Meaning Making and the Design Student:  
Fostering Self-Authorship in a Studio Based Design Course

Masters Thesis

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Abstract

The designers of our future will enter the work force at a time like no other. Globalization has created an interconnection between cultures and diversity has become a social norm. Political and economic crises erupt on a daily basis and climate change has become the focus of worldwide concern. The rapid change in technology provides an endless supply of new knowledge and brings these complexities to our daily lives. The students that enter design school today will have no choice but to make meaning of and navigate through these complexities in order to respond to the ever-changing needs of the clients and stakeholders. To adapt to these changes, the design industry itself is calling for design education reform. The calls for reform describe a designer with new skill sets, such as capability of complex thought, autonomy, and an ability to make meaning in the context of experience.

Research indicates that for the student to make meaning of these complexities, they must develop a complex meaning-making framework. Self-Authorship is one theory, derived from student identity development, attempts to define the complex meaning-making framework. The Self-Authored person has the capacity for reflective judgment, intellectual power, the ability to make mature decisions and solve problems in context, the ability to recognize and comprehend social issues, hold respect for self and others identities and cultures, empathy, confidence and awareness. Since these are also the desired traits being called for in design education reform, it is clear that the shift in design pedagogy must move in the direction of the development of the whole human being.

Building on the current literature for fostering Self-Authorship as well as alternative pedagogies, this thesis explores how to foster the complex meaning-making framework in the context of the studio based design course. This was an interventional study spanning two consecutive semesters for which I was the primary
instructor. Fourteen sophomore interior design students participated in the intervention and were assessed both pre and post study to determine their level of meaning making. Each participant experienced varying degrees of development ranging from minimal to high levels.

Grounded theory method was used to analyze which methods and techniques utilized throughout the intervention fostered positive results toward development. Through this analysis, a model and framework were developed as a tool for fostering Self-Authorship in a studio based design class. The framework has implications for both current and future design students as it provides the design educator a blueprint for implementing a variety of techniques for fostering development into the current curriculum. The framework was designed to be flexible so that it could be modified and evolve with unforeseen conditions and the changing needs of the design student.
Dedication

This thesis dedicated to my three incredible children,
Kelsey, Charlie and Sam.
You inspire me to make the world a better place.

And to my other half, Brian, who stood by me every step of the way.
I don’t know if I could have done it without you.
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Chapter 1: Introduction

Design above all is about meaning. Designers facilitate meaning and experience using design elements and principles as semiotic tools to convey meaning along with color psychology, design theory and design research to inform them on how to best communicate their intended meanings. To design a meaningful experience, a designer needs to understand how others make meanings and a design educator teaches students how to convey meaning to others. Interestingly, the current strategies for teaching design have come under scrutiny by the very industry that developed the pedagogy and calls for design education reform can now be heard on an international level. The Council for Interior Design Accreditation (CIDA) mandates that entry-level designers have the capacity for critical thinking and a global perspective for design. They should also have the ability to evaluate several points of view, including but not limited to: credibility, logic and meaning of the message, underlying assumptions of the message, and value of the message (CIDA, 2013). In addition, the International Interior Design Association (IIDA) argues that designers today require more complex skill sets including rigor and clarity in written, verbal and visual communications; cultural awareness and sensitivity; seeking and synthesizing accurate and relevant information quickly in order to make pertinent decisions; the ability to adapt to rapidly changing conditions; and understanding context of a designer’s role within the extended team (Landry, 2010). The calls all describe a designer who is capable of complex thought, autonomy, and an ability to make meaning in the context of experience. Additional words used in this call have included; empathy, mindfulness, intellectual doer and volition.

To answer the calls of Design Education Reform, I set out to discover the interwoven meaning within these calls and how they are connected to the role of the designer. The common thread that ties these ideas together lies in the development of a complex meaning-making framework. The question of what to teach must shift
toward how to teach. In other words, it is no longer acceptable to teach design students what to think, we must teach them how to think. Research indicates that the development of more complex meaning-making frameworks requires the development of the whole student. Self-Authorship is a term coined by Cognitive Structural Development theorists to describe this complex meaning-making framework (Kegan, 1982).

In an essay titled *Self-Authored Graphic Design: A Strategy for Integrative Studies* (2002), Steven McCarthy and Christina Melibeu De Almeida introduce the concepts of Self-Authorship in graphic design as a part of an integrative pedagogy. The authors suggest that the Self-Authored designer is empowered to be more involved in the meaning of the design as opposed to it mere visual form. They argue for a pedagogical shift toward an interdisciplinary curriculum, stating, “The enhanced potential of harnessing graphic design’s dual modalities—the integrative processes inherent in design thinking and doing, and the ability of graphic design to engage other disciplines by giving form to diverse subjects.” McCarthy and De Almeida recommend that this integrative process revolve around four major categories: writing, editing, collaboration and interaction. Students should play an active role in initiating their own content and be personally engaged. The students’ personal, social, political and cultural interests should also be acknowledged and serve as topics for integration into the problem-seeking approach to the design process. Although the authors of this essay raise valid points about the Self-Authored designer, they fail to discuss how to integrate these strategies into the current curriculum.

Bernard Canniffe (2011), from the Minneapolis College of Art and Design, attempted to answer the calls for design education reform through the creation of the Graduate Research and Development Laboratory (GR&D). Canniffe argued that for designers to become more mindful of the interaction between physical, social, cultural, technological and economic factors, they would need to begin by engaging with the surrounding community. The GR&D was a self-initiated process developed by eight MCAD first year graduate students who wanted to focus on real world projects outside the traditional classroom. The students who participated in the GR&D expressed that by working within the community they found out more about themselves as designers and as individuals. The classes, which involved a great deal of reflection, had helped the students make meaning of complexity and inter connectivity of the world as well as how they viewed themselves as
designers within this complex system. Although Canniffe does not use the word Self-Authorship, the complexity of meaning making that students expressed having appears to be comparable to the personal development experienced by the Self-Authored person. The GR&D appeared successful at fostering many of the traits being called for by design education reform, however, it did not include undergraduate design students nor did it fit into the current design curriculum.

As the studio based design course is at the core of a typical design education curriculum, this study examines how to foster Self-Authorship in this context. Working with undergraduate students within the constraints of the design curriculum and utilizing existing project assignments, I synthesized various methods and techniques in an attempt to discover the most effective ways to foster development.
1.1: Thesis Structure and Overview

This thesis provides a comprehensive study of the complexities of identity development and the methodology associated with fostering development over the course of two consecutive studio based design courses. Chapter 1 explains the rationale for why this research is beneficial to the field of design and provides a list of key terms that will be utilized through this thesis. Chapter 2 examines the many theorists who have explored meaning and identity and defines the concept of meaning making as well as self-authorship and attempts to explain how identity is formed and why we are the way we are. In addition, this chapter also discusses how to assess a person’s level of development. Chapter 3 frames a synthesis of how to foster identity development by examining the founders of alternative education theories, models for fostering development and contemporary theories related to these pedagogies. Chapter 4 describes in detail the research design and the methodology used throughout the study. Chapter 5 incorporates all of the analysis and findings from the study, the methods and techniques that proved effective, the assessments of the participants, the dimensions of development and three participant stories of their personal journeys. It also includes my own journey toward development. Chapter 6 provides a synthesis of the study and offers a proposed model and framework for fostering development in a studio based design course. Finally Chapter 7 summarizes the project and discusses both the implications of this research and the possibilities for future research.
1.2: List of Key Terms

**Assessing development:** a process used to determine the level or complexity in which a person is currently making meaning, including their assumptions on how to decide what to believe, how they view themselves and how they engage with others (Baxter Magolda & King, 2012).

**Authenticity:** the ability to be true to one’s own personality, spirit, or character, despite external pressures (Golome, 1995).

**Autonomy:** the ability to exist or act separately from other things or people through autonomous decision making (Kegan, 1982).

**Cognitive development:** how we make meaning of new knowledge, specifically whether the meaning made is externally constructed or internally constructed and whether we view knowledge as having more than one truth (Baxter Magolda, 1999).

**Contextual knowledge:** knowledge constructed by looking at all aspects of the situation, specifically in relation to the context of the situation (Baxter Magolda, 1999).

**Critical thinking:** “the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action” (National Council for Excellence in Critical Thinking, 1987).

**Design voice:** ability to articulate thoughts and decision making using the correct terminology within the context of design problems and/or solutions.
**Development:** evolution of skills over time, leading toward greater complexity—positive growth process (Jones and Abes, 2013).

**Dimensions of development:** the three interconnected domains of development: the cognitive, intrapersonal and interpersonal dimensions (Baxter Magolda, 1999).

**Dissonance:** experience that introduces new ways of thinking that are inconsistent with one’s current understanding (Jones and Abes, 2013).

**Epistemology:** the study of knowledge and justified belief and issues having to do with the creation and dissemination of knowledge in particular areas of inquiry (Stanford Encyclopedia of Philosophy, 2005).

**Existing knowledge:** how one currently makes meaning of his or her experience, including their assumptions on how to decide what to believe, how they view themselves and how they engage with others (Baxter Magolda & King, 2012).

**External formulas:** knowledge constructed by others. People who follow external formulas define themselves through others’ knowledge and expectations as opposed to their own internal belief system (Baxter Magolda, 1999).

**Identity:** “A person’s identity is defined as the totality of one’s self-construal, in which how one construes oneself in the present expresses the continuity between how one construes oneself as one was in the past and how one construes oneself as one aspires to be in the future” (Weinreich & Saunderson 2003, Chapter 1, pp 54–61).

**Intrapersonal development:** is how we see ourselves both personally and socially and how our identity is formed (Baxter Magolda, 1999).
**Internal voice:** the voice that develops within each person that aligns with the personal values and beliefs that said person holds (Jones & Abes, 2013).

**Interpersonal development:** refers to how we see ourselves in relationship to others, in particular whether we define our own relationships or do we let our relationships define us (Baxter Magolda, 1999).

**New knowledge:** refers to any experience or position that one has yet to make meaning of. This may include, but is not limited to, physical knowledge, as in topics of study introduced in the context of education, as well as the environment and discourse of the learning experience (Piaget, 1900).

**Provocative experience:** “experiences that challenge students’ current way of knowing and conceptions of self” (Pizzolato, 2003).

**Reflective judgment:** the ability to construct solutions that are evaluated by criteria such as the weight of the evidence, the utility of the solution, and the pragmatic need for action (King & Kitchener, 1994).

**Studio-based design course:** project based courses within the design curriculum where students produce a deliverable that is derived from the application of new knowledge in response to specific objectives, criteria and constraints.
Chapter 2: Meaning Making

The chapter looks at the existing literature associated with the cognitive process of making meaning and the theories associated with student identity development. Due to space limitations, writing about every theorist and their in-depth research was not possible. Focusing on those theories most relevant to design education, I have chosen to provide an overview of the work conducted by some of the most prominent researchers in the field of development in an attempt to bring together and connect the meaning behind meaning making, including how to assess it.

2.1: Meaning Making and Cognitive Development

Meaning making can be defined as how we make sense of our experience. Jean Piaget viewed meaning making as cognitive development and studied how people organized new knowledge (Piaget, 1900). Piaget argued that people construct an understanding of the world around them, then experience discrepancies between what they already know and what they discover in their environment. He viewed the way in which we organize new knowledge as a structure or framework. When new knowledge can be organized through the use of an existing framework, we are said to be in a state of equilibrium; we have had this experience before and we know what it means.

Piaget described cognitive development occurring through the process of assimilation and accommodation. Assimilation occurs when the existing framework cannot organize new information. When we assimilate, we transform new knowledge as a means of organizing it into an existing framework and we conform new
knowledge to fit within our existing framework. Accommodation is the process by which the existing framework is rebuilt in order to organize new knowledge. Accommodation occurs when new knowledge cannot fit into our existing meaning making framework and is often generated by a provocative experience commonly referred to as cognitive dissonance. When accommodation occurs, the meaning-making framework becomes more complex.

