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**Exploratory Study Asks Adults With ADD/ADHD
to Consider and Share a Project & the Learning Processes
That Led to Success**

by

Robin L. Anderson

BA in Journalism, University of New Mexico, 1983

Thesis Submitted in Partial Fulfillment

of the Requirements for the Degree of

Master of Arts

Organizational Learning & Instructional Technology (OLIT)

University of New Mexico

May 2016

Dedication

This thesis and my degree are dedicated to my mother, Connie Souza, who – despite not quite understanding my need to pursue an advanced degree – stood by me as I worked to make this dream come true. She paid the tuition and encouraged me to keep going despite personal and educational obstacles and setbacks. I am truly blessed to have an angel in my corner.

Acknowledgments

I also wish to express my sincere and heartfelt appreciation for the guidance of Victor Law, Ph.D., OI&LS professor, and for stepping in to help me organize my time and efforts toward the study and graduating. In addition, I want to thank my committee members — Lori Townsend, MLS, and Kathleen Gygi, Ph.D. — who performed their duties with grace, style, and full support. All three helped pave the way to a degree that is much more than a piece of paper. Finally, I want to express my gratitude to the study participants for your time and efforts in making this study a reality.

Abstract

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Abstract

Purpose — This study explored the learning processes related to projects used by adults with attention deficit disorder (ADD) or attention deficit hyperactivity disorder (ADHD), along with the environmental factors that aided or detracted from learning.

Design/methodology/approach — Using a modified appreciative inquiry type question approach, adults with ADD/ADHD were asked to participate in either an online questionnaire or a focus group conducted in late 2015. The population consisted of adults, age 18 or older, who could attest to having ADD/ADHD diagnosed in childhood or as an adult. The intent was to discover successful strategies employed by this

population to start, create, and finish projects. The theoretical approaches included self-learning, embodiment as a different way of knowing, and transformational learning.

Findings —The results indicate that complexity, novelty in using new programs or researching a topic, persistence, passion for a topic or process, and choice were motivational factors among the participants. Participants also shared the challenges, such as procrastination or electronic distractions, that they adapted to in order to create final portfolios for classes, spearhead resistance to urban sprawl, start on a master's degree or graduate school, and to organize, fundraise, create a business plan, and apply life experiences in advocating for others.

Originality/value — The results can be used to consider ways to improve instruction and add to a growing field of research into whole-body ways of learning. These findings could also start a conversation that focuses on how this population can add to a better understanding of adult learners overall, rather than concentrating on deficits.

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Chapter 1: Introduction

When a fellow employee draws her notes during a meeting, rather than writes down what she is hearing, or another employee asks for permission to leave a brainstorming session and returns minutes later refreshed and filled with new ideas from walking between the lunch room and the meeting room, they both have assessed their learning needs and applied adaptive measures. Yet a fellow worker or supervisor is likely to interpret these actions differently: as unfocused, antisocial, inattentive, or hyperactive (Canu, Newman, Morrow, & Pope, 2008; Danforth & Navarro, 2001).

In assessing attitudes toward attention deficit disorder (ADD)/attention deficit hyperactivity disorder (ADHD) or behaviors similar to ADD/ADHD, Chew, Jensen, and Rosen (2009) found that “more negative than positive adjectives were endorsed as describing individuals with ADHD, and this was especially true for individuals with ADHD in comparison to those without ADHD” (p. 271, abstract). In a separate study, Canu et al. (2008) discovered that undergraduate participants indicated “significantly less desire to engage with those with ADHD,” (p. 700, abstract) on teams. Therefore, studies suggest that a fellow student moving or talking while brainstorming or reasoning out a difficult or challenging mental exercise could be perceived as hyperactive or aggressive (Canu et al., 2008; Harwood, 2010), rather than productive or creative.

The role of education in how ADD/ADHD is perceived. We are trained as children to expect certain behaviors from others at school and work, in our social lives, and at home (Davis-Berman & Pestello, 2010; Dudley-Marling, 2004; Hinshaw & Blachman, 2005). Consequently, as adults we associate what are considered negative

behaviors with a language of deficiency and implied failure, which allows us to judge our own and others' actions and intent against a list of educational, workplace, and social norms (Canu et al., 2008; Danforth & Navarro, 2001; Young, 2007). For all adults, this means being judged in terms of “agreeableness, extraversion, and conscientiousness” (Canu et al., 2008, abstract). Consequently, adults with ADD/ADHD are encouraged by counselors, coaches, supervisors, and instructors to pursue education that targets self-regulation and the part of the brain believed to host the executive functions (Parker & Boutelle, 2009; Solanto, Marks, Mitchell, Wasserstein, & Kofman, 2008; Torralva, Gleichgericht, Lischinsky, Roca, & Manes, 2013).

These expectations of perfection inform every aspect of our existence as human beings in a technical age, with individuals considered academically resilient (Morales & Trotman, 2011) who succeed despite cognitive, economic, or social challenges. Furthermore, this vision of resilience is shaped by comparing her or his attributes to those of an idealized employee. This is a view that does not credit these adults as learners with adaptive body and mind skills honed by years of challenges (Polanyi, 1968).

However, in researching the theories and models that have attempted to create a unifying theory for adult learning in the past century (Merriam, 2004; Brookfield, 1985), this type of stigmatization and stereotyping also does not reflect any theories on adult learners. For example, in transformative learning, the current vision of adults with ADD/ADHD reflects the lowest form of critical reflection because it elaborates on an existing point of view (Mezirow, 1997). That existing view is pervasive even in higher education, as the Chew et al. (2009) and Canu et al. (2008) studies indicate, which makes

it more challenging to write a thesis that focuses on the self-capable adults that Knowles and others describe, a population that includes adults with ADD/ADHD. Therefore, in writing the literature review (Chapter Two) for this study and thesis, the research includes theories on socialization and how the stigma and negative attitudes toward this heterogeneous group have grown and are perpetuated.

The idealized adult learner. One aspect of this complex issue involves the ideal learner, a fairly one-dimensional person who is young and healthy, turns homework in on time and follows the rubric carefully. She or he sits quietly through standardized tests, does not challenge the teacher or any other authority figure or idea unless it is under the guise of building critical thinking, consistently scores within the highest 80th percentile, and exhibits verbal dexterity without interrupting anyone. Consequently, the social and educational characteristics of this student are the norms against which we judge all learners and research subjects.

In comparison, an atypical learner's attributes are more difficult to describe or measure. Standardized intelligence and creativity tests and assessments, which are subjective and based on a proctor's expertise and judgment (Greitzer, 2005), are designed to assess the rational mind (Merriam & Bierema, 2014), not the capabilities of someone who daydreams and maintains an awareness of everyone in the room. They also cannot assess the learning that takes place when a student who follows a line of thought triggered by an instructor's talks, fellow classmates, or song lyrics, rather than deadlines, reads 20 studies on a topic that fits into the curriculum, but may turn in an incomplete assigned paper on a less interesting subject. Nor do they help us comprehend the student

that others view as distracted, who might be an effective team leader because he knows everyone's name and has been building competence online in social networking, but would not be given the chance to lead. The atypical learner must be flexible, persistent, and often fight prejudice or established norms to achieve what the typical or average learner takes for granted in advancing at school or work (Sissel, Hansman, & Kasworm, 2001).

Consequently, despite the large numbers of individuals considered to have ADD/ADHD in the U.S., approximately 13 million (4.2% of working adults in the U.S. (Kessler et al., 2005)), they often are treated as a homogenous group with identical learning needs and weaknesses. These needs include coaching, counseling, or courses in organizing their homes and papers; increasing focus through metacognitive strategies via neurofeedback or other methods (Rosen, Carrier, & Cheever, 2013; Thompson & Thompson, 1998); meditation (Zylowska et al., 2008); time keeping, and getting along with others (See Table 1). In addition to these interventions, adults with ADD/ADHD are encouraged to take stimulant medications for school and work that are designed to ameliorate the behavioral symptoms of ADD/ADHD, increase focus, and decrease excitability. However, Advokat and Scheithauer (2013) found that the medications do not consistently improve learning or academic achievement considering they also increased risky behavior and environmental distractibility (abstract).

Table 1*Examples of Research to Ameliorate ADD/ADHD symptoms*

Authors	Study Focus	Result	Population	Intent
Kubik (2009)	Coaching	Question about difference between coaching vs. counseling (preference was coaching—ie., learning)	Adults with ADHD	Build life skills to counteract negative outcomes and beliefs
Solanto et al. (2008)	Time management, organization, & planning skills	Inattentive symptoms decreased	63.2% predominantly inattentive (majority well educated & employed)	Test meta-cognitive therapies (learning-based)
Virta et al. (2008)	Cognitive-behavioral group therapy	Significantly reduced activation and affect for 30%	Adults with ADHD	Talk therapy that covered the condition and its effects
Zylowska et al. (2008)	Mindfulness meditation	Feasible for subset in increasing focus, but not for improving memory	Adults and adolescents with ADHD	Exploratory: Reduce attention deficits and improve memory

Note: This is a sampling of approaches to ADD/ADHD that could be seen as adults taking on learning projects they might expect will lead to improving skills.

The singular adult learner. Success as an adult learner already encompasses an amalgam of subjective beliefs that originate in inner and outer expectations of competency (Rogers, 1959). What is not acknowledged, in most cases, is that the

additional education associated with an ADD/ADHD stereotype adds layers of complexity that most average learners do not bear. Comstock (2011) contends that this type of education, combined with ADHD medications, shifted the focus from treating the behavior to attempting to produce “new possibilities of behavior and identity by changing the ethical relationship Man has with him/herself” (p. 67).

Therefore, in asking participants to share their experiences, the student researcher for this study trusted adults with ADD/ADHD to understand their needs and describe a memorable learning project (Tough, 1967). To extend this belief in the ability of the participants to decide what they wish to learn and when to start a learning project, Chapter Three: Methods includes a brief overview of how Tough’s categories (1967; 1971) were adapted to help analyze the data. In addition, Chapter Two: Literature Review highlights how a rise in ADHD diagnoses among children and adults often overshadows the inroads they are making into formal education and as business owners. Despite the stigmatization associated with the condition and the stereotype (Hinshaw & Blachman, 2005), or perhaps due in part to the strategies they learn and use to succeed in the workplace or at school, the study participants described both simple and more highly complex projects in both the questionnaire and the online focus group for this study (Chapter Four: Results).

Finally, atypical learners are rarely asked to participate in research as normal controls or participants, which is one example of how prejudices could be codified for adults considered outside the regular educational trajectory and socially structured norms (Quinnan, 1997; Rose, 1999; Sissel et al., 2001). Therefore, this exploratory study

treated participants as co-creators, rather than subjects. The rationale for choosing this group of adults, in part, was based on Carl Roger's contention that every adult seeks the best out of life and should be trusted to do so (1959); Mezirow's transformative learning theory and the seismic shift in perception it augers (2000); and embodied learning (Merriam & Bierema, 2014). The embodiment theory of learning that Merriam & Bierema wrote about (2014) is gaining ground as a holistic philosophy on how the body, mind, and emotions combine to learn from an experience and the environment, and is reflected in a research question on environmental factors, including tools, that are related to adult learning projects.

Vision Statement

As a heterogeneous population growing steadily and mostly assessed to confirm educationally-defined deficiencies, this research sought to discover more about the learning skills and strategies employed by adults with ADD/ADHD. The intent was to explore environmental and physical factors that could assist with adult learning or increase awareness of skill construction (Merriam & Caffarella, 1999; Rogers, 1959; Sawyer, 2008).

Study Purpose

The study explored a language of success, along with environmental and physical factors that motivate adults with ADD/ADHD. In this way, the research is intended to add to what Tough (1967) called "a complete picture of why adults learn" (p. 45).

Background

Our first steps as a child could be the impetus for every learning moment after, just to experience that rush of triumph and competence over and over again, along with the applause those steps earned. This study grew from a belief that everyone deserves to experience the peace that comes in reaching a goal that at one time seemed impossible.

In an attempt to seek greater clarity beyond a Western philosophy that treats the human brain's chemistry and structure as the seat of all knowledge and behavior (D'Angiulli, Lipina, & Olesinska, 2012; Merriam & Bierema, 2014), this research explored a whole-body learning experience. The intent was to seek insight into how adult learners seek equilibrium between their perceptions of how they learn and the environment. Equilibrium, in this context, refers to how we incorporate verbal, textual, graphical, and physical needs to find or create learning that builds a personal sense of competence and offers a possible springboard to new projects and further growth (Tough, 1971). Dirkx (1998) describes the transformative nature of learning outside what he called the technical-rational stance on knowledge as "...a view of learning through soul, an idea centuries old reemerging in this age of information..." (p. 80, para. 1).

The researcher's perspective. In qualitative research, the researcher reveals her beliefs, prejudices, and perceptions in creating the methodology, working with participants, and coding and analyzing the data (Merriam, 2009). My background as an older and atypical student with medical disabilities, along with having gifted family members with ADD/ADHD, provided a different perspective on ADD/ADHD and life-long learning.

The focus as I started my undergraduate studies was to find a subject that allowed me to uncover and report on injustices, with journalism classes providing practical experience in interviewing, reporting, photography, and darkroom science. This led to working on the *Daily Lobo* and then continuing on to community newspapers in New Mexico, Rhode Island, and Massachusetts. A master's degree in organizational learning and instructional design much later in life provided the opportunity to pursue an interest in adult learning and creative ways of providing education that might resonate with atypical learners.

That interest was spurred when I gave birth to a son who never crawled, just pulled himself up on the coffee table the day he decided to walk. He dragged big books to the couch as a toddler to read them, and later tested as having an IQ of 132. By fifth grade, this boy, the one who would focus intently on building Lego worlds, knew the names and details of guns and tanks throughout history, was called a leader, and read at a college level by sixth grade, was told by teachers and administrators that his achievement levels were too low and he could succeed "if you would only try." We also were told as parents to let him fail, even as my son tried to work within the system and started to know too much failure, which he blamed on himself.

When my son started in preschool, I read everything I could on developmental milestones, learning and cognitive styles, school expectations, and standards so that I could talk rationally to his teachers. However, by middle school I was begging his teachers to work with his strengths in math, reading, and writing. They did not know how, but would push for organizational skills that included a notebook that counted for

40% of his grade. Through this process of socialization and expectations, my son went from being a child who loved to learn, play with words and ideas, and read, to a young man who sees higher education as a pathway to get a job that will pay well. His belief at this time is that education must be endured, with good grades and a high-paying position as the only rewards.

Reading books and other research on the brain's adaptability related to connecting the tongue with "seeing," or how certain illnesses could lead to new talents (Doidge, 2007), made me question what we miss in not taking into account physiology, environment, and adaptive intent in the learning process. When we concentrate on the Socratic tradition of a sage passing knowledge on to learners who are "ready to learn" (Merriam, 2004) and label that as wisdom, we ignore the varied methods humans use to gather information from their environments and how this shapes the learning context (Dirkx, 1998; Grayshield, 2010; Merriam & Bierema, 2014). For example, learning theories have expanded in the past decade to encompass the body and spirit (Merriam & Bierema, 2014). Merriam and Bierema (2014) wrote about embodied learning, which they described as "knowing without reasoning and transcends the cognitive" (p. 130).

Hence, this exploratory research only touches the surface in attempting to assess different ways of knowing and learning by asking adults with ADD/ADHD to provide insights on adaptive learning strategies that can inform further research. Finally, I believe that all adults naturally pursue interests and passions that help them adapt, survive, or excel in establishing or maintaining a desired quality of live (Dewey, 1896; Rogers, 1959).

Theoretical Perspective

In the 1960s, Tough worked toward a unified theory of learning related to self-teaching that has evaded the field since its inception (Merriam, 2004). He assessed projects that adults take on each year (1968, p. 45), and contended that we can shape our futures by taking charge of the unique knowledge skills we gain in pursuing these ventures (1968, p. 46).

As life-long learners (Dewey, 1897; Rogers, 1959), we may get our first sense of competence and triumph as babies when we transition from total dependence to the freedom of standing and then running away from a parent. It is a biological process that is rarely scripted, guided, or judged until a child starts formal education. This body knowledge is considered tacit and more intuitive (Merriam & Bierema, 2013).

However, once a developmental mantle of expected behavior and timelines envelopes a child, she or he is placed into an educational and social category that carries higher or lower expectations of success from childhood through old age (Harwood, 2010; Sissel et al., 2001). At this point, we go from unscripted triumphs of competence and confidence to seeking gold stars and grades for proper behavior and development.

The socialization and marginalization of adult learners. Critical theorists contend that the process of shaping social acceptance, or socialization, is particularly prescribed for individuals deemed cognitively or developmentally different (Trent, Artiles, & Englert, 1998). This process of subdividing certain groups of learners also has long-lasting social, economic, and educational consequences (Centers for Disease Control and Prevention, CDC, 2016), starting with a greater proportion of impoverished

students seen as having ADD/ADHD (Harwood, 2010). Furthermore, the “at-risk” term used for older adult students carries its own weight because the term: “implies a personal inadequacy rather than a socially engineered one” (Quinnan, 1997, p. 44).

Additionally, Quinnan (1997) contended that higher education often works to produce graduates and researchers, rather than spurring enlightenment or encouraging adults to see self-learning and life experience as valid intellectual growth. Hence, the more complicated lives of older students can make it difficult to start or continue in formal education past high school. In these terms, the way that atypical learners are viewed, as dependent, corresponds to a more traditional view of learning from childhood to old age, which emphasizes that training or continuing education must transform the individual in a socially beneficial way to be valid and can be managed:

“...I define growth as “increases in our cognitive, affective (emotional), interpersonal and intrapersonal capacities that enable us to manage better the complex demands of teaching, learning, and life” (Drago-Severson, 2004a; In Drago-Severson, 2008, p. 60.)

