. Glover, R. R. Ronning, & C. R. Reynolds (Eds.), (pp. 53-75). New York and London: Plenum Press.

Hoffman, R. R., Bringmann, W., Bamberg, M., & Klein, R. (1986). Some historical observations on Ebbinghaus. In D. G. &. R. Hoffmans (Eds.), Memory and learning: The Ebbinghaus centennial conference Hillsdale, NJ: Erlbaum.

Holt, A. D. (1938). The struggle for a state system of public schools in Tennessee, 1903-1936. Kingsport, TN: Kingsport Press.

Husserl, E. (1962). Ideas: General introduction to pure phenomenology. New York: Collier.

Jacobs, D. (1994, August 14,). Officials say "dropouts don't drive" plan working. Knoxville News-Sentinel.

James, W. B., & Galbraith, M. W. (1984). Perceptual learning styles of older adults. Journal of Applied Gerontology, 3, 214-218.

James, W. B., & Galbraith, M. W. (1985). Perceptual learning styles: Implications and techniques for the practitioner. Lifelong Learning: An Omnibus for Practice and Research, 8, 20-23.

James, W. B., & Galbraith, M. W. (1991a). A Comparison of adults' perceptual learning style and their educational level. Mountain Plains Adult Education Association (MPAEA) Journal of Adult Education, 19, 11-21.

James, W. B., &. Blank, W. E. (1991b). A comparison of perceptual learning styles of adult high school graduates and non-graduates. Adult Basic Education, 1, 98-106.

James, W. B., &. Blank., W. E. (1993). Review and critique of available learning style instruments for adults. New Directions for Adult and Continuing Education, 59, 47-57.

Jonassen, D. H., & Grabowski, B. L. (1993). Handbook of individual differences, learning, and instruction. Hillsdale, NJ: Erlbaum.

Kee, D. W., &. Davis, B. R. (1979). Analysis of haptic, visual, and verbal presentation mode effects in children's paired associate learning. Bulletin of the Psychonomic Society, 14, 230-232.

Keefe, J. W. (1987). Learning style theory and practice. Reston, Va.: NASSP.

Kennedy, R. L. (1993). A study of four student pushouts from the perspective of four sociological theories. Doctoral dissertation, University of Tennessee, Knoxville.

Khatena, J. (1982). Educational psychology of the gifted. New York: John Wiley.

Kidd, J. R. (1973). How adults learn. Chicago: Association Press.

Klein, P. & Westcott, M. R. (1994). The Changing character of phenomenological psychology. Canadian Psychology, 35 , 133-158.

Koestler, A. (1964) The act of creation. New York: McMillan.

Kolb, D. A., & Goldman, M. (1973) Toward a typology of learning styles and learning environments: An investigation of the impact of learning styles and discipline demands on the academic performance, social adaptation and career choices of M. I. T. Seniors (M. I. T. Sloan School Working Paper No. 688-73).

Kramer, J. J., &. C., J. C. (Ed.). (1992). Mental Measurements Yearbook (11th ed.). Lincoln, NE: University of Nebraska Press.

Krechevsky, M., &. Gardner., H. (1990). Multiple Intelligences, Multiple Chances. In D. E. Inbar (Ed.), Second chances in education an interdisciplinary and international perspective London, New York, Philadelphia: Falmer Press.

Kronick, R., Morton, J., Peterson, L., & Smith, G. (1989). Dealing with dropouts: A review of the literature and preliminary findings. Education, 110, 123-130.

Kronick, R., &. Hargis, C. (1990). Dropouts: Who drops out and why-- and the recommended action. Springfield, IL: Charles C. Thomas.

Kvale, S. (1983). The qualitative research interview: A phenomenological and a hermeneutical mode of understanding. Journal of Phenomenological Psychology, 14, 171-195.

Langer, E. J. (1989) Mindfulness. Reading, MA: Addison-Wesley.

Langer, E. J. (1997) The power of mindful learning. Reading, MA: Addison-Wesley.

Lowenfeld, V., & Brittain, W. (1982). Creative and mental growth. New York: MacMillan.

Lubeck, S., & Bidell, T. (1988). Creativity and cognition: A Piagetian framework. Journal of Creative Behavior, 22, 31-41.

MacKinnon, D. (1970). Creativity: a multi-faceted phenomenon. In J. D. Roslansky (Ed.), Creativity: A discussion at the Nobel Conference (pp.17-32). Amsterdam: North-Holland.

Maslow, (1954). Motivation and personality. New York: Harper and Row.

McKay, J. (1993) On-line. http://www.cwu.edu/~mckayj/construc.htm.

McNeely, S. R. (1992). The Center School: A study of the "academically able" dropout. Unpublished doctoral dissertation, University of Tennessee, Knoxville.

Mednick, S. A., & Mednick, M. T. (1965) The associative basis of the creative process. Cooperative Research Report No. 1073. Ann Arbor, MI: University of Michigan.

Merleau-Ponty, M. (1962). Phenomenology of perception. London: Routledge and Kegan Paul.

Mitchell, J. V., Jr. (Ed.). (1983). Tests in Print III: Buros Institute of Mental Measurement (11th ed.). Lincoln, NE: University of Nebraska Press.

Morrison, D. C. (November,1992). Project Launch: A model JTPA program for high school dropouts. In R. I. Kennedy (Chair), Three dropout programs in Knox, County, TN. Symposium conducted at the. In Mid-South Educational Research Association, Knoxville, TN.

Moustakas, C. (1994). Phenomenlogical research methods. Thousand Oaks, CA: Sage.

National Center for Ed. Statistics (1992). Unpublished tabulations, U. S. Bureau of the Census 1991 .

National Commission on Excellence in Education. (1983). A Nation At Risk: The Imperative for Educational Reform . U. S. Department of Education. No. 065-000-00177-2.

Nix, J. H. (1993). The determination of adult learning styles of United States Coast Guard Personnel. Unpublished doctoral dissertation, Oklahoma State University.

Orr, M. T. (1987). Keeping students in school. San Francisco, London: Jossey Bass Publishers.

Osborne, J. K. & Byrnes, D. A. (1990). Identifying gifted and talented students in an alternative learning center, Gifted Child Quarterly, 34, 143-146.

Polkinghorne, D. E. (1989). Phenomenological research methods. In R. S. Valle and S. Halling (Eds.), Existential-phenomenological perspectives in psychology (pp. 41-60). New York: Plenum.

Pollio, H. R. (1982). Behavior and existence: An Introduction to empirical humanistic psychology. Belmont, CA: Brooks/Cole.

Pollio, H. R., Henley, T, & Thompson, C. J. (1997) The phenomenology of everyday life. New York: Cambridge University Press.

Reisman, D. (1950). The lonely crowd. New Haven, CT: Yale University Press.

Renzulli, J. S. (1977). Enrichment triad model. Mansfield, CT:Creative Learning Press.

Renzulli, J. S., & Reis, S. M. (1991) The schoolwide enrichment model: New directions for the development of creative productivity. In N. Colangelo & G. A. Davis (Eds.), Handbook of gifted education (pp. 111-141). Boston: Allyn & Bacon.

Richards, R., Kinney, D. K., Benet, M., & Merzel, A. P. C. (1988). Assessing everyday creativity: Characteristics of the lifetime creativity scales and validation with three large samples. Journal of Personality and Social Psychology, 54, 476-485.

Roderick, M. (1993). The path to dropping out: Evidence for intervention. Westport, CT: Aubern House.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 80 (1, Whole No. 609).

Schaiper, L. L. (1983). Identification of perceptual learning style differences and the impact thereof upon individual university students. Doctoral dissertation, University of Tennessee.

Sener. (1997) [On-line]. http://ciee.vuse.
vanderbilt.edu/alnweb/magazine/issue1/sener/constrct.com.htm

Simonton, D. K. (1984). Genius, creativity, and leadership: Historiometric inquiries. Cambridge, MA: Harvard University Press.

Slabbert, J. A. (1994). Creativity in education revisited: Reflection in aid of progression. The Journal of Creative Behavior, 28, 60-69.

Steinberg, L. (1996). Adolescence.(4th Ed.). New York: McGraw-Hill.

Sternberg, R. J. (1988a) A three facet model of creativity. In R. J. Sternberg (Ed.), The nature of creativity (pp. 125-147). New York: Cambridge University Press.

Stuhl, J. H. (1995). A Phenomenological Investigation of the experience of values. Doctoral dissertation , University of Tennessee, Knoxville.

Swadener, E. B. (1990). Children and families "at risk": Etiology, critique, and alternative paradigms. Educational Foundations, 4, 17-39.

Supplee, P. L. (1989). Students at-risk: The gifted underachiever, Roeper Review, 11, 163-166.

Taylor, S. J., & Bogdan, R. (1984) Introduction to qualitative research methods. New York: Wiley.

TN State Department of Education (May, 1994). Adult education policies and recommendations regarding the underage student. Presented at the Attendance Supervisor's Conference, Nashville, TN.

Tindell, M. (1994). A study of relationships among perceptual modality dominance and choice of college major. Doctoral dissertation, University of Tennessee.

Torrance, E. P. (1964). Legitimate concerns of education about creativity. In C. W. Taylor (Ed.), Creativity: Progress and potential. New York: McGraw-Hill.

Torrance, E. P. (1974). Torrance Tests of Creative Thinking: Norms-technicalmanual. Princeton, NJ: Personnel Press/ Ginn.

Torrance, E. P. (1990). Torrance Tests of Creative Thinking: Streamlined (revised) manual, figural A & B. Bensenville, IL: Scholastic Testing Service.

Toth, L. S., & Baker, S. R. (1990). The relationship of creativity and instructional style preferences to over achievement and under achievement in a sample of public school children. Journal of Creative Behavior, 190-198.

U. S. Congress, GAO (1987). School dropouts: Survey of local programs. Washington, D. C.: U. S. Government Printing Office.

U. S. Congress, Office of Technology Assessment, (July, 1993). Adult literacy and new technologies: Tools for a lifetime, OTA-SET-550. Washington, DC: U. S. Government Printing Office.

U. S. Department of Commerce, Bureau of the Census (September, 1993). 1990 Census of population, social and economic characteristics: Tennessee. Washington, D. C.: Bureau of the Census.

West, T. G. (1991). In the mind's eye: Visual thinkers, gifted people with learning difficulties, computer images, and the ironies of creativity. Buffalo, NY: Prometheus Books.

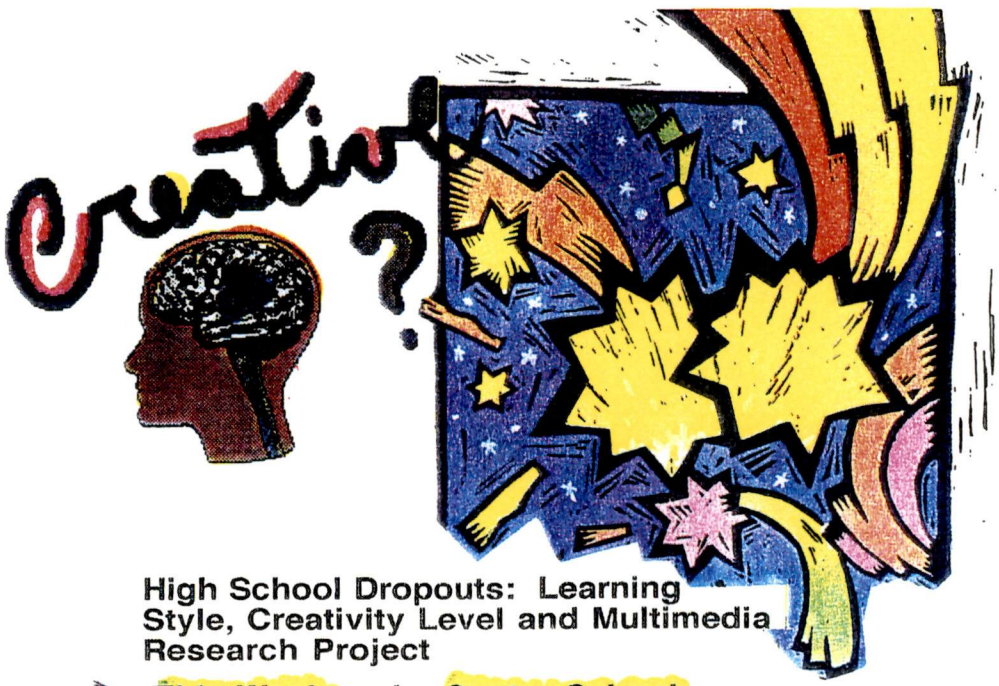
Whelage, G. F., &. R., R. A. (1986). Dropping out: How much do schools contribute to the problem? In G. Natrielllo (Ed.), School dropouts: Patterns and policies New York: Teachers College Press.