Figure 2.1: Graphic Depictions of the Meaning-making Framework as Interpreted by Kat Keller 2014 ©

In other words, when we have a provocative experience it creates a disequilibrium in the meaning-making framework. To adapt to this conflict, we rebuild our meaning-making framework to accommodate new knowledge. As our framework is rebuilt, it begins to connect the new knowledge to past experiences and contextual knowledge is developed. As the contextual knowledge is integrated into the new framework, meaning making becomes more complex. Re-building allows us to hold multiple points of view and change our frames of reference by critically reflecting on our assumptions and beliefs. Piaget argued that rigor was dependent upon cognitive development reaching maturity.
William Perry, an educational psychologist, also studied cognitive development and the impact on students during their college years (1970). Through his research, Perry developed a model, also known as the Perry Scheme, for understanding how college students make meaning through their cognitive processes for thinking and learning. Perry proposed that college students develop through a sequential order of four major stages of intellectual and moral development: from dualism, to multiplicity, to relativism, to commitment. These four stages are subdivided into 9 “positions,” and are described as follows. During position one, basic dualism, we view knowledge as absolute and held by authorities. As we develop and move into position two, full dualism, we begin to realize that different authorities may have different “right” answers, compelling us to recognize only one of the authorities as being “right.” As we become aware that authorities may not have all the answers, we move into position three, early multiplicity, while we wait for authorities to find the answers. If we can learn to find our own answers, we will transition into position four, late multiplicity, where we will either believe that everyone has a right to their own opinion or that some problems just don’t have answers. Position five, contextual relativism, is typically a time of angst for most students as we are thrust into a place where we must be autonomous. We know that the solutions must be supported by reasons but we have yet to learn how to evaluate our solutions (students who become overwhelmed during the transition to position five may potentially revert back to earlier positions as they view the earlier positions as safe). Once we realize that we must make choices, we transition to position six, pre-commitment (committed relativist). The committed relativist
has given thought to the problem, recognized that the other solutions may also be valid, but ultimately bases their decisions on what is right for them and what they believe to be true. Positions seven through nine, evolving commitments, is when we can integrate knowledge learned from others with personal experience and reflect on what we believe to be true as we form commitments to our own values. As we evolve we learn to make additional commitments in different domains and eventually learn to live out our life with devotion to the commitments, while balancing the ambiguities that the world presents us.

Perry argued that critical thinking is the catalyst for moving to the next position as students begin to understand why they know what they know. He also recognized the fact that the rate at which we transition from one position to another differs for each individual and may vary depending on the domain. However, Perry did conclude that we tend to enter college at position two or three and progress to position five, six or seven by the time we graduate.
2.2: Cognitive Structural Development Theory and Self-Authorship

Student Development Theory looks at how students make meaning of their experience and provides a foundation for fostering such growth (Jones & Abs, 2013). Among the different student development theories, Cognitive Structural Development Theory describes the changes in how we process and make meaning of experiences. In early development, this process utilizes external formulas to understand and make sense of experiences. As we develop, we begin to rely on more internal formulas for making meaning, which generates a complex meaning-making framework. This complex meaning-making framework is known as Self-Authorship, a term first coined by Robert Kegan (Kegan, 1994). It is self-authorship, Kegan argues, that is the foundation for critical thinking and is dependent upon our cognitive, intrapersonal and interpersonal development. These three dimensions of development are independent from each other, however development in one dimension may facilitate development in the other two. Self-authorship is therefore achieved once these dimensions are mature and integrated.

Kegan’s theory of human development examines and illustrates how we make meaning our feelings, thoughts, how we view our self and how we relate to others. At the core of Kegan’s theory are his organizing principles that he refers to as the “subject-object relationship”. Subject, are those things that are part of us, or what we believe to be true and cannot be reflected upon. Object, are those things that are separate from us, they are variable. Kegan said, “we are subject, we have object.” (1994, P. 32) While everyone has things that are subject and things that are object, this organization is not permanent and development occurs when we are able to move something from subject to object. This transformation is the evolutionary principle in Kegan’s theory, as the movement of elements from subject to object allows us to stand apart from them and have more complex thoughts and in turn, changes the ways in which we make meaning of our experiences.

Kegan describes the evolution from subject to object as the structure of organizing principles or “orders of the mind” for which we use to make meaning. As we move from one order to the next we build upon our previous ways of knowing, resulting in more complex thinking and meaning making or how we construct knowledge.
Although Kegan’s theory encompasses five orders of the mind, I have elaborated on only the third and forth order, as these orders are most relevant to the college student. The third order of the mind as described by Kegan,

“The mental capacity that enables one to think abstractly, identify a complex psychological life, orient to the welfare of a human relationship, construct values and ideas self-consciously know as such, and subordinate one’s own interests on behalf of one’s greater loyalty to maintaining bonds of friendship, or team or group participation.” (1994, 75)

Kegan believes the transformation from the second to third order takes place around older adolescents. Many of our second order cognitive abilities begin to move from subject to object and can be identified by the ability to reason abstractly and use inference as well as develop hypotheses and think deductively. In the third order we can begin to set our needs apart from our self making those needs object; as where previously our needs were subject and often defined our identity and our relationships with others. This transformation allows us to begin to see others’ points of view and we can coordinate our own thoughts and feelings into this new social structure and give us the ability to hold values and ideals. It is this new social structure where we learn to subordinate our own interests for the greater possibility of relationships. However, these relationships are built through shared realities therefore meaning making is often co-constructed (or defined externally) as opposed to autonomous. Since meaning is constructed externally, we may experience conflict when confronted with ideas that we believe to be true yet are in opposition of the external forces, making us susceptible to peer pressure.

Although there is an absence of an independently constructed self in the third order, two thirds of adults never evolve to the forth order. Kegan notes that values, beliefs, convictions, generalizations, ideals, abstractions, interpersonal loyalty and intrapersonal state of mind are all subject in the third order. The fourth order is more complex because;

“It takes all of these as objects or elements of its system, rather than the system itself; it does not identify with them but views them as parts of a new whole. This new whole is an ideology, an internal identity, self-authorship that can coordinate, integrate, act upon, or invent values, beliefs, convictions, generalizations, ideals, abstractions, interpersonal loyalties, and intrapersonal states. It is no longer authored by them, it authors them and thereby achieves a personal authority.” (1994, 185)
It is within the fourth order that we are able to construct a self-independent from others. The meanings that were co-constructed in the third order are now object and we can now stand apart from them. We are now able to construct our own self-governing systems based on our own internal belief structure and the conflicts we once experienced no longer exist as we now make decisions using our own internal dialogue negating any external influence. This is not say that relationships are no longer important to us, but that we can now stand apart from our relationships and have an identity outside of them. In fact this ability to stand apart from our relationships allows us to have a larger perspective in which to make meaning. Kegan refers to this order as when we become Self-Authored and is one of the most significant developmental shifts as it is when our true identity is formed.

It is important to note that the transformation for the third order to fourth order is not an immediate jump. This transformation can take years if not decades or sometimes not at all. The journey between the two orders has many phases of its own and we can sometimes be halted within a particular phase without the appropriate challenges and support needed to continue in our growth.

Figure 2.3 Depicts Kegan’s theory of human development. Development begins in the first order of the mind where only our reflexes are object to us. As we transition to the next order, we still carry with us the meaning we had previously made, but it now has more complexity. With each new order, the complexity of meaning increases as more things are moved from subject to object.
Robert Kegan’s theory of human development is comparable to William Perry’s theory of intellectual and moral development in that both theorists view early meaning making as something that is co-constructed. Perry’s view of *Dualism*, a time when we expect authorities to hold all the answers, implies that we are using external formulas to make meaning, or still in the third order of Kegan’s theory. As we transition into *Self Authorship*, or the fourth order, we are able to rely on our own internal belief system to make meaning, which has many similarities to Perry’s stage of commitment. Both *Dualism* and the third order indicate meaning being made through our own internal structure and based on knowledge, experience and reason. Kegan’s theory deviates from Perry’s theory in that Kegan does not describe what happens during the transition between the third and fourth order. Perry, on the other hand, recognized the complexities during this transition in his
description of multiplicity and relativism, the two middle stages of intellectual and moral development. Another
difference between the two theories is that Perry’s research focuses primarily on cognitive development while
Kegan recognized the three dimensions of cognitive, interpersonal and intrapersonal development.

Marcia Baxter Magolda expanded on both Perry and Kegan’s work to develop her own theory and defines Self-
Authorship as “the capacity to internally define a coherent belief system and identity that coordinates
engagement in mutual relations with the larger world” (Baxter Magolda in Baxter Magolda & King, 2004, p.
xxii). She argues that the development of Self-Authorship is a journey, and like Kegan, Baxter Magolda views
the cognitive, interpersonal and intrapersonal dimensions being integral to development. The journey toward
Self-Authorship is delineated as three separate phases, which include external meaning making, the crossroads
and internal meaning making. In these three separate phases, Baxter Magolda recognizes Kegan’s third order in
relation to external meaning making and the fourth order in relation to internal meaning making, but introduces
the crossroads as the bridge between the two. Although Baxter Magolda is informed by how Perry viewed this
transition in his stages of relativism and multiplicity, her expanded research takes into account the three
dimensions of development and the conflict we experience in each dimension while traveling through the
crossroads. As with Perry, Baxter Magolda dissect each of the phases into evolving positions as we develop
and move forward on the journey toward Self-Authorship. Following is a description of how the positions
evolve within each phase as well as the dimensions of development associated with each.

During external meaning making, cognitively we believe knowledge is certain and held by authorities. In these
stages we cannot view knowledge as conditional nor can we question it. This immaturity forces us to rely on
others for answers and prevents us from thinking on our own. Interpersonally, we rely on relationships for
approval, creating a dependency on others and a desire to appease them. This in turn creates difficulty in
negotiating our own point of view against others’ and prevents us from appreciating diversity. Interpersonally,
we define ourselves by external forces and to rely on others’ beliefs and values to make meaning of our
experience. In the first position of external meaning making, trusting external authority, we are unable to view this
meaning making structure as deficient. It is only when we experience conflict with external sources that we
advance to the second position, *tensions with trusting external authority*, however we will still rely on authority to resolve the conflict. The third position, *recognizing the shortcomings of trusting external authority*, is achieved when we begin to realize that external sources are not always right, even though we continue to rely on them anyway.

As we enter the crossroads, with the awareness that external authority may not hold all the answers, we begin to experience pain caused by the conflict between what others tell us and what we internally believe. The fourth position, questioning external authority, makes us aware that we need to develop our own voice, yet we are not sure how to accomplish this task. As we begin to explore new ways of making meaning we advance to the fifth position of *constructing an internal voice*, however any conflict we may experience with this internal voice may cause us to revert back to earlier positions for meaning making. The sixth position, *listening to internal voice*, and the seventh position, *cultivating the internal voice* are viewed within this phase as leaving the crossroads. *Listening to the internal voice* involves attempting to enter the conversation with external voices while recognizing the difference between external expectations and our own feelings. As we begin to make meaning of our own feelings we are capable of *cultivating our internal voice*. This allows us to develop our own beliefs and values while reducing our reliance on external authorities. As we evolve through this journey through the crossroads, we cognitively become more aware of multiple perspectives and we begin to accept that multiple truths exist. This growth allows us to interpret new knowledge using our own internal dialogue while considering multiple points of view to make judgments. Interpersonally, we become aware of the necessity to construct relationships based on our own values, bringing our identity to the forefront.

As previously stated, it is the pain experienced by the discrepancy between what others tell us and what we internally believe that creates conflict in us as we journey through the crossroads. Without appropriate support, this conflict may influence us to revert to earlier ways of making meaning and prevent development from occurring. Baxter Magolda’s research indicated that although most students in her study entered college at the beginning of the crossroads, few students had achieved development beyond the crossroads by the end of the college experience. Some students had remained in the crossroads and continued to follow external formulas to some degree well beyond graduation as they struggled in their chosen career.
Those students who had achieved development beyond the crossroads and entered the phase of internal meaning making, began in the eighth position of trusting the internal voice. Once we realize that we do not have control of the reality around us, only control over how we respond, we begin to trust our internal voice and can use it to make decisions on how to respond. The more we use the internal voice and build trust in it, we begin to build an internal foundation, the ninth position, to guide us philosophically on how to navigate the world. This too can be challenging as we attempt to negotiate external voices with our own internal voice. During this time, we may need to reflect on previous ways we have made meaning and make adjustments on what we now know to be true. Once we have built a strong foundation, we can move to the tenth position of securing internal commitments. This allows us to live out our daily lives committed to a certain set of beliefs and we are confident in how we make decisions. We know what we want for ourself and we rely on our internal authority to decide how we will succeed. Cognitively, we see knowledge as uncertain and can view it in its contextual meaning. We interpret new knowledge using our own internal dialogue while considering multiple points of view to make judgments. It allows us to have reflective judgment, intellectual power, make mature decisions and solve problems in context. Interpersonally we can form interdependent relationships where we can integrate multiple points of view and perspectives. This maturity is required to recognize and comprehend social issues as we can now hold respect for self and others’ identities and cultures; and begin to have empathy for others. In addition, the ability to work collaboratively will increase as we can now negotiate others’ needs against our own. Intrapersonally, our identity is consistent with our belief structure. This maturity is required for autonomous decision-making and provides an internal framework for organizing experience. Since this framework is now based on our own values and beliefs, we can now believe in ourselves, giving us the confidence needed to interpret new experience and choices. In turn, this confidence allows us to recognize our personal strengths and become more self-aware. Figure 2.4 depicts Baxter Magolda’s model of the journey toward self-authorship and is comprised of 10 positions of development.
Heavily reliant on external authorities for what to believe, how to learn, how to define themselves and how to build relationships with others. Made decisions on what others expected of them.