A more inclusive theory of adult learning would accept, as Carl Rogers wrote in 1959, that every human’s need is to “flow into all the differentiated channels of potential development (p. 235).” This idea of potentiality, rather than a moral initiative, involves an individual seeking to enhance her or his potential or solve a problem that prevents the person from feeling successful in all areas of life (Rogers, 1959). In building his theory on experiential learning, Rogers (1959) observed that the workshops he had conducted were more effective than his regular courses because the adults who chose to attend a

workshop recognized a problem and sought a specific solution (1959, p. 233).

Consequently, autonomy and a belief in personal self-worth were particularly relevant factors to consider for this study.

Adults as self-learners. Merriam (2004) and other adult learning scholars have decried the fact that more than 80 years of research has failed to produce a unifying theory of how adults learn. Instead, researchers and experts in the field continue to debate whether and how much guidance is required for higher learning and how to measure outcomes (Brookfield, 1985; Grow, 1991; Knowles, 1996; Merriam, 2004; Tough, 1967).

Methodology

This study employed a questionnaire and a focus group based on an appreciative inquiry (AI) philosophy (Boyd & Bright, 2007) to evaluate specific talents and skills among adults with ADD/ADHD, as a growing population of life-long learners who share an educational trajectory with the general population (Chapter 3: Methods). An asynchronous online focus group was conducted over four days in December 2015, along with a questionnaire that was based on a series of AI-based open questions and available for the duration of the study.

The questionnaire and focus group explored how an adult's interests and passions might be related to a project at work, school, or home that the person considered successful. One interest was to explore whether adults create projects out of a need to see how things work, for the sheer joy of accomplishing something no one else would see or judge, or as a constant adaptation to environmental or personal challenges.

To explore just one aspect of this issue, the study was designed to gather concrete examples of projects and the effects of learning environments on progress and completion. The research questions associated with this study, and in line with the qualitative research approach applied, were:

1. How do adults with ADD/ADHD conceive, create, and execute learning projects at home, work, or school?
2. What environmental, practical, creative, or emotional factors contribute to a successfully completed project?
3. How does talking about successful projects in an online asynchronous focus group affect the way participants discuss learning processes and adaptive capabilities?

The questions focused on education and self-learning among adults (Dewey, 1896; Rogers, 1959; Tough, 1967 & 1971), rather than attributes of ADD/ADHD that feed the language of deficiency in the psychology, sociology, and neuroscientific fields (Richard, 1995; Schmiedeler, 2013; Southall, 2007; Sunnie Wright, 2012). However, a few papers among those published on adult ADD/ADHD have addressed educational capabilities and ADHD as conferring adaptive or inherent resilience related to effectively processing environmental, social, and intellectual stimuli (Eisenberg & Campbell, 2011, Eisenberg et al., 2008, Göran et al., 2010, Graves, Asunda, Plant, & Goad, 2011). For example, Eisenberg and Campbell (2011) contend that a genetic component of ADHD may harken back to our hunting ancestors, whom they contend learned through “play, observation, and informal instruction (p. 21).”

Adults with ADD/ADHD were considered as a group in terms of their shared experiences as students and employees (Kitzinger, 1994) for recruitment, but were treated as unique adult learners. In the online focus group, participants were offered a pivotal role in raising awareness and prompting discovery (Knibbs et al., 2010; Young, Bramham, Gray, & Rose, 2008). A presupposition was that participants in focus groups might be more willing to discuss their concerns, beliefs, and define their own successes anonymously (Owen, 2001). However, the participants did not interact; therefore, the third question is not relevant to the analysis or results (Chapter Four: Results and Chapter Five: Discussion).

The design also sought to take advantage of the flexibility of qualitative research, by employing an AI approach to design the study and offer a relatively nonthreatening and potentially empowering (Noffke & Somekh, 2009) framework for educational and organizational studies (Argyris, Putnam, & McLain Smith, 1985; Blichfeldt & Andersen, 2006). In reassessing the research and its results, the focus is qualitative, with a structured approach to coding and analyzing the data (Saldaña, 2009).

Key Terms

Appreciative inquiry: A research method normally applied in organizational evaluations that centers on finding out what works or how someone or a group succeeded.

Embodied learning: The acknowledgment of the need to connect our bodies, minds, and emotions to fully experience our lives and learning.

Environmental: For this study, the environmental factors that were addressed included resources, lighting, and other physical or emotional aspects of the learner's surroundings.

Epistemology: A philosophy of knowledge concerned with the study and

Executive functions: Traits related to the brain and self-regulation in humans theorized to govern attention, working memory, and reasoning.

Learning project: In this study, a learning project could be any memorable project from school, work, or at home that involved planning and an end goal.

Self-learning: Any short-term or long-term learning project that involves a commitment and adds to a person's lifetime knowledge base.

Socialization: The educational, familial, and workplace efforts to teach and enforce behavioral and affective norms.

Transformative: A learning theory often defined in terms of an adult learner's need to change a socially determined moral viewpoint through formal education (Wilson & Kiely, 2002), rather than the personal transformation that Mezirow (1997) described as learning to ignore, not adapt to or accept, how others view us.

Delimitations

As Rose (1991) and Tough (1971) acknowledged, humans defy being calculated in terms of learning and capabilities. The research parameters had to be narrowed

considerably, due to time and cost restraints, to one project and questions about the environment and its effects.

Limitations

Several issues arose in attempting to start and conduct this study. In line with the language of deficiency associated with ADD/ADHD, it was a challenge to find committee members who were not predisposed to view this as a special needs population. Consequently, the study protocol was revised from a face-to-face focus group that would have been conducted on the campus for two hours on a Saturday to an online questionnaire and focus group, which were more expensive and potentially less effective. In addition, the nature of an exploratory study for a master's thesis limited the scope and the time necessary to test whether an in-person focus group or interviews would have been better, or how the envisioned participatory action research (PAR) could have been accomplished. True PAR would have brought in participants to shape the questions, mediate the session or sessions, and then work together to code and analyze the data, which would take far longer than this study allowed (Baum, MacDougall, & Smith, 2006). That was the vision. Finally, participants self-identified as having ADD/ADHD, with no proof required of the diagnosis.

Summary

This chapter provided the study purpose, scope, background, and significance, along with the conceptual and theoretical framework that served as the foundation for an exploratory study on how adults with ADD/ADHD would describe a successful project.

As an educational study, the intent was to gain insight into adult learning practices and environmental factors related to formal and informal education.

Furthermore, to do this subject justice requires looking at the complex and layered educational world created to explain the differences between the ideal adult as a learner, worker, and companion, and all others who cannot fit this mold (Rose, 2010). Therefore, the literature in the next chapter looks briefly at the issue of socialization and the effect it has on expectations of adults with ADD/ADHD as students and employees. The review also covers adult learning theories, models, and philosophies that provide a more balanced picture of the adult learner as separate from this ideal, along with being uniquely suited to learning as an adult.

Chapter 2: Literature Review

“Through what procedures of inscription, differentiation and cognition did the knowledges and procedures emerge which would make of the human being a calculable entity?” (Rose, 1991, p. 93)

This chapter reviews the “procedures of inscription, differentiation and cognition,” that Nikolas Rose (1991) wrote about in “Experts of the Soul,” as they relate to ADD/ADHD and self-directed learning. In an era of big data, it is hard to imagine a time when a one-room school was the domain of a single teacher. However, it is easy to see how the individual can be subsumed in a push to understand societal phenomena associated with the rational mind (Merriam & Bierema, 2014) rather than focus on the inscrutable human at the center of this data overload (Sternberg, Jarvin, & Grigorenko, 2009).

Therefore, this literature reviews the atypical adult learner’s place in a world of ever-expanding technology and how, in the context of U.S. history, the images of both atypical and average learners have been shaped. The “who” of this research is the adult with ADD/ADHD, a learner more complex than thousands of deficit-based research studies, articles, and books (Canu et al., 2008; Danforth & Navarro, 2001; Trent et al., 1998) would indicate.

To shed light on the straw man built to appease the educational and medical establishments’ efforts to standardize and average the human psyche, Rose (2010) asks “Are you normal?” He contends that the answer is coded with the individual’s health,

status in society, and morality — with the antithesis of average or normal meaning “unhealthy, deviant, dangerous” (p. 1). In an attempt to redirect the focus back to the individual as a human capable of adapting and growing (MacKeracher, 2004; Rogers, 1959), this review looks at embodied learning (Merriam, 2014) as one of the “central pillars in the growing literature on holistic education” (Merriam & Bierema, 2014, p. 127).

The “what” at the core of this thesis is an exploratory qualitative study conducted at the end of 2015 that asked participants to describe the attributes of a successful project and the most receptive environment for learning. The intent was to explore what several adult learning scholars call self-learning (Tough, 1967), along with the embodiment of learning (Merriam & Bierema, 2014), which acknowledges a more holistic approach in learning through the body, mind, and spirit. The literature search and how to handle the data also apply transformational and experiential learning. The literature in this review covers only a fraction of the papers, books, and studies on adult learning theories and models from the past 80-plus years that helped shape the study, this thesis, and aided in analyzing the data collected.

The review is framed as a narrative from past to future and structured on Gee’s theory of language as “human thought, action, and language within a cultural framework” (Danforth & Navarro, 2001, p. 169). This chapter is also based on a practical belief that although adults with ADD/ADHD must adapt to social norms in school or work, they can grow more as self-aware and self-directed learners, according to the theories and models

featured here, outside restrictive educational and workforce cultures that emphasize deficiencies over capabilities (Danforth & Navarro, 2001; Dirkx, 1998).

The Role of Social Norms in Adult Education

Theoretically, as adults we are expected to put childish things, our pedagogical-based past with its behavioristic overtones, behind us and grow as individuals with experiences that help us build a unique body of knowledge (Knowles, 1996; Merriam & Bierema, 2014). For the average student, high school graduation signals freedom from the pressures to fit in with the imposed social structure of teachers and peers and the expectations of correct behavior that serve as the leavening. A newly-graduated adult in the United States is no longer expected to sit for hours each year filling out the dots on a standardized test. She can seek a job that allows her to work days or nights. He can pursue a passion after work in building computers, without being graded or judged against others, unless he decides to enter the product in a contest or sell it online. At least, that is the freedom to explore and create that many adults enjoy after enduring 12 or more years of public or private schooling.

However, if the medical and neurological research on adults with ADD/ADHD is considered as the big picture of a societal stricture and stigma, then a large proportion of these adult learners continue to be judged and their humanity measured throughout their lifetimes (Heckman & LaFontaine, 2010). Yet services often end after high school, just as these individuals face jobs or more schooling.

Baird (2010) wrote that he had been fortunate to find mentors in the health care field as an individual with ADHD working in corporate America, but was "...keenly

aware that discrimination against ADHD was always present in my environment and capable of taking away any success I had achieved unless very carefully managed” (p. 1, para. 2). Baird contended that workplaces need to accept workers with ADD/ADHD as having a different style and provide the support needed for success. He also questioned, “And why does research to date about adult ADHD in the workplace, . . . , focus almost exclusively on the losses and liabilities to employers?” (p. 2, para. 2).

Social and normative influences. The answer to Baird’s question is complicated by the sheer number of individuals who have a vested interest in what was estimated in 2005 as a \$31.6 billion business gain, and individual loss, which included work costs imputed from disability data and medical-related work loss days, along with medication, health costs, and counseling (Birnbaum et al., 2005, p. 195, methods). This type of conjecture is one factor related to this study and thesis treating adults with ADD/ADHD as individuals with unique strategies and capabilities and as more than a one-dimensional caricature. A change in perspective is necessary if the needs of these learners are to be taken into account.

For instance, Rose (1991) contends that the ability to isolate or label certain groups is based on the language of educational psychology that dominates the discourse on mental fitness and normative behavior. The authority of that language helps authenticate the assessments, tests, and judgments of behavioral and social efficacy that the society adopts and uses to group students (Rose, 1991).

To put this language into perspective, Danforth and Navarro (1998) studied how lay persons understand and talk about the symptoms associated with ADHD and a

diagnosis. The authors contend that lay persons appropriate and interpret the medical and educational discourses on deficiencies because the language gives hope for a treatment or cure that will help a child fit in at school and succeed (2001, p. 167).

“These dominant discourses position the school as a vital arena in which the successes and failures of a child’s current and future life are decided based on values of social conformity, submission to authority, and individualistic competition” (Danforth & Navarro, 1998, p. 186).

Psychiatry as an historical educational force. Carrier pointed to a restructuring that occurred in the American educational system in the 20th century to accommodate a new condition that is “a creature of social forces, specifically, of the values, structures, and practices of American education and educational psychology” (1983). The main social force (Cohen, 1982), and the most influential educational and moral crusade in U.S. history, was the mental hygiene movement (p. 124), which led to the primacy of personality and behavioral psychology in setting educational standards.

March and Oppenheimer (2014) place the mental hygiene movement in context with a partnership among social institutions and the fields of psychiatry and epidemiology (p. i29). The movement shifted from an initial push to improve psychiatric treatment facilities to new treatments for preventing mental disorders in childhood.

Racial disparities are another social force associated with learning disabilities and special education, with minority students disproportionately represented in this population overall (Anyon, 2009), except in the gifted class. In particular, the ADD/ADHD population includes a higher percentage of males, African Americans and

Hispanics, gifted students, and lower socio-economic individuals (Anyon, 2009; Carrier, 1983; CDC, 2012). The deficiency-influenced language used to describe ADD/ADHD in a majority of research, papers on the condition, and within the special education community (Trent et al., 1998) suggests a derivative paradigm within the scientific community (Knouse et al, 2008; Mick, Faraone, Pencer, Zhang, & Biederman, 2008).

Estimates of ADD/ADHD prevalence among U.S. adults. The number of adults believed to have ADD/ADHD varies from a low of 0.5% of the population with childhood ADD/ADHD to a high of 65% (Asherson et al., 2010), depending on the research article or study (Faraone et al., 2000; Halmøy, Fasmer, Gillberg, & Haavik, 2009; Kessler et al., 2006, Timimi, 2004). Among college students, from 5% to 20% (Singh, 2008) are believed to have diagnosed or undiagnosed ADD/ADHD.

Some of the difficulties in addressing the needs of students with ADD/ADHD come from a reluctance to reveal the diagnosis due to being bullied and excluded in the past (Rosetti & Henderson, 2013; Takizawa, Maughan, & Arseneault, 2013). Consequently, this reticence to self-reveal may skew statistics on the number of higher education students with ADD/ADHD and how they fare (Bolt, Decker, Lloyd, & Morlock, 2011; Chew et al., 2009).

The growth of ADD/ADHD diagnoses. A rapid increase in diagnoses and prescriptions for ADD/ADHD medication are further indications that societal and political influences should be factored into any discussion of this condition (Mayes, Bagwell, & Erkulwater, 2010). Considered a special need (Brook & Boaz, 2005) and often called an indeterminate learning disability for its lack of specific physiological

factors (CDC, 2011), ADD/ADHD is covered to a certain extent by American anti-discrimination laws. However, the condition does not qualify for Social Security benefits as a mental/intellectual disorder disability unless it results in major impairments in all three areas: marked inattention, marked hyperactivity, and marked impulsiveness (Social Security Administration, 2015). Additionally, even though the Social Security Administration (SSA) clearly delineates ADHD criteria for children, the agency does not define the condition for adults.

Two laws cover accommodations in schools and workplaces that receive federal funding: Section 504 of the Rehabilitation Act and the Individuals With Disabilities Education Act (IDEA) (Frontline, 2014). A third law, the Americans With Disabilities Act, covers all workplaces, including schools and private businesses that have 15 or more employees (U.S. Department of Justice, July 2009). Yet schools and employers under Section 504 or IDEA are only required to accommodate disabilities that severely limit a student's ability to participate in one or more major life activities. Therefore, students and workers must provide medical documentation that proves they need accommodations, with the understanding that the disability might prevent that person from succeeding at school or work based on perceived higher costs (Birnbaum et al., 2005; Robbins & Goodman, 2012; U.S. Department of Justice, July 2009).

Non-pharmacological answers to educational needs. In 2008, Virta et al. expressed the “growing need...for effective non-pharmacological treatments of adult ADHD” (p. 218). The authors suggested group rehabilitation, and noted that 20% to 50%

of adults do not respond to medication, which often serves as the first line of treatment (Virta et al., 2008, p. 219).

Research on ADD/ADHD Among Adults

To place this topic into perspective within our modern society, the expectations of our educational, political, and societal training from birth involve work and social skills (Adams, 2008). Consequently, to compete in an increasingly technical world requires social and behavioral expertise, and an intelligence defined largely by the society and, increasingly, by medical definitions of mental and physical health (Adams, 2008; Conrad, 2010). For example, Adams (2008) contended that judging and shaping behavior in schools is a complicated mix of the political, social, and the need to build behaviors that result in an ability to perform well on tests and assessments (p. 1464, abstract).

These behavioral norms are codified in an insistence on testing for intelligence (Antshel et al., 2010), standardization of developmental and cognitive milestones (Dyck & Piek, 2014; Happé & Frith, 2014), and in an emphasis on a socialized ideal of perfect emotion and interaction (Friedman et al., 2003; Boyle et al., 2011; Conrad, 2010; Corson & O'Leary Corson, 1991; Eisenberg & Campbell, 2011). A 2013 qualitative research project by Matheson et al., illustrates the consequences of measuring human intellectual and affective attributes. The researchers found that an ADD/ADHD diagnosis resulted in five core frustrations, which included not being able to access services in school, work, or through family physicians due to skepticism and negative attitudes about the condition and the need for assistance. However, the researchers' assumptions about ADD/ADHD illustrate the biases in the research community, in that they described it as a

neurodevelopmental disorder that is underdiagnosed in adults and often results in “significant impairments across multiple domains of adult life” (p. 2 of 13).

The ADD/ADHD diagnosis often leads to less access to school services, rather than more for those considered learning disabled and ADD/ADHD (Baird, 2010; Graham, 2006, p. 2). Additionally, Graham (2006) found in a previous study that behavioral and educational difficulties, when combined, are not addressed in the same way as other recognized conditions, such as dyslexia.