Whitmore, J. (1980). Giftedness, conflict, and under achievement. Boston: Allyn and Bacon, Inc.

Witkin, H. A., Oltman, P. K., Raskin, E.,and Karp, S. A. (1971). A manual for the embedded figures test. Palo Alto, CA: Consulting Psychologists Press.

APPENDICES

Appendix A



High School Dropouts: Learning Style, Creativity Level and Multimedia Research Project

This Week at the Center School:

Find out your learning style

Find out how creative you are

See Donna Morrison
Room 304 Wed. 9:30 - 1:30
Main Office Wed., Thurs. p.m. 5:30 -8:30

Ask your teacher for details,
Just come by 304,
Or call 693-9453 for more information



Appendix B

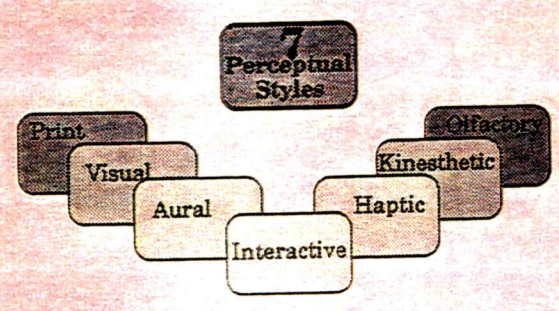
MMPALT Procedures Manual Follows

Cover

MMPALT-II

The Multi-Modal Paired Associates Learning Test

A Performance Assessment of
Perceptual Modality Learning Styles



The University of Tennessee

MMPALT-II* Testing Procedures, Answer Sheets, and Profile Score Sheet

*** The MMPALT-II is a non published instrument designed to examine perceptual modality learning style. It was originally developed by Dr. Russell French, Dr. Ed Cherry, and Dr. Darryl Gilley of the University of Tennessee College of Education. Use of the instrument is granted by written permission only from Dr. Russell French, University of Tennessee, Knoxville, Tennessee, 37996.**

Manual prepared by Donna C. Morrison
Department of Educational Psychology
The University of Tennessee
Fall 1994

Based on the original procedures from Dr. R. French, C. E. Cherry, Darryl Gilley, and Len Schaiper, and modified for use with a high school dropout subject group.

INTRODUCTION OF PERCEPTUAL LEARNING STYLES MEASUREMENT PROCEDURES

Please read the following aloud:

"You are about to be measured to determine your strongest learning style or styles. This measurement process will serve two purposes. First, you will receive a learning style profile identifying some perceptual strengths and weaknesses. This can help you in your future learning experiences. Secondly, the results of this testing will be used to support an educational research project. Therefore, each of you will have an opportunity to contribute towards improving learning and schooling for others.

Since the data from your measurements will be used in a research report, you have been asked to sign a release form. Although you have filled out a form with your name and other personal information on it, all personal identification will be removed from the published measurement results. You have been assigned code numbers, and those numbers will be used to identify you on all reports.

Now, let us begin. In this area you will receive three measurements. You will be measured to see how well you learn in visual, print, and aural modalities. I will explain the details of each of these three measures and we will do an example of each one before I actually begin each part of the test. After you leave this area you will go individually to four additional testing areas or stations where you will be tested privately to see how well you learn in the interactive, haptic, kinesthetic, and olfactory modalities.

Throughout each measurement be as relaxed as possible and try your best. Remember that each person performs differently on learning style tests so do not worry if you feel that some of the tests are harder than others, this is normal. After the last measurement, (Or at a designated time in the future) you will receive your scores and your learning profile and be able to discuss your results. Are there any questions?"

PROCEDURES FOR GROUP ADMINISTRATION OF THE VISUAL LEARNING MEASUREMENT:

I. Equipment:

35 mm slide projector, MMPALT-II visual slides arranged in order in a carousel, extra projector bulb, screen, response sheets, stopwatch or sweep second hand wrist-watch, and pencils.

II. Do this to begin:

1. Before subjects arrive check that visual slides are in the order in the carousel indicated by the sequence chart which follows.
2. Place subjects approximately six feet from screen. Check each seating angle in advance for glare.
3. Distribute response sheets (face down) and pencils.

III. Please read the following aloud:

"The first measurement you will be given will identify your strength as a visual learner. For the visual measurement, you will be shown ten pairs of pictures to remember, one picture will be of a geometric shape and one picture will be of a common object or thing. After you have seen all ten pairs, you will be shown the geometric shape from each pair and asked to identify or recall the common object or thing that was paired with that shape. The shapes will be presented in a different order. For example (Show slides) : the diagonal line is paired with a picture of a truck: Try to think of a way to remember that the line and the truck go together. When you see the diagonal line again, you should respond, by writing the word "TRUCK" on the response sheet. This is just an example. Do you have any questions about what we are going to do?"

IV. Presenting the pairs. After answering any questions, proceed in the following manner:

1. **Say:** "Now we will begin. Please look carefully at the pairs on the screen and remember that they go together."

2. Using the automatic advance of the slide projector, display each stimulus member and response member pair at seven

second intervals. Use the stopwatch or a watch with a sweep second hand.

V. Testing for recall:

1. **Say:** "Now we will check your recall, please turn over your response sheet, pick up your pencil, and prepare to respond. Remember you are to write the name of the common object that goes with the shape I will be showing you. If you cannot remember a particular item leave its space blank or draw a line in the space. Try to be relaxed and do your best. Are you ready?"

4. As you project each stimulus member announce the number and display each stimulus member for ten seconds; e.g., "Number one (ten seconds), Number two (ten seconds), etc. " Use the watch.

5. Collect answer sheets (or have the group turn to the next response sheet, "Print").

PROCEDURES FOR INDIVIDUAL ADMINISTRATION OF THE VISUAL LEARNING MEASUREMENT:

I. Equipment:

MMPALT-II 8 1/2 X 11 visual graphic cards arranged in order of the sequence chart which follows, preceded by the two marked example cards, response sheets, stopwatch or sweep second hand wrist-watch, and pencils, two chairs and a desk or table.

II. Do this to begin:

1. Before subjects arrive check that the visual graphic cards are in the order indicated by the sequence chart which follows. The two example cards, one showing a diagonal line and a truck, the other showing just the diagonal line should be sequenced first.
2. Seat subjects approximately three feet from the test administrator, or as close as they can see the examples clearly and are comfortable. For ease of administration a table or desk should be between the test administrator and the subject. Check the seating angle in advance for glare.

3. Distribute response sheet (face down) and pencils.

III. Please read the following aloud:

"The first measurement you will be given will identify your strength as a visual learner. For the visual measurement, you will be shown ten pairs of pictures to remember, one picture will be of a geometric shape and one picture will be of a common object or thing. After you have seen all ten pairs, you will be shown the geometric shape from each pair and asked to identify or recall the common object or thing that was paired with that shape. The shapes will be presented in a different order. For example (Show example cards) : the diagonal line is paired with a picture of a truck: Try to think of a way to remember that the line and the truck go together. When you see the diagonal line again, you should respond, by writing the word "TRUCK" on the response sheet. This is just an example. Do you have any questions about what we are going to do?"

IV. Presenting the pairs: After answering any questions, proceed in the following manner:

1. **Say:** "Now we will begin. Please look carefully at the pairs of pictures on the card and remember that the shape and the picture of a common object go together."

2. Using the MMPALT-II visual cards, display each stimulus member and response member pair at seven second intervals. The cards will be in a file folder, let all of the cards lie face up on the table in the folder and stand each card up facing the subject as it is shown. Turn each card face down in order as you are finished showing it. Use the stopwatch or a watch with a sweep second hand as you show the cards to make sure you are showing them at seven second intervals.. The number of the card should be on the back of each card so you can easily tell which stimulus card is being shown and say its number.. When you have shown all ten of the visual graphic cards with pairs, there will be a blank card. When the blank card is shown, proceed as follows.

V. Testing for recall:

1. **Say:** "Now we will check your recall, please turn over your response sheet, pick up your pencil, and prepare to respond. Remember you are to write the name of the common object that goes with the shape I will be showing you. If you cannot remember a particular item leave its space blank or draw a line in the space. Try to be relaxed and do your best. Are you ready?"
2. As you show each stimulus member card announce the number and display each stimulus member card for ten seconds; e.g., "Number one (ten seconds), Number two (ten seconds), etc. " Use the watch.
3. Collect answer sheet (or have the subject turn to the next response sheet, "Print".

VI. How items are paired and sequenced:

Order for Presentation

	Stimulus/ Shape		Response/ Picture
1	Square	1	Palm Tree
2	Circle	2	Cap
3	Triangle	3	Chair
4	Rectangle	4	Skate
5	Plus Sign	5	Heart
6	Star (open)	6	Boat
7	Oval	7	Flower
8	Asterisk	8	Eyeglasses
9	Diamond	9	Scissors
10	Infinity Sign	10	Umbrella

Order for Stimulus Only Presentation

	Stimulus/ Shape		Response/ Picture
1	Asterisk	1	Eyeglasses
2	Circle	2	Cap
3	Plus Sign	3	Heart
4	Rectangle	4	Skate
5	Infinity Sign	5	Umbrella
6	Oval	6	Flower
7	Diamond	7	Scissors
8	Square	8	Palm Tree
9	Star (open)	9	Boat
10	Triangle	10	Chair

End of Visual Measurement Section

PROCEDURES FOR GROUP ADMINISTRATION OF THE PRINT LEARNING MEASUREMENT:

I. Equipment:

35 mm slide projector, MMPALT-II print slides arranged in order in a carousel, extra projector bulb, screen, response sheets, stopwatch or sweep second hand wrist-watch, and pencils.

II. Do this to begin:

1. Before subjects arrive check that print slides are in the order in the carousel indicated by the sequence chart which follows.
2. Place subjects approximately six feet from screen. Check each seating angle in advance for glare.
3. Distribute response sheets (face down) and pencils.

III. Please read the following aloud:

"This measurement, the Print Learning Measurement, will identify your strength as a print learner. For the print measurement, you will be shown ten pairs of words to remember, one word will be a three letter nonsense word and one word will be the name of a common object or thing. After you have seen all ten pairs, you will be shown the three letter nonsense word from each pair and asked to identify or recall the common object or thing that was paired with that nonsense word. The three letter nonsense words will be presented in a different order. For example (Show slides) : the three letter nonsense word "WUQ" is paired with the word "Robin": Try to think of a way to remember that "WUQ" and "Robin" go together. When you see the three letter nonsense word "WUQ" again, you should respond, by writing the word "Robin" on the response sheet. This is just an example. Do you have any questions about what we are going to do?"

IV. Presenting the pairs. After answering any questions, proceed in the following manner:

1. **Say:** "Now we will begin. Please look carefully at the pairs on the screen and remember that they go together."
2. Using the automatic advance of the slide projector, display each stimulus member and response member pair at seven

second intervals. Use the stopwatch or a watch with a sweep second hand.

V. Testing for recall:

1. **Say:** "Now we will check your recall, please turn over your response sheet, pick up your pencil, and prepare to respond. Remember you are to write the name of the common object that goes with the three letter nonsense word I will be showing you. If you cannot remember a particular item leave its space blank or draw a line in the space. Try to be relaxed and do your best. Are you ready?"
2. As you project each stimulus member announce the number and display each stimulus member for ten seconds; e.g., "Number one (ten seconds), Number two (ten seconds), etc....." Use the watch.
3 Collect response sheets (or have the group turn to the next response sheet, "Aural").

PROCEDURES FOR INDIVIDUAL ADMINISTRATION OF THE PRINT LEARNING MEASUREMENT:

I. Equipment:

MMPALT-II 8 1/2 X 11 print cards arranged in order of the sequence chart which follows, preceded by the two marked example cards, response sheets, stopwatch or sweep second hand wrist-watch, and pencils, two chairs and a desk or table.

II. Do this to begin:

1. Before subjects arrive check that the print cards are in the order indicated by the sequence chart which follows. The two example cards, one showing the three letter nonsense word "WUQ" and the word "Robin", the other showing just the three letter nonsense word "WUQ", should be sequenced first.
2. Seat subjects approximately three feet from the test administrator, or as close as they can see the examples clearly and are comfortable. For ease of administration a table or desk should be between the test administrator and the subject. Check the seating angle in advance for glare.