Conflict between what others tell them and what they internally know creates pain.

*Trust yourself to decide what to believe, follow your vision on how to succeed. Internal voice in foreground coordinates external voices.*

**PRESUPPOSITIONS**

**Trusting External Authority**
- **Establishing an Internal Voice**
  - Listening to Internal Voice
- **Recognizing External Authority**
- **Continuing to Trust Internal Authority**

**INTERPERSONAL**
- **Constructing an Internal Voice**
  - Establishing a Distinction between their feelings and external expectations
  - Attempt to get internal voice into conversation with external voices

**CROSSROADS**
- **Entering the Crossroads**
  - **Questioning External Authority**
  - **Continuing to Trust External Authority**

**INTERNAL MEANING MAKING**
- **Self-Authorship**
  - **Building an Internal Foundation**
    - Use internal voice to make internal commitments and build them into a foundation or philosophy of life to guide action.

**External Meaning Making**
- **External Authority**
  - Consistently and unquestioningly rely on external sources without recognizing shortcomings of this approach

**Internal Meaning Making**
- **Self-Authorship**
  - Trust yourself to decide what to believe, follow your vision on how to succeed. Internal voice in foreground coordinates external voices.
2.3: The Danger of a Single Story: An Alternative Theory of Identity Development

Cognitive Structural Development Theory is only one theory that attempts to explain how we make meaning and how identity is developed. The danger in viewing identity through only one theory is that identity is complex and by ignoring alternative explanations, we are also ignoring the many variables that contribute to why we are the way we are.

Psychosocial Development Theory focuses on the “content” of development and how experience shapes how we view the world, make decisions and examine our personal and interpersonal lives (Jones & Abes, 2013). It depicts development as a series of cognitive tasks that we must resolve before maturity can be achieved. Erik Erikson (1959) was the first to detail a process for identity development and argues that there are eight stages we should pass through, starting with infancy. In each stage we are presented with a guiding question we must resolve. This resolution is comprised of two opposing ideas that we will embrace as part of their identity. The direction of which idea to embrace is dependent on the dominant relationships with whom we are engaged with during the developmental stage. Healthy development and advancement to the next stage occurs when we are given the appropriate level of support. Lack of support and resolution may result in an unhealthy self-image.

Arthur Chickering and Linda Reisser expanded on Erickson’s work to develop their own theory of identity development, also known as the Seven Vectors (Chickering & Reisser, 1993). Chickering and Reisser describe development as a more holistic framework and view the vectors as stages. Like Erickson they viewed development as dependent upon specific cognitive tasks being resolved, however they argued that development occurs at various rates. This would suggest that certain areas of development could occur in one vector, even though not all of the cognitive tasks have been resolved. Movement to the next vector may still be accomplished, however traces of the unresolved tasks will remain. Chickering notes that identity is reliant upon the first four vectors reaching full maturity. The four vectors influencing identity are developing competence, managing emotions, moving through autonomy toward interdependence and developing mature interpersonal relationships. The
final three vectors include identity, purpose and integrity. Following is a description of the seven vectors.

The first vector, developing competence, involves an increasing trust in our ability to make sense of our experience, the ability to communicate with others through active listening and appropriate response, and trust in our ability to tackle new physical and manual skill challenges. Students who do not resolve the developmental tasks in developing competence may have difficulty in communicating with others, may avoid taking risks, and/or may struggle with difficult tasks.

Managing emotions, the second vector, involves being aware of and acknowledging our emotions. Development requires learning to regulate those emotions, as opposed to repressing them as well as learning appropriate methods of expression. Disruptive emotions such as fear, anxiety, depression, guilt or shame can interfere with daily life and academic success if emotional control is under developed. Lack of development can contribute to reactionary responses to our emotions as opposed to an integration of emotions.

Moving through autonomy toward interdependence, the third vector, requires both emotional and instrumental independence and later recognition and acceptance of interdependence. Chickering and Reisser describe emotional independence as the freedom from continual and pressing needs for reassurance, affection and approval. It is the ability to act on our own volition without fear of emotional rejection. Instrumental independence is the ability to find solutions to problems and strategize in self-directed ways towards implementation of said solutions. It is the ability to get from point A to point B without having to rely on others to walk you through each step. As development in the third vector progresses, so does the respect for the autonomy of others. This growth enables us to establish reciprocal relationships, thus developing Interdependence. Lack of development in the third vector can contribute to poor self-direction and a reliance on external sources for validation.
Developing Mature Interpersonal Relationships, the fourth vector, involves tolerance and appreciation of differences as well as the capacity for intimacy. Development of tolerance enables us to view and respond to others based on their personal character as opposed to relying on external or collective judgments. As tolerance developments, so does the capacity for empathy and altruism. Developing the capacity for intimacy is the ability to engage in healthy relationships that are based on authenticity, reciprocity and a genuine appreciation of the differences of others and requires freedom from narcissism.

The fifth vector, developing identity, involves an acceptance of self, which includes our own physicality, gender and sexual orientation. In addition, we can now view ourselves in the context of society, history and culture. It is this self-acceptance that allows us to receive and value feedback and criticism from others. As the first four vectors influence how our identity develops, unresolved tasks in the first four vectors may prevent us from developing a healthy identity.

Once a healthy identity is formed, we may advance to the sixth vector, developing purpose, where we begin to clarify what we want our future to look like. Our knowledge and development thus far has given us the tools required for visualizing a plan for ourselves and the ability to succeed despite any roadblocks that may get in our way. Although we have the ability to set and achieve goals, we are still highly influenced by those closest to us and the life in which we want for ourselves.

Developing integrity, the seventh vector, is achieved when we can view our abilities in the larger context of the social world. During this time we develop our own personal core value system while maintaining respect for those whose values are different from our own. This begins by first analyzing our own interests against the interests of others to define for ourselves what we believe is in the best interest of human kind. As these beliefs are defined we can act on conviction and gain the capacity to induce social change.

Having unresolved tasks in any of the vectors, specifically in the first four, may create additional challenges in the student's journey toward Self-Authorship. A student with unresolved tasks in the developing competence vector may struggle with difficult challenges, which may force them to rely on earlier structures for meaning making,
as the student looks toward authority to provide the answers, due to his or her own fear of failure. If a student’s unresolved task is in the moving through autonomy toward interdependence vector, their reliance on external validation may prevent them from listening to their internal voice as they will continue to define themselves through external expectations. This suggests that using Psychosocial Development Theory as lens to understand the complexities of how and why we develop is beneficial to developing a more complex meaning making framework. It would also suggest that knowing how to respond to students with unresolved tasks is essential to fostering their personal development. Figure 2.5 depicts the Seven Vectors as defined by Chickering & Reisser.
Psychosocial Identity Development Theory, 7 vectors (Chickering)

When obstacles prevent one or more of the first 4 vectors from developing, establishing identity becomes maladaptive and can prevent maturity from being obtained. This may prevent someone from moving toward self-authorship.

1: Competence
- a greater readiness to take risks
- a greater willingness to persist at difficult tasks
- easier to communicate

2: Emotions
- ability to integrate feelings with responsible action
- flexible control and appropriate expression

3: Autonomy
- learning to function with relative self-sufficiency
- take responsibility for pursuing self-chosen goals
- less bound to other’s opinions

4: Mature Relationship
- tolerance and appreciation of differences
- capacity for intimacy

5: Identity
- dependent on other vectors
- defining self as a part of a system and seeing self within the social and historical context

6: Purpose
- ability to be intentional
- assess interests and options
- clarify goals and make plans
- persist despite obstacles

7: Integrity
- humanizing values
- personalization values
- congruence and authenticity
- social responsibility

When all of the first 4 vectors develop to maturity, identity can be established. This involves:
- Comfort with body and appearance
- Comfort with gender and sexual orientation
- Sense of self in social, historical and cultural context
- Clarification of self-concept through roles and lifestyle
- Sense of self through valued feedback from others
- Self-acceptance and self-esteem
- Personal stability and integration
2.4: Assessing Meaning Making

The key factor in assessing meaning making and determining a level of development requires discerning between how people think and what they think (Baxter Magolda and King, 2012). The main challenge, however, is that how people think is an active process, which means they may fluctuate between meaning making structures depending on the context. Although there have been several methods developed for assessing meaning making, I have only selected two methods for further discussion.

Robert Kegan constructed an interview assessment technique referred to as the Subject-Object Interview (SOI) (Kegan et al., 2011). This assessment is an open-ended interview where interviewees are directed to tell stories about themselves that will illustrate how they make sense of their world. The interviewer guides the participant through the process by asking additional questions in response to how the interviewee describes a situation. The content of the interview is irrelevant as the interviewer’s objective is to discover how the interviewee views themselves in relationship to others and how their belief structures impact decision making.

To administer the SOI, participants are given 10 index cards with one of the following words written on each card; anger, anxious, success, conviction, sad, torn, moved, lost something, change, important. They are then being asked to write a few thoughts on each card explaining a personal experience relating to the corresponding card. After completing the card exercise, participants are asked to select one card they would like to talk about. As the participant tells the story about an experience they had associated with the given card, the interviewer guides them by asking additional questions that would provoke the participant to explain in more detail. This continues as the participant discusses each of the ten cards or until enough data has been collected to make an accurate assessment. The intent is to receive enough data to determine their meaning making abilities.

Utilizing Kean’s “Orders of the Mind,” scoring is based on how people make sense of their experience. The scores align with Kegan’s “Orders” and indicate where they are on their journey toward self-authorship. Figure 2.6 depicts the scoring between the third and fourth order. A score of 3(4) indicates that the participant is still
using external formulas to organize experience but is beginning to recognize that external formulas may not always be appropriate. Determining a 3(4) score is best described in the example of the female student who discussed her experience of feeling torn. In her interview she described a situation where her classmates were all speaking poorly about a specific instructor. The student, herself, joined in the discussion to include her own negative remarks, even though she had grown to like the instructor. She was torn because she wasn’t sure if she felt the same as the others, yet she participated in the discussion anyway. When asked why she participated in the discussion, her response was simply, “I don’t know, I wanted to fit in and some of what they were saying was true.” In this example, the student’s use of the words, “wasn’t sure if she felt the same as the others,” imply that she was unable to listen to her internal voice. She participated in the conversation out of concern of not fitting in and her fear of letting others think she might have a different opinion. Both of these remarks suggest that the student is still organizing her experiences using external formulas, however, the fact that this experience made her feel torn implies that she is becoming aware of the conflict between what she believes and what others expect. While scoring the SOI, the scorer continues to assess the interviewee’s stories in the context of the other cards to support or adjust the assessment as needed.

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>3</td>
<td>3 organizes all experiences. Still following external formulas</td>
</tr>
<tr>
<td>3(4)</td>
<td>3 is organizing experience, while 4 is becoming present</td>
</tr>
<tr>
<td>3/4</td>
<td>3 is ruling, but 4 begins to organize experience</td>
</tr>
<tr>
<td>4/3</td>
<td>4 is ruling, but 3 still organizes some experiences</td>
</tr>
<tr>
<td>4(3)</td>
<td>4 is organizing experience, but traces of 3 still exist</td>
</tr>
<tr>
<td>4</td>
<td>4 organizes all experiences, self-authorship is achieved</td>
</tr>
</tbody>
</table>

*Figure 2.6: Robert Kegan’s SOI Scoring for Assessing Development*

Marcia Baxter Magolda and Patricia King (2011) also developed an open-ended interview method for assessing meaning making. Like the SOI, Baxter Magolda’s method focuses on how the participant thinks as opposed to
what they think. The interview begins with the participant being asked to describe a significant event that was meaningful to them. As the participant talks the interviewer prompts them with additional questions to gain more insight into how they think. The format for the interview itself is more like an informal conversation as participants describe their experiences. The analysis of these interviews uses an inductive process to determine which of the 10 positions the participant is using to make meaning, as outlined in Baxter Magolda’s model.