Critical theorists on creating stigma. Critical theorists contend that labeling certain traits and cognitive developmental differences as symptoms of a neurologic disorder can stigmatize and isolate individuals (Adams, 2008; Young, 2007). For example, children and adults with schizophrenia or bipolar disorder, or conditions like ADD/ADHD, often face the greatest non-acceptance from peers and teachers (Moses, 2010; Paulson, Buermeier, & Nelson-Gray, 2005). Even a “limited display of ADHD behavior in young adults elicits hostile mood and strong interpersonal rejection responses” (p. 132), Paulson et al. found in a 2005 study.

Meltzer, Roditi, Houser Jr., & Perlman (1998), indicated that defining learning differences as disabilities or deficiencies can further alienate these groups from the general population. The Meltzer et al. study and others also provide insight into the effect that these beliefs have on students, jobseekers, and employees with diagnosed ADD/ADHD (Carrier, 1983). That effect includes skepticism from instructors and fellow students about the need individuals with unseen conditions have for accommodations and special services (Brueggemann, Feldmeier White, Dunn, & Heifferon, 2001).

Accommodations and interventions. For adult learners with ADD/ADHD, a majority of the research literature that addresses post-secondary students and possible interventions involve time management and other organizational aids considered life skills (West Virginia Department of Education, 2013). Students also face spotty accommodations that vary from department to department, make it difficult to fit into the school culture at times, and are predicated on a professor's understanding of special services or technological aids (Denhart, 2008; Gadbois & Sturgeon, 2011).

Coleman and Gilliam (1983) found that fewer than half of the students eligible for accommodations attempted to access them. More than 20 years later, the stigma toward ADHD accommodations seemed to have increased, with Denhart (2008) reporting that students with learning disabilities believed faculty misunderstood their challenges and that seeking accommodations would trigger the stigma. The participants also believed they had to work longer hours compared to their peers (p. 483).

Peer and teacher attitudes toward ADD/ADHD. Generally low ability was the main meta-stereotype reported by undergraduates with and without learning disabilities (LD) in a 2010 (May & Stone, abstract) study that explored the stereotypes associated with LDs, including ADD/ADHD. Based on the public stereotypes of ADD/ADHD behaviors as in the student's control, many students with ADD/ADHD feared to seek help (Anderson, Watt, Noble, & Shanley, 2012; Chew et al., 2009; Fabiano et al., 2013).

Several studies that assessed the attitudes of teachers toward students with ADD/ADHD or traits associated with ADHD, point to a conscious or unconscious bias toward the well-known behaviors (Anderson et al., 2012; Brook, Watenberg, & Geva,

1999; Coleman & Gilliam, 2001; Cook, Rumrill, & Tankersley, 2009; Fabiano et al., 2013). However, this bias is complicated by the social factors that Anyon (2009) and others have cited. The factors with the greatest negative effects in terms of teacher attitudes and interactions include, in order of magnitude: race, gender, socioeconomic status, physical attractiveness, and achievement (Coleman & Gilliam, 1983, p. 121).

Furthermore, Coleman and Gilliam (1983) suggested that students can translate low or negative teacher expectations into a negative self-concept (p. 122). One effect of negative beliefs on students was illustrated in a 2009 article by Chew et al. (2009). College students with ADD/ADHD found others like them more friendly and accepting, yet all participants shared a negative view of ADHD characteristics (Chew et al., 2009).

Where teachers are concerned, up to 83% of 46 high school teachers asked about ADHD and learning disabilities would have reduced the workloads of students with ADD/ADHD in their classes, with 43% stating that students with ADD/ADHD should be placed in special schools (Brook, Watemberg, & Geva, 2000, p. 250). In addition, approximately 16% of the teachers stated that they believed ADD/ADHD resulted from parents spoiling their children. These findings are similar to the results of a study by Robbins & Goodman (2012), which contended that interventions for students with ADD/ADHD have led to “dissension amongst faculty regarding educational methodology, mistrust and frustration between students, professors, and administration...”, in U.S. law schools (p. 44).

Hence, the effects of childhood ADD/ADHD are judged on vocational success in test-taking initially, and then by lifetime earnings related to a high school diploma versus

a GED or certificate equivalent and continued schooling (Heckman & LaFontaine, 2010). Subsequently, achievement is measured against benchmarks of normality related to the costs to business (Fletcher, 2013, p. 1), marriage and divorce rates, and lifetime earnings. For example, Fletcher (2013) estimates the marketplace costs as averaging 33% in earnings lost, a 10% to 14% loss in employment opportunities, and an increase in requests for social assistance of 15 points.

Workplace Issues and ADD/ADHD. As the previous section indicates, this public and institutionalized persona of the typical individual with ADD/ADHD can also have implications in the workplace. For example, the U.S. Armed Forces rejects recruits who have ADD/ADHD and took stimulant medicines after age 14 (Department of Defense, 2011). Even a student with a 4.0 grade point average at a college cannot be considered for entry into one of the military services if she or he took advantage of accommodations for ADD/ADHD (Department of Defense, 2011).

Economically, the military might appear justified in its discrimination due to the estimated costs of ADD/ADHD. For instance, Kessler et al. (2009) suggested that the treatment needed for currently unidentified workers with ADD/ADHD could be at least \$19.5 billion, paired with an estimated 120 million lost workdays. This type of conjecture illustrates that society as a whole quantifies achievement measures throughout a person's lifetime (Cohen, 1982; Rose, 1991; Sideridis, Morgan, Botsas, Padeliadu, & Fuchs, 2006). Consequently, a collectivist dogma provides the tools to weigh the worth of individuals with ADD/ADHD against societal achievement measures (Heckman & LaFontaine, 2010, Kessler, Lane, Stang, & Van Brunt, 2009) in terms of educational

success, lifetime pay, perfect health, independent living, and workplace acceptance and advancement (Canu et al., 2008).

Societal influences on learning. Horton, as a critical theorist who created and oversaw the Highlander Folk School, is another philosopher who stresses the influence of education as a social mediator (Hale, 2007). He emphasized the need to analyze an individual's role within the community and the larger political and social structures (Horton, 1981). Horton and the school helped adult students in the South face reality by talking through authentic experiences rather than working from an instructor's beliefs about how learning should progress (Horton, 1981).

“Our loyalty is to people, not institutions, structures. And we try to translate that belief and trust in people's ability to learn into facilitating peoples' learning. Now you don't teach people things, since they're adults; you help them learn” (Horton, 1981, PBS interview).

Horton's contention that adult education should emphasize learning, rather than teaching, highlights a difficulty in asking for accommodations. For example, adults with ADD/ADHD are seen as needing guidance throughout their lives (Huntley & Young, 2014; Mongia & Hechtman, 2012), which requires teaching organizational and social skills in school, counseling, and through workplace training (Klein et al., 2012). Yet college students with ADD/ADHD are expected to understand their needs well enough to request specific accommodations, along with negotiating the use of learning aids (NAMI.org, 2014).

To illustrate the process that individuals with either or both medical and physical disabilities face in higher education, the National Alliance on Mental Illness (NAMI) provides a step-by-step process (Table 2) that must be completed each semester (2014). Processes such as these indicate why adult students with ADD/ADHD must understand their own educational skills and needs in order to advocate for themselves when they attend a university or college, or in a workplace.

Table 2

Typical Process to Request Accommodations (NAMI.org, 2014)

NAMI (2014) Process to Request Accommodations in Higher Education

Know the Accommodations Needed	Requires students to understand their learning needs
Register with the Disability Center	Students fill out paperwork and disclose the disability
Provide Documentation	Must provide proof of ADD/ADHD and any prior accommodations
Wait for Approvals	Schools determine appropriate accommodations
Repeat Each Semester	Start the process over again

Note: Rules on accommodations reflect current attitudes and bias toward accommodations and the need for adaptive measures.

Moving toward a learner-centered model. To get beyond these assumptions of normality where adult learners are concerned and move toward a more natural and unscripted way to view learning, could require a learner-centered (MacKeracher, 2004) approach. MacKeracher (2004) contended that a teacher-centered focus depends on the

knowledge and skills, or content, that must be learned; strengthening cognitive strategies and skills through training; modifying learner behaviors; and how the teacher or a facilitator enhances or detracts from learning (p. 21).

“In these approaches, learners would be perceived and assessed in terms of their competency to learn the content, how well they use cognitive strategies, whether they demonstrate appropriate behaviours...”

(MacKeracher, 2004, p. 21, p. 4).

Embodiment: Learning from the environment. On the other hand, the learner-centered view of life as an adult involves making sense of our experiences through all of our senses (MacKeracher, 2004). This need to incorporate the environment and its effect on our bodies into learning is described as embodying experiences, which Gallagher wrote about as ill-defined in the confusion between a body image and the body schema (2005, p. 24). He described the body schema as being derived from a non-observational access to and perception of the body, which allows us to talk and walk while avoiding obstacles. This awareness of space depends on the body’s conscious and unconscious experience of the environment (Gallagher, 2005, p. 59).

Intelligence, creativity, and divergent thinking. The attributes of the intelligence quotient (IQ) or factor, creativity, and the ability to critically think are mostly ignored in studies of children and adults with ADD/ADHD. However, when those attributes are covered in the research, the intent is to establish IQ levels believed to be too low for participation or theorize the effects of a higher IQ on behavioral and emotional efficacies (Antshel et al., 2010; Montes et al., 2007; Torralva et al., 2013). For instance,

instead of acknowledging the strengths among what Torralva et al. termed high-functioning adult participants with ADHD, the researchers chose to further segregate this population from controls by categorizing individuals in the ADHD group as high- or low-functioning.

Yet studies on measuring intelligence indicate that this attribute is a variable that can be approved upon (Moore, 1986; McGrew & Evans, 2004) and that assessments can be culturally or racially biased (Moore, 1986; Daley, Whaley, Sigman, Espinosa, & Neumann, 2003). The most highly debated aspect of intelligence, however, is whether it is possible to accurately measure intelligence, with statisticians McGrew and Evans (2004) attempting to debunk the tie between IQ and achievement by pointing out that “For any given IQ test score, half of the students will obtain achievement scores at or below their IQ score” (p. 6). This statistical anomaly results in the other half scoring at or above their achievement scores. However, the main question from McGrew and Evans concerned whether low expectations for students with cognitive disabilities encouraged or discouraged these students from reaching the grade-level achievement standards that states have established (2010).

Other researchers have found that IQ scores have improved globally based on culturally reduced tests, like the Raven’s Progressive Matrices (Daley et al., 2003). Daley et al. (2003) called the gain in IQ over time the Flynn effect and credit better nutrition and health for some of the increase.

The Gifted in ADD/ADHD. Several scholars have raised concerns about how the characteristics of being gifted, with an IQ of 130 or higher, coincide with the well-known

ones associated with ADD/ADHD, including blurting out answers or talking over someone (Cramond, 1995; Edwards, 2011; Winner, 2000). Creativity, in particular, is often tied to inattention, high or low energy, an intense and single-minded focus, flitting from interest to interest in pursuing new ideas and inventions, and a predilection for taking risks (Cramond, 1995).

In a study that looked at highly creative people, Csikszentmihalyi (1996) found that social isolation as teenagers and support from family helped 91 participants succeed as adults (p.p. 175-176). By avoiding the peer and normative pressures that most people face early in life, creative individuals could explore their interests and set a foundation as artists, writers, academics, scientists, or mathematicians (p. 176). Even though the professor does not mention ADD/ADHD directly, the individuals he describes could be labeled as antisocial based on the criteria in a majority of current research.

Adult learning theories on autonomy and growth. Adult learning theories relate the need for individual growth and success, despite of or as the result of the language of ADD/ADHD. For example, Knowles (1996) emphasized the need for self-reliance and Lindeman (1926) advocated for the generative learning abilities of adults outside formal education. Lindeman, as the grandfather of adult self-advocacy, began his initial education at age 9 building ships and participating in strikes (1926). That hands-on start to life and learning led him to argue that attempts to understand organic learning experiences in the context of formal education and scientific inquiry discourages the lifelong pursuit of knowledge:

“We have become habitualized to a method of achievement that is in essence antithetical to intelligence. We measure results quantitatively”

(Lindeman, 1926, pp. xviii-xix)

Maslow’s model of self-actualization (Koltko-Rivera, 2006) also complements critical theories on how society and politics shape the individual. In turn, arguments against Maslow’s hierarchy of needs model involve the lack of emphasis he places on social connections and mental health (Denning, 2012; Rutledge, 2011). Yet Maslow’s hierarchy appears to address the environmental and societal factors that affect survival. For example, his original hierarchy indicates how difficult it can be to live and learn as a person who does not fit within a societal norm and the safety that represents (Koltko-Rivera, 2006). Instructors’ attitudes toward adults with ADD/ADHD belie the need for a learner to feel safe, secure, and accepted, which are the basic foundations for growth (Knowles, 1996; Rogers, 1959).

Along these same lines, Csikszentmihaly provides practical applications of flow as a singularly individual endeavor that often requires leaving society to focus on creative inner work (1996, pp. 358-359). He (1996) suggested that creativity and flow are based on individual competency and complexity. Furthermore, his flow theory and its emphasis on introspection complements other theories such as Horton’s authentic learning; Knowles, Lindeman, and Tough where life-long learning is concerned; and appreciative-based questions and action research that emphasize participants creating a new reality through a process that looks at what is successful (Boyd & Bright, 2007; Knowles, 1996; Lindeman, 1926; Horton, 1981; Stowell, 2012; Tough, 1967).

Inclusion and ways of knowing. Inclusiveness involves building, not judging, competence through encouraging adult learners to engage in knowledge growth that honors different ways of knowing (Grayshield, 2010; Merriam, 2014). While education as a field cannot ignore the psychological and sociological restrictions that underpin much of the current thinking, inclusivity invites outside groups to incorporate learning that involves nature and biology. For instance, Grayshield (2010) points to the need her people, the Washo, have to include their connection with the earth in college lessons.

Australian authors Arnold et al. (2010) note how cognitive diversity, ergo diverse or divergent ways of thinking, can lead to workplace discrimination for individuals with ADD/ADHD (pp. 361-362). The authors advocate for considering the strengths of students and employees with ADHD, which they cite as high levels of creativity, divergent insights, inquisitiveness, and a high tolerance for uncertainty and ambiguity (p. 370).

In presenting this argument, Arnold et al. cited a 2008 study on biodiversity and genotypes among African nomadic and recently settled Ariaal men that posited that ADHD characteristics were valid and genetically-programmed hunter instincts (Eisenberg, Campbell, Gray, & Sorenson, 2008). In a follow-up article to this study and its ties to ADHD, Eisenberg & Campbell (2011) proposed one possible reason why the prevalence of ADHD appears to decrease in the adult population: Adults have more freedom to choose careers that complement the strengths that nomadic tribes had in adapting to new lands and new social customs.

Self-learning through projects. Through early mixed-method studies like Tough's, adults were seen as bringing experience into learning venues. For instance, without differentiating between normal and disabled adult learners, Tough (1971) found that the desire to learn was universal and any attempts to narrow down motivations into finite categories cannot cover the estimated one to 2,000 projects taken on each year by the average adult.

“Even understanding why one particular adult begins one particular learning project is an enormous task” (Tough, 1967, Ch. 5, p. 45).

In a more recent (2008) study on how educational practices can aid or detract from a college student developing into a lifelong learner, Mayhew, Wolniak, & Pascarella found that “negative diverse peer interactions” (p. 337, abstract) were the most stifling factor. However, the best educational practices included encouraging reflection and active-learning (Mayhew et al., 2008, p. 337, abstract).

Related to the Mayhew et al. (2008) finding that a less diverse student body discouraged students from thinking of themselves as self-learners, Brookfield observed that adult students face both economic and social factors that influence whether they pursue education (1986). He emphasized that the effective role of a facilitator was “characterized by a respect for participants’ uniqueness, self-worth, and separateness (1986, p. 13).” Both Brookfield and Quinnan (1997) address adult learners considered at-risk or believed lost to lifelong learning based on their pre-secondary educational experiences, with references to Freire (1993) and his work in education.

Brookfield stresses Freire’s praxis as the central core of adult learning and the relationship between instructor and student. Within that relationship, there is a give and take that involves exploring, acting, and reflecting (1986, p. 15). His contention is that this type of learning takes shape through new ideas blended with skills and a growing body of knowledge.

This type of relationship applies to adults with ADD/ADHD as capable of offering a unique perspective. Brookfield’s view also lends itself to creating programs that take into account the different ways that adults may physically and conceptually

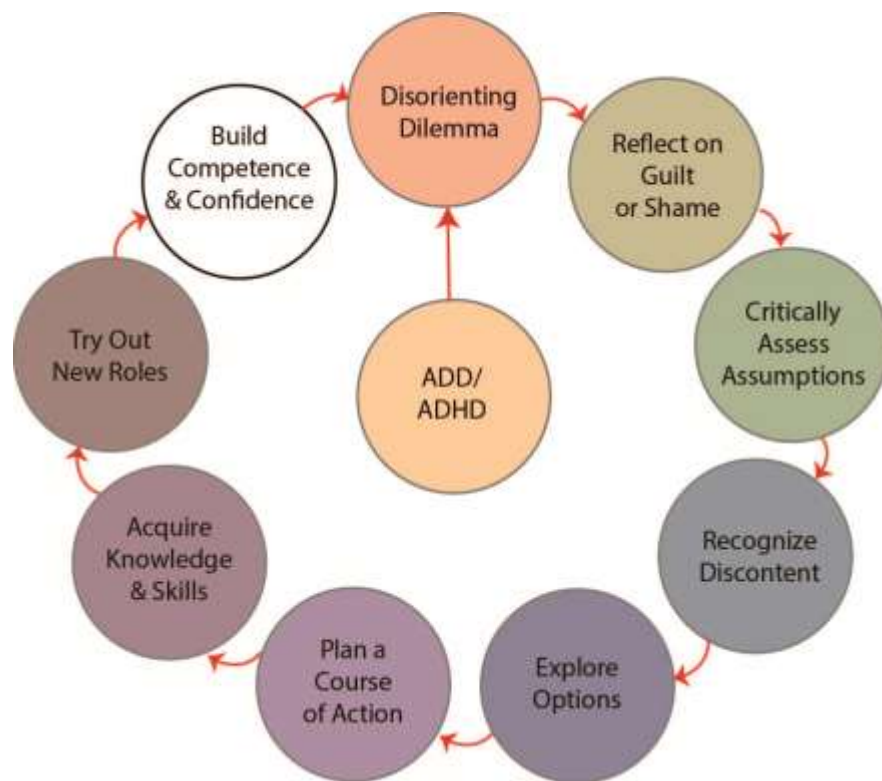


Figure 1. Nine of 10 phases in Mezirow’s transformative learning theory. (Adapted from Kitchenham, 2008, p. 105.)

approach learning. In particular, Brookfield stresses best practices for teaching adults, which include building self-empowerment by challenging “behavior, values, and beliefs accepted uncritically by a majority” (1986).