3. Distribute response sheet (face down) and pencils.

III. Please read the following aloud:

"This measurement, the Print Learning Measurement, will identify your strength as a print learner. For the print measurement, you will be shown ten pairs of words to remember, one word will be a three letter nonsense word and one word will be the name of a common object or thing. After you have seen all ten pairs, you will be shown the three letter nonsense word from each pair and asked to identify or recall the common object or thing that was paired with that nonsense word. The three letter nonsense words will be presented in a different order. For example (Show slides) : the three letter nonsense word "WUQ" is paired with the word "Robin": Try to think of a way to remember that "WUQ" and "Robin" go together. When you see the three letter nonsense word "WUQ" again, you should respond, by writing the word "Robin" on the response sheet. This is just an example. Do you have any questions about what we are going to do?"

IV. Presenting the pairs: After answering any questions, proceed in the following manner:

1. **Say:** "Now we will begin. Please look carefully at the pairs of words on the card and remember that the three letter nonsense word and the name of a common object or thing go together."

2. Using the MMPALT-II print cards, display each stimulus member and response member pair at seven second intervals. The cards will be in a file folder, let all of the cards lie face up on the table in the folder and stand each card up facing the subject as it is shown. Turn each card face down in order as you are finished showing it. Use the stopwatch or a watch with a sweep second hand as you show the cards to make sure you are showing them at seven second intervals.. The number of the card should be on the back of each card so you can easily tell which stimulus card is being shown and say its number.. When you have shown all ten of the print cards with pairs, there will be a blank card. When the blank card is shown, proceed as follows.

V. Testing for recall:

1. **Say:** "Now we will check your recall, please turn over your response sheet, pick up your pencil, and prepare to respond. Remember you are to write the name of the common object or thing that goes with the three letter nonsense word I will be showing you. If you cannot remember a particular item leave its space blank or draw a line in the space. Try to be relaxed and do your best. Are you ready?"

2. As you show each stimulus member card announce the number and display each stimulus member card for ten seconds; e.g., "Number one (ten seconds), Number two (ten seconds), etc....." Use the watch.

3. Collect answer sheet (or have the subject turn to the next response sheet, "Aural"

VI. Sequence Charts:

PRINT PAIRS PRESENTATION ORDER		
STIMULUS		RESPONSE
1	BIW	Cat
2	CEQ	Party
3	PUQ	Name
4	DUP	Bed
5	XIB	Box
6	CYC	Horse
7	KOY	Rain
8	HEZ	Sister
9	LEZ	Paper
10	NYH	Coat

PRINT STIMULUS ONLY ORDER and CORRECT RESPONSE		
STIMULUS		RESPONSE
1	DUP	Bed
2	CYC	Horse
3	KOY	Rain
4	BIW	Cat
5	XIB	Box
6	NYH	Coat
7	CEQ	Party
8	LEZ	Paper
9	PUQ	Name
10	HEZ	Sister

End of Print Learning Measurement

PROCEDURES FOR MEASURING THE AURAL LEARNING STYLE

I. Equipment: MMPALT-II Aural Tapes (make sure to have one spare copy in case of breakage or damage), Tape player, blindfolds, response sheets, and pencils. For individual administration headphones may also be used.

II. Do this to begin:

1. Before subjects arrive check that the MMPALT Aural Tape is rewound to the beginning. The tape will reflect the sequence chart which follows.
2. Seat subjects approximately six feet from the tape player. Check volume level in advance for loudness and tone.
3. Distribute response sheets (face down), blindfolds, and pencils.

III. Please read the following aloud:

"This measurement, the Aural Learning Measurement, will identify your strength as an aural learner. The Aural Learning Measurement tests your skills at learning by listening to the spoken word. All of the instructions for this test will be given by audio tape. Is there anyone to be tested who has difficulty hearing and needs to sit closer or use headphones?"

IV. Presenting the pairs: If there are no special needs or questions proceed in the following manner:

1. Have subjects put on blindfolds.
2 Place response sheets and pencils in front of subjects.
3. Play tape recording containing stimulus/response pairs. When you hear the tape say, "the nonsense word in this pair is 'jus', 'jus' goes with bird", stop the tape.

V. Testing for recall.

1. **Say:** " Please remove your blindfolds, pick up your pencil and prepare to respond. Try to be relaxed and do your best."
2. Play tape recording containing stimulus words and response questions.
3. Collect response sheets.
4. **Note:** At this point subjects will go to the testing stations to be tested individually in the Interactive, Haptic, Kinesthetic, or Olfactory Learning Styles. The order in which they proceed to the stations should be predetermined and clear instructions given in writing.

VI. If you should need to record a new tape, the script and instructions for the Aural tape follow:

Say: "For this evaluation, you will be listening to pairs of words. The first word in each pair is a nonsense word and the second is a common word. You should try to remember the common word in each pair and recognize which nonsense word it goes with. After you have been given all ten pairs of words, you will then hear each nonsense word again but in a different order. You are to then write the common word that is appropriate for the nonsense word. Let's begin."

1. Use the following style to present each pair:
   "The nonsense word in this pair is (stimulus): (stimulus) is paired with (response). You are to remember that (stimulus) goes with (response)."
2. Pause three to five seconds between each pair.
3. For example for number one you would say:
   "The nonsense word in this pair is '**vom**' : '**vom**' is paired with '**apple**'. You are to remember that '**vom**' goes with '**apple**'."

VII. Pairings and sequence of stimulus/response pairs:

Stimulus Member:	**Response Member:**
vom	**apple**
und	**baby**
tud	**kitten**
sul	**shoe**
roz	**duck**
poh	**leg**
omp	**bread**
mog	**table**
kiv	**rabbit**
jus	**bird**

VIII. Instructions and sequence of stimulus only members:

1 Use the following script for the response measurement tape.
Say: "Now that you have received all ten pairs, we'll check your recall. You will be given a number and a nonsense word. You will have ten seconds to write the appropriate common word by the appropriate number."

2 Use the following style for all stimulus words.
"Number (One, two, etc.) is (stimulus). What did (stimulus go with?"

3 Pause ten seconds after presenting each word)

SEQUENCE FOR STIMULUS ONLY PRESENTATION:
1) POH, 2) OMP, 3) JUS, 4)VOM, 5) TUD,
6) MOG, 7) UND, 8) SUL, 9) KIV, 10) ROZ

END OF AURAL LEARNING MEASUREMENT PROCEDURES

PROCEDURES FOR INDIVIDUAL MEASUREMENT OF THE INTERACTIVE LEARNING STYLE

I. **Equipment:** This document and response sheets. Clipboards may be helpful.

II. **Do this to begin:**

1. Seat subject where he or she is at the same level and face to face with the primary evaluator.
2. Secondary evaluator should sit to the rear and side of subject to score the responses. Scoring must be accomplished without distracting or prompting the subject.

III. **Please read the following aloud:**

1. "The measurement (test) you are about to take will identify your strength as an interactive learner. For the interactive measurement (test) the test administrator (or I) will read you ten pairs of words. One word will be a three letter nonsense word and one word will be the name of a common object or thing."
2. "As the test administrator (or I) reads each pair of words you will be asked to repeat the two words together. Then the test administrator (or I) will ask you the question, 'How will you remember that these two words go together?' You will be expected to talk to the test administrator (or me) about the ways you can think of to help yourself remember the two words together. Remember that when you are tested for recall, the test administrator (or I) will read you the nonsense word and you will be expected to remember the common word. Therefore you want to think of something about the nonsense word that will make you think of the common word."

IV. **"Let's try an example.** The nonsense word in this pair is 'YAG', and the common word is 'EYE, you are to remember that 'YAG' goes with 'EYE'. Please repeat both words." Then you (the subject) should say: "'YAG' and EYE'." Repeat as necessary until the subject can say both words. Then say: "how will you remember that this pair of words go together?" " One way might be to pretend that a 'YAG' is a one-eyed hag, that way when you hear the word 'YAG', it will make you think of 'EYE'. Do you understand that you are supposed to say out loud how you will remember the two words together?"

V. Presenting the interactive pairs. After answering any questions proceed in the following manner. Note: please look at the phonetic pronunciations of the nonsense words given on the chart at the end of this section before you begin. Present stimulus/response pairs using the following script:

1. "The nonsense word in this pair is "**ZED**", and the common word is "**Wind**". Please repeat both words."
   (Repeat as necessary until the subject can say both words.)
   "How will you remember this pair of words?'
   Allow **ten seconds** for the subject to respond to the question.
   Do not comment on the subject's reply.

2. "The nonsense word in this pair is "**FAI**", and the common word is "**Tooth**" Please repeat both words."
   (Repeat as necessary until the subject can say both words.)
   "How will you remember this pair of words?'

3. "The nonsense word in this pair is "**CES**", and the common word is "**Ball**". Please repeat both words."
   (Repeat as necessary until the subject can say both words.)
   "How will you remember this pair of words?'

4. "The nonsense word in this pair is "**HEZ**", and the common word is "**Christmas**". Please repeat both words."
   (Repeat as necessary until the subject can say both words.)
   "How will you remember this pair of words?'

5 "The nonsense word in this pair is "**SCI**", and the common word is "**Fire**". Please repeat both words."
   (Repeat as necessary until the subject can say both words.)
   "How will you remember this pair of words?'

6. "The nonsense word in this pair is "**PEX**", and the common word is "**Floor**". Please repeat both words."

(Repeat as necessary until the subject can say both words.)
"How will you remember this pair of words?'

7. "The nonsense word in this pair is "**CHI**", and the common word is "**Egg**". Please repeat both words."
(Repeat as necessary until the subject can say both words.)
"How will you remember this pair of words?'

8 "The nonsense word in this pair is "**JEC**", and the common word is "**Dog**". Please repeat both words."
(Repeat as necessary until the subject can say both words.)
"How will you remember this pair of words?'

9. "The nonsense word in this pair is "**TOZ**", and the common word is "**Milk**". Please repeat both words."
(Repeat as necessary until the subject can say both words.)
"How will you remember this pair of words?'

10. "The nonsense word in this pair is "**ZON**", and the common word is "**Toy**". Please repeat both words."
(Repeat as necessary until the subject can say both words.)
"How will you remember this pair of words?'

Pairing and sequence Chart follow.

PAIRING AND SEQUENCE OF STIMULUS/RESPONSE PAIRS AND HINTS FOR PRONUNCIATION:

Stimulus Member:		Response Member:
zed	**(rhymes with said)**	**wind**
fai	**(sounds like fie)**	**tooth**
ces	**(rhymes with less)**	**ball**
hez	**(rhymes with says)**	**Christmas**
sci	**(sounds like sigh)**	**fire**
pex	**(sounds like pecks)**	**floor**
chi	**(sounds like chee)**	**egg**
jec	**(rhymes with deck)**	**dog**
toz	**(rhymes with Oz)**	**milk**
zon	**(rhymes with con)**	**toy**

VI. Testing for recall:

Say: "Now we will check your recall." Read the following script

1. "The nonsense word is "**HEZ**". What was "**HEZ**" paired with?"
   (Allow ten seconds for the response.)

2. "The nonsense word is "**ZED**". What was "**ZED**" paired with?"
   (Allow ten seconds for the response.)

3. "The nonsense word is "**SCI**". What was "**SCI**" paired with?"
   (Allow ten seconds for the response.)

4. "The nonsense word is "**CHI**". What was "**CHI**" paired with?"
   (Allow ten seconds for the response.)

5. "The nonsense word is "**FAI**". What was "**FAI**" paired with?"
   (Allow ten seconds for the response.)

6. "The nonsense word is "**JEC**". What was "**JEC**" paired with?"
   (Allow ten seconds for the response.)

7. "The nonsense word is "**TOZ**". What was "**TOZ**" paired with?"

(Allow ten seconds for the response.)

8. "The nonsense word is "**CES**". What was "**CES**" paired with?"
(Allow ten seconds for the response.)

9. "The nonsense word is "**PEX**". What was "**PEX**" paired with?"
(Allow ten seconds for the response.)

10. "The nonsense word is "**ZON**". What was "**ZON**" paired with?"
(Allow ten seconds for the response.)