<table>
<thead>
<tr>
<th>Securing Internal Commitments</th>
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</thead>
<tbody>
<tr>
<td>Building an Internal foundation</td>
</tr>
<tr>
<td>Trusting the Internal Voice</td>
</tr>
<tr>
<td>Cultivating the Internal Voice</td>
</tr>
<tr>
<td>Listening to Internal Voice</td>
</tr>
<tr>
<td>Constructing an Internal Voice</td>
</tr>
<tr>
<td>Questioning External Authority</td>
</tr>
<tr>
<td>Recognizing Shortcomings of Trusting External Authority</td>
</tr>
<tr>
<td>Tensions with Trusting External Authority</td>
</tr>
<tr>
<td>Trusting External Authority</td>
</tr>
</tbody>
</table>

*Figure 2.7: Marcia Baxter Magolda’s 10 Positions of Development*

Assessing meaning making involves understanding how the participant thinks in relation to the external world. Students who make decisions based on what they think others expect of them or require external validation are using external formulas for thinking. Those who are further along in their journey can begin to negotiate their own feelings with the expectations of others. Eventually their own feelings become part of their internal voice.
and are defined as a set of values. Self-authorship is achieved once the student is committed to their internal voice and the values they hold true. Understanding how a student thinks requires listening to the stories about their experiences. The student who decides to no longer hang out with her old high school friends and prefers her new college friends provides a context for further exploration, but does not determine how she thinks. To assess the level of development of this young woman, she would need to be prompted to further discuss the differences between the two groups of friends. If she said that her new friends have more interesting things to talk about while her old friends just want to party, she may be discovering that she values the intellect offered by her new college friends, thus she is beginning to listen to her internal voice. If she said that her ex-boyfriend is part of the high school group and he always makes her feel guilty and bad about herself, she may still be defining herself through external perspectives, however the time she is spending with her new friends may have helped her realize the dilemma of following external formulas. Determining the level of development of this student would require further prompting from the interviewer regardless of which way she had answered.

Both methods of assessment interviews require the interviewer to have a great deal of knowledge about identity development in order to provide the appropriate prompts. In addition, the authors of both methods have developed training materials for administering and analyzing the assessment interview.
Jean Piaget’s research in cognitive development describes how it is we make meaning of new knowledge. Learning how to think requires a more complex meaning making framework and development is prompted by the provocative experience or new knowledge and followed by connecting the new knowledge to existing knowledge then applying it to a new context. William Perry viewed cognitive development as a sequential journey where learning how to think happens over time as we let go of the idea that authorities hold all the answers. This dichotomy between following external formulas and following internal formulas was emphasized in Robert Kegan’s research and his concept of the subject-object relationship. Kegan, however, viewed development as occurring not only in the cognitive dimension, but also within the interpersonal and intrapersonal dimensions. Marcia Baxter Magolda’s expansion of her predecessors’ work within her own research illuminates the journey toward self-authorship and its relationship to the holistic development of the cognitive, interpersonal and intrapersonal dimensions.

Complex meaning making, self-authorship and identity development are essentially synonymous. Self-authorship views development as a sequential, linear progression, while psychosocial development theory views identity development as holistic. Either way, complex meaning making is achieved once we have reached developmental maturity. Self-authorship is more about the “how” we develop whereas psychosocial development theory focuses on the “why” we develop. The fact that psychosocial development theory states that moving to the next vector is not dependent upon the previous vector reaching maturity suggests that we could develop self-authored ways of knowing in specific arenas prior to achieving full self-authorship. It also suggests that if unresolved cognitive tasks from earlier vectors exist, self-authorship may be impeded until these tasks are resolved.

Assessing meaning making is the first step in fostering development. The student who follows external formulas and expects authorities to hold all the right answers would benefit more from guidance toward finding their own answers. The student who knows how to negotiate external expectations with their own
internal framework could be provided several right answers, then be left to discern which answer was most appropriate for the context of the problem. Awareness of any unresolved cognitive tasks held by an individual student provides insight into the specific needs of that student and should not be overlooked while attempting to foster development.

The designer who follows external formulas after entering the work force will continue to look toward authority to provide the right answers. This suggests that the design employer will most likely have the greatest influence over how the designer will make meaning of being a design professional. This means that the continual development of the designer will be dependent upon the motivations of the design employer. One scenario is that the employer is eager to also foster the development of the designer and the designer eventually learns how to think. The contrast to that scenario is the employer who indoctrinates the designer into his own belief structure and provides no support for further development. Either way, this puts the continued education of our young designers in the hands of industry, where the design educator no longer has influence. The self-authored person has the capacity for reflective judgment, intellectual power, the ability to make mature decisions and solve problems in context, the ability to recognize and comprehend social issues, hold respect for self and others identities and cultures, empathy, confidence and awareness. Since these are also the desired traits being called for in design education reform, it is clear that the shift in design pedagogy must move in the direction of the development of the whole human being.
Chapter 3: Fostering Self-Authorship

Roberts Kegan’s research in psychology has been termed constructive-developmental; joining together the theories of constructivists and developmentalists. Constructivists argue that our world is not what we discover but how we make meaning and construe the world around us (Piaget, 1900). This argument infers that we, as individuals, construe our worlds and make meaning independently from others experiencing the same situations. Developmentalists argue that humans’ psychological growth is systematic and affects our cognitive abilities, social development, moral understandings and identity formation (Rogers, 1951). Developmentalists believe that, although systematic, this growth is specific to the individual and may be encouraged as well as stunted by individual experience. Constructive-developmentalists, therefore, explore the systematic ways in which people make meaning over time (Kegan, 1994). This chapter describes the theories behind fostering development within the context of both constructivism and student development.
3.1: The Founders

John Dewey is often thought to be one of the founders of constructivist education. He believed that learning begins with a student’s experience and that active learning could only be achieved when the student could connect the new knowledge to his or her own experience. To Dewey, education must engage with and expand experience and involves exploring, thinking, discovery and reflection. He argued that the educator should provide guidance and facilitate learning as opposed to being an all-knowing authority that tells students what to think. Dewey stated that “only by wrestling with the conditions of the problem, at first hand, seeking and finding his own way out, does [the student] think.” He argued that problems are naturally motivating when students are encouraged to discover their own answers first hand and that it is this engagement between the student and the problem that is the basis for critical thinking (Dewey, 1938).

Dewey also noted, “We never educate directly, but indirectly by means of the environment. Whether we permit chance environments to do the work, or whether we design environments for the purpose makes a difference” (p. 22). This statement not only acknowledges the effect of the environment on learning but also suggests that environments could be designed to facilitate learning. Dewey’s use of the word environment reaches far beyond the physical space to encompass the whole learning experience including the processes used and the relationships between the teacher and student.

The role of environment was made explicit by student development theorist, Nevitt Sanford, who viewed the campus environment as a catalyst for student development stating, “the institution which would lead an individual through greater development must, then, present [that person] with strong challenges, appraise accurately his ability to cope with challenges, and offer them support when they become overwhelming” (Sanford, 1966 p. 46). It is this call for a balance between challenge and support that continues to serve as a foundational principle for fostering development.
The principle of challenge and support was viewed by student development scholars, Lee Knefelkamp, Carole Widick and Clyde Parker, as not only associated with the individual student but a responsibility of the institution and those committed to advancing higher education. In an article titled, *Applying New Developmental Findings* (1978), they write,

*If educators are to encourage development, they must know what development is—what changes can, do, and should take place in students and what particular factors serve to challenge and support them. From our perspective, the creation of a developmental community requires a theoretical knowledge base, which describes:*

1. **Who the college student is in developmental terms.** We need to know what changes occur and what those changes look like.
2. **How development occurs.** We need to have a grasp of the psychological and social processes, which cause development.
3. **How the college environment can influence student development.** We need to know what factors in the particular environment of a college/university can either encourage or inhibit growth.
4. **Toward what ends should development in college should be directed.**

Although these questions are still relevant today, the answers in relation to providing the appropriate levels of challenge and support have become more complex. There no longer appears to be a “typical” college student as the world grows more diverse. Rapid advances in technology alter the college environment on a daily basis and alternative living styles provide numerous factors to decipher as to what influences development.
3.2: The Engaged Learning Model

Utilizing the knowledge of her predecessors, Baxter Magolda argues that fostering self-authorship requires recognizing which phase of the journey that the students are at so that new challenges will be appropriate to their level of development (2004). The key philosophy in promoting self-authorship in the classroom consists of a shift in the traditional paradigm of instructional learning, where we teach students what they should know, to a learning paradigm, or active learning experience, where students can begin to construct their own ideas. This new experience must address the development of the intrapersonal, interpersonal and cognitive meaning making structures with an emphasis on developing a more complex framework for making meaning. The goal is for students to develop an internal belief system for decision making, have the ability to engage freely in interdependent relationships and an internal sense of self that enables them to construct new knowledge with others. This growth takes times and requires continuous self-reflection. The Engaged Learning environment should be appropriate to their experience, however a steady increase in challenge should be implemented to foster any growth. Magolda asserts that the three guiding principles to self-authorship lie in validating students as scholars, situating learning in their experience and offering opportunities to mutually construct knowledge.

Validating students as scholars requires the educator to silence his or her voice as the authority and allow students to view them as someone who is interested in hearing students’ ideas. The instructor should encourage and acknowledge students’ new ideas insuring that students know that their voices are important. While students are following external formulas, methods to validate students as scholars may include learning every ones’ first name, allowing students to offer input on the learning material, provide avenues for self reflection and encouraging students to consider multiple points of view. Once students have reached the crossroad, the educator could validate the students’ voices through listening and implementing ways in which the students think about how to improve upon the learning experience. Other methods include teaching students to critically analyze both peers’ and scholarly works, offering feedback on strengths and weaknesses of the student and engaging in brainstorming and reflection sessions. As students advance toward self-authorship, methods to validate them as scholars assume a more mentoring approach. An example might be to provide opportunities
for students to take on a leadership role and working with them to meet the demands of their charge. In addition, the instructor could encourage students to explore the multiple perspectives of the effects the students’ work might have.

Situating learning in the learner’s own experience can have more challenges as they are all coming from different places, however it can begin by recognizing and acknowledging that students bring their personal experiences into the classroom. Material introduced requires explanation of how it is relevant and providing examples that students can relate to. Students should be provided with opportunities to explore what they believe and why they believe it through self-reflection. Assignments should connect to students’ experiences and guidelines over requirements should be offered. Potential methods while students are following external formulas could be to create assignments or projects with no pre-arranged limit or end, allowing for students’ input on how they should be evaluated and using real world examples, from their experience, when introducing new concepts. As they enter the crossroads students could be offered more choices as to how they would like to approach an assignment or project as well as choices in defining which problems they would prefer to find solutions for. Students entering the crossroads could also be asked to analyze their own belief systems against their academic work and reflect upon it. Advancement toward self-authorship methods primarily include opportunities for self-reflection. This reflection could be on how their belief systems align with their decision making or in how their college experience will translate into the real world. Providing multiple opportunities for students to present what they know will also provide an occasion for self-reflection.

Offering opportunities to mutually construct knowledge requires framing learning as something you do together. Instructors should allow students to see how they work through a process and demonstrate how the instructor-student exchange is relational and that both people learn and change. While students are following external formulas, methods to mutually construct knowledge could consist of assigning group based inquiry projects, offering multiple solutions to a problems or working aloud through problem together. Students in the crossroads could benefit from assignments requiring critical analysis of what is considered to be excellence in their field, projects that require a certain level of expertise or the application of certain methods or process to a real life situation. As students advance toward self-authorship, methods to mutually construct knowledge
include allowing students to design and assess their own projects, co-constructing projects or work and encouraging students to publish or publicly present their work.