Transformational learning and building knowledge. For adults with ADD/ADHD, moving from a world with individual education plans (IEPs) and into the work world or post-graduate education might trigger transformational learning (Mezirow, 2000, p. 22). As individuals homogenously judged as impaired, it might be necessary to critically think through their experiences outside the social and educational norms related to familial and institutional oversight. Figure 1 shows nine out of 10 phases that Mezirow developed in asking adult women planning to start or re-enter college about their experiences in starting over (Mezirow, 1997). The phases that seem to describe what many post-secondary adult learners habituated to a more prescribed educational life could experience cover: “a disorienting dilemma, critical assessment, recognition, planning a course of action, acquiring knowledge and skills, and building competence.” Mezirow (2000) and Rogers (1959) differentiated between the guided education that individuals seek and institutions deliver and the type of learning that transforms an individual (2000).

The precursors to Mezirow’s theory on how learning can transform an individual’s world perspective involve Dewey’s use of the term “reflective learning” in 1933 (Castelli, 2011); the three-step paradigm shift first suggested by Kuhn in a 1970 paper on scientific revolutions; Freire’s “conscientization;” and Habermas’ domains of learning (Kitchenham, 2008). In fact, Freire (1993) writes about the ability of humans to

transform, create, produce, and communicate reality by being with the world, as opposed to animals with their singular reality of being in the world.

Studies on learning strengths and adaptations. Many studies on learning strengths related to students with ADD/ADHD measure success based on assumptions about the condition (Felder & Brent, 2005; Prevatt, Reaser, Procto, & Petscher, 2007). For instance, Felder and Brent (2005) discussed the differing levels of motivation, attitudes toward teaching and learning, and responses to classroom environments of students with ADHD in engineering programs, along with instructional practices needed to keep the students engaged.

In line with many of the suggestions for accommodations that involve the new plugged-in generations, current studies on the best practices related to adult education concentrate on electronic delivery and efforts to build learning communities (Graves, Asunda, Plant, & Goad, 2011; Izzo, 2012). For instance, Graves et al. (2011) contended that tablet technology and courses designed with universal features helped students with dysgraphia, dyscalculia, dyslexia, and ADHD learn more effectively in math and science.

However, as a few of the participants noted and research appears to back, electronics outside a laptop or desktop computer to complete school work or connect with others, can be a distraction more than an assistance (Lin, Chen, Lu, & Lin, 2008; Rosen et al., 2013). For example, Lin et al. (2008), found that visual display terminals and the type of work that is performed can increase user fatigue, and Rosen et al. (2013) discovered that individuals who were most active on Facebook also had the lowest grade

point averages. In this study, one participant addressed the effects of multitasking on completing a task or assignment:

“For me, I know that when I try to multitask, i.e., listen to music and do homework or read, I will often misread or miss altogether parts of the assignment, instructions, or anything important to my comprehension or completion of the task/assignment” (Q1, Anderson, 2016).

Factors that assist attention and focus. In looking at the multiple sensorial and educational factors that may interfere or enhance learning for adults with ADD/ADHD, researchers have found several that show promise (See Table 3). Göran, Söderlund, Sikström, Loftesnes, & Sonuga-Barke (2010) posited that white (stochastic resonance) noise helped children with ADD/ADHD concentrate and retain information more effectively, even though the noise distracted the controls. In an older study (2001), Taylor, Kuo, & Sullivan (2001) found that allowing children with ADD/ADHD to play outside in unfenced green spaces provided a natural remedy for their restlessness and lack of focus. Going outside or working outdoors also helped a portion of adults with ADD/ADHD focus more on a project or job, according to a more recent study (Eisenberg, Campbell, Gray, & Sorenson, 2008).

Adult learning theories and projects

The first research forays into adult learning capabilities involved timed tests that favored the young (Merriam, 2001) and set the stage for misunderstandings that persist about intelligence and its viability as adults age. Brookfield (1985, 1986) points out the

difficulties in addressing what Merriam (2001) calls the two most pertinent relevant theories that grew from that beginning: andragogy and self-directed learning (p. 4). Brookfield also insists – in a paper critical of self-directed learning as it relates to informal adult education or formal training without an educated instructor – that successful self-learners “...place their learning within a social setting (p. 9),” which provides what the professor calls “the crucial conditions for successful learning.”

Table 3

Learning as a Sensorial and Environmental (World Around Us) Experience

Authors	Study Focus	Physical Result	Adult/Child
Abikoff, Courtney, Szeibel, & Koplewicz (1996)	Music’s effect on learning math	Math as first condition improved work	Children with ADHD
Rosen, Carrier, & Cheever (2013)	Multi-tasking	Study strategies/more on task	Adults (Not specific)
Göran et al.	White noise effect on memory	Inattentive children’s memory improved	Children (Controls/ADHD)
Tymms & Merrell (2011)	Blurting out answers	Indicates engagement	Children with ADHD

Note: These studies represent only a fraction of the research that is looking into environmental influences on learning.

The approach Tough (1971) designed to study adult learners as self-teachers through projects acknowledged the universal ambition to increase contextual knowledge.

He also emphasized the benefits all individuals accrue from designing and following through on a project outside of formal education (1971).

“The individual, too, can consider what sort of person he wants to become, and what goals he wants to achieve before making a choice between various alternatives” (Tough, 1971, Ch. 5, p. 46).

Although the focus of the study for this thesis and Tough’s design is similar, his goal was to increase the generalizability of the results through a more proscribed approach. For example, Tough used a predetermined list of tasks derived from teaching methods and self-teaching habits (p. 26) going into the interviews, had a team conduct interviews, and required participants to be college graduates. Table 4 provides an idea of how the data in this study were analyzed, by looking at the 12 tasks that Tough created for his research (1968), along with the reasons Tough (1967) found adult learners gave for undertaking a project.

Finally, MacKeracher (2004) and Merriam & Bierema (2015) emphasize the rise in the past decade of studies into nonrational learning that includes embodiment, or the body as more than an inert and bothersome or maladaptive part of learning, and the spirit, which sees learners as gaining knowledge from looking outward (Rogers, 1959). Grayshield’s article (2010) on the need to access other ways of knowing, particularly for her people, is one example of these concepts.

Adult learning theories and qualitative research. To frame the self-determinative factor considered a foundation of adult learning, along with growing beyond basic survival needs, this research took into account Maslow’s model of self-

actualization and -transcendence (Koltko-Rivera, 2006) and Csikszentmihaly's (1996) theory related to reaching flow, or an intense focus, through creativity, discovery, and innovation. It also touches on Mezirow's theory on transformational learning as a generative asset in understanding how learning can critically alter self-perception (Mezirow, 2002 & 2004). As theoretical constructs that involve personal traits, these philosophies helped in analyzing the results of a study with adults that assessed their learning strengths and successes. In fact, all these theorists, in one form or another, acknowledge the adult learner's need to relate learning to personal experience and interests.

Table 4

Allen Tough Task-oriented Study on Projects

Project Tasks	Reasons for Taking on a Project
Choose a suitable place	To use the knowledge or skill
Create a budget	For pleasure & self-esteem in possessing the knowledge or skill
Set a goal	To earn a certificate or degree
Plan how to achieve the goal	As an activity that led to an immediate benefit
Determine needed resources	Satisfy curiosity, puzzlements, or a question
Face doubts about goal	To enjoy content
Deal with not liking aspects of the project	To enjoy practicing a skill
Acknowledge doubts about success	Learning as a joy in itself
Estimate skill and knowledge levels needed	Feels a success – feels good because seems quick and easy

Accept lack of know-how or skill

To complete unfinished learning

Decide whether to continue after reaching the goal

Aspects like social connection or companionship

Note: Adapted from Tough (1971), “Why People Learn,” p.p. 45-61 and the seminal study that Tough conducted in 1967.

However, although the intent of this research was to encourage participants to invest in the subject and study as action research, the online nature of both the questionnaire and focus group fit more a generic form of qualitative research. In these terms, the study used appreciative-based questions to help adults with ADD/ADHD identify skills and environmental preferences, which include surroundings and tools, that were associated with a project they thought was a personal success (Shuayb, Sharp, Judkins, & Hetherington, 2009). In a 2009 research report, Shuayb et al. contended that although AI often is used to evaluate training and workplace relationships, its main strength involves “a sense of ownership (p. 1, key findings)” for participants.

Appreciative inquiry has been applied in research that set precedence for using a form of this type of research to study the educational strengths and success of adults with ADD/ADHD (Boyd & Bright, 2007; Duncan & Ridley-Duff, 2014; San Martin & Calabrese, 2011). For example, after a three-year AI research project involving Pakistani women, Duncan and Ridley-Duff (2014) concluded that the methodology allowed the participants a freedom to speak and encouragement to think critically in a manner that gave credence to Mezirow’s transformative learning process. In addition, San Martin and Calabrese (2011) applied the first two stages of AI, discovery and dream, to research how

at-risk high school students would describe a better learning environment (p. 110, abstract).

Empirical nativism and ongoing effects. In terms of the overarching theories and models that address this issue as they pertain to adult learning, one way to describe the effects are to put them in the perspective of empirical nativism. It could be argued that studies indicating improvements in comprehension for children with ADD/ADHD when using highlighted text (Kercood, Zentail, Vinh, & Tom-Wright, 2012), handwriting and its benefit in greater cognitive abilities (James & Engelhardt, 2012; Planton, Jucia, Roux, & Demonet, 2013), green spaces and attention (Taylor, Kuo, & Sullivan, 2011), and stochastic resonance and the ability to concentrate better (Goran et al., 2012), connote a vital link between physical and mental processes.

In addition, whether we are ruled by our environment or adapt through physical and educational means also relates to the difference between situated cognition as espoused by Tolman and Vygotsky and a transcendent theory of human adaptation proposed by Bereiter and others in the learning sciences (1997). Bereiter contended that situated cognition applies to the rat models used by Tolman, but argued that human intellect and cognitive abilities are designed to ascend from the mundane to the esoteric (1997). Hence, instead of depending on our environment or others to learn, humans evolve by building the expertise to change their environments and adjust to the social structures they encounter (Bereiter, 1997).

Summary

It is difficult to isolate how an adult learns if the portrait of that person as a learner is created by a society and educational system that insists that a group norm must define all individuals (Sissel et al., 2001). After more than 80 years of research into how adults learn, it is also disturbing that groups outside adult education can go against the wisdom accrued in the past and present and perpetuate biases (Arnold et al., 2010; Harwood, et al., 2010). Mezirow (1997) called his transformational theory emancipatory (1981) because this type of learning urges us to interpret our lives independently of the “purposes, beliefs, judgments, and feelings of others (p. 5),” which this group of adult learners must do when taking a course or finding employment.

Articles on accommodations for adults with ADD/ADHD suggest physical and electronic organizers, tablets used to take notes or human note takers, along with other school-based resources that are seldom based on an individual’s needs (Felder & Brent, 2005; Graves et al., 2011; Izzo, 2012). In addition, employees with ADD/ADHD may find that revealing this condition can short-circuit a career and seldom leads to work-arounds that help their productivity or reduce the bias (Arnold et al., 2010; Baird, 2010). Instead, researchers estimate costs, conjecture about accidents based on ADHD and inattention or impulsiveness, and generally make of these adults calculable human beings (Rose, 1990).

Therefore, in attempting to help adults with ADD/ADHD define what success means individually, it could require they first rebel against the societal definition of normality (Denhart, 2008; Marcuse in Brookfield, 2005, p. 54). However, this transition

from stereotype to unique learner requires understanding the full weight and effect of societal pressures to be normal that communities insist upon through proscribed timelines for development, progress, and set achievement timelines (Markham, 2005). Markham, in talking about her experiences as a special education teacher (2005), notes that a linear progression is expected of all students in the U.S. educational system.

“This idea of individual progress in a linear fashion is embedded within the root metaphor of intelligence that has been transmitted through the culture in which I have been raised and the education that I have received” (Markham, 2005, p. 4).

In Chapter Three: Methods, a qualitative approach was used to assess the non-linear fashion that adults with ADD/ADHD might employ when undertaking a project. It was designed as a way to explore strategies and tools used by the participants, rather than the strengths and weaknesses caused by inattention or hyperactivity usually given as a rationale for larger research studies that include the ADD/ADHD population (Breslau, Lane, Sampson, & Kessler, 2008; Leibson, Katusic, Barbaresi, Ransom, & O'Brien, 2001; Loe & Feldman, 2007; Torrente et al., 2014; Wehmeier, Schacht, & Barkley, 2010; Xiang, Stallones, Chen, Hostetler, & Kelleher, 2005).

The main variables that have received attention involve whether ADD/ADHD symptoms correlate with impairments (Mannuzza et al., 2011), if IQ aids or worsens quality of life (Antshel et al., 2010), and how likely adults with ADD/ADHD are to become drug addicts, divorced, or fail at work or in school. Additionally, even though the science that informs the fields of psychology, neurobiology, and medicine is founded

and continues to be practiced based on theories, a majority of studies that involve adults with ADD/ADHD cite behavioral and physical, brain-based, deficiencies as fact (Loe & Feldman, 2007; Leibson et al, 2001; Xiang, et al., 2005; Breslau et al, 2005; Wehmeier et al, 2010).

In answer to these concerns, many positive qualitative research approaches could be applied by asking adults with ADD/ADHD to partner with researchers as co-creators. By doing so, individuals within this group could be empowered to transform this language of deficiency into a more positive communication on how inattention and hyperactivity might feed, rather than detract, from learning and development. In turn, by acknowledging every adult's desire to learn and grow, adults with ADD/ADHD could advocate for and suggest accommodations at school and in the workplace that can improve on what they see as their learning needs. Hence, this exploratory study into the learning strategies of adults with ADD/ADHD could be a step toward empowering these adults to lead the conversation.

Chapter 3: Methods

This chapter outlines an exploratory qualitative research project, which encompassed the contexts of adult education, language, and learning to explore how adults with ADD/ADHD described their learning processes and environmental preferences on one project. The study offered two types of qualitative research platforms, an asynchronous online focus group and a questionnaire, which were created with appreciative questioning that asked participants to share what they had experienced in creating a project for school, work, or for personal satisfaction. The study concentrated on factors that affect knowledge growth and retention in a small sample of the adults with ADD/ADHD population.

To address what could be the unique needs and talents of the adult professional and student groups with ADD/ADHD, the student researcher sought to enlist participants as co-creators. In that spirit, this research approach was proposed as a way to frame everything from recruitment to coding and analysis (Creswell, Hanson, Clark Plano, & Morales, 2007, Soldana, 2007). An appreciative approach also spoke to a desire to investigate what is possible and positive using AI-based questioning to explore the genesis and completion of one project (Boyd & Bright, 2007).

Toward that end, the design took advantage of the known flexibility that a holistic qualitative approach to research online could offer as a relatively nonthreatening (Noffke & Somekh, 2009) framework for educational and organizational studies (Argyris, Putnam, & McLain Smith, 1985, Blichfeldt & Andersen, 2006). Current research into the effects of ADD/ADHD on adults indicates an entrenched bias against these individuals

from all aspects of society (Conrad, 2010; Edwards, 2009 & 2011), but also points to adaptive or inherent skills related to processing environmental, affective, and intellectual stimuli (Eisenberg & Campbell, 2011; Eisenberg et al., 2008; Göran et al., 2010; Graves et al., 2011). Therefore, an online focus group and questionnaire that involved only adults with ADD/ADHD appeared to be the best design to provide confidentiality and minimize any risk of distress.

The study is considered exploratory research to “examine relationships among important constructs in education and learning to establish logical connections that may form the basis for future interventions or strategies to improve educational outcomes” (National Science Foundation, 2013, August, p. 9). In that vein, the findings are intended to generate more research questions and explorations into the adaptive learning skills and strategies that adults use.

Research Methodology

The study included a questionnaire based on the AI structure used for the focus group, provided as Appendix E and F. All participants provided demographic information that covers when ADD/ADHD was diagnosed, their current age in a range, gender understanding, educational attainment, work or school description (not where they work or go to school), and ethnic or racial factors. However, to preserve confidentiality, participants in the focus group were given a pseudonym, which none used.

The cited strong points related to qualitative research, and AI methods, include a researcher’s ability to incorporate new findings during the research process, along with its collaborative and iterative nature (Maxwell, 2012). In addition, the flexibility that

qualitative methods offer includes the capacity to incorporate and triangulate the findings from the questionnaire and the online focus group. This triangulation was accomplished through using an online focus group of adults with ADD/ADHD and a questionnaire and demographic quantitative measurements that were analyzed initially by using a concept map (Blichfeldt & Andersen, 2006). The concept map associates the data with critical, transformational, and experiential learning theories.

Online focus groups. Focus groups have been widely investigated in qualitative research as a way to accomplish interviews in a more timely, but less expensive, manner. Curry, Nembhard, & Bradley (2009) stated that groups are effective in uncovering “factors that influence opinions or behavior (p. 1445).” However, Webb & Kevern (2001) contended that research using focus groups should apply more rigorous standards in planning, analyzing data, and interpreting the results.

The intent was to enlist 10 to 15 adults with ADD/ADHD, age 18 or older, into an online asynchronous focus group conducted on FocusGroupIt.com over five days. The electronically signed consent form was paired with the demographic questionnaire, which contained a link to the focus group site.