VII. Sequence Chart:

SEQUENCE FOR STIMULUS ONLY PRESENTATION:
HEZ, ZED, SCI, CHI, FAI, JEC, TOZ, CES, PEX, ZON

END OF THE INTERACTIVE LEARNING MEASUREMENT

PROCEDURES FOR THE INDIVIDUAL MEASUREMENT OF THE HAPTIC LEARNING STYLE

I. Equipment: Small desk or table, covered tray of twenty MMPALT-II stimulus/response items, blindfold, pencil, and response sheets. A clipboard is helpful.

II. Do this to begin.

1. Seat subject across from primary evaluator. A slight angle works best.
2. Ask the subject to identify his or her dominant hand as right or left.
3. Place folded blindfold in front of subject.

III. Read the following aloud:

1. ""The measurement (test) you are about to take will identify your strength as a haptic learner. The word "haptic" means "hands-on". For the haptic measurement (test) the test administrator (or I) will ask you

to blindfold yourself. The test administrator (or I) will then present to you a pair of objects. One object will be placed in your right hand (dominant) and the other object will be placed in your left hand. You are to try to remember that the two objects go together. You will then be allowed several seconds to hold, touch, feel, and examine with your hands each of ten pairs of items. After holding all ten pairs, you will be given the member of each pair that was in your right (or dominant) hand and allowed ten seconds to name or describe the other item in that pair. Try to relax and do your best. Do not spend so much energy trying to recognize the objects that you forget to try to remember them together."

IV. **Say: "Let's try an example.** Please put your blindfold on securely." Place the stimulus member of the example pair **(a sponge roller)** in the subject's right (dominant) hand, place the corresponding response member **(the plastic egg)** in the subject's other hand, and wait seven seconds before taking both items from the subject. **Say:** " Now when I test you, you will be given ten pairs of objects like this to handle and remember together. Then I will put only the object that was in your dominant hand into your hand (do this) and **say** , "Subject Name, describe or name the object or thing that went with this item?" Allow ten seconds for the subject to reply. Then **ask** "Do you understand what you are to do?"

V. Presenting the pairs: After answering any questions proceed in the following manner:

1. Place the stimulus member of the pair **(a piece of carpet)** in the subject's right (dominant) hand, **say:** " this object goes with..." place the corresponding response member **(the light bulb)** in the subject's other hand, and wait seven seconds before taking both items from the subject. **Repeat this process for all ten pairs in the following sequence:**

PAIRINGS AND SEQUENCE OF STIMULUS/RESPONSE PAIRS:

	Stimulus Member: (R)	Response Member: (L)
1.	Piece of carpet	Light bulb
2.	Rock	Pencil
3.	Table leg	Tennis ball
4.	Hose Coupling	Paint brush
5.	Wooden rectangle	Table fork
6.	Bushing	Key ring
7.	Metal tube	Scissors
8.	Odd shaped piece of wood	Yo-Yo
9.	Plastic golf ball	Padlock
10.	Door knob	Drinking Glass

VII. Testing for recall: While the second evaluator keeps score without reporting results to the subject, **Say: "Now we will test your recall."**

1. **Place** each stimulus member in the subject's dominant hand and ask the subject to identify the paired response item.

2. **Say:**
"Please describe or identify the item that this item was paired with."

3. Allow ten seconds for the subject to reply. Do not comment on the subject's reply. Repeat the process for all ten stimulus items in the followingorder:

1) Piece of carpet, 2) Plastic golf ball, 3) Odd shaped piece of wood, 4) Bushing, 5) Table leg, 6) Wooden rectangle, 7) Rock, 8) Door knob, 9) Metal tube, 10)Hose coupling

PROCEDURES FOR THE INDIVIDUAL MEASUREMENT OF THE KINESTHETIC LEARNING STYLE

I. Equipment: This document, blindfold, clipboard, spacious area, and response sheets. An easel is helpful if available.

II. Do this to begin:

1. As the subject arrives, establish rapport, tell him or her that this is the kinesthetic testing area.

III. Please read the following aloud:

"This measurement will test your strength as a kinesthetic learner. The word kinesthetic has to do with whole body movement. This evaluation involves body movement: There will be limited spoken directions during this procedure. From this starting point, I'll guide and direct you through ten pairs of body movements. You will be blindfolded: Therefore I'll stay close by you to keep you steady and prevent any accidents. After we have completed the ten pairs of movements, I'll guide and direct you through the first movement of each pair. You are to respond by performing the movement that the first movement was paired with."

IV, Let's try an example.

1. While subject is not blindfolded. Lead him or through this example pairing of movement: Place subjects right arm in the position of a right turn, then say "this movement goes with...", then have subject put his/her hand on his/her head.

2. So that a minimum of spoken direction is necessary, show the subject a non-verbal code, tell them that when you lightly touch their knee they are to raise it, when you take their arm and begin to move they are to move with you, when you take their arm and begin to stoop they are to follow.

3. **Ask** "Do you understand what we will be doing?'

V. Presenting the pairs. After answering any questions, proceed in the following manner.

1. Have the subject put on the blindfold.

2. Move the subject through the stimulus/response pairs. As necessary, use the following spoken directions.

   "The first movement is (stimulus). It is paired with (response).

3. The evaluator should start each movement by gently placing his or her hands on the subject's shoulders. The various movements will require gentle movements of the subjects arms and legs. This must be accomplished without alarming the subject in any way. As necessary, additional verbal directions may be used, but those directions must not detract from the actual movements.

VI. The sequence of paired movements is:

Stimulus Member	Response Member:
1. Move diagonally across the room and return	1. Stoop
2. Stand on one leg	2. Raise both hands into the air
3. Rotate left arm	3. Bend over forward
4. Hands on hips	4. Alternate raising both legs
5. Left arm over head	5. Walk in a circle
6. Clasp hands over head, and lower to side	6. Take two steps forward return
7. Twist body in a circle	7. Clasp hands in front of body
8. With right arm, draw an "O"	8. Stand spread eagle
9. Cross arms over head	9. Hands behind head
10. Get on hands and knees	10. Stand at attention

VII. Test for recall:

1. **Say:** " Now we will test your recall of these body movements."

2. Move the subject through the various stimulus movements and allow ten seconds for the subject to respond by performing or describing the paired movement. It may be necessary to say: "This movement is (stimulus). What movement was it paired with?"

3. The second evaluator scores the responses without reporting the results to the subject.

SEQUENCE FOR STIMULUS ONLY PRESENTATION:

1) Stand on one leg,
2) Get on hands and knees,
3) With right arm, draw an "O",
4) Cross arms over head,
5) Hands on hips,
6) Move diagonally across the room and return,
7) Clasp hands over head, lower to side,
8) Left arm over head,
9) Twist body in a circle,
10) Rotate left arm

END OF KINESTHETIC MEASUREMENT

PROCEDURES FOR MEASURING THE OLFACTORY LEARNING STYLE

I. Equipment: Small desk or table, amber glass aroma vials or bottles, blindfold, cotton balls, and response sheet. Note: before testing examine aromas to see if they need to be refreshed.

II. Do this to begin:

1. Line up the aroma bottles in two parallel rows in the following order with the labels facing the test administrator.

PAIRING AND SEQUENCE OF STIMULUS/RESPONSE PAIRS:

Stimulus Member (Vial # and aroma)	Response Member: (Vial number and aroma)
#1 Black Walnut	#11 Peppermint
#2 Vanilla	#12 Fir Needle
#3 Almond	#13 Orange (oil)
#4 Rosemary oil	#14 Butter
#5 Pineapple	#15 Chocolate
#6 Rum	#16 Coconut
#7 Brandy	#17 Licorice (Anise)
#8 Banana	#18 Oil of Cloves
#9 Maple	#19 Lemon
#10 Strawberry	#20 Cinnamon

2. Seat the subject across the table from the primary evaluator.

III. Please read the following aloud:

1. "In this area you will be measured for your strength as an olfactory learner. The olfactory measurement will test your sense of smell and how well you can remember two smells together. For this measurement I will ask you to blindfold yourself. Then I will present you with ten pairs of small bottles containing different smells and aromas. The first bottle of each pair contains an abstract aroma and it will not be identified. The second bottle of each pair contains a common aroma, and **I will identify it for you. (DEMONSTRATE).** Your job is to remember which pair of aromas go together. Aroma is another name for smell. . After receiving all ten pairs of aroma bottles, you will be presented with the bottle containing the first smell in each pair and asked to name the aroma it was paired with. **(DEMONSTRATE).** Caution, do not spend so much energy trying to identify the smells that you forget to try to remember them together. All aromas are those of cooking flavors or common nature smells and all are certified safe and non-toxic for human beings to smell without risk. Do you understand what we will be doing?"

IV. Presenting the pairs: After answering any questions proceed in the following manner:

1. Have subject put on the blindfold.

2 Present the ten stimulus/response pairs in the order shown above as follows:

3. **Say:** "This is the first aroma of this pair, (Lift the bottle 2-4 inches below the nostrils of the subject.) then, "This is the second aroma of this pair." (Same procedure) "This second aroma is the smell of (response aroma). You are to remember that these two aromas go together. " (Allow the subject to examine each pair for seven seconds.)

4. When you complete the fifth pair, ask the subject to take several deep breaths through a cotton ball held to the nostrils to clear previous aromas from the nasal passages.

V. Testing for recall

1. **Say:** "Now we will test how well you can remember these aromas together."

2. Present the subject with stimulus member bottle of each pair and allow him or her ten seconds to identify the appropriate response aroma. It may be necessary to **say:** "This is one of the abstract aromas: What smell is it paired with?" Present all ten stimulus bottles in the same manner while the second evaluator records the results.

VI. SEQUENCE FOR STIMULUS ONLY PRESENTATION:

1) Vanilla, 2) rosemary oil, 3) maple, 4) banana, 5) black walnut, 6) almond, 7) pineapple, 8) brandy, 9) rum, 10) strawberry

Sources of Chemical Aromas:

Bottle Number and Aroma:	Source of Chemical:
# 1 Black walnut	McCormick Imitation Black Walnut Extract
# 2 Vanilla	McCormick Pure Vanilla Extract
# 3 Almond	McCormick Pure Almond Extract
# 4 Rosemary oil	Aura Cacia Rosemary Oil
# 5 Pineapple	McCormick Imitation Pineapple flavor
# 6 Rum	McCormick Rum flavor
# 7 Brandy	McCormick Imitation Brandy extract
# 8 Banana	Kroger Imitation Banana flavor
# 9 Maple	McCormick Imitation Maple Extract
# 10 Strawberry	Kroger Imitation Strawberry flavor
# 11 Peppermint	Watkins Pure Peppermint Extract,
# 12 Fir Needle	Aura Cacia Fir Needle Oil
# 13 Orange (oil)	Kroger Pure Orange Extract
# 14 Butter	McCormick Imitation Butter flavor
# 15 Chocolate	Watkins Pure chocolate extract
# 16 Coconut	McCormick Imitation Coconut Extract
# 17 Licorice	Aura Cacia Pure Anise Oil
# 18 Oil of Cloves	Aura Cacia Clove Bud Oil
# 19 Lemon	Kroger Pure Lemon Extract
# 20 Cinnamon	Watkins Cinnamon Extract

END OF OLFACTORY MEASUREMENT

Appendix

MMPALT-II STUDENT PROFILES AND RESPONSE SHEETS

SUBJECT COPY

LEARNING STYLE PROFILE

Subject Number : _____

MODALITY	MMPALT-II SCORE
Print	
Aural	
Interactive	
Visual	
Haptic	
Kinesthetic	
Olfactory	
General Comments	

SCORE SHEET - VISUAL

Subject Number : _____

Symbol Number	Picture
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

VISUAL SCORE _____

SCORE SHEET - PRINT

Subject Number : _____

Nonsense Word Number	Common Word
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

PRINT SCORE _____

SCORE SHEET - AURAL

Subject Number : _____

Nonsense Word Number	Common Word
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

AURAL SCORE _____

SCORE SHEET - INTERACTIVE

Subject Number : _____

Nonsense Word	Common Word	Subject Word	Correct	Incorrect
hez	Christmas			
zed	Wind			
sci	Fire			
chi	Egg			
fai	Tooth			
jec	Dog			
toz	Milk			
ces	Ball			
pex	Floor			
zon	Toy			

INTERACTIVE SCORE _____

SCORE SHEET - INTERACTIVE

Subject Number : _____

Nonsense Word	Common Word	Subject Word	Correct	Incorrect
hez	Christmas			
zed	Wind			
sci	Fire			
chi	Egg			
fai	Tooth			
jec	Dog			
toz	Milk			
ces	Ball			
pex	Floor			
zon	Toy			