Throughout the twenty years of Baxter Magolda’s research, she developed the Engaged Learning Model, which was designed to meet the needs of the students’ levels of development while gradually challenging them to evolve towards a confident, independent self. The model was designed to increase the level of challenge as the student advances in their college program and in development. It begins with the foundational stage, while students are still reliant on external formulas. The intermediate stage is designed for students who have begun to question external authority and the model ends with the capstone stage for students who are listening to their internal voice. At first glance, this model appears simple to achieve and many professors will argue that they currently employ these strategies. Baxter Magolda asserts that the success of the Engaged Learning model requires an intentional design and the support of other faculty, staff and students. The goal is to empower students as they evolve into intellectual thinkers and scholars. This does not mean, however, that we should dismiss existing knowledge, indulge students at every turn or that we become their friends. The intent is to transform our current pedagogy into a philosophy of intentional engagement that will support the overall development of how students think.
<table>
<thead>
<tr>
<th>Stage</th>
<th>Foundations</th>
<th>Intermediate</th>
<th>Capstone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student Traits</strong></td>
<td>Reliant upon external formulas</td>
<td>Questioning external authorities; developing own voice</td>
<td>Using internal voice to guide actions and work</td>
</tr>
<tr>
<td><strong>Educator Role</strong></td>
<td>Designs learning experiences to promote active student engagement</td>
<td>Co-designs learning experiences with students</td>
<td>Guides students in designing, implementing and reflecting on their own discovery projects</td>
</tr>
<tr>
<td><strong>Key Learning Goals</strong></td>
<td>• Ask relevant questions</td>
<td>• Practice authentic tasks &amp; methods</td>
<td>• Design and reflect on own inquiries</td>
</tr>
<tr>
<td></td>
<td>• Identify multiple perspectives</td>
<td>• Collaborate on diverse teams</td>
<td>• Integrate learning from multiple domains</td>
</tr>
<tr>
<td></td>
<td>• Gain foundational knowledge</td>
<td>• Connect inquiries to personal beliefs</td>
<td>• Apply lessons learned to future goals</td>
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<tr>
<td><strong>Sample Assignments &amp; Activities</strong></td>
<td>• Simulations</td>
<td>• Service learning projects</td>
<td>• Student-designed inquiries &amp; initiatives</td>
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<td></td>
<td>• Role-playing different perspectives</td>
<td>• Student-led classes</td>
<td>• Portfolios</td>
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<td></td>
<td>• Structured reflections</td>
<td>• Faculty-student research teams</td>
<td>• Exhibitions, performances</td>
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<td></td>
<td>• Case studies, authentic scenarios</td>
<td>• Internships with ongoing reflection</td>
<td>• Conference presentations</td>
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<tr>
<td></td>
<td>• Multidisciplinary panels</td>
<td>• Faculty-student team-taught courses</td>
<td>• Publications</td>
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</tbody>
</table>

*Figure 3.1: Summary of the Engaged Learning Model (Baxter Magolda, 2004)*

*Caveat:* The Engaged Learning model was derived from Marcia Baxter Magolda and Patricia King’s, Learning Partnership Model (2004). While the Engaged Learning Model was developed to work within the individual course, the Learning Partnership Model was designed to work across the curricula. The objective of the Learning Partnership Model is to provide a more comprehensive design of the learning environment through collaboration of the faculty and students. As studio based design courses are typically taken simultaneously with companion and support courses within a given term, the Learning Partnership Model serves to connect new knowledge from one course to the next, providing a greater opportunity for complex meaning making to be achieved. As this study focused solely on the studio based design course, the Learning Partnership Model was not be utilized due to the complexities it might create in the data.
3.3: Methods for Fostering Self-Authorship in a Studio Based Design Course

The Engaged Learning Model outlines the educator’s role as one who designs a learning experience that promotes student engagement. Active learning engages students in two aspects – doing things and thinking about the things they are doing (Bonwell and Eison, 1991). “In adopting this role, the teacher presents students with critical thinking problems, gives students supervised practice at addressing them, and coaches their performance by critiquing their solutions, providing helpful intervention and advice, and modeling critical thinking themselves” (Bean, 2011). As the goal of this research was to discover methods for fostering development in the context of a studio based design course, secondary research focused on methods typically implemented into a studio based design course as well as methods for integrating critical thinking and fostering development.

Critical Thinking

The objective in teaching critical thinking skills is to challenge the student’s present assumptions as they begin to explore alternative ways of thinking and acting. Developmental growth cannot begin until students can question what they think they know to be true and start considering other points of view as possible solutions to problems. Part of the problem in teaching students to think critically, however, is the awakening of the students to the problems around them (Meyers 1986). Presenting problems to students through critical literature may begin the process as it has the potential to provoke new thought on an issue not previously explored. Learning to think critically validates students as scholars in that it allows students to have their own voice about new thoughts and points of view. In addition, critical thinking situates learning in the students’ experiences as it provides the opportunity for students to develop their own point of view by interpreting new ideas through their own experiences. Through classroom discussions, critical thinking also offers opportunities to mutually construct knowledge, as it provides the opportunity to solve problems together.

John C. Bean’s work within higher education focuses on the active learning environment and methods for integrating critical thinking (2011). As a huge proponent of writing to promote critical thinking, Bean views
writing as a means for making meaning that promotes a deep learning of the course’s ideas, concepts and skills. He suggests that writing is most effective when a variety of writing assignments are employed, including both low-stake and high-stake writing. Low-stake writing allows students to quickly organize their thoughts without fear of judgment or concern for grammar. Connections are often made in low-stakes writing, and are an impetus for critical thinking, as students can begin to visualize their thoughts on paper as opposed to swirling around in their heads. High-stake writing requires the student to think critically about the connections they are making in their thinking. This sentiment is also shared by Wilbert McKeachie and Marilla Svinicki (2006), as they view writing as a means of exploring and experimenting that can remain private or can be revised prior to sharing with others, particularly when low-stake writing is assigned. High-stakes writing not only helps the student learn to communicate their thinking but also provides a means for evaluating their learning in relation to the course objectives. Both Bean and McKeachie also advocate introducing critical literature for facilitating critical thinking as it provokes new thought and challenges the student’s current belief structure. Introducing critical literature requires selecting the appropriate level of reading in relation to the students’ development. Students may also need guidance in learning how to read difficult texts and dissecting complex ideas. Both authors have provided numerous works that outline various strategies for integrating critical literature, discussions for promoting critical thinking and critical writing into course work.

Visual Curriculum

Although introducing critical literature for introducing new knowledge is effective in provoking thought and writing is effective for helping students make meaning of this new knowledge, these methods take a considerable amount of time to process and provide feedback. The visual curriculum is a method that accelerates both the dissemination of new knowledge and meaning making for students. In A New Direction for Multiple Literacy Education, Van Heertum and Share argue for a pedagogy that will address the variety of ways in which we, as individuals, make meaning. The authors argue that language and other modes of meaning should be considered as “dynamic representation resources”. (Van Heertum, Share, 2006) This would suggest that in addition to introducing critical literature and writing, alternative assignments, specifically those using visuals, would be needed for students to make meaning. Visuals, particularly ones that come from real world experiences, provide a context that students can relate to. Diagrams illustrating the connections between two
parts facilitates meaning making and are quite effective when working with visual learners, who appear to be common in the field of design.

Although the typical design student is a strong visual learner, using visuals as a means of introduce new knowledge and facilitating meaning making is not without its challenges. Being a visual learner does not equate to being literate in reading images. To account for visual illiteracy, students also need to be taught how to read the images as well as interpret the meanings associated with them. Lulu Rodriguez and Daniela V. Dimitrova’s article, The Levels of Visual Framing (2011), describes the various methods used in reading images. The authors’ reference to a denotative system suggests examining images as ‘visual sensations or stimuli’. This method of examining images will allow students to recognize actual elements while connecting what sensations they might attribute to them.

**Projects**

Project-based learning has always been the mainstay of the studio based design course. First introduced by John Dewey (Dewey, 1897), the pedagogy of project-based learning is organized around an open-ended problem or challenge that requires an understanding of the context, critical thinking, problem solving and various forms of communication. Project based learning provides a greater depth of understanding of concepts, as well as fosters the development of communication and interpersonal and social skills, enhanced leadership skills, increased creativity, and improved writing skills. Project based learning validates learners as knowers in that it encourages an active sharing of ideas, it situates learning in the learners’ own experiences as students pull from their own experiences while problem solving and it defines learning as mutually constructing meaning as project solutions are typically developed together.

**Critiques**

Project critiques are typical in studio based design courses and have always been viewed as a positive way for students to receive feedback from both their instructors and peers, which in turn fosters developmental growth. When students present their work to others, they are given the opportunity to explain what they know (Baxter-Magolda, 2004). The expectation of having to speak out loud to an audience demands that the student
begin to formulate into words their design process as well as prepare a defense in the event they are challenged by others. These presentations also provide the opportunity for students to identify their own weaknesses and strengths as well as their peers. Critiques validate students as scholars in that they teach students to critically evaluate their own work and their peers’ work, as well as provide opportunity to receive feedback on strengths and weaknesses. In addition, critiques situate learning in the students’ experiences as it provides the opportunity for students to present what they know. Critiques may also offer opportunities to mutually construct knowledge as they provide multiple solutions in solving a problem.

Self-Reflection

The goal of self-reflection is to allow students to interpret their own experience using their own voice and to begin a dialect with themselves about the process of decision-making. A self-reflection paper forces a student to frame into words how and why they worked through a situation and in turn will provide strategies for future learning (Taylor, Marienau, Fiddler 2000). Self-reflection promotes validating students as scholars in that it allows students to have their own voice about their learning experience. In addition, self-reflection situates learning in the students’ experience as it provides the opportunity for students to reflect on what they already know while evaluating their own work for its strengths and weaknesses.

Working One-on-one

Working one-on-one is also a typical method used in a studio based design course as a means of assisting students in their decision making as they work through their individual projects. In a quantitative study of the effects of faculty-student interaction on the development of the college student, Alexander Astin concluded that students were more likely to experience development as faculty-student interaction increased (1984). Working one-on-one with students provides an opportunity for students to express their individual difficulties with a problem without having to fear judgments from others (Baxter-Magolda, 2004). In addition, they may receive feedback on specific decisions and guidance towards further decision-making. These one-on-one sessions allow instructors to engage with students on a more personal level and should promote the development of confidence within the students. Working one-on-one with students validates students as scholars as it provides the opportunity for students to present what they know in a low-stakes environment.
while receiving feedback. Working one-on-one also provides the opportunity to work through a problem together and mutually construct knowledge. In addition, when students are allowed to explain what they know, their learning is being situated in their own experience.

**Self-Assessment**

The intent of self-assessment is for students to take responsibility and make judgments about their own work (Boud, 1995). By allowing students to assess themselves they will need to begin looking critically at how they accomplished the assignments and whether or not they felt the objectives were met. The purpose of self-assessment is to incite feelings as to what constitutes “good work” and to make students accountable for their own learning. Boud’s accounts of implementing self-assessments have shown that the quality of work typically improves as students develop a deeper understanding of academic standards. Self-assessment promotes validating students as scholars in that it acknowledges their ideas as valuable contributions. In addition, self-assessment situates learning in the students’ experiences as it provides the opportunity for students to reflect on what they already know while evaluating their own work for its strengths and weaknesses.

**Demonstrations**

The Engaged Learning Model (Baxter Magolda, 2004) specifically lists demonstrations as a valuable tool for fostering self-authorship. It provides an opportunity for students to make meaning of what is expected with a real world experience. Demonstrations can take the form of showing students a particular technique, as in working with new materials or software. A demonstration can also illustrate a method for problem solving or a process of thinking. Demonstrations validate learners as knowers as they provide opportunities for student engagement. By offering guidelines on how to approach a problem as opposed to requirements, demonstrations situate learning in the learners’ experience. They also define learning as mutually constructing knowledge as students are able to see the process for thinking, reasoning and learning.
3.4: Discussion

Fostering development and learning how to think have a history rooted in alternative education pedagogies. John Dewey advocated for a planned learning environment that was conducive to exploring, thinking, discovering and reflecting. These concepts are at the core of Baxter Magolda’s engaged learning model as she describes the intentional design of a curriculum that integrates methods for exploring, thinking, discovering and reflecting. Nevitt Sanford’s call for a balance of challenge and support for fostering development continues to serve as a foundational principle within the Engaged Learning Model. Baxter Magolda’s three guiding principles for fostering development serve as means of providing support in all three dimensions of development. The developmental stages defined in The Engaged Learning Model attempts to define ‘who the college student is in developmental terms’ (Knefelkamp et al., 1978) in relation to where the student is in their college program. The problem with this part of the framework, however, is that the college student in developmental terms can no longer be viewed as a single demographic. The typical class today is filled with students from varying socioeconomic backgrounds, nontraditional students, international students, commuter students and the list goes on. In that same vein, the diversity of students impacts which psychological and social processes that are influencing their development. These issues bring to light not only the difficulties in fostering development in the classroom environment but the importance of understanding how development occurs and what it looks like.

Section 3.3 was intended to offer additional insight into methods for fostering development. As this study is based in the context of a studio based design course, methods typically utilized in this type of course were necessary, however additional methods were explored as supplements to aid in fostering development.
Chapter 4: Methodology

This research is an interventional study. The purpose of this interventional study was to determine how to foster self-authorship in the context of a studio based design course. The Engaged Learning Model (Baxter Magolda, 2004) was utilized as the pedagogy for the development of course plans. Methods, techniques and tools implemented in the study derived from The Engaged Learning Model as well as additional sources supporting this pedagogy and are sited where applicable. The methods, techniques and tools were modified as needed and these modifications were based on a constant comparison of data, which consisted of observations, reflection papers, critiques, critical writing, self-assessments and student projects.