AI-based questionnaire. Cram (2010) describes AI as a “reconfiguration of action research (p. 1, abstract)” that developed from social constructivist theory. The question design for the focus group and questionnaire was adapted from an evaluation technique that Stowell (2012) contended attempts to diminish the researcher bias and allows participants to be “part of the enquiry rather than the objects of the enquiry (p. 29).” In addition, the focus group prompts were adapted from the longer questionnaire.

Risks and benefits for participants. Morse, Niehaus, Varnhagen, Austin, and McIntosh (2008) note that the current model for consent and institutional review boards (IRB) oversight is based on a medical and biological perspective of harm involving physical damage that has been adapted to include mental or emotional risks, including distress. In polling qualitative researchers, Morse et al. (2008) determined the following risks associated with this type of research, which include (p. 201):

- Low risk qualitative research involves no emotionally charged, sensitive, personal, controversial, or revealing disclosure.
- Medium risk is a bridge between a lack of any emotional triggers and topics that might make participants reveal personal details that could be intimate, secret, or offensive to others and make volunteers feel vulnerable.
- High risk research may cause long-lasting physical or psychological harm and is usually connected with coercion, bribes, or privacy breaches.

In terms of this study, the risks were low to medium based on participants' involvement in an ongoing questionnaire and an Internet-based focus group on learning projects that could possibly have involved distress in personal revelations. If, however, a situation had arisen in the focus group that required a referral or needed to be investigated, the principal investigator would have been informed of this issue and guidance offered that reflected best practices. In other words, if someone in the group had asked what resources are available on ADD/ADHD accommodations or training, the student researcher would have conferred with the PI or other experts. As to the privacy

or disclosure concerns, it was possible for discussions to be vetted prior to posting to ensure that no private information is revealed. However, participants had to be aware of this gatekeeping in order to build the trust necessary in qualitative research. The UNM IRB approved the use of online consent forms, which were set up on SurveyMonkey.com. (See Appendix C and Appendix D for the approved consent forms.)

Possible benefits. Kitzinger (1994) found that group participants “provide mutual support in expressing feelings which are common to their group but which they might consider deviant from mainstream culture.... (p. 111).” In conducting various types of groups, Kitzinger found that both the group’s composition and how this related to the interactions revealed “social pressures and the construction and the communication of knowledge.”

Gibbs (1997) proposed several benefits for focus group participants, which include:

- The ability to be involved in decision-making processes.
- The social cachet of being seen as an expert.

Experience of the student researcher. The experience of the student researcher as a writer and reporter was part of the reason that a focus group and questionnaire were chosen. Having covered sensitive issues before, and taken extensive notes from groups, meetings, and in other large venues, a group dynamic is well understood. Although new to qualitative research, the past two years offered many opportunities to study the qualitative and AI methodology and appreciate its holistic approach. That approach aided coursework during my master’s degree program in building and administering

questionnaires for an e-learning course on a visual way to learn fractions; was applied in designing an online course on stress reduction for teachers; and was used to design an evaluation for this study. Additional online coursework has covered questionnaire design, statistics and inference, and qualitative research methods, coding, and analysis.

The student researcher has extensive experience in interviewing individuals and groups as a journalist and medical writer. She also completed workshops at UNM on ethical considerations involving research, which included human subjects, along with maintaining and handling data. In addition, graduate courses have provided a scaffolding for this research through an evaluation course that included qualitative research and appreciative inquiry; an instructional design class that covered quantitative and qualitative survey methods for determining learning needs; and an e-learning course that included monitoring forum discussions and creating and administering online questionnaires.

Furthermore, as a student with a medical disability that prevents me from participating in face-to-face courses, I had taken and completed online courses in qualitative research methods, coding, and analysis. In terms of being aware of the potential sensitivity associated with discussing learning processes, my background also includes sensitivity training related to working with battered women and literacy tutoring for adult low-income women.

Reducing stigma and possible distress. The AI questioning method was chosen specifically to minimize bias on the part of the researcher and reduce any possible stress from further stigmatization. Onwuegbuzie, Dickinson, Leech, & Zoran (2009) contend

that focus groups are less threatening and offer an environment that includes social interaction and an opportunity to share solutions or observations, which could be seen as possible benefits. These approaches also are believed to encourage participants to think of themselves as active contributors rather than study subjects (Cram, 2010; Onwuegbuzie et al., 2009). Kitzinger (1994) contended that focus groups can help examine how "...knowledge, and, more importantly, ideas both develop, and operate within a given cultural context" (p. 116, para. 1, Conclusion). The study was intended to help guide educational materials and to form the foundation to assess adaptive strategies in learning, along with a desire to increase the understanding of ADD/ADHD in terms of the embodiment theory of learning (Merriam & Bierema, 2015).

Purposive sampling in recruiting. The sampling technique is purposive, with the ability to seek participants from a single population throughout the United States for both the focus group and the questionnaire. Therefore, recruitment efforts included posting to Facebook and LinkedIn, sending a series of emails on several listservs, and asking friends and families for leads. All emails and postings used the language approved by the UNM IRB for recruiting human subjects indicated in Appendix B. Although one national group was contacted in an effort to post the approved flyer from this study on its listserv, the organization did not respond to this request. Because online access allows for sampling beyond New Mexico, the posts on LinkedIn and Facebook were intended to recruit beyond New Mexico's borders. It is also understood that the study findings are not generalizable due to the exploratory nature of this study.

Study Design

The research questions used to code and analyze the data were:

1. How do adults with ADD/ADHD conceive, create, and execute learning projects at home, work, or school?
2. What environmental, practical, creative, or emotional factors contribute to affect the way participants discuss learning processes and adaptive capabilities?

To explore these questions, the AI-based questioning offered a way to focus on what worked for participants in planning, creating, and completing or continuing a project. The questions included in the survey and focus group were similar to maintain the integrity of the results across platforms. One understanding based on adult learning theories and models is that all adults seek the means to discover and apply skills that may be under-rated by prevailing social and educational norms (Young, 2007).

The online focus group offered more interaction for participants, which they did not respond to as they might have in a face-to-face group (Knibbs et al., 2010; Young, Bramham, Gray, & Rose, 2008). Needing to put both electronic consent forms on the questionnaire website led to confusion for participants, along with the focus group site being difficult to access and participate in, based on the number of participants who signed the consent and did not participate.

Data sources. The data sources included transcripts from the online focus group, the questionnaire, and the demographics. In addition, personal observations on participation, email reminders, and initial codes and observations were noted in a

research journal. Demographic information was collected anonymously through SurveyMonkey and focus group participants were given a pseudonym to use.

Data collection techniques. The data collection methods were chosen based on the nature of the research population and the anticipated results from the AI approach adapted from Stowell (2012), and further revised using qualitative interview methods. Onwuegbuzie et al. (2009) contend that transcripts from focus groups offer the most rigor where qualitative data are concerned; therefore, both the focus group discussions and questionnaires were downloaded in Excel and as pdfs. Survey Monkey housed the questionnaire and the online consent forms, with the focus group conducted on FocusGroupIt, with both platforms offering better security features, accessibility, and the ability to export data as Excel or csv files from both websites.

The variable data and outliers were accounted for in the coding and analysis, which added dimension to the findings. Based on this being an almost purely text-based study, and the participants not providing any graphics, photos, or recordings (as examples of projects), the data analyzed included the demographics, along with all partial and complete answers (Onwuegbuzie et al., 2009).

Credibility, transferability, dependability, and confirmability. In addressing the need for a rigorous study, this research was designed through a focus group and questionnaire to focus on the participants and ensure that they are heard and understood, which speaks to credibility. The methods applied in analyzing data and interpretation also add to the transferability, dependability, and confirmability of this research and the results.

Data analysis and interpretation. Responses were analyzed using qualitative coding and analysis of discussions and questionnaire results, which were downloaded as pdfs and Excel sheets. The answers and discussions were coded initially on hard copies, with the student researcher placing answers into a table in Word and separating categories under the first two research questions. A second round of coding further delineated the topics into main and related categories, still based on the questions from both the focus group and questionnaire. Notes, with definitions of the main codes, were

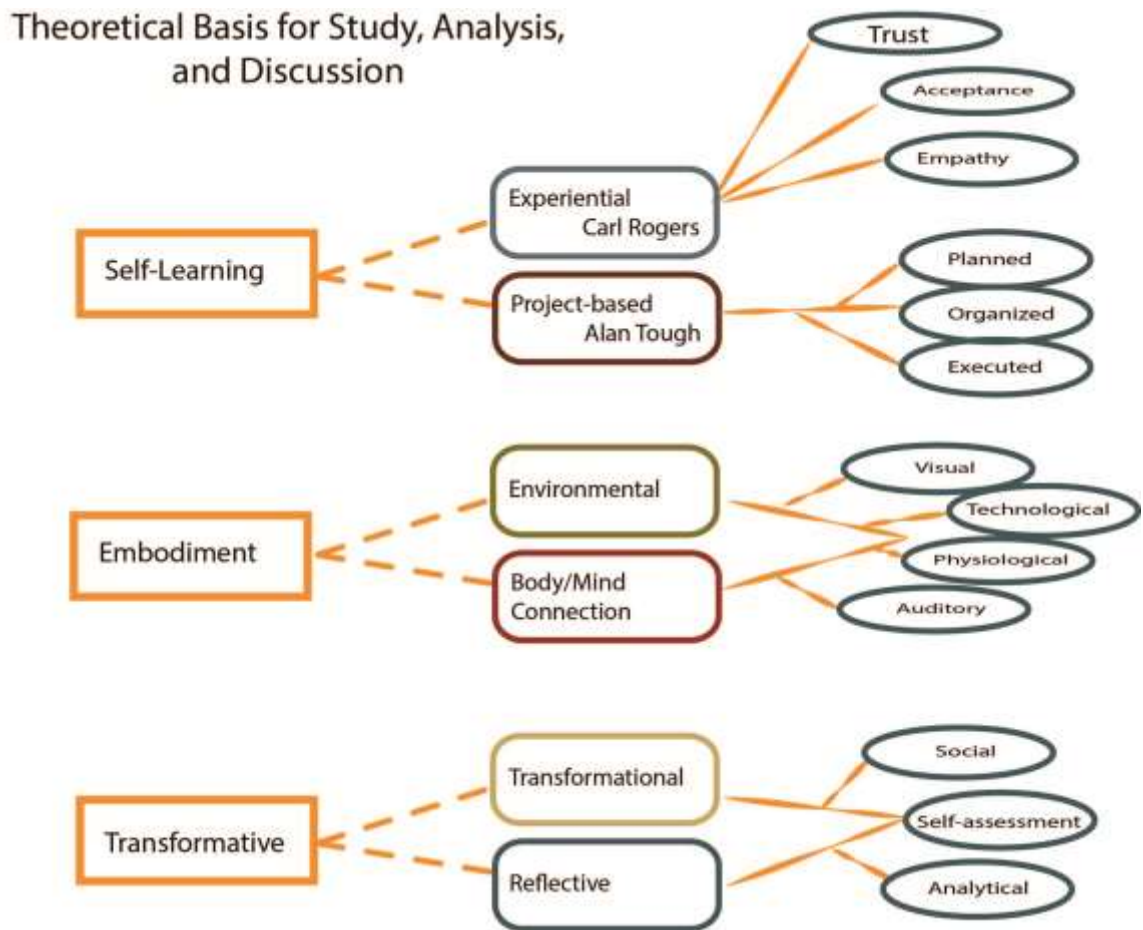


Figure 2. This diagram shows the basic theoretical structure and rationale applied to coding and analyzing the data from the questionnaire and focus group.

added to the Excel spreadsheet to serve as the codebook.

In addition, the data were stripped of any references that could lead to a participant being identified, were printed for analysis and backup, and stored at UNM and on another hard drive off campus and secured as indicated in the approved IRB proposal (see Appendix A). The data analysis proceeded using thematic and narrative coding to complement the AI approach and incorporate the questionnaire. This process involved taking the two research questions and separating the data to specifically address the project and the environmental factors involved. In addition, a code book was created to assist anyone who might want to replicate the research, or if questions arise about the genesis of a code or category.

Concurrently in analyzing the data, a concept map (Wheeldon & Faubert, 2009) was created to help assess categories or themes based on self-learning theories derived from Tough's seminal 1967 study on self-teaching and projects (See Figure 2). A narrative approach then was framed by employing the underlying principles in experiential learning as posited by Rogers (1959) and Mezirow's transformational learning theory (1997). Using Tough's categories to analyze the data put into perspective how the participants help shape the research (Schneider & McGrew, 2013, p. 170) and the other theoretical principles helped highlight and investigate their stories (Creswell et al., 2007).

Coding Process

As Hedlund (2013) noted, coding is a process of looking for similarities and differences in texts based on the frequency, sequence, the relation of one item to another,

and whether the data seems to cause any other factors (p. 3). In coding and analyzing the data from the study, the following factors guided the process (NSF, 1997), along with the theoretical and themed base framing the answers (Creswell et al., 2007). Berkowitz (1997) and Saldaña (2009) suggest in analyzing qualitative data that the researcher looks for the following:

- Patterns and repeating themes related to the study question or questions.
- Outliers that may help with the overall themes.
- The stories or narrative woven throughout the data.

For guidance, the coding took into account how Creswell et al. (2007) described a process through which the researcher interprets “lived experiences” (p. 253), with the transcendental method reducing the data to significant statements or quotes that ultimately lead to a synthesis of themes and text. Furthermore, Saldaña (2009) suggests pre-coding the data, a practice that was used for this study.

Saldaña (2009) also pointed out the need to understand the filters used in coding the data, which encompass the qualitative approach to the study and issues that influenced the design, such as how the questions are framed and the gender and age of participants. Because this is an exploratory study, the intent of coding was to take established theories in adult learning, which included adult learning theories in self-teaching and projects (Tough, 1967), adult autonomy (Knowles, 1996; Lindeman, 1926; Mezirow, 2000), and embodiment (Gallagher, 2005; Merriam & Bierema, 2014) and apply them to several levels of analysis. (See Table 5 for a sample of this process.)

Table 5

Factors Behind Starting, Creating, & Completing Projects

Project Stages	In Vivo/ Descriptive	Second/ Third Tier	Final/ Values Analysis	Notes/ Definitions
Conceived	<p>“Practical desire to change the world.” “Think or see in terms bigger than ourselves” “Final portfolio with three parts.” “It was interesting for the fact we got to choose to write about something we enjoyed.” “I was specifically motivated by the person I chose....” “Met with an attorney I selected.”</p>	<p>Practical desire In terms bigger than ourselves Complex portfolio Got to choose something enjoyed Motivated by person chose Initiated Advocated/engaged/ volunteered</p>	<p>Goal-based Long-term commitment Immediate reward Community service Paying back</p>	<p>Choice: Includes picking classes; electing to spend resources that included time on a project; and volunteering or advocating for a cause. Commitment: Engagement: Complexity Topic Interest Passion Intellectual stimulation Novel</p>
Created	<p>“The assignment required a lot of mental effort or stimulation that allowed us to be creative or expressive.” “I put a lot of thought into how I was going to do the video, as well as thinking about the layout of the three papers.”</p>	<p>Great mental effort Creative Expressive Organized Planned Outlined Partnered Engaged Frustrated Persistent</p>	<p>Planned Beautified Constructed Organized Synthesis Artistic Expressive Influential Analytical</p>	<p>Goal-based: Final projects Activist/ advocacy Volunteer/ community</p>

Completed	“Driven by ideas”			
	“Researched”			
	“Felt some of my best work”	Chose topic, action, or cause	Reflective	Practical: Action Assigned Teamwork Commitment
	“Since there was a hard deadline I had to meet, I finished the project.”	Analyzed and explained significance Motivated by freedom to choose and complexity	Persuasive Broad picture Visualize ideas and thoughts Persistence	Preparation: Outline Partnered Outreach
“Once all the problems were taken care of, the project was a huge success.”				

Note: Self-learning through projects represents the rational mind in this thesis, with embodiment learning theory acknowledging the body and environment, and transformational theory addressing the spirit and growth through reflection and self-awareness. The first round involved a read-through of the transcripts, followed by categorizing and coding based on the questions and prompts (See Appendix E and F). The quotes indicate participant word choices, but are not identified with pseudonyms or other identification that could lead to a participant being identified.

Therefore, in the second round of coding, the data were organized under the research questions and then further delineated by subcategories associated with the process of starting, working on, and completing a project (Tough, 1967). Subsequently, the items related to the environmental aspect of the study were separated and coded into categories based on the structure in Figure 2 and the categories shown in Table 8 in “Results.” Saldaña called this type of assessment “In Vivo” coding, which helps attune the researcher to “participant language, perspectives, and worldviews” (p. 48).

Tough (1971) defined learning projects as “major, highly deliberate” (p. 1) attempts to acquire knowledge or skills, with adults starting an average of eight a year.