INTERACTIVE SCORE _____

SCORE SHEET - HAPTIC

Subject Number : _____

Stimulus Member	Response	Correct	Incorrect
Piece of Carpet	Light Bulb		
Plastic Golf Ball	Padlock		
Odd Shaped Wood Piece	Yo-Yo		
Bushing	Key Ring		
Table Leg	Tennis Ball		
Wooden Rectangle	Table Fork		
Rock	Pencil		
Door Knob	Drinking Glass		
Metal Tube	Scissors		
Hose Coupling	Paint Brush		

HAPTIC SCORE _____

SCORE SHEET - KINESTHETIC

Subject Number : _____

Stimulus Member	Response	Correct	Incorrect
Stand on One Leg	Hands in air		
Get on hands and knees	Stand at attention		
With right arm, draw an "O" in the air	Stand spread eagle		
Cross arms over head	Hands behind head		
Hands on Hips	Raise both legs and alternate		
Move diagonally across room & return	Stoop		
Clasp hands over head, lower to side	Take two steps and return		
Left arm over head	Walk in a circle		
Twist body in circle	Clasp hands in front		
Rotate left arm	Bend over forward		

KINESTHETIC SCORE _____

SCORE SHEET - OLFACTORY

Subject Number : _____

Stimulus Number	Response Aroma	Correct	Incorrect
2 (vanilla)	Fir Needle or Pine		
4 (rosemary)	Butter		
9 (maple)	Lemon		
8 (banana)	Oil of Cloves		
1 (black walnut)	Peppermint		
3 (almond)	Orange (oil)		
5 (pineapple)	Chocolate		
7 (brandy)	Licorice		
6 (rum)	Coconut		
10 (strawberry)	Cinnamon		

OLFACTORY SCORE _____

RESPONSE SHEET - VISUAL

Subject Number : _____

Symbol Number	Picture
1	glasses
2	hat or cap
3	heart or valentine
4	skate, boot, shoe
5	umbrella, beach umbrella
6	flowers or iris
7	scissors or shears
8	tree or palm
9	boat, sailboat
10	chair, director's chair

VISUAL SCORE _KEY_____

RESPONSE SHEET - PRINT

Subject Number : _____

Nonsense Word Number	Common Word
1	bed
2	horse
3	rain
4	cat
5	box
6	coat
7	party
8	paper
9	name
10	sister

PRINT SCORE _KEY_____

Appendix C

Table 3
MMPALT-II Profiles for Co-Participants

Co-Participant	Age/Sex	P	A	I	V	H	K	O
Brittany	22F	3	3	3	5	7	2	0
Carly	36F	8	9	5	9	4	4	2
Crystal	25F	8	8	6	10	6	2	1
Dancy	18F	4	0	9	8	4	7	0
Arden	22F	2	4	8	4	1	2	0
Timmy	17M	5	2	2	8	2	2	2
Drew	17M	5	6	7	10	6	2	0
Rod	28M	5	2	6	3	4	2	0
Chuck	20M	9	3	9	10	4	4	3
Mac	28M	0	2	4	7	5	0	0
Harmon	22M	10	6	9	9	5	8	1

P= Print N = 11
A= Aural
I = Interactive
V= Visual
H = Haptic
K = Kinesthetic
O = Olfactory

Appendix D

High School Dropouts:
Learning Styles, Creativity Level, and Multimedia

Participant Consent Form #1

I understand that the purpose of this research project is to learn how high school dropouts like to learn, how they are creative, and how they might experience learning by means of computer assisted multimedia. Computer assisted multimedia is a lesson or information presented, coordinated, or accessed by computer that may use text, pictures, sounds or video clips.

I understand that I will be taking a test that will show the ways in which I prefer to learn. There are no right or wrong answers to this test. I will also be taking a test to see how creative I am and filling out a short form about how creative I think I am. There are no right or wrong answers to any of these tests. I will be filling out a short information questionnaire about myself. The total amount of time required by me is approximately 2 hours.

I understand that my identity will remain anonymous (no one will know who I am). Answers that I give to any questionnaires will be kept on forms that are coded by letter and number and will be kept in confidence by the researchers. I understand that my participation in this study is entirely voluntary (no one is making me do it) and that I may withdraw from the study at any time without penalty or prejudice and that my withdrawing from the study will not affect any GED preparation services I may be receiving. I may also choose not to answer specific questions without any penalty. There are no known risks to me involved in this study. Benefits to me may include learning about computer assisted multimedia and learning about the ways I prefer to learn.

I understand that I can see the research report when it is finished if I choose to. I may also contact the researchers at any time with questions about the project or my participation in it.

Name (please print)_____

Signature_____

Today's Date_____

This form has been read aloud to the above person in my presence:

_____
Witness signature

For further questions contact: Donna C. Morrison, 974-5131 or 693-5080

108 Claxton Education Building

University of Tennessee

Knoxville, TN 37916

Appendix E

All about Me

Name (please print)_____ Code Number_____

Location_____ Date:_____

Please circle the answer that is true for you.

1. Age today: 18 19 20 21 22 23 24 (write in if over 24)

2. Gender (circle one) M F , Race: C AA NA H Other

3. Grade you were in when you left school: 6 7 8 9 10 11 12

4. Do you work? Y N 5. If yes, what do you do?_____

6. Are you a parent? Y N 7. Age(s) of your children_____

8. What was the main reason you left high school?_____

_____

9. Were there other reasons?_____

_____

10. What are your career plans?_____

11. What do you do for fun?_____

12. Have you attended any GED prep classes or other training since you left high school? Y N

13. Do you have a learning disability of any kind? Y N

14. Would you like to participate in the computerized multimedia part of this research project? Y N

15. Would you like to be interviewed as a part of this project? Y N

16. If you answered yes to either question 12 or 13 please fill in the information below:

Address:_____Phone#:_____

Another

_____Phone:_____

Thanks for taking the time to fill this out!

(Type shown smaller than actual size)

Appendix F - Participant Consent Form 2 Reduced

High School Dropouts:
Learning Styles, Creativity Level, and Multimedia
Participant Consent Form #2

I understand that the purpose of this research project is to learn how high school dropouts like to learn and how they might experience learning by means of computer assisted multimedia and how creative they might be. Computer assisted multimedia is a lesson or information presented, coordinated, or accessed by computer that may use text, pictures, sounds or video clips.

I understand that I do not need to have any experience with using a computer. I will be learning about the Macintosh computer by using a computerized tutorial. During the tutorial the researcher or an experienced helper will be available to help me if I need it.

After I understand how the Macintosh computer works enough to move through a multimedia lesson, I will get to pick the way I want to learn a science lesson that is on the GED practice test and be able to move through that lesson on the Macintosh computer. At the end of the lesson I will take a short test to see if the lesson helped me to learn about the science ideas. I also understand that I will be filling out an information questionnaire and a survey of my opinions about the computer assisted multimedia lesson. When I use the multimedia lesson, the ways that I move through the lesson and my answers are being recorded by the computer.

I understand that my identity will remain anonymous (no one will know who I am). Answers that I give to any questionnaires or to the computerized test will kept on forms that are coded by letter and number and will be kept in confidence by the researchers. Approximate time required for my participation is approximately 2 hours.

I may participate in an interview about the ways that I like to learn and what I experienced using the multimedia lesson. The interview will be audio tape recorded but the tapes will be used only by the researchers and not heard by any other persons except the typist who assists the researcher. The typed records of the interview may be read by members of a research team but, no names will be on the typed records and all references I make to other people or places will be blanked out. Themes and ideas that the research team may arrive at after discussing the typed copies of my interview will be provided to me to check for accuracy before being included in the research report. If I participate in an interview I understand the additional time required may be from one half hour to one hour depending on my interest and time availability.

I understand that my participation in this study is entirely voluntary (no one is making me do it) and that I may withdraw from the study at any time without penalty or prejudice. I may also choose not to answer specific questions without any penalty. My participation will not affect my actual GED test scores or my participation in any GED preparation program. There are no known risks to me involved in this study. Benefits to me may include learning about computer assisted multimedia, the Macintosh computer, and learning about the ways I prefer to learn.

I understand that I can see the research report when it is finished if I choose to. I may also contact the researchers at any time with questions about the project or my participation in it.

Name (please print)_____

Signature_____Today's Date_____

This form has been read aloud to the above person in my presence:

_____
Witness signature

For further questions contact: Donna C. Morrison 974-5131 or 693-5080
108 Claxton Education Building
University of Tennessee
Knoxville, TN 37916

Appendix G - Transcriber's Pledge of Confidentiality

High School Dropouts:
Learning Styles, Creativity Level, and Multimedia

Transcriber's Pledge of Confidentiality

As the transcribing typist of this research project, I understand that I will be hearing tapes of confidential interviews. The information on these tapes has been revealed by research participants who participated in this project on good faith that their interviews remain strictly confidential. I understand that I have a responsibility to honor this confidentiality agreement. I hereby agree not to share any information on these tapes with anyone except the primary researcher of this project (Donna C. Morrison) or her doctoral committee chair (Marla Peterson, Ph.D.). Any violation of this agreement would constitute a serious breach of ethical standards, and I pledge not to do so.

_____ _____

Transcribing Typist Date

Appendix H - Research Team Member's Pledge of Confidentiality

High School Dropouts:
Learning Styles, Creativity Level, and Multimedia

Research Team Member's Pledge of Confidentiality

As a member of this project's research team, I understand that I will be reading transcriptions of confidential interviews. The information in these transcriptions has been revealed by research participants who participated in this project on good faith that their interviews remain strictly confidential. I understand that I have a responsibility to honor this confidentiality agreement. I hereby agree not to share any information on these tapes with anyone except the primary researcher of this project (Donna C. Morrison) or her doctoral committee chair (Marla Peterson, Ph.D.). Any violation of this agreement would constitute a serious breach of ethical standards, and I pledge not to do so.

_____ _____

Research Team Member Date

Appendix I

Sample Interview Protocol: Harmon

I: So, the question I'm going to ask you is, so what did you think about the multi-media stuff?

H: I liked it. I think, I liked the CD-ROM a lot. I thought it was neat. It really keeps your attention with all the neat graphics and the people moving around, and I think, if, I think it would have to be paired up with something else.

I: Like?

H: To be effective in learning. I guess it depends on the age group. If the people, if the students want to learn, then they will learn and you won't have to pair it. I mean, you can go in, because you can get all kinds of information off those things, and I love, I love to learn things. I love to just gather information, but if they don't want to learn, you'll have to pair it with something else to keep their attention.

I: What do you think that something else might need to be?

H: Probably human interaction. Well, human interaction would probably be first. Maybe in a group. Maybe look over the information and then look over it in a group and talk about it, further questions. Because you can't, I

mean, you can get a lot of information from it but they can't put all the information that an individual would want to know about one thing.

I: So it would be good to be able to discuss as well?

H: Yeah, because a lot of times I find I have kind of odd questions that really for me, they have a lot to do with what I'm leaning but they may not for other people, but it helps me to truly understand.

I: To be able to kind of get your questions out there and see what other people think about that?

H: Yeah, and to get the information. Because sometimes I need to know odd things to truly understand about the whole picture.

I: So tell me about odd things. It sounds like you have a perception that what you want to know is different from others.

H: I don't really know how it's different. It's just, I end up asking kind of stranger questions. I like to know, I have to know how things work. I love to know how things work and I, certain things help me understand how something works. I can't really explain it.

I: I'm wondering if you can think of an instance when that happened, an example.

H: I'm trying. Well, I can't think of a specific time that it happened, but with people I ask, when I want to know someone, I'll ask, I want to know what they, you know, what they do or how they would react in a certain situation. That helps me understand the person a little better.

I: More than just the superficial stuff.

H: Uh huh, and I mean even, you have a lot of information about someone, I mean, just knowing what they do, you know, in a certain time or how they react or they fidget or whatever, that's where I'll get information. That's important information to me, it's the small stuff. Because it adds up into big stuff, and you can better understand things when I get a lot of little stuff.

I: I want you to think about when you first sat down today looking at the multi-media stuff, what was your first reaction, before we even go into the CD-ROM, when you were just doing the floppies.

H: My first reaction as soon as I, well, I was apprehensive because I didn't know how to use it right off the bat, you know, and I want to know how to use stuff. I want to know before I do it, and when I actually got into the program I remembered doing something similar before, like when I first started working on computers, they had the, the thing where the diver

goes down, I'm sure you've seen it, the diver goes down, and it reminded me of that.