This study involved 14 Sophomore Interior Design students enrolled in the two consecutive Interior Design studio courses during the 2012-2013 school year, for which I was the primary instructor. To determine if Self Authorship was fostered in the context of a studio based design course, participants were assessed for their meaning making ability. This required assessing the participants’ levels of development at the beginning of the study to establish a baseline and at the completion of the study to identify if and where development had occurred. A control group consisting of five volunteers from the sophomore class of Visual Communications also participated in the pre and post interviews, but not in the Interventions. This chapter provides an overview of the methods utilized in developing the interventional study, including assessment tools, course plans and data collection as well as how the three guiding principles for fostering Self-Authorship were implemented. All procedures in obtaining IRB approval were followed prior to the collection of data.
4.1: Interventional Course Plans

Developing course plans required interpreting how Baxter Magolda’s model could be implemented into the discourse of a studio based design course while meeting course objectives, departmental goals and working within the constraints of the existing assignments and projects typically covered in these courses. The participant group presumably was still in the foundational stages of their academic career and the constructs of the Engaged Learning Model, which focuses on this stage, were utilized to develop the overall plan for the interventions.

Since the intervention spanned two separate courses, each with their own set of objectives, context and content, the course plans were developed independently of one another, allowing for flexibility for modifications to adapt to unforeseen conditions. Semester 1 (S1) was a foundational course and was an introduction to design theories, methods, and form making with emphasis on visual language and visual encoding practices. The course objective was to provide a thorough basis in research, principles, methods, form and meaning of two and three-dimensional design, which was to be accomplished through a total of eight projects to be completed over the 15 week semester. Key learning objectives in the development of the S1 course plan included primary meaning making of how theory influences design, awareness of multiple points of view, articulation of critical thought and awareness of self.

Semester 2 (S2) was the first Interior Design studio taken by students pursuing this field of study. It placed great emphasis on discussions of domesticity and space making, as well as methods in analogue modeling of architectural space. The aim of this course was to provide a thorough basis in research, principles, methods, form and meaning of architectural space. The course was structured to develop a solid foundation applicable to the interior design major. Utilizing complex design theory, students worked through the linear phases of the design process over the 15 week semester to develop a three dimensional architectural representation of space. Key learning objectives in the development of the S2 course plan included making meaning of complex design theory and application, learning a design process, articulation of ideas in the context of the theory in relation to
the context of design, development of a design voice, and awareness of what it means to be a professional designer.

The strategies utilized in the development of the course plans were selected based on their appropriation of challenge and support through the guiding principles of the Engaged Learning Model as well as the ability to be adapted for changing conditions. Consideration of how and when to use these methods and techniques was dependent upon the key learning goals as well as their potential effect on cognitive, interpersonal and intrapersonal development. Data collected from these methods and techniques was interpreted and analyzed during the course of the study to determine their effect and what modifications should be made if applicable.

4.1.1: The Active Learning Environment

The Engaged Learning Model (Baxter Magolda, 2004) outlines that the educator’s role during the foundational stage is to design learning experiences to promote active student learning. To develop the course plans I first had to establish what critical thinking problems I would present to the class, the manner in which they would be presented and the methods and techniques I would implement to support the active learning environment. These methods and techniques that are related to the course plans are discussed in greater detail later in this chapter.

Aside from the course plans, establishing a class discourse for promoting the active learning environment was also required. Methods and techniques that would specifically foster development in the interpersonal and intrapersonal dimensions were also explored. My intent was to create an atmosphere that was free from judgment with an emphasis in encouraging students to be their authentic selves. This would require modeling my own authenticity while recognizing the individual identities of each student. The objective was to help students view me as approachable and concerned as well as encouraging an active sharing of ideas, thus validating them as knowers.
4.1.2: Projects

As previously stated, the course projects utilized in this study consisted of existing projects that were typically introduced in these courses from previous years. S1 incorporated eight smaller projects emphasizing multiple ways of thinking and concepts while S2 focused on only one project and the deeper understanding of complex design theory. The projects themselves provided a challenge to the students, however since the intent of this study was to foster Self Authorship, how these projects were introduced and developed was modified to provide more complex challenges and appropriate support.

4.1.3: Critical Literature to Facilitate Critical Thinking

S1 included a total of three critical readings assigned throughout the semester as a means of introducing design theory and critical thinking but also a tool for creating the provocative experience. The readings were intended to challenge the students intellectually as well as expose them to multiple points of view and to demonstrate the relationship between theory and application. The readings, which were all short articles or papers, were selected based on their appropriation to the assigned projects and their reasonable level of complexity.

S2 revolved around one project and one complex design theory. The critical literature was introduced in the form of Peter Eisenman’s book, *The Diagram Diaries* (1999). As with the previous semester, this book was assigned as means of creating the provocative experience. *The Diagram Diaries* is considered by many to be highly complex and challenging to understand. For this reason, students were divided into groups and assigned different sections of the book to dissect and analyze.
4.1.4: Critical Writing

S1 consisted of three critical writings referred to as thought papers. The intent of the thought papers was to challenge the students to make meaning of the readings using their own thoughts and words, to identify how the readings might apply to real world scenarios and to think about how the readings might apply to them as designers. The requirements for the thought papers were very open ended and students were expected to write between 300 and 500 words. Questions for consideration included, but were not limited to, the following:

- What do you believe the author is trying to say? Or what does it mean?
- How does your personal experience relate to the reading?
- How do you think the reading might apply to the design discipline?
- How do you feel about what the author is saying?

To support the students through both the reading and writing challenges, discussions covering the critical readings were scheduled and discussion questions were distributed beforehand to allow students time to think about and process their answers. This support was intended to guide students through critical thinking and to facilitate meaning making as they wrote their thought papers.

As opposed to formal writing, during S2 students were required to form groups, dissect the portion they were assigned, make meaning of and prepare a presentation to be delivered to their classmates. Students were instructed to do their best with identifying the main concepts and to develop analogies or metaphors as a means of presenting the meanings to others. To support the students through this process, group meetings were scheduled to discuss their progress. This would allow for additional validation of learners as knowers as it encouraged active sharing of ideas and viewpoints. It also situated learning in the learner's own experience as it allowed for analogies and sharing stories about the concepts of *The Diagram Diaries* (Eisenman, 1999). Mutually constructing meaning was also accomplished through allowing students to see my own thinking and how I go about making meaning of complex ideas. This support was intended to guide students through critical thinking and to facilitate meaning making as they continued to work through the phases of the design process.
4.1.5: Critiques

Critiques implemented during S1 were scheduled to follow the completion of each of the eight assigned projects. The emphasis during these critiques was on providing positive reinforcement for critical thinking, articulation and decision making while offering suggestions to improve problem solving techniques and methods of speaking.

Critiques during S2 consisted of a juried midterm and formal final presentation where students were expected to articulate their process in relation to the complex theory. The emphasis on these critiques was to evaluate how the student was making meaning of and applying the complex theory in their design decisions and to offer feedback on ways to improve their arguments or design decisions. To prepare students for these critiques, students were required to write a script of what they intended to say and how they would present their work. Scripts were edited and additional feedback was given prior to the scheduled critique.

4.1.6: Self-Reflection

During S1 students were required to write a reflection paper after the completion of each of the eight assigned projects. The requirements for the reflection papers were to write a 400-500-word paper about their experience with the project. There were eight questions provided for students to address in their papers that focused on critically thinking about how they approached the project, how they felt about their own performance and the knowledge that they could take away from the experience. The intent of these reflection papers was to begin articulating what they know in the context of the project and to develop an awareness of how they work and how they work in relation to others. S1 reflection papers consisted of the same questions throughout the semester as a means of providing consistency for reinforcing reflective thinking.
How you began working on the assignment?
How and why you made specific decisions?
What difficulties you may have encountered?
How you got past these difficulties?
What you feel is strong about your design solutions?
What you feel is weak about your design solutions?
What you would do different the next time?
What you feel you learned from this assignment?

Since S2 focused on one project throughout the duration of the semester, reflection paper questions (referred to as journal questions) were developed for each week of the semester and specific to the content covered during that week. As students began working through the phases of the design process, the reflections also served as a process journal for students to articulate their decision making as they worked through each phase. Like S1, the intent of these reflection papers was to begin articulating what they know in the context of the project and to develop an awareness of how they work and how they work in relation to others. The S2 reflection papers were also intended to force students to rationalize their decision making as they worked through the project and to prepare them for developing their arguments when they presented at the midterm and final critiques. Examples of the S2 questions include:

Document your process on how you went about decision making for performing operations. Why did you make the decisions that you did? How successful do you feel the solutions were? Is there any part of this assignment that you do not understand?

Discuss how you think your review went. Do you think you made a strong argument? Were suggestions made that will help you in making a stronger model or argument? Did you understand all the comments made about your work? What will your next step be?

Describe how you are making decisions for surfacing. What rules are you developing that your surfaces must abide by? What additional theories, philosophies or arguments are involved in your decision-making? What justifications can you give in relation to transparency, pattern or texture?
4.1.7: Working One-on-One

Working One-on-One in both S1 and S2 were comparable in method. Students were expected to articulate their thought process and demonstrate their progress as required. Support was given through guidance in helping students connect the new knowledge to the context of their project and by providing alternative points of view to facilitate deeper thought. Emphasis during One-on-Ones was to promote individual thinking and to encourage students to solve their own problems as opposed to giving them the answers. Validation of students’ decision-making was always provided.

4.1.8: Visual Curriculum

The Visual Curriculum was only used in S2 as a tool for presenting the semiotic meanings of the design elements and principles and to provide a visual map for how they are all connected. After presenting the Visual Curriculum, students were shown how to analyze a space using the Visual Curriculum as a tool. They were then expected to select a space and analyze it based on how they interpreted the semiotic meanings as described in the visual curriculum. Once completed, students then presented their findings to the class.

4.1.9 Self-Assessment

For S1, Boud’s (1995) process for developing a self-assessment tool was utilized. The process involves students’ generating ideas as to how they should be evaluated. This activity begins with a class discussion where students are asked what distinguishes “good work” from “not so good work”. As students share their ideas, they are written down for everyone to view. During this brainstorming, the instructor should refrain from giving input until all ideas have been formulated at which time the instructor may suggest important criteria that they feel the students may have neglected. After completing this part of the activity, the class works together to form headings and subheadings to establish the criteria on which their projects will be evaluated. Since these criteria are written in their own words, the students will have a clear understanding of what is
expected of them, providing them with the ability to assess themselves.

The self assessments for S2 were developed to provide an opportunity for students to gauge their own progress in understanding the complex theories, their ability to think critically, their ability to think autonomously, their relation to their peers and their overall enjoyment of the project. Bi-weekly self-assessments were completed by each student as a means of determining how they each viewed their own development in comparison to the overall data.

4.1.10: Demonstrations

Both semesters implemented various demonstrations in model building, materials and software. I also demonstrated my own methods for completing different phases of the design process as a means of showing students a possible way of solving a problem. Demonstrations were given on scheduled workdays and students were expected to bring their materials to begin working. This allowed time for working one-on-one with students who were still having difficulty.

4.1.11: Course Plans

The course plan for S1 began with a critical reading, discussion and thought paper prior to beginning the first project. The reading titled, *Architectural Representation: Abstraction and Symbol within Design*, by Anastasia Hiller (2012) was selected based on its association to their first project as well as many of the subsequent projects to follow. After the completion of the first project, this method was repeated with another critical reading titled, *Emotion Design, Emotional Design, Emotionalized Design: A Review on Their Relationships from a New Perspective*, by Amic G. Ho and Kin Wai Michael Siu (2012), also selected based on its association to their second project and subsequent projects. The intent of beginning with two back-to-back critical readings and writings was to establish an expected level of intellectual thinking that was not typical in their previous studio design courses. The six weeks following the critical reading and writing assignments were devoted to additional projects and
connecting the context of the projects to the readings. During the tenth week of the semester, an additional critical reading and writing was assigned titled, *Pattern Information in Nature*, by Phillip Ball (2012). The intent in repeating this method was to expose the students to another point of view that they could compare against their understanding of the first two readings.