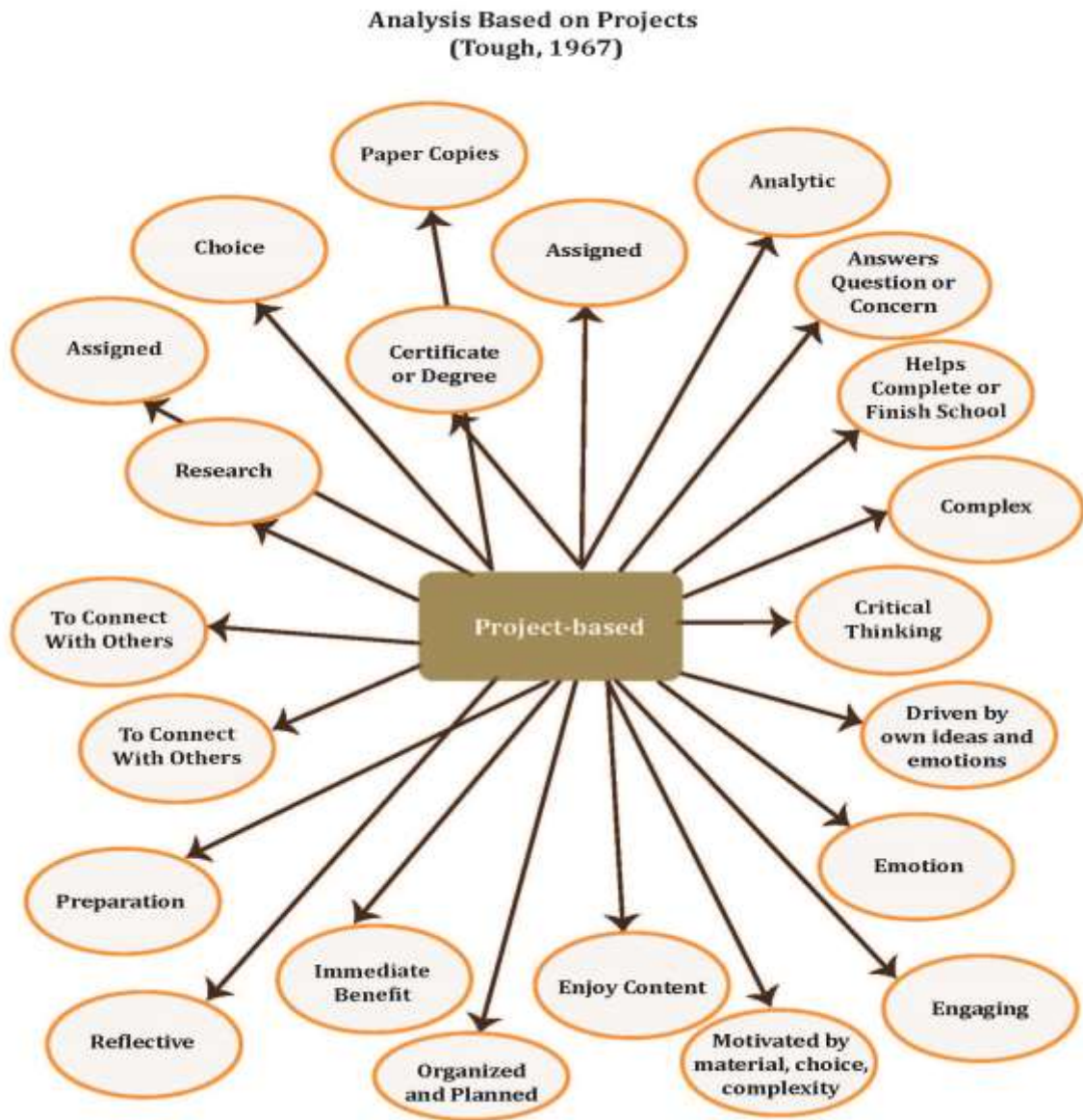


Figure 3. These codes were assigned to the project-based category in analyzing the data and preparing the results.

The data were initially coded based on this understanding of motivation and the reasons behind adult learners starting a project (Tough, 1967 & 1971).

The third round of coding solidified the categories and subcategories. Following are the results of this process in terms of two out of three research questions, with a third question that focused on interaction in the focus group dropped due to a lack of interaction among participants. The final round of coding involved categorizing the codes under three main categories (Figure 2): self-learning, transformational learning, and embodiment (environmental). The final categories, codes, and meta-codes were determined by using the RQDA package for R and R-Studio, two programs used for qualitative data analysis.

Ethical considerations and confidentiality. From the Belmont Report and Orb, Eisenhauer, and Wynaden (2000), the ethical considerations related to this study followed the principles of autonomy, beneficence, and justice. Adhering to these considerations involved respecting the rights of participants to leave the study at any time and informing participants on how any data collected up to the person's withdrawal from the study would be used without identifying the volunteer. The study also attempted to protect the participants and any others from harm by ensuring that anyone who volunteered understood completely the role she or he had in the research.

Finally, from the consent form and its content to how the data were coded and analyzed, along with how to maintain that data and when to destroy personal identification, were all concerns that were addressed to ensure confidentiality. One way confidentiality was maintained was by using the technical assists on both

FocusGroupIt.com and Survey Monkey. However, the additional layers of technology, while assuring that focus group members did not relay any personal or private information on the forum, also appeared to discourage participation, as shown in Chapter Four: Results.

Summary

As indicated in the first two chapters of this thesis, the main studies that address potential or unique learning processes among adults with ADD/ADHD involve a desire to provide appropriate interventions. The studies also offer a perspective on three educational theories, self-learning, embodiment, and transformation, with the main aspects of the three used to assess the results from this study

In assessing the methodologies originally proposed for this research, along with the data collected, I determined that the approach needed to be scaled back based on the time constraints. A short time span between closing the study and delivering the thesis made it difficult to interact with participants at the levels needed to do action research or participative action research (PAR). Hence, this study differed from other studies among this population in its use of an appreciative method that emphasizes the autonomy of participants and their role in creating new perspectives through this type of interaction.

Even though a plethora of research has been published on the weaknesses associated with ADD/ADHD, it is difficult to find even a qualitative study that does not take the deficiencies as facts, rather than conjecture or theory. Therefore, it can be argued that adults with ADD/ADHD face a bias as the main focus of problem-based research, with an appreciation-based qualitative method preferable in addressing any

unique learning needs. Toward that goal, this study encouraged participants to explore the factors associated with a project they had conceived and completed or is ongoing, without being compared to a control group. To assist in the research, the questions focused on what worked and the strategies participants used, as AI-based questions. In a 2005 article that analyzed transformational outcomes of 20 cases that used AI (Bushe & Kassam), the keys to a transformative result were twofold: a focus on changing thoughts rather than actions and support for self-organizing change that evolves from new ideas and perspectives.

Chapter 4: Results

For this exploratory research, adults with ADD/ADHD described in detail their reasons for taking on a project and the environmental, emotional, or practical factors that helped in making it a success. In other words, the methodologies focused on individual efforts, with the narrative covering everything from the complexity of a project to the tools, such as pencils and pens rather than electronics, and a desire to create peaceful and quiet workspaces, that helped the participants take on and finish a project. The open-ended questions assessed the balance of mind, in practical terms, the body related to visual, auditory, and physiological environmental factors, and the spirit as it relates to the reasons the project built confidence.

Of the 14 signed consent forms for both the questionnaire and focus group, two participants signed on for both, with one of those two adding substantially to the data in both platforms. Consequently, because the study did not specify that participants could only sign up for one group, any data provided by the participants who substantially contributed to both the focus group and questionnaire were compared and included in the overall data.

This chapter follows up on the coding conducted and reported in the Methods chapter, along with observations about the platforms and difficulties with the technology. In addition, the results from the eight participants who answered at least one question, or participated in one or more focus group days are presented. The demographics from the study were analyzed with the attribute coding method described by Soldaña (2009, p. 55).

Demographic Attributes

Every participant attested to the fact that they were an adult, 18 or older, and had ADD/ADHD diagnosed as a child or adult, along with providing gender, age range, employment status, and highest level of education. (See Table 5 for a breakdown of these attributes taken from the consent forms and Appendix A and B for the IRB-approved forms.) A total of 12 participants electronically signed the consent form, with five of that group filling out the first question of the questionnaire or more, two adding to the discussion in the focus group for two days, and one participant completing the focus group.

Table 6

Demographics as coding attributes

	Participants
Total Participants Recruited	N=12
Total Participation	N=8
Gender	7 male 5 female
Education	2 High school degree/GED 1 High school degree, some college 7 Associates degree 1 Bachelor's degree 1 Graduate degree
Employment Status	1 Employed part-time 1 Disabled and looking for work 7 Not employed, looking for work 2 Not employed, looking for work, or self-employed

Note: The attributes of this study, as defined by Soldaña (2009), include all potential participants who filled out the consent form. Total participation covers eight.

However, one of the participants completely filled out the questionnaire along with participating in two days of the focus group, based on an email sent that included both links. One of the participants also made the researcher aware of technical problems with the focus group site locking out some volunteers. In this case, the data from both the questionnaire and focus group were included in the analysis because they represent different ways of looking at the data, despite the questions being similar on the platforms.

The data from transcripts downloaded from SurveyMonkey.com and FocusGroupIT were coded by hand initially to record first impressions. Then the data were entered into an Excel sheet set up to indicate the first set of codes highlighted by hand, along with the data categorized based on two out of three of the research questions and subcategories from the questionnaire and focus group prompts. Finally, the redacted data were saved as text and analyzed with R freeware statistics software using the RQDA package, a program that helps with coding qualitative data through R-Studio. Figure 2, in Methodologies, shows the theoretical basis for the coding, which was derived from Tough and his study and book (1967, 1971), Rogers (1959) for experiential learning, Mezirow (1997) for transformational learning, and embodiment learning as described by Gallagher (2005) and Merriam and Bierema (2014).

The privacy of participants limits the amount of data, or story, that can be printed. Therefore, no pseudonyms will be used for the projects narrative that could help identify

a participant. In addition, the redacted data for the first question are included only to indicate how the data were coded and analyzed.

The Mind: Data Analysis Related to the Projects

One aspect of the data analysis involved the project tasks that Tough asked about in his 1967 study, along with his theory on the reasons that adults take on such projects. Consequently, the first analysis involved comparing Tough's list of reasons (1967, 1971) for adults taking on projects to the stories of the participants in this research. The way this data differed from Tough's 1967 study lies in more open-ended questions than the original study used, and the additional environmental/embodiment aspects. This study also reflects a greater diversity, in educational terms, than the original study.

The participants emphasized complexity, choice, and committing to a cause or outcome as motivating factors for starting a project and the desire to see the assignment or cause through to the end. Table 7 shows the meta-codes that correlate with the reasons for starting, building, and completing a project. Furthermore, the results are set up to reflect the data's ties with the two research questions. (See Appendix E, questionnaire, and Appendix F, focus group, for specific phrasing and prompts used in the study.)

- How do adults with ADD/ADHD conceive, create, and execute learning projects at home, work, or school?

The participants were directed to "briefly describe a project at home, work, or school that you can recall because you believe it was some of your best work." Two of the seven participants who substantially contributed to the data reported that they were working on a long-term basis in researching and applying new information on land use

and the pipeline from drugs to prison, respectively, with a desire “to change the world” or effect “change in environmental conditions.” Another participant reported a three-year project that involved an Eagle Scout ranking in Boy Scouts, one recalled a course taken for a bachelor’s degree in business, and three related college final projects that involved choice, complexity, and learning new skills.

Based on several phases of coding, considering the themes, and analyzing the frequency of some ideas from the data, the meta-codes in Table 7 were determined. The definitions are intended to provide some clarity on how the codes were chosen and the synthesis involved in determining the themes.

Table 7

Meta-codes: Categories Covering Projects, Embodiment, and Transformational Learning Theories

Themes	Meta-codes	Definitions
Self-learning	Creativity, complexity, analysis, and choice	<p>Creativity: Visual, written, oral, or bodily expressed works, services, or talents.</p> <p>Complexity: Calls on mental, emotional, intellectual, and creative resources.</p> <p>Analytic: Based on research or related to analyzing situations or conditions related to the projects or the environment.</p>

Embodiment	Environment, lighting, decorations, noise, quiet, and visuals	<p>Choice: The ability to choose how to approach a project and the final product, service, or outcome.</p> <p>Environment: The physical world around a learner that adds to or detracts from learning.</p> <p>Adaptive: Ability to assess and adjust environmental factors to maximize learning opportunities.</p> <p>Emotions: Feelings associated with any aspect of a project or connected with the environment.</p>
Transformational	Emotions, self-identification, and self-reflection	<p>Self-identification: How participants identified with the project or process.</p> <p>Self-reflection: The use of strategies specific to learning and projects that reflect adaptive, analytical, or creative measures centered on beliefs or emotions.</p>

Note: The meta-codes are provided in greater detail in Figures 3, 4, and 5. They represent both synthesis, taking factors that are similar and categorizing them under one term or word, and an interpretation of responses based on a theory, model, or in the self-learning and projects case, a seminal study (Tough, 1967).

The participants in Tough’s study (1967) were all in college or had graduated, with at least a bachelor’s degree, with the assumption that “college graduates would be

especially likely to have experience and competence in self-teaching, to have fairly good insight into their own feelings and behavior, and to recall clearly their self-teaching project” (p. 33). Therefore, with the span of post-secondary experiences evident in this group, the projects and the participants’ description of the underlying motivations, emotions, and perceptions about them address different issues than the seminal research. For instance, following are two descriptions of projects, with the first a college assignment and the second a volunteer project that spanned three years.

“The ‘project’ was for an English class where we were assigned to choose an artist and write a literary analysis on a specific work....”

This response, considered in conjunction with the meta-codes, categories, and subcategories, represents a recurrent theme involving creative freedom and complexity (Figure 3). Mayhew et al. (2008) concluded that life-long learning was facilitated by instructors who encouraged “reflection, active learning, perspective-taking...” (p. 338), while Rogers wrote about the need for trust and respect where adult learners are concerned (1969).

The next passage, in considering Tough’s categories of tasks (1967), indicates the persistence and commitment required to finish a long-term project. (As noted before, no pseudonyms are used for the projects questions of this research in order to protect the identities of participants. However, they are used for the environmental aspects based on the commonalities, which should prevent anyone from piecing the passages together to determine identities. This is necessary because of the bias and prejudice associated with ADD/ADHD and our promise to participants that they would remain anonymous.)

“This project was the last requirement for me to achieve the rank of Eagle Scout. The requirement is to complete a community service project that requires a minimum of 200 hours of work. These 200 hours include planning and fundraising, which must all be done by the scout.”

Table 7 provides the meta-codes that evolved out of the data analysis and helped illuminate the overall structure. In addition, Figures 3, 4, and 5 go into greater detail about the codes used to create the themes and analyze the data.

Body & Spirit: Changing World Views Through Awareness

- What environmental, practical, creative, or emotional factors contribute to affect the way participants discuss learning processes and adaptive capabilities?

To address the environment as it relates to the tools that adults use and the best lighting, temperature, sound, and visuals, along with the emotions and beliefs that provide motivation and aid in persistence, participants were asked to describe these factors and how they contributed to the success of the venture.

In addition, all respondents asked teachers, colleagues, other professionals, or family for assistance in understanding certain aspects of the projects, or in helping to stay on schedule. In analyzing the data, the following passages were considered as a whole and then parsed into “resources, self-awareness, planning, strategies, and reflection.”

Reflecting the participants’ awareness of organizational and focus-related issues involved with completing projects, several of the respondents talked about the steps they took to ensure that they felt confident in proceeding. This narrative, however, also emphasized the language associated with ADD/ADHD, along with showing their

dedication in applying that awareness to tackle assignments or long-term advocacy projects or research.

Table 8

Sample of the Coding and Analysis for Embodiment Theme

Participants	Initial	Second/Third Tier	Final Best Environment
Quest1	Cool, bright, and plants. Hand tools Posters, photos, or paintings Fidgets and less attentive when too cool or hot Conditioned to working and being more productive indoors Noises extremely distracting Loves music, but complete silence is needed when working Takes at least 15 minutes of concentration to become completely attentive Early in morning and earlier in day ideal times to get work done	Temperate Bright Colorful Hand tools Conditioned to working indoors Noises distract Complete silence needed when working Aware of time needed to focus Early morning best time to work	Bright and colorful Working with hand tools: pencils, papers, laptop, etc. Silence Early morning best
Quest2	Warm Bright Plants Hand tools	Bright Plants Warm Hand tools	Bright, warm, and with plants Hand tools

Quest4	Beauty of surroundings matter Warm Plants Indoors Visceral reaction to fluorescents Best work early morning, 6 to 10 a.m. Home or classroom with natural light	Surroundings matter Warm Plants Indoors Reacts physically to fluorescents Early morning best time to work Natural light best for classrooms and home	Beauty matters Warm, indoors, and with plants Fluorescents harmful Early morning best Natural light best in classrooms
FG3	My house and inside Dark Easy to take breaks Close to food, the bathroom, and with the ability to lay down when necessary	Home Dark Convenience Necessity	Home and dark Convenience a necessity
FG4	Natural sunlight Bring in natural-light lightbulbs Can work at coffee shop or other locations with noise Enjoy music and makes me more productive Heat puts me to sleep Enjoy working on futon, with bolsters and cushions to support back Also uses lap desk to elevate laptop	Natural sunlight Can tune out most noises in public Music increases productivity Adaptive measures for health and comfort	Natural sunlight Adapts environment for comfort and productivity Music improves productivity
FG5	Indoor room away from windows in order to minimize distractions Has to have music playing due to tinnitus Prefers closed study room where can play music on speakers	Indoor room away from windows Outdoors too distracting Music needed to focus because of medical condition	Indoor room away from windows Adapted to medical condition with music

Note: The Tough 1967 study on projects included questions on the emotional aspects of projects mostly aimed at feelings of frustration or joy at finishing. The questions in this study concentrated on the physical and emotional aspects of the surrounding environment while working on a project.

On the practical side of addressing the need to plan for and complete a project, the following participants provided a view of their organizational skills or an underlying passion for the subject that speaks to learning processes and how they have adapted learning. The following narratives were taken from the questionnaire and the focus group. On day two of the focus group, participants were asked to consider the best environmental factors related to their successful projects and on day three were invited to discuss the creative aspects in initiating projects. Table 9 provides a sampling of the answers related to the issues in the focus group prompts, with these passages coded as indicating reflective natures and awareness, along with the ability to build teams of two or more that were situational, or recognized and organized at the time.

The tables are followed by Figures 4 and 5, which further delineate the codes related to the embodiment analysis related to environmental factors and resources and the reflective self-evaluations that take place are necessary in transformational learning (Mezirow, 1997, 2000).