I: So say some more about that. That's something that you had in school or where did you do that?

H: Something I had here, actually. It, in, like whenever you start a computer class here they start you out real basic and they start you out on that. It just kind of helps you, it teaches you how to use the mouse and stuff like that. I don't know, I found myself clicking through it real quick, though, because I just wanted to get through it.

I: Just to see what was there?

H: Yeah, and it, I just needed more. There wasn't a whole lot so I just kept on going through it.

I: When you needed more, more what?

H: More, I don't know, stimulation I guess.

I: What would have done it for you?

H: The CD-ROM. Because there's a lot to look at, and there's a lot going on and there's a, the noise, the sound helps, but there's things, you know, moving around and it really looks like a, it looks more like a movie really.

I: You get a more real world kind of feel from it?

H: Uh huh.

I: Tell me why you think that's important in a learning setting.

H: I think, I think probably for myself I can relate to it better because that's what I'm used to seeing. When I look and I see everything and I learn, I learn a lot for movies, I love movies. And when I, when I'm looking at it, it's the same, you know, what I see everyday, so I think that's maybe familiarity with it. I know what's going on. I know what it looks like.

I: So, when you look at a drawing, a painting, it's so different from reality, it somehow slows you down, or you don't want to attend to it, or what's happening with that? It sounds like something.

H: It doesn't really slow me down, it just, I just, I guess I just prefer the pictures, I don't really know why.

I: You said pictures, does it make a difference to you whether it's movement or still photograph?

H: I would prefer movement, when it moves around. But, I mean, just a picture is fine also.

I: I think the clarity of the pictures, especially in Robin Davidson's story is just amazing.

H: And they're pretty.

I: Yeah

H: Very Pretty

I: I remember the first time I looked at it, I almost felt like I really had been there. So what do you think about, do you see multi-media in the learning setting for people who leave school, or how do you think it could best be used?

H: For people who leave school?

I: Do you think it would make a difference?

H: Yeah, I believe so. Because they, they could go at their own pace, they could do their own thing. I mean, instead of sitting in class and dozing off, you could go, if you got sick of something, you could switch to another

thing. You could go, you could get another CD and throw it in and start learning about something else if you got sick of it, or you could go through as fast as you wanted or as slow as you wanted, you could go fast and then slow down. When you got to a point that really, you know, you were really interested in, plus you could rewind it and play it again.

I: So why is that important?

H: For just general people or people who leave school?

I: For you.

H: For me?

I: How would that be important for you?

H: Being able to do all that stuff? I guess read 'em. I guess because I want to learn the way I learn. I guess because I'm stubborn. I want to learn the way I learn and I think that I can teach myself more than a, than somebody dictating what I do through the day.

I: It puts you in control?

H: Uh huh. Because I feel that I can teach myself. I have my whole life.

I: Tell me about a time that you did that.

H: That I taught myself? I've taught myself many things. I couldn't even keep a toy when I was a child because I had to take it apart, and my mother was very supportive because sometimes with the more complex toys, the little, I had a little tank that you could, it had a keypad on the top and you could program it to go so far and turn to the left so many degrees and go, and I took that thing apart and I couldn't get it back together so my mom bought me another one knowing that I was going to take it apart too, and finally, I learned to get it back together.

I: So you used the new one as a pattern to put the old one back together?

H: I think I just took it apart, I think I just took it apart, I think I just kind of moved the other one to the side and took the new one apart, and I guess it helped me remember because I was doing it over again. I was seeing how it was put together in my mind again and I was actually doing it so it helped me to remember. Kind of like rehearsal I guess. It took two toys to get it back together. But she was very supportive, and she's always been supportive. She's always let me explore my own world and let me do my own thing and I think that helped out a lot.

I: I want you to think of a time that you learned something that was really important to you and tell me about that.

H: That I've learned something that was really important to me. Well, I remember when I got burned one time on the stove, I remember that real quick. Something important. That helps me in life now?

I: Any learning experience you want to share.

H: [long pause] I suppose. I don't know. It's tough. That's really hard. I'm trying to think of something that really changed my life, but I can't really.

I: It doesn't have to be that dramatic.

H: I can't think of one thing, but I can, I guess, moving around a lot helped quite a bit. I mean, it helped me to adjust and adapt and I met many different kinds of people, and I guess, really because I moved so much when I was young and, I don't know, I think it made me very diverse, I mean, I can talk to anyone, I can relate to anyone. I mean, on just about any subject. So it wasn't just a, I can't think of really one thing that really made a difference or that really sticks out in my mind, but I think my lifestyle, the way I grew up.

I: So it sounds like instead of one learning event it was a lifestyle of learning because you were moving.

H: Uh huh, and I was always, and I guess it helped me out because I was always seeing new things. I mean, you know, I've, one thing I did notice

that we had talked about before is, and I don't know why I didn't say anything, but like when we were talking about when you go up the trail it seems like it takes longer. Another thing I noticed is it always, for me, a house always seems so much smaller when you first move into it, and then as you live there for a while it grows and it gets larger and larger, for some reason, I don't know why, it just, I guess you notice more things and it makes it bigger somehow.

I: How bigger? You mean things are bigger, the space is bigger?

H: The space is bigger. You walk in and the rooms are larger, they just seem larger. Because I know now that I've moved into this house, you know, the whole from part of the house is empty and it seems like it just keeps getting bigger and bigger, and it's really neat. And it's the same for me when I go down the road to, the first time, it changes somehow.

I: So, maybe it gets more complex? How do you think it changes?

H: Yeah, I think in a way. In a way it gets more complex because I notice more things, but it's easier too. Because I'm used to it.

I: OK. I'm going to shift gears just a little bit and ask you to think of a time that you learned something that was easy for you to learn and tell me about it.

H: Well, the first thing that enters my mind, because I've been doing so much of it lately, is watching. I worked construction one summer and there was, I worked with a guy, his name was Darrell, and he really helped me out, he, you know, he would show me how to do all different kinds of things and when he taught me how to _____ the ceiling, spackle ceilings, I remember it was easy. I mean, it's really easy to do, but I mean, I just, watching him do it, I might was well have been doing it myself.

I: So he didn't really tell you about it, he just mostly let you watch.

H: Yeah. I watched and then I think he told me one thing to make sure that you roll it on even, that's about it.

I: So tell me about learning something that was hard for you.

H: I think all the different plays that we have in basketball. That was kind of tough, and I was a point guard so I had to know all of them and I had to call them out and I had to recognize when this was working or wasn't working and plus I had to be playing all at the same time. There was a lot of variables that I had to deal with. I mean, I had to worry about the guy that was right on me, you know, because I had the ball and they were always trying to get the ball away from you, and I had to worry about the guy that I was going to pass it to. I had to worry about what play was going to work, you know, what's going on down in the paint, and what

does the coach want. I mean, there was a lot of different things, and I guess learning to use the plays was hard, and it was hard to remember all the plays, too, because we had a bunch of plays, you know that everybody was involved in and I had to know who was going where at all times because that's, like, if the guard cuts down and the forward sets a pick and he comes back down under the goal I've got to know exactly where I can hit him, you know, with the pass there, and I have to remember the individual players, too, what they can and can't do, what they're good at and it was tough.

I: So how did you go about doing that?

H: Uh, I had a play book and I memorized the plays and just, in practice, you know, we would scrimmage a lot in practice so I could get used to using them and I guess just jumping right in and doing it. Being there and messing up, really. And that's I guess what practice is for. Because I would, I'd go in and mess up, I'd hit the passes at the wrong time, and everything, and I guess after I got used to it, then it was.

I: So it sounds to me like you're learning as much from messing up as you are from doing it right.

H: Uh huh, yeah. As far as physical things like that, you just have to keep trying until you get it right.

I: What about something that's more mental that you've learned that's been hard for you?

H: Well I recently switched areas in my job at UPS and I had to memorize the zip codes, the continental United States, pretty much, and that, and certain things have to go up the belt and certain things have to go to this truck, and then another truck, and then this bag and this bag and other stuff has to go over here and that was tough. I looked at it, I, I have to show them to you, they gave us three, there's three pages, and one page has big letters, there's not a lot to it, there's maybe, I'd say eight states on there with only two splits, because certain states that are larger are split up, you know, one will go one way and one will go the other, and I looked at it, and I saw that this list was smaller, so I thought, OK, I can eliminate this truck right off the bat because it will be easy, I can learn it, I'll know it, you know, and that eliminates all that. So, I learned that first and I knew that everything else was either going to go up the belt or in this truck. So then I looked at it and the other list was the surrounding states, you know, the states I guess there's, mainly it's the southeastern, it goes all the way up to Pennsylvania and a little higher, all that area, and I looked at it and I thought, you know, these states are close so I can learn those, and then those will go up the belt and then everything else goes on the truck. So I didn't have to remember, the list that goes on the truck is huge, it's like that big and it just constant down the page, so I knew that these were easy, put them in there, that goes up the belt because I know it pretty well. You can think, when you see it, you know, the Hyatt, well that's

close obviously you know it can go in ground, because I work in the air dock and that's, I guess I didn't really tell you about that, but certain packages can go where they need to go on the ground without actually putting them in an airplane and that's all the surrounding states and everything, and that's how I learned. That was the easiest way for me to do it.

I: So you eliminated two chunks of it so that whatever was left went to the most complex?

H: Yeah. I figured it out from the easiest one. But that was my strategy for that, and I can't really use one strategy for everything. It's all different, so I have to keep switching it up. But that, that was tough. I mean, it was hard, but I caught on quick because I used that, because I went like that. If I wouldn't have, if I would have sat down and tried to memorize all of those it would have taken a long time.

I: Sounds like quickness in learning is important to you.

H: Yeah.

I: You were talking about moving through the multi-media quickly, or you're talking about you got over this quickly. What's that about?

H: I don't know. Maybe my attention span isn't real long. But I'm a very patient person. I don't understand how it could happen. Short attention span. I mean, I can sit with somebody for hours and talk because that's what my best friend, I mean, we'll talk all night until the next day, so I don't think it's so much I have a short attention span, I just, maybe I assimilate it fast so I'm ready to move on to something else.

I: What else do you want to tell me about learning, what do you think of the experience of learning?

H: What I think about the experience of learning... I love to learn new things. I always have. Back when I was a child I had to know how everything worked. The only thing I didn't tear apart was a wind-up train that played a little song and I still sing that song sometimes and it was clear and I could see all the little gears inside.

I: So you could see how it worked without taking it apart

H: Without taking it apart and that's the only thing I didn't take apart. But I've always loved to learn, and I love to talk to people, and I like to get information from them, and my best friend, his name is Darren and he's really smart. I can talk to him and he understands concepts that, I mean, we're on the same level, I mean we really connected, I mean, I've known him for a while but we've always been friends like we are now.

I: I've heard you talk about learning from things, now I'm hearing you talking about learning from a person. What is the difference?

H: I'm not sure that there is one. I mean, I enjoy learning from a person, the interaction with a person. Other than that, I can't really see a difference. I think learning is learning. I would much rather talk to Darren because I get so much more from him because he knows things that I don't know or he can see it in a different way than I can see it. I suppose if I could learn from something, I would rather learn about something with somebody else because they can see it in a way that I can't, and if I can see it by talking to them, then I have a better understanding.

I: It's like you get twice as much knowledge from the difference in perspectives.

H: And that's, I think that's a definite strength, I think that everybody should use that. Because you see all the points of view, or not all of them, but you have, you see things in a better light when you can see it from different angles, and that's one thing I definitely, I mean, I love talking to Darren because he's got... even if we agree on something, on a view, he can, you know, we both do it, we don't, we agree on a lot, but we don't ever, you know, say we agree because there's always another side to it and that he can show me and I can, you know...

I: It almost sounds like you two really don't want the conversation to ever end.

H: No, it doesn't. Not until it's just time to go to bed. But he's really smart.

I: So tell me something important you've learned from him, tell me about when it happened, what it was.

H: I've learned so much. I guess when I finally realized that I can learn so much, and he helped me to realize, I guess he, by talking with him about certain things and, you know, it came naturally, and I guess after so long of talking to him like this I finally realized, it hit me that what I was doing and how I learn. So I guess that's, I'd say that's probably the most important thing I've learned, I realized what I was doing, and he

I: Can you share that with me?

H: Share it with you? How?

I: Can you describe what happened for you when you realized that? It almost sounds like you suddenly realized you were learning but before you didn't realize you were learning.