The second semester began with the critical reading of *The Diagram Diaries* by Peter Eisenman (1999). As this assignment would require time and work outside of class, I introduced an exercise on analyzing a space that was designed to solidify their foundational knowledge. This exercise utilized the visual curriculum to connect the design elements and principles to the context of interior design. The intent of this assignment was to help students gain confidence in understanding space in relation to the foundational knowledge needed to advance toward more complex ways of making meaning. After students presented their section of *The Diagram Diaries*, a tour of the Wexner Center, designed by Peter Eisenman, was scheduled to help students connect the context of Eisenman’s theories to real world architecture. As the semester progressed, we worked through each phase of the process with an emphasis on understanding the relevance of each phase and making meaning of the process in the context of *The Diagram Diaries*. Figures 4.1 and 4.2 illustrate the course plans utilized in both the first and second semester of the intervention.
<table>
<thead>
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<th>Date</th>
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<td>08.24.12</td>
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<td>Mind Map Exercise DUE: 10 Words</td>
</tr>
<tr>
<td>10.24.12</td>
<td>Design Review/ work in class DUE: Images</td>
</tr>
<tr>
<td>10.26.12</td>
<td>Presentations for 3302.06, Intro to 3302.08—Patterns, Read Pattern Information in Nature DUE: 3302.06, Reflection paper</td>
</tr>
<tr>
<td>10.31.12</td>
<td>Class Discussion—Presentation</td>
</tr>
<tr>
<td>11.02.12</td>
<td>Design Review/ work in class Thought Paper#3 (uploaded to Carmen by Sunday)</td>
</tr>
<tr>
<td>11.07.12</td>
<td>Presentations for 3302.08— Intro to 3302.09—Patterns 3D DUE: 3302.08, Reflection paper</td>
</tr>
<tr>
<td>11.09.12</td>
<td>DUE: Study Models Design Review/ work in class</td>
</tr>
<tr>
<td>11.14.12</td>
<td>Design Review/ work in class</td>
</tr>
<tr>
<td>11.16.12</td>
<td>Presentations for 3302.09, Intro to 3302.10—Final Documentations DUE: 3302.08, Reflection paper</td>
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<tr>
<td>11.21.12</td>
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</tr>
<tr>
<td>11.23.12</td>
<td>No Class</td>
</tr>
<tr>
<td>11.28.12</td>
<td>Individual Meetings</td>
</tr>
<tr>
<td>11.30.12</td>
<td>DUE: 3302.10, Reflection Paper</td>
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Figure 4.1: First Semester Course Plan
<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.09.13</td>
<td>W</td>
<td>Welcome back! Syllabus and Schedule. Begin Reading The Diagram Diaries. Decide on teams for Assignment 3152.01</td>
</tr>
<tr>
<td>01.11.13</td>
<td>F</td>
<td>Presentation on Design elements, their connections and the analysis of images. Assignment 3152.02: Analysis of Images</td>
</tr>
<tr>
<td>01.16.13</td>
<td>W</td>
<td>Student presentations of 3152.02: Analysis of Images</td>
</tr>
<tr>
<td>01.18.13</td>
<td>F</td>
<td>Presentation on Architectural Vocabulary. Outline due for Assignment 3152.01</td>
</tr>
<tr>
<td>01.23.13</td>
<td>W</td>
<td>Student presentations Assignment 3152.01: The Diagram Diaries</td>
</tr>
<tr>
<td>01.25.13</td>
<td>F</td>
<td>Presentation on Modern Architecture and Contemporary Design. Selection of houses, Begin 3152.03: House Research</td>
</tr>
<tr>
<td>01.30.13</td>
<td>W</td>
<td>Tour of Wexner Center (tentative)</td>
</tr>
<tr>
<td>02.01.13</td>
<td>F</td>
<td>Student presentations Assignment 3152.03: House Research</td>
</tr>
<tr>
<td>02.06.13</td>
<td>W</td>
<td>Demo on identifying modalities. Assignment 3152.04: Identifying Modalities. Bring to class, 1/4&quot; floor plans of house, trace paper, color markers, pencils</td>
</tr>
<tr>
<td>02.08.13</td>
<td>F</td>
<td>Student presentations Assignment 3152.04: Identifying Modalities. Demo on operations. Assignment 3152.05: Operations</td>
</tr>
<tr>
<td>02.13.13</td>
<td>W</td>
<td>Work in class</td>
</tr>
<tr>
<td>02.15.13</td>
<td>F</td>
<td>Student presentations Assignment 3152.05: Operations. Demo on working with materials. Assignment 3152.05: Exploring 3D</td>
</tr>
<tr>
<td>02.20.13</td>
<td>W</td>
<td>Work in class, bring materials</td>
</tr>
<tr>
<td>02.22.13</td>
<td>F</td>
<td>Work in class, bring materials</td>
</tr>
<tr>
<td>02.27.13</td>
<td>W</td>
<td>Work in class, bring materials</td>
</tr>
<tr>
<td>03.01.13</td>
<td>F</td>
<td>Work in class, bring materials</td>
</tr>
<tr>
<td>03.06.13</td>
<td>W</td>
<td>Student presentations Assignment 3152.06: Exploring 3D</td>
</tr>
<tr>
<td>03.08.13</td>
<td>F</td>
<td>Presentation on Surfaces. Assignment 3152.07: Surfaces. Demo on surface materials, bring surface supplies, work in class</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Spring Break (W)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>no class</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Spring Break (F)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>no class</td>
</tr>
<tr>
<td>03.20.13</td>
<td>W</td>
<td>Work in class, bring materials</td>
</tr>
<tr>
<td>03.22.13</td>
<td>F</td>
<td>Work in class, bring materials</td>
</tr>
<tr>
<td>03.27.13</td>
<td>W</td>
<td>Student presentations Assignment 3152.07: Surfaces</td>
</tr>
<tr>
<td>03.29.13</td>
<td>F</td>
<td>Presentation Circulation. Assignment 3152.08: Circulation</td>
</tr>
<tr>
<td>04.03.13</td>
<td>W</td>
<td>Work in class, bring materials</td>
</tr>
<tr>
<td>04.05.13</td>
<td>F</td>
<td>Work in class, bring materials</td>
</tr>
<tr>
<td>04.10.13</td>
<td>W</td>
<td>Work in class, bring materials</td>
</tr>
<tr>
<td>04.12.13</td>
<td>F</td>
<td>Work in class, bring materials, Due: Written Final presentation</td>
</tr>
<tr>
<td>04.17.13</td>
<td>W</td>
<td>Final Critiques</td>
</tr>
<tr>
<td>04.19.13</td>
<td>F</td>
<td>Final Critiques</td>
</tr>
</tbody>
</table>

*Figure 4.2: Second Semester Course Plan*
4.2: Assessing Self-Authorship

Students enrolled in the first semester Interior Design studio course were first given an overview of my interventional study and asked if they would like to participate. Participants then scheduled assessments interviews to establish a baseline for development. The format for Robert Kegan’s Subject-Object Interview (Kegan et al, 2011) was used in combination with Marsha Baxter-Magolda’s Self-Authorship Interview (Baxter Magolda and King, 2012). These interview sessions were audio recorded, transcribed and analyzed at a later time. In addition, five sophomore students enrolled in studio courses in the industrial design and visual communications departments were also asked to participate in the interview assessments for the purpose of creating a control group. At the conclusion of the study, the research participants were assessed again to determine if development had occurred. The same format and procedures were used in the post study assessments.

4.3: Ethnographic Notes

The intent of the ethnographic notes was to offer an alternative perspective on identity development through the lens of Psychosocial Identity Development Theory (Chickering & Reisser, 1993). Since this theory emphasizes the role of the individual’s experience in the development of their identity, ethnographic notes were used to tell alternative stories of how and why some students experienced development. Three students from the participant group were selected for further study using Psychosocial Identity Development Theory. These students were selected based on their developmental growth as well as their ability to openly share their personal experiences. To develop these stories, content from the assessment interviews was examined to understand how certain experiences had an impact on their development. Observations and field notes were also recorded about the students’ new experiences during the year long study.
4.4: Data Collection

The data collected over the course of the study included reflection papers, critical writings, self-assessments, course projects, attendance, communications and field notes. A journal was also kept throughout the study to record my personal observations of the strengths and weaknesses of the interventional methods.

4.5: Summary

This chapter describes in detail the overall design of the study and the methods utilized in the intervention. These methods were derived from The Engaged Learning Model, however it was my interpretation of how these methods could be implemented in the context of the studio based design course while adhering to the three guiding principles for fostering self-authorship. Although the course plans were specifically designed with intent, allowances for flexibility were employed to adapt to unforeseen conditions. This is to say, that if an intended method implemented was unsuccessful, changes were made in how it was implemented to better serve the students. Regardless of how the methods were implemented, the three guiding principles of validating students as scholars, situating learning in their experience and offering opportunities to mutually construct knowledge, for fostering self-authorship maintained priority throughout the study. Individualized attention was given to each student to better understand how they made meaning and adjustments were often made on an individual basis to accommodate their level of development.
Chapter 5: Research Analysis and Findings

This chapter provides a comprehensive examination of the data accumulated over the course of this study. Section 5.1 is intended to explain to the reader how I have come to know what I know about the study of identity development. Using narrative I tell my own personal story of the development of my own identity. Section 5.2 explains how the methods were implemented and how I interpreted the results. The methods are then analyzed, using grounded theory method, to determine which methods were most effective in fostering self-authorship. Section 5.3 describes the methods used for analyzing and interpreting the assessment interviews and provides the results from both the pre and post study assessments. Section 5.4 examines the cognitive, intrapersonal and interpersonal dimensions of development in relation to the methods implemented for fostering self-authorship and compares these results to the overall development of each student. Section 5.5 tells the stories of three students’ journeys toward identity development through the lens of Psychosocial Development Theory. The intent of this section is to provide an alternative explanation of how development occurs. Section 5.6 is the conclusion.
5.1: Situating Myself in the Study of Identity

Robert Coles, author, psychiatrist and professor viewed storytelling as one of the most effective methods for understanding how others made sense of their world (Coles, 1989). He wrote:

“I explained how we all had accumulated stories in our lives, that each of us had a history and such stories, that no one’s stories are quite like anyone else’s, and that we could, after a fashion, become our own appreciative and comprehensive critics by learning to pull together the various incidents in our lives in such a way that we do, in fact, become an old-fashioned story.” (p. 11)

It is in this spirit that I focus on the complexities of identity development and the understanding that it is the individual stories of our lives that construct our sense of self. It is the stories we tell that help us know and discover ourselves as we reveal ourselves to others. I hope to make explicit the story that has framed my world view, my beliefs and my commitment to identity development. I begin this section with my own story and how I have come to understand the study of identity.

My decision to come to grad school was what many might describe as a “designer’s mid-life crisis.” I was still quite passionate about design but the design I was doing in professional practice had begun to hold no value for me. During my undergraduate experience I had developed a love of learning and was stimulated by the complex design problems I was charged with solving. That experience and those projects had meaning and returning to school felt like my only option toward finding the value in design that I was seeking.

My formal study of identity began when I had to decide on an area of interest to research. My research focus developed after I had attended the Stir Symposium, organized by The Design Department of The Ohio State University. The Stir Symposium was designed to provide an opportunity to collaborate, think, and discover new ways to approach big global issues. I participated in a workshop that was exploring alternative methods for education. Bernard Canniffe from the Minneapolis College of Art and Design, also a participant in the workshop, introduced the concept of the Nomad School. He spoke passionately about the potential of student development through experiencing the world first hand and that this development would create a designer who had autonomy, volition, empathy and authenticity. He said development would occur when students were
thrown into new cultures and challenged on what they believed to be true. As I listened to him speak, I couldn’t help but think that you don’t have to go to the other side of the world to experience new cultures and be challenged on what you believed to be true. I had experienced a new culture while living in my little studio apartment during the year my husband and I were separated and I most definitely was challenged. Through that experience I had developed and I had only gone to the other side of town. After the workshop I explored these ideas further and discovered that what we had discussed was actually identity development. The concept of the Nomad School was essentially a way of accelerating identity development toward maturity and once we reached maturity, we also had the capacity to reach our fullest potential. I had made the decision to focus my research on the concept of accelerating identity development within the constraints of design school.

When I first approached the faculty to discuss my research focus, I received conflicting opinions on what I was proposing. There were many who viewed my proposal with great excitement, recognizing the potential value it could have in shifting the paradigm of design pedagogy. Others, on the other hand, had responded as if I was personally attacking their teaching methods and the institution that had made them who they had become. This conflict had made me aware of the academic barriers that would be present if I continued with what I was proposing. That fact is, I was attacking the institution and the current methods for teaching design and if I wanted to pursue this area of research, it would require negotiating these academic barriers. The reality of this division within the institution had also created my own internal conflict. I believed in what I was proposing and the value it could have, but the external voices of the nay saying academics forced me to question myself and my decision-making. Following this path of inquiry meant I would continually have to defend my ideas to the very institution that I was attacking. For me, resolution came when I focused on what my internal voice was telling me. I believed in the value of my ideas and accepted the truth that defending my ideas would be part of this whole journey, and so I began my research in identity development.