Table 9

Replies to Focus Group Prompt on Environmental Factors and Resources

<p>Day Two Focus Group Prompt: What tasks are best with silence, music, or conversation? (Why was silence best for this project?)</p>
<p>FG4: “All tasks are better with music. When I am sleepy, I have less ability to focus with conversation around me, but usually I can tune it out. Sometimes, though, I get distracted by conversation and meet new people, which is not good for my productivity :). I used to always study in restaurants and public places, but now I realize that I am more productive without the distractions.”</p>
<p>FG5: It was light. Although I usually use computers in the dark, when it comes to researching, I prefer light.</p>
<p>Day Three Focus Group Prompt: Would you describe your project as “designing or discovering something new,” in terms of the reasons why you followed through with the project? If not, how would you describe this phase — the actual construction?</p>
<p>FG5: “I would not. My intention is to take already available information and put it in a way that can be easily digested by the public at large. So much information is just sitting out in the world, but hasn’t been put together in meaningful ways that can better society.”</p>
<p>FG4: “I intuitively understand the concept of “flow” because from a very young age, I would become so immersed in whatever was occupying me that I would tune everything out.”</p>
<p>FG3: “Yes (project was designing or discovering something new). I got a partner to keep me company and help me out. We made rules about how much time and under what conditions we would work on the project.”</p>

Table 10

Responses from Questionnaire on Environmental and Motivational Factors

<p>Question 2: Describe your project in terms of the following aspects: visual, physical, or mental?</p>
<p>Q3: “My emotions guided me through completing this project by the way I was so motivated to get this final portfolio done and out of the way but also to create something new that no one else has created.”</p>
<p>Q1: “There was a lot of room in this assignment to be creative or expressive. It also required analytical skills and emotion to complete.”</p>
<p>Question 4: Which of the following factors do you believe motivated you to start, work on, and complete the project?</p>
<p>Q2: “The other factors that motivated this particular project were: my mother who used to work at the school where the project was done and my own desire to give back to the community I grew up in.”</p>
<p>Question 5: What does the ideal place look and feel like?</p>
<p>Q1: “The ideal place is bright because this also helps keep me feeling alert and I can focus better when I feel more clear and awake. Indoors is ideal because, although I enjoy the outdoors, it is not a productive place for me. I get more distracted by the things or people around me than I would indoors.”</p>

Analysis Based on Embodiment
(Gallagher, 2005)

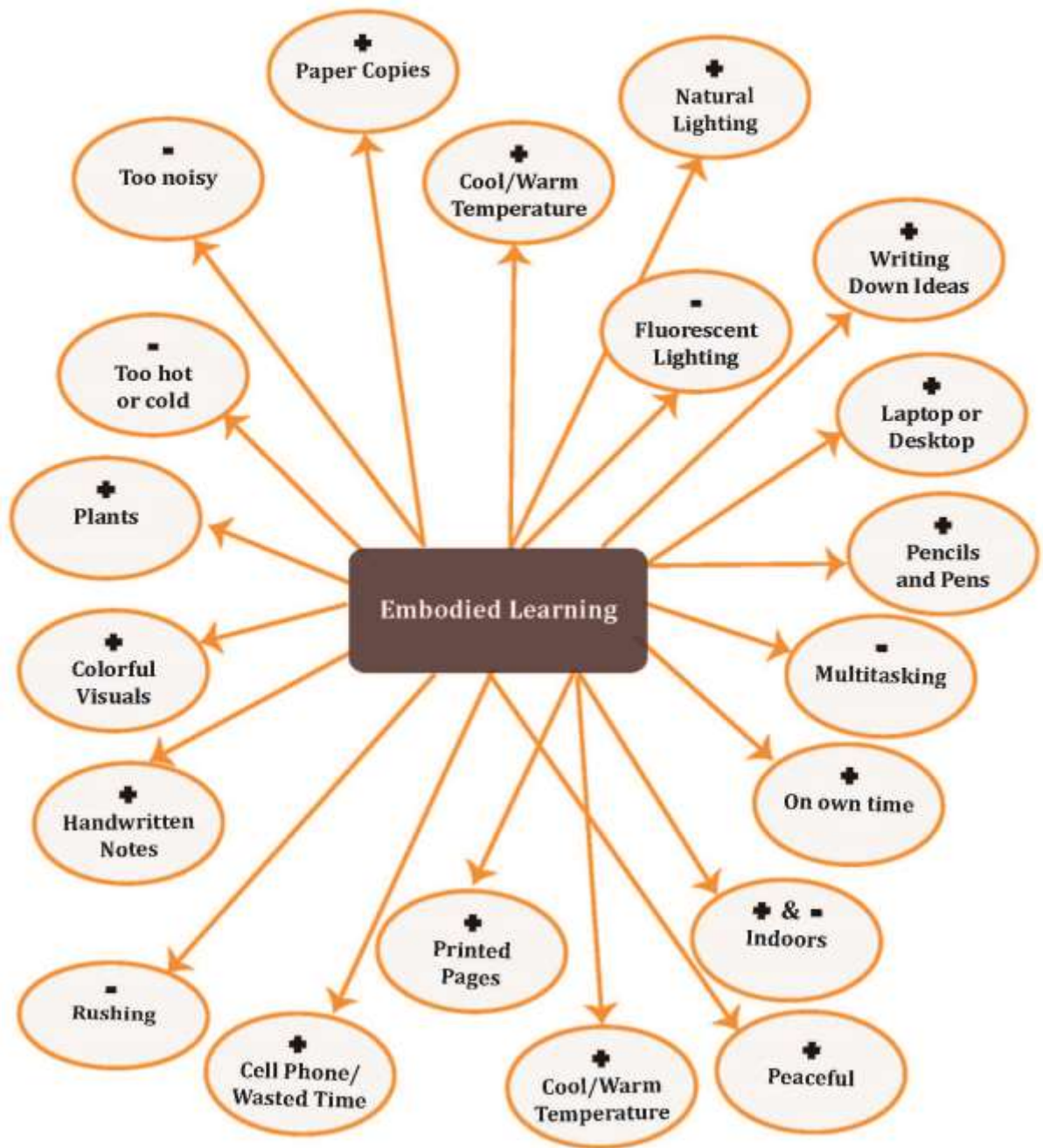


Figure 4. The codes included in the “Embodied Learning” category have either pluses (+) or minuses (-) to indicate a positive or negative environmental factor named by participants.

Analysis Based on Transformational Learning (Mezirow, 1997)

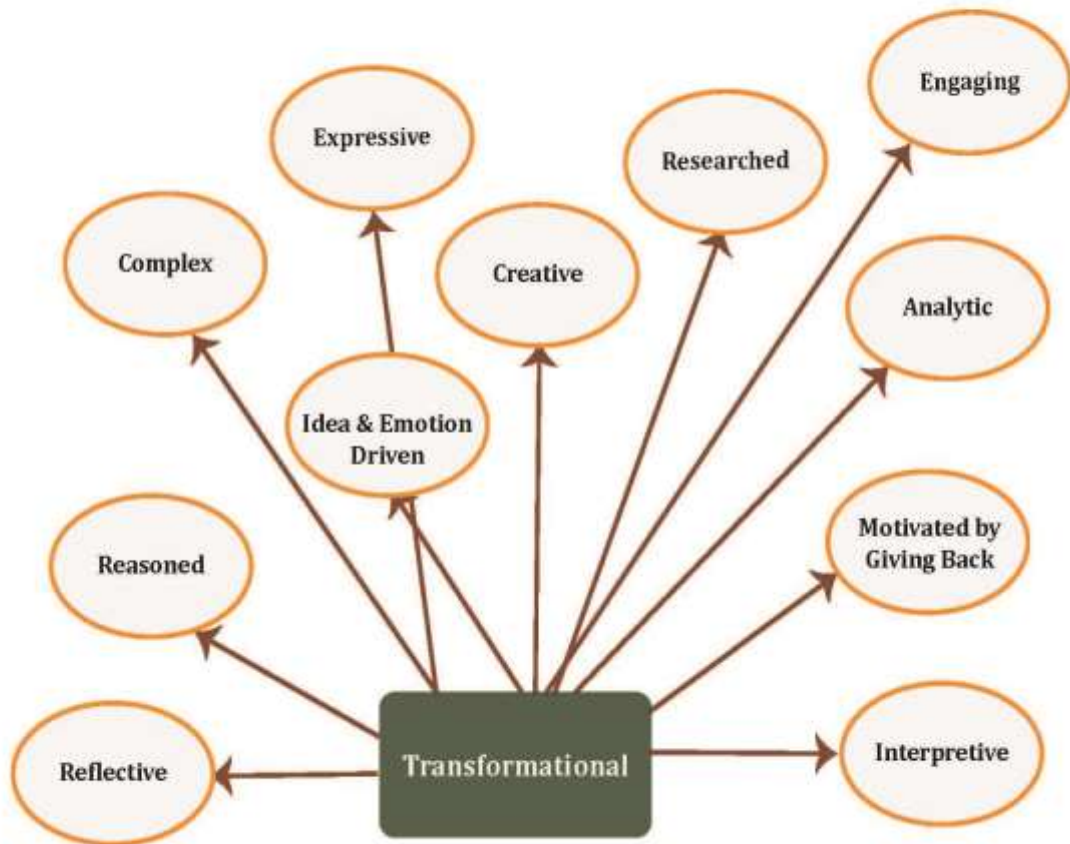


Figure 5. This figure indicates a few overlapping codes, but is shorter based on an understanding of Mezirow’s transformational learning theory (1997) as a seismic change in an individual’s point of reference.

Summary

Breaking apart the text and putting it back together over and over again in different configurations based on the research questions and the underlying adult learning theories or models assisted in bringing forth a richness in the variety of participants' experiences and frames of reference (Mezirow, 1997). Yet even though the participants' answers revealed distinct learning approaches, motivators, and goals, the environmental aspects were similar. Those factors included surroundings that were bright, quiet, colorful, and peaceful. The consensus, outside of one participant, was a preference for pens, pencils, and paper products for studying and organizing, even though a desktop or laptop computer was considered a useful tool by all.

In the last chapter, the discussion will delve into the code categories and expand on the interpretations based on the rational mind related to self-learning and the body and spirit learning theories that Merriam and Bierema (2014) claimed recognize a whole-body dynamic in education. In approaching the analysis as a way to better understand the lived experiences of the participants, the student researcher is attempting to let them speak through the narrative voice.

Chapter 5: Discussion

As Americans with ADD/ADHD diagnosed in childhood or as an adult, participants in this study talked about ongoing long-term, along with short-term, projects that can add to the research on adult learning that concentrates on successful strategies for organizing, partnering, and growing as learners. The research methodologies, including the theories behind coding and analyzing the data offered an appreciative-based exploration of the mind, or intellect, related to the processes involved in a project (Tough, 1967); the body's outwardly spatial vista of sensations and factors that affect the learning experience (Gallagher, 2005; Merriam & Bierema, 2014); and the spirit in terms of the reflections, emotions, and self-awareness needed to transform experiences through changing a personal point of view (Mezirow, 1997, 2000). These overarching themes became evident after several rounds of coding, with the process illustrated in the graphs and graphics in Chapters 3 and 4.

To start, the adult learners in this population were called upon to explore the strategies they apply as adult learners who might have adapted years of additional education or counseling to the way they approach projects, with prior tutelage largely focusing on organizational and social skills. Participants were also asked to share the physical environment best suited to concentrating on the syntheses, analyses, and plans that each project required.

Most research today that includes young adults with ADD/ADHD focuses on their readiness for college, with one fairly recent study acknowledging better learning strategies among the participants with ADD/ADHD (Solanto et al., 2008). In turn, the

data from this study included words, such as distractions, focus, and attention, that would be interpreted far differently if written or said by the average learner about settling down to study or do homework. It is also doubtful that another researcher who analyzed the data without knowing the population would guess that the study included only adults with ADD/ADHD.

The behavioral and social emphasis in education has a long history, with Campbell and Stanley (1963) decrying the rise of “new psychologies unamenable to experimental verification” (p. 2) that followed a Thorndike era of experimentation in education. They further noted that the psychoanalytic research methods that took hold of educational research in the 1930s, and replaced the scientific method, subsequently created disaffection among educational researchers when they could not prove theories (p. 3). This ascendancy of psychological discourse in the field also coincided with an increase in treating behavioral problems as pathology, particularly among minorities and individuals in areas with the highest levels of poverty (March & Oppenheimer, 2014).

With these biases in mind, the results of this exploratory study are only meant to illuminate a slice in time and do not represent adults with ADD/ADHD as anything but capable and perpetual self-learners in their own right. However, the results may offer another perspective within the growing holistic educational movement (Merriam & Bierema, 2014) in terms of self-learning and inherent autonomy; Mezirow’s transformational theory related to frames of reference (1997); and biological studies on embodiment and learning (Gallagher, 2005).

Figure 6 indicates the factors that helped frame the data, specifically based on how participants described the resources, both human and electronic, that they turned to for both support and furthering their education or a research interest. The data also indicated a self-awareness related to organizing and building teams and work relationships.

Explanation of Results

As background, the manner in which individuals with varied temperaments are segregated through calling anything outside the norm maladaptive is similar to the way miners viewed the canary in the coal mines. By the time the canary was found dead on the bottom of the cage, it could be too late for a portion of the miners who were less sensitive to their environment. In the U.S. educational system, the top three disabilities are asthma, allergies, and ADD/ADHD (Bloom, Jones, & Freeman, 2013), which have in common misconceptions and medications that can affect acceptance and the ability to learn (Lowenthal & Lowenthal, 1995). For instance, several recent studies have attempted to blame asthma for the ADHD symptoms (Brook & Boaz, 2005; Kwon et al., 2014) without acknowledging that the physical environment at home and school and attitudes toward medical disabilities, not the child, need to change.

The point in starting with this example is to emphasize how higher education and workplaces perpetuate stereotypes based on convenience, or force a proportion of the learners and workers to prove that an accommodation will not discomfit anyone involved (Arnold et al., 2010). Therefore, in asking participants to share their experience with a project, one intent was to explore how the physical environment assists or detracts from

the learning process and what other factors help these adults maintain their enthusiasm or motivation in setting and achieving this type of goal.

Efficiency in planning, organizing, and carrying out projects. Watts contended (1960) that the relation of a human to others transcends the current idea of either total independence or dependence, which speaks to how the participants negotiated relationships in creating memorable projects. The participants described finding subject matter experts, seeking moral support from colleagues, fellow students, and instructors, along with planning ahead and organizing their time and current and future learning needs, which speak to a persistence and focus that runs counter to the stereotypical attributes associated with ADD/ADHD (Brand, Dunn, & Greb, 2002).

Facilitating their own learning. In assessing the outcome of this research, the four individuals who completed most or all of the questionnaire and the three participants who added to the focus group discussion had to overcome layers of technology to tell their stories. Hence, even though technology is being stressed as an answer to accessing higher education and training, these participants depended more on relationships and adaptive learning strategies to gain knowledge and further their goals, which included using paper and pens or pencils to keep organized or study.

Finally, the motivators in starting, continuing, and finishing a project included complexity, analysis, research, and the right to choose how they expressed their creativity, among the factors that led to the participants stating the project was memorable. Considering that one participant had prepared for a long-term project with an indeterminate outcome by getting the degrees necessary to pursue advocating for a

cause, and another committed to a three-year project that required permits and raising funds in order to give back to the community, these participants could be said to be facilitating their own education, which includes analyzing the resources needed to start and finish a project.

Limitations

An understanding of the stigma and prejudices that surround ADD/ADHD had to be taken into account when analyzing the participation and drop-out rate reflected in having 14 participants sign the consent forms and eight participate in the study. As a researcher, I first considered whether the platforms for the questionnaire and focus group might have discouraged participation, particularly when a participant reported difficulty in accessing the focus group and another one gave up after trying to go back and finish the questionnaire. In addition, although five participants signed into the focus group, only three participated, which could be due to not explaining well enough how to access the forum and the set up. Finally, I sent an email follow-up with both links and believe this might have confused participants.

In other words, as Kay and Johnson (1999) pointed out, “the benefits of this new technology come (with) new experiences and lessons to be learned and shared by researchers” (p. 323, Abstract). As the authors suggested, for Web surveys it is best to keep the questions short, simple, and intuitive, which would not have served the purpose of the questionnaire for this study. Also, the focus group platform might have seemed too much like discussion groups in online courses, without providing the connection needed to have participants feel comfortable enough to comment. Based on these

difficulties with the technology, I would have changed the online text-based focus group to a one-day, one to two hour, synchronous event with participants offered the choice to be on-camera or choose an avatar. Ideally, however, the original plan for a face-to-face focus group might have been the most effective method (Grim, Harmon, & Gromis, 2006; Kitzinger, 1994). In addition, the questionnaire could have been more graphically-based and succinct.

What This Research Adds to the Learning Sciences

In updating Tough's 1967 study to research strategies used by adults with ADD/ADHD to learn from short-term and long-term projects, the intent was to explore what could be considered a different way of knowing (Merriam & Bierema, 2014). In taking into account the extra training or coaching that these participants may have sought or had prescribed, the results suggest that the skills shown should be taken into account when creating courses or further training for a good proportion of these adult learners. The environmental data also suggest that embodiment learning factors could be further explored, with studies pointing to the ability of white noise, green spaces, handwriting, and other environmental variables to aid concentration and focus. Finally, participants indicated a strong ability to reflect on conditions related to successfully completing projects, along with understanding their own motivations for committing to a goal in the first place. These skills and adaptive measures could aid other learners if they were better understood.

Possible Further Studies

In assessing possibilities rather than problems, this research focused on a life-time of learning that is greater than the sum of the theories now applied in training and continuing education. Tough, even though he concentrated on self-teaching projects, conducted research that required at least a bachelor's degree (1967). Therefore, his study relied on individuals shaped by standard ideas of education and adult learning. Although it was groundbreaking at the time, it did not take into account social status or biases. Tough also did not include college coursework as a valid project, which this study incorporated as being voluntary and requiring a commitment from the participants.

Further studies along these lines could address how the extra training that adults with ADD/ADHD receive, if the condition is diagnosed in childhood, impacts life-long learning and the courses and training that they seek. Also, adults in this population with the condition diagnosed in adulthood could be asked about what training or education they may have sought prior to the diagnosis and if their choices changed after the diagnosis. In addition, research could concentrate on how adult learners adapt to environmental factors at school, home, or work, to address if or how these impact whether they choose self-learning or pursue classroom or work training. Finally, using Mezirow's change in worldviews (1997), adults with ADD/ADHD could be asked to serve as co-creators in participative action research (PAR) to assess for themselves how the condition has shaped their lives as adult learners.