H: Well, I knew I was learning but I realized how I was learning and I figured out that I could use that more to my advantage to learn more, and to help

put it in my mind in a way that I can bring it back whenever I need it. That's the trick. I mean, you can, you learn things all the way though your life but then being able to recall is a whole other story.

I: So did learning for you in this way make it easier to recall?

H: Well, I guess by understanding basic concepts because when we talk about things we'll break them down to understand exactly what we're talking about, which is tough. It gets really complicated and we argue though, and people don't understand that. I mean, we argue, I mean we get, you know, hostile sometimes, and people don't, they don't really like, when we start to argue, talk, they just kind of move away from us because we get kind of excited, but...

I: It sounds like that's OK with you, though.

H: Yeah. Oh we'll get up and yell at each other, but we know that it's just in the argument, I mean, it's never really actually harsh feelings, I'm never even mad at him. Although he's gotten upset a couple of times because we differ on certain religious views. He's not real open minded about religion and stuff like that. He is and he'll talk about it, but he believes the way he believes and hands down and he's not willing to assimilate any other kind of information into that. I mean, I guess he is because he's willing to talk about it, but he's not going to change it. But we get kind of hostile sometimes. We yell and we get excited, you know, and your

hands start going and, I, we even, I've even drawn diagrams to show him the ways that I see different things.

I: It sounds like, you say you get hostile but you're smiling, it sounds like this is a fun thing.

H: On man, yeah, it's a lot of fun. I probably enjoy arguing with him probably just as much as I enjoy anything else. I mean, there's, I love to do it, and he loves to do it, although we haven't gotten to talk a whole lot lately, and I really miss it too because I don't, I really, my mind grows faster when I talk with him. I mean, there's been periods in our life when we've been together and lived together and that's when I feel like I really got a lot of information and then there's time when we haven't hung out a whole lot, and it kind of slows, and I start feeling dumb, not really dumb, but I don't feel very useful. It's like I hate summertime.

I: Tell me about feeling useful.

H: About feeling useful? I have to use my mind. I like to think about things, and in the summertime I'm not in school or not doing anything but just working, that's all I'm doing, just working, and I don't, really, I don't read that much, it's not one of my big things. So I just, I mean, I think about issues that are in my mind but I'm not getting any more, any new issues. I can beat the other ones to death, but if I'm not getting any new ones then I'll have to use the stand-by's

I: So it sounds to me like you don't feel like you're learning unless you're integrated with these other people and these different perspectives.

H: Yeah. I mean, I can read a book, I can read and I can learn things, but I really, I like other points of view too. That's what I need to really understand something. I can read something and feel confident, actually I do feel confident after I read something because I learn it and I feel confident that I can comprehend it enough to talk to somebody about it and I talk to them then I get more information. Kind of, I guess, so really I need somebody to talk to.

I: Anything else you want to tell me about learning, how it feels, what you think about it?

H: How it feels to learn? Oh, great. Getting stronger, smarter. I love it. I mean, after Darren and I talk or I come to a certain realization about something I feel great. I mean, I feel like I'm doing something that I should be, something we're all supposed to do.

I: When you're saying that, you're using your hands a lot. So, the feeling that you have when you're feeling great and strong and bright, is this a body feeling, a mind feeling or both?

H: Mind. Definitely. Seems like, I don't know, I guess I feel good all over. I'm not real in tune, though, with, I am and I'm not, probably not as much, I don't feel like I am as much as I should be, but I'm not in, I don't think I pay that much attention. I'm awful at getting hints, you know, I don't pay that much attention to myself or a lot of stuff around me, but all in the same I do. I notice everything, I look at everything, but I don't, I mean, my wife can try to put a hint on me and I just, I'm completely oblivious, I don't even know what she's doing and then she gets mad at me for it because I'm like, I don't know, just come out and tell me, but I don't know, I just don't take hints. I don't really, though, it's odd. Its really strange.

I: When you're into your head, what's that like for you? What do you mean by that?

H: I'm just, I'm not really turned inward because I am, I do, I like, well I am and I'm not. I'm both. I like thinking about things in my head and being in, you know, concentrating on that, but then I like taking in other information. I love looking at things, I like talking to people. So I'm kind of half and half, I guess. I don't know. I guess I like getting information and thinking about it and getting more information and thinking about it, but then I like thinking about my own information, too. Things that I don't, I don't share a whole lot. I wouldn't really call them private, I guess I share everything in time, I just like to think about it for a while before I do.

I: So you take some processing time that you want to keep it all to yourself, maybe, before you share it?

H: And after I share it sometimes. I take their point of view and I assimilate it and just kind of leave it alone for a little while.

I: You said a while ago that when you learn something you feel good all over. I want to know what that feels like.

H: I don't know, you can't really describe it. It's not really like a body feeling, I mean, I don't get like an adrenaline rush from it or anything. Well, maybe I do kind of, but not as, not quite as much like repelling or something like that. Those are big adrenaline rushes, but I feel good. I mean, it, I feel good inside. I feel like I'm doing what I should be doing. I feel like I'm on track or something.

I: Centered?

H: Yeah. I just feel good, I feel like I'm doing something that I'm supposed to be doing. I can't really describe it in any other way. Something that I want, too. That's tough to describe, how I feel. I guess, and another thing, then I'm excited and I think about it more. Sometimes I'll beat it in the ground.

I: So the more excited you are about a subject the more you think about it?

H: Yeah. Depending on how important it is. I mean, if it's something I really want to think about, I don't, I try to stay in the happy medium where I don't run anything into the ground. But it's tough. I mean, I get excited about stuff and think about it.

I: It sounds like thinking itself is pretty important to you.

H: Yeah. It kills me when somebody will just be sitting there, staring, and you ask what they're thinking about, oh, nothing. And I've met people where I don't really think they were thinking about anything. I mean, I really don't think that they were thinking, and it bothers me. I can't even understand how, what are you thinking about? Oh nothing. And I just can't even comprehend that.

I: So you're always thinking?

H: Always. There's two or three things running through my head, Just all the time. I can't understand how somebody can sit there and not be thinking about anything. And really by the look on their face it didn't look like they were. It eludes me. I can't grasp that. I can't even understand it. It's like thinking about not existing. You can't even think about it, and it bugs me to death, too, when people tell me that.

I: You said you're thinking about two or three things. You mean you're thinking about two or three things at the same time?

H: Sometimes. Yeah, they'll overlap and stuff.

I: Tell me about that.

H: It's quick. Things go through my head quick and I process and think about them but I can see other things in my head too, also, while I'm thinking about something. It's like I can walk and chew gum and the same time.

I: So you said when you're thinking about things you can see other things. Does this mean that you're thinking in pictures partially and in some other way.

H: Yeah. I can think about something like without, I don't see everything in my head as a picture. It's like words, it's like language, I can think about things in a language and I can think about things in pictures and abstractly and they all kind of run together sometimes.

I: When you come to a conclusions do they separate out or is it a kind of simultaneous thing?

H: That's done when that. When I'm done with that, it's done. And when I wake up in the morning I'm not really thinking about anything. I mean, I don't, there's not a whole lot going on there, but in normal, everyday, just kind of being, I'm usually, a couple of things are going through my head. Something is always going through my head. Always. I mean, I don't...

I: How do you handle that in a classroom setting?

H: I can pay attention. I can focus, you know, and process the information and think about something else, too. But it's not as prominent. I mean, I pay I pay more attention to that, but sometimes I have to watch it because it'll skip, I'll start thinking about the other, you know, I'll get off track real quick and I have to watch. I did that today.

I: How are you aware of that? How do you catch yourself?

H: I don't know, I just realize that I'm not concentrating enough on what's going on up front or when I'm doing something and, I guess when it switches from _____, when the voice goes from being what I'm concentrating on when I realize that it's in the background, that's when I have to switch back.

I: Anything else you want to tell me about learning or thinking?

H: I wish everybody had a passion for it. I think we'd all be a lot better off.

I: So how do you think we could make that happen? Or is it possible?

H: For everybody, it's not possible. All men are not created equal. I don't believe. But I think it's in everybody to be smart, to think and to feel. I think that's in everybody. I think they just haven't brought it out yet, or they go about it in the wrong way. I think we can develop it, I think anybody can develop their thinking skills. Anyone. But sometimes they don't really know how or they don't know, they don't even know that they can.

I: Do you think we could use the multi-media concept to help that?

H: Yeah. I think so. It would be tough. You would have to have interaction with someone too, most definitely, because there would be a lot of questions.

I: You just mentioned in passing a while ago about a rush of adrenaline, a rush like repelling. I'm wondering if you could tell me about when you learned to repel.

H: That is, that's an adrenaline rush. From hell. I mean, when you get up, one of my favorite things is, there's a big rock up at, it's called Look Rock, it's on the Blue Ridge Parkway, and it's a big overhang.

I: Is that Top of the World?

H: No, it's over, it's closer to where the Blue Ridge Parkway comes close to the Smoky Mountain Park and it kind of moves into there, it's kind of hard to explain,

I: It's up there where that fire tower place is, sort of winding, yeah.

H: Yeah. And there's a big rock up there and it comes out and it comes back under and it cuts under real far and you can just get out on the edge and just jump off backwards and stop yourself right before you hit the ground. It's kind of like bungee jumping without the, you know, you stop yourself with your hands and if you, you lean back, and when you leaned back your boots are right on the edge and have to squat down and push yourself off and when you do it's just like falling off a, I mean, you're just falling backwards, because I would let go of my rope a lot or hold my rope out like that, a lot of people would hold it behind them, and the friction here, it slows them down, but if you hold it out, and you just, I mean, you fall off of it backwards and, I mean, you can't even see anything you just know you're falling, I mean, you just, you're just there and then you stop right there and then you stop right before you hit and it's, that's an adrenaline rush, I mean, your body

I: So tell me how you learned how to do this. You don't just go out one day and do this, do you?

H: No. I was talking to a fireman about it and he offered to take me one time and we went out and he started me off on kind of a smaller hill, it was really just an incline, there wasn't any straight down or anything, it was just kind of like a hill, and he rigged me up and he showed me how to tie everything and put my rig on and I went down and he showed me a few more tricks later on in the day and then I started going. It's, it's something else. I mean, it really is. It's scary, I mean, I'm afraid of heights. But if I wasn't afraid of heights I wouldn't want to do it. It wouldn't by any fun then.

I: So fun here, there's an element of fear adds to the fun?

H: Danger. Yeah. If I wasn't afraid of it, it wouldn't be any fun. Just, you know, falling off a hill with a string on you, I mean, you just, it's the excitement to jump off.

I: Is there anything else in your life that you really enjoy doing or that you have learned that involves fear or danger?

H: Yeah, I had a sport bike. Got rid of it now. My wife's wearing it on her finger. It, I had sport bike and it, you know, it's a pretty good rush. To ride a bike and, you know, especially like up in the park, you know, you're going around a curve at 90 mph and there's just a half inch of rubber on each tire touching the ground and that's it, and then you get down so far and your bike drags and sparks fly off of it, and man, you're just, you get

pretty tight. But you can't get too, if you get too tight, though you wreck, you've got to stay loose, but you feel tight inside, I mean [tape ended]

I: How long did it take you to learn to ride a sport bike like that?

H: About 20 minutes. I just jumped... I had... I've ridden motorcycles all my life. I think I got my first motorcycle when I was maybe 7, I wasn't very old, I was still small, my dad was holding me, like in the picture, you know, they got it, of course, for Christmas, and he was still holding me, I was little. I was small enough, when I rode the motorcycle, when I stopped I just had to jump off the bike and let the bike fall over because I couldn't touch, I couldn't even come close. I'd just jump off and let if fall over. But it, you know, my first sport bike, I got it and as soon as I got used to riding it and the way it felt, then I was on it. Really, it took me a while to get to the point that I knew that I had to stop, though. To where I knew that I couldn't keep riding like that. I mean, you know, you can, I can ride and as long as you're safe and everything, but I went too far, to where my best friend said he wouldn't even ride with me because I was riding too hard.

I: How far is too far?

H: Too far is when you crash and you lose a lot of skin. I mean, that's too fast and you hit a corner too hard, I mean you just, I guess getting killed is too far, really. For a lot of guys I think it is.

I: How far did you push it?

H: I pushed it to where I didn't really have control, to where I, I had control because I was used to it not being in control, I think that's when it bothered me. You know, when you go around a corner and you start to slip out, you know, your wheels start to slip and you slide a little bit and wobble and stuff, and I guess it scared me when I got to the point to where I was getting used to the wobble and all that stuff. I thought I better probably ought to slow down. Then, after that, I got scared, and when you get scared on a motorcycle things go bad. I had enough confidence to ride hard and I respected the motorcycle and I knew what I could do and I couldn't do, but when I got scared, I just quit. So I sold it.