Summary

Despite the technical difficulties that seemed to plague this study, seven participants provided enough data to offer a picture of continued learning that includes applying knowledge gained in organizing and team or consensus building. The focus of this study began with the idea that technology in the form of an app might aid adult learners in discovering the primary ways that they process information from their environments and in formal and informal learning venues. However, as the data were coded and analyzed, the results developed into a far more complicated overview on how these participants have facilitated a lifetime of knowledge building. The data also present a way to address these learners when creating courses or training.

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Appendix A: IRB Approval

UNM IRB Approval of Amended Protocol



DATE: November 10, 2015

REFERENCE #: 10815

PROJECT TITLE: [771862-2] Exploratory Study Asks Adults With ADD/ADHD to Consider and Share a Successful Project & the Learning Processes That Led to Success

PI OF RECORD: Victor Law

SUBMISSION TYPE: Amendment/Modification

BOARD DECISION: APPROVED

EFFECTIVE DATE: November 9, 2015

EXPIRATION DATE: July 26, 2016

RISK LEVEL: Minimal Risk

REVIEW TYPE: Expedited Review

REVIEW CATEGORY: Expedited review category 6, 7

SUBPART DECISION: Not Applicable

PROJECT STATUS: Active - Open to Enrollment

DOCUMENTS:

- Advertisement - Recruitment Poster (UPDATED: 10/22/2015)
- Advertisement - Recruitment Email SocialMedia Listserv (UPDATED: 10/22/2015)
- Application Form - Amendment Application (UPDATED: 10/22/2015)
- Consent Form - Consent Online Focus Group (UPDATED: 10/22/2015)
- Consent Form - Consent Online Questionnaire (UPDATED: 10/20/2015)
- Protocol - Protocol v3 7/24/15 (UPDATED: 10/22/2015)

Thank you for your submission of Amendment/Modification materials for this project. The University of New Mexico (UNM) IRB Main Campus has APPROVED your submission. This approval is based on an acceptable risk/benefit ratio and a project design wherein the risks to human participants have been minimized.

This determination applies only to the activities described in the submission and does not apply should any changes be made to this research. If changes are being considered, it is the responsibility of the Principal Investigator to submit an amendment to this project for IRB review and receive IRB approval prior to implementing the changes. A change in the research may disqualify this research from the current review category.

The IRB has determined the following:

Informed consent must be obtained and documentation of informed consent has been waived for this project. To obtain consent, use only approved and stamped consent document(s).

All reportable events must be promptly reported to the UNM IRB, including: UNANTICIPATED PROBLEMS involving risks to participants or others, SERIOUS adverse events, UNEXPECTED adverse

Appendix A. The University of New Mexico Institutional Review Board (IRB) approval for the amended protocol reflecting compensation.

events, NON-COMPLIANCE issues, and COMPLAINTS. All sponsor reporting requirements should also be followed.

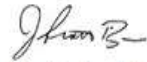
The UNM IRB approved the project from July 27, 2015 to July 26, 2016. A continuing review or closure submission is due no later than June 26, 2016. **It is the responsibility of the Principal Investigator to apply for continuing review and receive continuing approval for the duration of this project. If the IRB approval for this project expires, all research related activities must stop and further action will be required by the IRB.**

Please use the appropriate reporting forms and procedures to request amendments, continuing review, closure, and reporting of events for this project. Refer to the OIRB website for forms and guidance on submissions.

Please note that all IRB records must be retained for a minimum of three years after the closure of this project.

The Office of the IRB can be contacted through: mail at MSC02 1665, 1 University of New Mexico, Albuquerque, NM 87131-0001; phone at 505.277.2644; email at irbmaincampus@unm.edu; or in-person at 1805 Sigma Chi Rd. NE, Albuquerque, NM 87106. You can also visit the OIRB website at irb.unm.edu.

Sincerely,



J. Scott Tonigan, PhD
IRB Chair

Appendix A. Page 2 The University of New Mexico Institutional Review Board (IRB) approval for the amended protocol reflecting compensation.

Appendix B: Study Advertisement

Amended and IRB Approved Poster/Advertisement



EXPLORATORY STUDY ASKS ADULTS WITH ADD/ADHD TO SHARE A PROJECT &
THE LEARNING PROCESSES THAT LED TO SUCCESS

**Participate in an Exploratory Research
Study at the University of New Mexico**

Are you 18 years or older, have had ADD/ADHD diagnosed as a child or adult, can read and comprehend English, and can fully participate in an asynchronous online focus group conducted over five days or fill out an online questionnaire?

If you answered yes to this question, you may be eligible to participate in a five-day online asynchronous focus group or fill out a questionnaire for a research study on how adults with ADD/ADHD approach personal, work, or school-related projects.

This study uses appreciative questioning, what is possible rather than problematic, to assess the environmental, visual/spatial, and other factors that adults in this population employ when they envision and then create a project.

Study participants will be:

Asked to participate in an online focus group over five days for five to 30 minutes each day, depending on your responses and the discussion, and be compensated with a \$20 gift certificate. Or, you can participate by filling out a questionnaire that may take up to 60 minutes or more to complete and can opt to participate in a raffle for a \$25 gift certificate.

Only 25 adults (age 18 or older) will be included in the online focus group, with the questionnaire closing at the end of three weeks.

For more information and/or to receive the informed consent related to volunteering for this project, please call or send an email with "UNM Study" in the "Subject" category to:

Robin L. Anderson at randerson@unm.edu
or 505-235-2635

Appendix B. The poster, or advertisement, was amended to offer compensation and used on Facebook, LinkedIn and as an email to several groups at UNM and off campus.

Appendix C: Questionnaire Consent Form

Amended and IRB Approved Questionnaire Consent Form

UNM Informed Consent for Surveys/Questionnaires

**Adult Learners Assess Learning Successes/Strengths
in Online Questionnaire**

Robin L. Anderson, in conjunction with Dr. Victor Law as the principal investigator with the Organizational Learning and Instructional Technology (OLIT)/Organization, Instruction & Learning Sciences (OI&LS) department at UNM, is conducting research into the factors related to adults with ADD/ADHD envisioning, planning, and creating a project. You are being asked to participate in this study because you have had ADD/ADHD diagnosed in childhood or as an adult, are age 18 or older and considered an adult in your state, and can read and appropriately respond to questions in English.

The study uses appreciative questioning, looking at what works rather than problems, to discern the factors related to creating a project that participants believed was a personal success. As an exploratory study, this educational research could be used to inform other research that considers the unique creative and adaptive capabilities of individuals in this population.

Your participation will involve filling out a questionnaire that is based on what you consider your best learning experiences in envisioning and completing a project at work, school, or home. The questionnaire could take from 30 to 60 minutes to complete, depending on the extent of your answers. Your involvement in the study is voluntary, which means you may choose not to participate or begin the questionnaire and decide not to complete the survey. No names or identifying information are associated with the questionnaire, but basic demographic information and your consent will be requested before you may access the main screens to start. Anyone who participates and wishes to opt-in for a raffle of a \$25 gift certificate may indicate that in an email stating she or he wishes to participate and be considered for the raffle. The survey includes questions such as "Please briefly describe a project at home, work, or school that you recall because you believed it was some of your best work. How would you describe that project to others? Was the project visual (landscaped a yard), physical (worked up to a minute mile), mental (researched a topic and wrote about it), emotional (volunteered), practical (cleaned out the lint in your dryer) or impractical (made cotton candy)? Was it technical, such as building a computer, or organic in terms of starting a small garden?"



Appendix C. This consent form had to be signed to participate in the study by answering the questionnaire.

Appendix D: Focus Group Consent Form

Amended and IRB Approved Poster/Advertisement

**The University of New Mexico
Informed Consent for Focus Group Participation**

**Exploratory Study Asks Adults With ADD/ADHD to Consider and Share a Successful Project
& the Learning Processes That Led to Success**

Robin L. Anderson, a graduate student in the UNM Organizational Learning & Instructional Technology (OLIT) department at the University of New Mexico, along with Victor Law, Ph.D., as the principal investigator, are looking for adults with ADD/ADHD to participate in an appreciative inquiry-type online asynchronous focus group. You are being asked to participate in this study because you are considered an adult in your state, age 18 and older, have been diagnosed with ADD/ADHD as a child or adult, can read and comprehend the questions, and are capable of fully participating in the discussions over five days. If you have been contacted, then your email address was obtained either through someone you knew, because you have expressed interest in this study, or through an organization that works with or represents this population.

Your participation will involve replying to each day's prompts or questions in order to explore the learning processes related to successfully creating, constructing, and finishing one project at home, school, or work. The focus group can take from five to 30 minutes each day, depending on your level of participation in answering the prompt and adding to the discussion. Your involvement in the study is voluntary, and you may choose not to participate or to drop out at your discretion. Participants are being offered a \$20 gift certificate that will be awarded on the first day of the focus group to compensate for their time. Either an electronic card or code will be sent to participants.

No names or identifying information will be associated with the focus group. The focus group is designed to start with prompts or questions such as, "Was the project planned, a matter of necessity, or a whim?" You can refuse to answer any of the questions at any time. Even though there are no known risks in this study, some individuals may experience discomfort in answering the questions or participating in online discussions.

The data gathered from the answers and discussion posted each day by participants will be downloaded in an Excel sheet and saved to the Lobo Vault. That data will also be saved to an external hard drive and a hard copy printed. All data will be kept for seven years and then destroyed. No personal information will be kept. Instead, participants will be given a unique identifier in the focus group and in the data.

The findings from this project will provide information that is intended to inform further research into adult learning processes. If published, results will be presented in summary form only.

If you have any questions about this research project, please feel free to call Robin L. Anderson at (505) 235-2635. If you have questions regarding your legal rights as a research subject, you may call the UNM Office of the IRB (OIRB) at (505) 277-2644.

By signing the online consent form, you will be agreeing to participate in the above described research study.

Thank you for your consideration.

Sincerely,

Robin L. Anderson and PI Victor Law, Ph.D.



Appendix D. This consent form had to be signed to participate in the study group.

Appendix E: Questionnaire

Study Questionnaire

Question 1

Please briefly describe a project at home, work, or school that you can recall because you believe it was some of your best work.

Question 2

Describe your project in terms of the following aspects. Choose the ones that most appeal

- Visual (landscaped a yard)
- Physical (worked up to a minute mile)
- Mental (researched a topic and wrote a paper)
- Emotional (volunteered)
- Practical (cleaned out the dryer lint)
- Seemingly impractical or just for fun (made cotton candy)
- A combination of these factors.

Please describe the project in terms of the choices you made above.

Question 3

Taking the descriptors in Question 2, how would you describe your project to others? (Please do not describe any work-related or potentially top secret or proprietary trade projects except in the most generic terms. For instance: "I created a widget that passed testing in record time." If you have any concerns about whether you should post a description, then it is best if you do not.)

Question 4

Which of the following factors do you believe motivated you to start, work on, and complete the project?

- A person or people (personal or professional individuals or groups)
- Emotions (desire to help others or to create something special)
- Ideas (inspired by something you read, saw, or experienced)
- Physical (aids health: mental or physical)
- Assigned (for work or school)

Use the factors identified above to provide a brief overview of your motivations in starting, continuing, and finishing the project.

Question 5

What does that ideal place look and feel like? Please expand on the environmental aspects below that may help, or even prevent, you from making progress.

- Warm
- Cool
- Bright
- Darker, with only the light from a lamp or a computer screen
- Plants
- Electronics
- Hand tools (can be gardening, sewing, wood working, etc.)
- Posters, photos, paintings, or nothing on the walls
- Indoors
- Outdoors

Explain or add to this list of factors.

What do you smell?

What time of day or night do you start and finish working on the project?

Are you outside, in a classroom, at work, or at home in a room or garage?

What do you hear? Is music playing, are people talking, or is there complete silence?

What can you feel or touch?

What can you sense in your environment that is calming or energizing?

Please describe the tools, materials, etc., that you are using to plan, create, or finish your project.

What tools, materials, machinery, electronics, or other utensils are you using?

- Pen or pencil
- Chisel
- Power tool
- Sewing Machine
- Spade or shovel
- Laptop, tablet, or mobile phone
- Camera

Question 6

Did you seek guidance on how to do the project? For instance, did you:

- Look online
- Attend a class or classes
- Buy or check out a book
 - Ask a friend, acquaintance, fellow worker, family member, or teacher to help?

- Yes No

If you answered "Yes," please describe the learning or help you sought:

If you answered "No," please describe the training or expertise you used in conceiving and planning the project without additional assistance.

Training

Expertise

Mentor

Self-study

Question 7

Did you create a plan for the project on paper, on the computer, or devise a mock-up?

Yes No

If you answered "Yes," did you:

- ° Sketch out the idea on paper
- ° Use a computer
- ° Outline it in Excel or another program
- ° Collect images or ideas?

If you answered "No," please describe the steps you took in brainstorming the project, such as:

* Went from the idea to putting together a model or finishing the project. For instance, gathered all the tools together and then tackled a project like raised garden beds one Saturday afternoon.

Question 8

Was the venture part of a larger one, a series, or did you conceive and create the project as a one-time need or want?

Question 9

Did you finish the project?

Yes No

If you answered "No," did the project lead to other ideas that took precedence? And if another project became a priority, did you use elements of the original project on the next project?

Question 10: Final Question

You have reached the final question of the survey! Thank you for hanging in there and contributing to this research.

Did you share the project or keep it to yourself?

Shared
 Kept it to myself

What were your reasons/feelings about sharing the project or keeping it to yourself?

Questionnaire Wrap-up

As a study participant, you may receive a copy of the findings and the researchers encourage you to send any questions or follow-up comments to Robin L. Anderson at randerson@unm.edu. If you have any questions as you fill out the questionnaire or about this research project, please feel free to call the student researcher. If you have questions

regarding your legal rights as a research subject, you may call the UNM Office of the IRB (OIRB) at 505-277-2644.

Appendix F: Focus Group

Questions & Prompts

Day One

...I want to talk about learning. But not the lifeless, sterile, futile, quickly forgotten stuff that is crammed into the mind of the poor helpless individual tied into his seat by ironclad bonds of conformity! I am talking about LEARNING – the insatiable curiosity that drives the adolescent boy to absorb everything he can see or hear or read about gasoline engines in order to improve the efficiency and speed of his ‘cruiser.’ I am talking about the student who says, “I am discovering, drawing in from the outside, and making that which is drawn in a real part of me.” I am talking about any learning in which the experience of the learner progresses along this line: “No, no, that’s not what I want”; “Wait! This is closer to what I am interested in, what I need”; “Ah, here it is! Now I’m grasping and comprehending what I need and what I want to know!” Carl Rogers, 1983: 18-19.

Pretend that you are part of a guided brainstorming session on how each person conceived, created, and completed a project, with an appreciative-inquiry (AI) focus on what has worked for each of the “team” members coming into this session. The quote above gets to the heart of what we are trying to discover through this participative action research (PAR).

First, think about a project that you planned, executed, and still remember doing from start to finish, or is ongoing. To begin the discussion:

1. Where did you conceive the project idea?
 - a. Work
 - b. School
 - c. Home

d. Other organization

2. What did it grow out of?

- a. A need, such as growing food or advancing in work.
- b. Another hobby or interest, such as starting an E-bay business that began with collecting comic books.
- c. A practical desire to fix, change, or build something.
- d. Just for the fun of it.

3. Did you research the topic or the project specifications?

- a. This includes asking another person and giving a general idea of who that was: family, friend, colleague, or mentor.
- b. Looking up the details or tutorials on the Internet.
- c. Buying or checking out books on the subject.
- d. Ongoing and as part of a bigger interest.

4. Did you budget for the project?

5. How many hours did you spend in planning the project?

6. Did you concentrate on only one project, or was it one of many?

- a. If it was one of many, how did you prioritize to get this project started and growing?

You will not see any other responses until you have given yours.

Thank you for starting the discussion. On average, adults in the U.S. spend 700 hours per year on projects they initiate, according to Allen Tough, one researcher who studied self-initiated learning. How do you determine when it's time to stop researching and start doing (5)?

Day Two

Studies indicate that white noise, movement, the outdoors, natural light and other environmental factors can add or detract from learning or working.

1. What environment did you choose for your project?
 - a. Was it dark or light?
 - b. Did you work inside or outside?
 - c. Do you prefer silence, music or conversation?
 - d. A warm or cooler room?
2. How would you describe your ideal project area and environment?

Day Three

In the first day's quote, Carl Rogers talked about a child who gets so immersed in a project that she or he experiences what Mihaly Csikszentmihalyi calls "flow." In conducting 100 interviews with creative people in every field, Csikszentmihalyi (1996, "Creativity") found that they described doing what they enjoy most as "designing or discovering something new (page 108)."

1. Would you describe your project as "designing or discovering something new," in terms of the reasons why you followed through with the project?
2. If not, how would you describe this phase -- the actual construction?
 - a. What motivated you to follow through on this project?
 - b. What about this phase stands out? Did you feel at peace while working through the project or experience? Did you make a mistake and start again or figure out a way to make it work?
3. Please describe this phase of the project with words, images, or sketches, if possible.

Day Four

Many adult learning scholars theorize that we grow and learn through testing our preconceived belief systems about our lives, our abilities, and our talents. Look back over the past three days and find at least four ideas, words, images, or a combination of

these factors that would best describe your project and how it was created and carried out. Then consider other projects you may have created in the same way, with the same or different methods. Do you see any patterns that you might not have been aware of before?

Do you do your "best" work alone or in a team?

1. If by yourself, how do you adapt your abilities to work in a team? Or if in a team, how do you work by yourself?

2. Have you taken courses to help you adapt your style of work or learning to succeed at school or in a workplace, such as a leadership course?

a) What courses were least effective and which ones the most effective in helping you get the best of the project you described?

(1) Were they face-to-face or online?

3. How will this project help with future ones you undertake?

4. Did you write down ideas for other projects while working on the one you described?