I: So is there a new bike in your life? What's in your life that fills that place?

H: Really nothing. I don't do anything dangerous anymore. I mean, short of camping and stuff like that. I think my wife fixed all that. There for a while I was, I mean, both my jobs were dangerous, I went repelling a lot, I was riding motorcycles, I mean, it was...

I: What were your jobs that were dangerous?

H: Well, I worked at a little hotel in a bad area, real bad, I mean there was Plexiglas, bulletproof Plexiglas and everything, and I had to wear a gun and it was kind of frightening, but nothing ever happened. And my other

job was, I worked for my dad at his, he had a race track, like cars race, and I had to, I'd go around and pick up all the money and then at the end of the night I'd take all the money to the bank and I had to wear a gun for that, too. They were both pretty exciting jobs.

I: Have you even been into racing?

H: No. He, my step-dad offered to buy me one of those, I don't even know what they're called, one of the bigger cars, I told him I didn't want to. That just never really interested me, because all they ever do is go around, kind of boring really.

I: You were saying a while ago that when you got on a bike, I asked you when you learned to ride, you said you just rode it about 20 minutes until you got the feel of it, what is getting the feel of it? What is that about?

H: Knowing how the motorcycle is going to react, how hard to throttle if you hit it too hard is the front end going to come up, how it handles, certain bikes if you turn the front end, you don't ever really turn the wheel. You kind of lean and when you lean it turns the wheel a little bit you can't even really tell. I mean, you'll never be on a motorcycle with the wheel like that, if you do have the wheel like that you're in trouble.

I: So it sounds like you're managing it more with your body than with your hands?

H: Yeah. Well, you control, you know, because you have a clutch here. So that, you know, you're controlling a lot and plus you have the gears on your left foot switch and the brake, the back brake on the right foot. So you're controlling a lot but you use a lot of your body weight too. These are your main controls that control the speed of the bike and slowing it down and everything and, but a lot of turning, and if you have to turn quick you have to kind of lean the opposite way and then go right into it. It's kind of hard to explain. It's like you have to get the motorcycle off balance quick to get it to lean into the curve. Like if I wanted to turn this way to the left really fast I'd turn the wheel that way, kind of shift it that way a little bit, because that way the bike starts to lean this way and then when you bring it back down you're leaning into the curve.

I: So you're like creating your own arc with opposing movements? That's real interesting.

H: It's hard to get used to.

I: So how'd you learn that?

H: I guess I did it one time because I was going to wreck and I kind of, when I was going into the curve, you know, you kind of lean, I guess I always felt it was there, I guess but I just used it one time and I kind of figured out after that. Because, you know, when you turn you feel the bike kind of

move, you feel it move and everything, and I guess I just remembered the way it felt and it worked for the situation so I used it.

I: It sounds almost like at that moment it's an extension of your body.

H: Yeah. It's a lot of instinct too when you're riding like that. I mean you have to know exactly what your motorcycle is going to do and what it can do and what is going on if you hit a bump in the road you have to know what to do and if it doesn't happen automatically and quick you're going to wreck. If you're going around a curve and you hit a funnel, I mean, that you've leaned over like this and you hit a bump and if you're going fast enough your wheels will come off the ground and if they do then you have the chance of flipping down like that or, and then it's gotta happen quick. You can't think about it, no way.

I: So it sounds like all of that learning happens without a lot of conscious mental effort, that you're being aware of a lot of things at the same time but it's not like a mind process.

H: It's just gotta happen. I mean, you see it, you know you're there and you know what's going on and you know what you have to do. I mean, you already know what you have to do.

I: How do you know that?

H: Just the way it feels. I mean, I guess just over riding over a period of time, I suppose.

I: Could you teach somebody else to ride?

H: Yeah. I think so. Well, I taught my best friend to ride. He had never owned a motorcycle before. He got a nice one. He wrecked it, too. He crashed hard. One night he wrecked it, just tore the motorcycle. Because they have a lot of plastic on them, fiberglass, and he broke the motorcycle, I mean, almost all the plastic off of it, and I fixed it for him. I put all the plastic back on and repainted it for him and everything. That was the first time I've done that, I just kind of figured it out as I went along. I remember, you know, people working with fiberglass, I remembered that and just kind of adapted it. I fixed his motorcycle. But I taught him a lot of things. He was kind of stubborn, though. He didn't want to learn everything from me. He wants to learn his own stuff and that's when I knew I had to separate.

I: It sounds like he's not that much different from how you are.

H: No.

I: You talked about wanting to learn your own stuff, your own way.

H: Yeah. We're, I think we're the same in many ways. Then it's like we have these big differences. I grew up completely differently than he did. I mean completely. He grew up in the Cleaver house, man. He did. I mean, his dad worked for the News-Sentinel and he went to work every day and came home and they were, he had a big brother and a sister, and they were the Cleavers, man. And they, he didn't every move from that one house right there, I mean, his entire life. I can't imagine that. I mean, being in the same bedroom for your whole life.

I: It sounds like you moved a lot.

H: I moved a lot. I think, to date I've probably moved I think 24 times.

I: Wow.

H: To date, maybe even more than that. I've moved quite a few times. Lived in several different states, but I wouldn't change any of it. My poor mother feels so bad about it, and I told her I wouldn't change any of it because that's what made me who I am, it's part of my life. I wouldn't change it. I wouldn't be the same person.

I: I have one last question for you. What place does learning have in your life, what does it mean to you in your life?

H: That's tough to prioritize. I think, I don't know, I can't prioritize it. I couldn't put my wife in front of it or anything like that, but I know that it's always, it's just a part of me. It's completely necessary to me. If I couldn't learn something, I wouldn't be worth much. If they put in a room I'd probably go crazy if I couldn't learn. Well, no I wouldn't, I have stuff in my head to think about. I just think about that stuff. I don't know, it's very important to me.

I: So how did someone who likes to learn so much make the decision to leave school?

H: Well, it wasn't the kind of learning I think at the time that I wanted. I mean, personally I don't really care about Algebra. I don't like Math, you know, and I just, I don't know, I had, I'm not going to say, I had bad teachers, but I had teachers that just came in and they blah, blah, blah just sounded bored, do your homework, you know. That's awful man. That's awful. My Algebra class was awful. I mean, she'd come in and just write it on the board, and I would switch it around. I'd wait until she got the answer and then I'd get the answer and try to go backwards to see if I could find the problem, you know. I mean, it was just awful.

I: Now that sounds like sort of an interesting thing to do.

H: Yeah, but the thing I found is it doesn't always work. You can't always figure out how to do it, doesn't always work backwards for some reason. I

mean, I didn't, I mean I'm sure it works backwards, but I couldn't always do it backwards [can't hear] But she was awful. I don't know.

I: So did you have this person during the semester that you left?

H: Yeah, my last. Yeah, I did. But I had an English teacher that was really, really good. So, I don't know why. I was, I don't know, I wanted to do other things.

I: Like?

H: I don't know. I wanted more. I wanted to go to college, but even after I did quit school I waited of a while. I don't know, I just wanted to see other things and I wanted to know what it felt like - I'm bad about that. About experimenting with myself, really. Just doing things to see how I feel. I guess to gain a better understanding about things.

I: That doesn't sound so bad.

H: Well, it, no, I mean it's not bad, but sometimes I feel kind of crude and I do it to myself to understand and it helps. It helps me. Sometimes I do stuff, you know, I mean even minor stuff, like listening to sad music. I love old, old country. Old country music. Lefty Frizzle and all that because it's so sad and pitiful really. I mean, it's kind of enjoyable to listen to. But it, I don't know, it's good and it's bad. It's good because I learn from it.

I: And it's bad because?

H: Well, sometimes you feel bad. It's never gotten out of hand, though. So I guess, I don't know, I guess it's really not bad. I don't like feeling bad. But yet sometimes I do it for myself on purpose and I know what I'm doing, I mean I do it to feel bad.

I: I'm wondering if that's why you like doing something to feel danger? Do something to make yourself feel bad like that?

H: Yeah, yeah, I believe so. I think it definitely has something to do with that. I don't know, I want to see what it feels like.

I: Sounds like you like to feel a lot.

H: Yeah. It helps me understand people better. If I can understand the way they think and they feel better, I'd do just about anything to understand and to make myself feel bad, I guess it's really not that bad.

I: It doesn't sound like it.

H: No. I have borders, though. I have boundaries with everything. One thing I've learned is to stay in the middle, don't go to extremes. I think

moderation is the key to everything. You can moderate them and you can learn things without ever really hurting yourself or others.

I: Well, I'm about ready to wind it up. Anything else you can think of you want to tell me you haven't told me?

H: I could talk to you all day. No, I can't think of anything.

VITA

Donna Carol Morrison Browning was born in Cairo, Illinois on February 21, 1951. She was graduated in 1973 with a Bachelor of Arts in English and Fine Arts from the University of South Florida, Tampa, Florida. She was graduated in 1990 with a Master of Science degree in Community Agency Counseling from the University of Tennessee, Knoxville. Her work with high school dropouts while employed by the Private Industry Council of Knoxville-Knox County fueled a desire to know more about early school leavers who were also creative and/or academically able. She is an NBCC certified counselor and a charter member of the Institute for Learning Styles Research.

Before beginning graduate school at the University of South Florida she had several careers. She has been a hospitality manager for a major hotel at the Tampa International Airport, managed a restaurant, worked for nine years as a retail buyer for a department store, served as a corporate trainer and accounts liaison for both a women's apparel manufacturer and a national telecommunications corporation. She worked as a teacher and counselor at the Knoxville-Knox County Private Industry Council before beginning her doctoral studies.

While in graduate school she has supervised Community Agency Counseling interns during internship and taught the Community Agency Counseling Seminar. She coordinated the University of Tennessee's First Year Studies program for at-risk freshmen, designing and administering faculty development materials and workshops, recruiting and selecting exemplary juniors and seniors to serve as peer mentors for the at-risk freshmen, teaching three sections of the Peer Mentoring seminar and working with other departments in the University such as registration, admissions, and the athletic department to assure the smooth functioning of the First Year Studies program.

She has taught at the university level since 1991, teaching at the University of Tennessee as a graduate teaching assistant and associate. She taught at Pellissippi Community College first as an adjunct instructor in Introductory Psychology and later as a full time faculty teaching Introductory Psychology, Humanistic-Phenomenological Psychology, and College and Lifetime Learning (for at risk students). She has taught Biological Basis of Behavior via ITFS (Interactive Television, Fixed System), Distance Learning

Delivery and incorporated her own designed and developed multi-media, as well as laser disc and other visual and audio technologies into these classes. She served as a Master Advisor to at-risk students, served on textbook selection committee, and assisted in Faculty Development Workshops on Multimedia. She was nominated for the Innovative Teaching Award.

She taught at Tusculum College in Greeneville, Tennessee as an adjunct faculty teaching History and Systems of Psychology and Tests and Measurement. In 1996 she married Christopher Lloyd Browning of Tallahassee, Florida and since then she has been teaching in the state of Mississippi, first at Mississippi University for Women, and now at Mississippi State University in Starkville.

While at MUW she taught Adolescent Psychology, Measurement, Personality Theories, and Educational Psychology. She was awarded the Phil Hardin Technology Award by the Mississippi Higher Education Commission for her multimedia presentation on learning styles which was adapted for use with pre-service teachers, principals and teachers in the Columbus 2000 grant program, and faculty development for other university faculty.

At Mississippi State she has been teaching Human Growth and Development, Measurement and Evaluation, Human Development and Learning for pre-service high school teachers, and Psychology of Giftedness and Creativity. This past summer she taught the doctoral seminar in Educational Psychology. Therefore she has community college, private college, and public university teaching experience with both graduate and undergraduate students. She is a designated mentor by the athletic department.

In the future Donna Carol Browning intends to continue working toward researching and designing second chance educational environments for creative high school dropouts. The areas of visual learning styles and creative personal development are also research interests as are the use of distance learning and emerging technologies such as multimedia and Internet access for enhancement of instruction at all levels. By teaching and modeling a flexible, constructivist approach to pre-service teachers in the areas of educational psychology, development, and tests and measurement she hopes to insure that there are fewer creative high school dropouts and more engaged, creative people staying in school.