During the first year I was completely absorbed in theory of identity development. I came to understand that our identity is determined by how we make sense of the world or how we make meaning of our experiences, it is our internal voice. This was a concept I could relate to as I had become very aware of my internal voice over the last few years. I could also relate to the theory of Self-Authorship because I had lived so much of my life
following external formulas. I was compelled to situate myself within the theory and wanted to believe that I was a self-authored person, although I did occasionally question that assessment.

In my own classes, it was typical to be engaged in debates about the reality of the world and how design fit it. During one debate, I had gone into a long-winded rant about the rich white elite who manipulates our society toward consumerism under the guise of capitalism. My colleague referred to me as paranoid and countered with the argument about living in a free society where designers had the right to design, sell and make money from their innovative ideas. Although I could agree with the right to design and make money, I could not stand behind that right if it was at the expense of our own humanity. Debating the evils of following external formulas at times became exhausting and admittedly I had moments when I was disenchanted with design and wondered how my research was even related. My intuition told me I was on the right path and I chose to trust my internal voice and just have faith that I would eventually find the answers I needed.

My second year was spent implementing my interventional study. Since I had decided the duration of the intervention should span one full academic year, I had to begin my primary research prior to completing my secondary research and course work. At the time this did not concern me as I felt well prepared and confident as the study commenced. During the first semester I had enrolled in a seminar course that focused on socially responsible design. Many of the readings and discussions revolved around recognizing the external formulas in the world and issues I had already come to terms with. There was one reading that provided me with some of the answers I was looking for. Nigel Whiteley’s book, Design for Society (1997), suggests that design is the catalyst for change and states, “An awareness of current values and how they have historically developed is the prerequisite for considered future action.” I believed this to be the basis for implementing change, with “awareness” being the key word. Becoming aware is the first step toward the questioning of values, whether we are questioning our own or those of the society. After reading and discussing Whiteley’s book, I was able to view my research in a new light. If awareness was a by-product of identity development and design was a catalyst for change that would mean that designers who reach their full potential would have the capacity to change society. I had figured out why my research was important and in doing so had come to the realization that I truly believed in what I was doing and it excited me.
During the intervention it became clear that understanding how to foster identity development and actually doing it were two separate things. The students all came from such diverse backgrounds and their levels of development varied greatly, which made trying to connect new knowledge to their experience, as a class, challenging. Understanding who the college student is in developmental terms (Knefelkamp, et al, 1978) was difficult. There was not a single demographic or a typical college student, at least not amongst the students participating in the intervention. Each student had their own individual needs and meeting those needs required more time and engagement than we had in the time limits of our studio class. This issue was compounded by the number of projects we were supposed to complete over the 15 week semester. Although there were many moments of success throughout the semester where I saw development occur, the results from the first semester had not been as desirable as I had hoped. The first half of my study was over and as the 5 week winter break commenced, I was motivated to make revisions and modify the methods for the second semester to account for the issues presented during the first semester.

The winter break had also allowed me to distance myself from academia for a short time and reconnect and became engaged with the other parts of my life. The provocative experience of being in grad school in combination with the research I was doing had fostered my own personal development. This development had produced a heightened awareness in regards to the people, relationships and situations associated with my personal life. Although I was becoming self-authored in my identity as a scholar, there were still several other dimensions of my identity, (i.e. mother, spouse, daughter, friend) that were impacting my overall development. I struggled to making meaning of this new knowledge, which required listening to my internal voice and coming to terms with the realities of my personal world. In an attempt to foster my own development toward a more holistic integrated self, I began rebuilding my meaning making framework to account for all of my identity dimensions, thus increasing the complexities of my own meaning making.

Academically I feared the impact this new knowledge was going to have on my research and I chose to confide the struggles I was having with one of my committee members. She agreed that the new complexities of my meaning making would create additional complexities in how I perceived my research but she also viewed my challenge as a benefit. I now had a better view of who the students were in developmental terms as I could also
see the impact that the other dimensions of their identities was having on them. I could also see how
development was occurring as I could connect my own developmental experiences to those of the students.
The validation my committee member had given me as a scholar had fostered my development and provided the insight I needed to complete what I had started.

During the second semester I enrolled in an advanced seminar in student identity development theory. In this course, we were introduced to all the theoretical frameworks that attempt to explain identity development. As we explored each theory we were asked to situate ourselves within the theory. It was all making sense and I was learning just how complex identity development really is. While covering psychosocial theory and situating myself within, I had what is often referred to as the ah-ha moment. Since psychosocial theory attempts to explain how identity is developed through our past experiences, I reflected on my life and experiences as a means of making sense of why I was the way I was. Many of the experiences associated with my other dimensions of identity had produced an internal voice that did not belong to me. It was actually an external voice that had been embedded over time that challenged how I viewed myself and my own abilities. To resolve this task, I eliminated the external voice from my meaning making framework and focused on trusting my internal voice. Any doubt and insecurities I had had during the first semester had disappeared as I realized the strength of my internal voice.

The more I started listening to my internal voice and trusting my decisions, the more complex my meaning-making framework became. This complex understanding of identity development had an impact on me and how I viewed others. I had gained a greater understanding of the complexities of the individuals’ experiences and the simple nuances of a single experience. This new awareness of how past experiences impact identity development had given me insight into how to foster self-authorship. I had connected with most of the students and during their assessment interviews and had heard the various stories about their past experiences. With this knowledge I was more equipped to offer support to students on an individual basis, as I would able to understand the complexities of how they were making meaning and I knew what development looked like.
5.2: Analysis of Methods used for Fostering Self-Authorship

One objective in this study was to determine which methods and techniques were most effective in fostering self-authorship in the context of a studio based design course. This analysis examines how the methods, as described in Chapter 4, were implemented and modified throughout the intervention. Using Grounded Theory Method to analyze the data, I was able to discern if the way in which a method or technique was being implemented appeared to be effective in fostering self-authorship.

Grounded Theory Method was derived through the collaborative work of sociologists Glaser and Strauss (1967) and employs a systematic and structured set of procedures designed to inductively develop theory that is grounded in the actual data and informed by the phenomenon of the study. It is thought of as a reverse form of conducting research in that it does not start with a hypothesis, but instead begins with data collection. As data is collected, it is coded and analyzed to form concepts and then categories from which the theory emerges and a hypothesis is formed.

It involves constant comparison and analysis of the data and “places priority on the phenomena of the study and sees both data and analysis as created from shared experiences and relationships with participants and other sources of data” (Charmaz, 2006, p.130). This implies that as the investigator and primary instructor in this study, I, too, am a participant for which data is generated. In the context of this study, where my intent is to discover how to foster self-authorship, the data generated is derived from how I am interpreting and analyzing the success of the methods implemented. From this analysis, modifications were made to how methods were implemented with the goal of achieving greater success.

5.2.1: Using Critical Literature to Facilitate Critical Thinking

In comparing the techniques and effects utilized in the method of facilitating critical thinking through critical reading I began to identify categories that reflected which techniques used in the methods were effective. Since
the purpose of the reading was to challenge the students’ existing ways of making meaning, it was expected that most students would struggle with the reading to some degree. The objective of the discussions, that were held after the students had completed the reading, was to provoke students to think more critically about the concepts introduced, to connect the concepts to their own existing knowledge and to initiate a conversation where students could articulate their thoughts. These conversations were intended to allow students to hear others’ points of view as a means of gaining a better or alternative understanding of the concepts. During the first discussion, I observed an overall reluctance to participate as well as the inability to articulate or demonstrate that they had made meaning of the reading. As this was not the objective of the discussion, the techniques were continually modified in an attempt to achieve the desired results. The objective of the critical writing was to further the students’ understanding of the reading as they were required to analyze the reading using their own words. The data collected from these papers indicated that the level of development demonstrated by the students was extremely varied and modifications to how students could further their understanding of the readings were made to accommodate for the varying levels of development. The objective of the new knowledge gained by the reading was to connect the meaning of the reading to the context of their projects. This category was identified in relation to the critical reading as the methods used to make meaning of the critical reading directly impacted the students’ ability to apply that meaning to their projects. The techniques used in helping students connect the meaning of the reading to the context of their projects were continually modified in an attempt the meet this objective. Figure 5.1 illustrates the techniques and modifications made to meet this objective. Following is a description of how I implemented and interpreted the techniques of using critical reading to facilitate critical thinking and the modifications that were made.
<table>
<thead>
<tr>
<th>Techniques: Reading #1</th>
<th>Techniques: Reading #2</th>
<th>Techniques: Reading #3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assign reading</td>
<td>Assign reading</td>
<td>Assign reading</td>
</tr>
<tr>
<td>Distribute discussion questions</td>
<td>Distribute discussion questions</td>
<td>Divide students into groups to answer discussion questions</td>
</tr>
<tr>
<td>Discussion</td>
<td>Discussion</td>
<td>Meet with groups to discuss what they know</td>
</tr>
<tr>
<td>Critical writing, answer 5 questions</td>
<td>Critical writing, answer 5 questions</td>
<td>Students present what they know</td>
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<tr>
<td>Complete project</td>
<td>Complete project</td>
<td>Discussion after presentations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time for processing reading</td>
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<tr>
<td></td>
<td></td>
<td>Gradually work on projects</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Weekly process journals, open forum, 1-2 questions</td>
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<table>
<thead>
<tr>
<th>Effects of Techniques</th>
<th>Effects of Modification # 1</th>
<th>Effects of Modifications # 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students were exposed to new ideas</td>
<td>Engagement increased</td>
<td>Engagement increased</td>
</tr>
<tr>
<td>Few students engaged</td>
<td>Many students could articulate their thoughts through writing</td>
<td>Most students could articulate their thoughts through writing</td>
</tr>
<tr>
<td>Some students could articulate their thoughts through writing</td>
<td>Students appeared more confident</td>
<td>Meaning was collective</td>
</tr>
<tr>
<td>Many students struggled with reading</td>
<td>Students were exposed to new ideas</td>
<td>Time allowed for deeper processing and continued discussion</td>
</tr>
<tr>
<td>Meaning was isolated</td>
<td>Meaning was isolated</td>
<td>Most students answered all the question</td>
</tr>
<tr>
<td>Time constraints impacted meaning making</td>
<td>Time constraints impacted meaning making</td>
<td>Most students could connect reading to projects</td>
</tr>
<tr>
<td>Few students answered all the questions</td>
<td>Few students answered all the questions</td>
<td>Students learned from others</td>
</tr>
<tr>
<td>Few students could connect reading to projects</td>
<td>Few students could connect reading to projects</td>
<td>Students appeared more confident</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students were exposed to new ideas</td>
</tr>
</tbody>
</table>

Figure 5.1: Comparison of Techniques used for Implementing Critical Literature to Facilitate Critical Thinking

After completing the first critical literature exercise, the effects of the techniques used were documented. Modifications were made to the techniques prior to the second reading and are indicated in green. Effects of the modifications were also documented. Effects listed in gray are those that carried over from the first reading. Modifications were made again prior to the third reading and are indicated in blue. Effects from the third reading modifications were also documented.
The first critical reading that was assigned was titled *Architectural Representation: Abstraction and Symbol within Design*, by Anastasia Hiller (2012). A formal discussion was scheduled after students had completed the reading.

To prepare students for the discussion, I handed out a list of questions for students to answers and gave them 20 minutes to process and articulate their thoughts. The questions included:

1. *Why would design require both problem solving and meaning?*

2. *What do you think Tschumi means when he says, “architecture goes beyond being a “thing of the mind” and becomes about the sensual experience”?*

3. *What do you think Michael Graves means when he says, “Architecture must provide for an active participation of the culture at large”?*

4. *What does it mean “we define ourselves by how we understand the world”?*

5. *What is the difference between representation and simulation?*

6. *How would you define “as is” vs. “as message”?*

The intent was to allow students time to think about their answers without putting them under pressure to quickly process their thoughts. The expectation was that once we began the discussion, students could just read what they wrote and would not feel intimidated to “think on the spot.” As I opened the floor for the discussion, there were only a few students who volunteered to contribute. I attempted to elicit answers from others by calling on them directly and telling them they could just read directly from their paper. Some students were able to give thoughtful answers while some said that they really didn’t understand that part. There were also moments when I was not sure how to respond to a student’s comment. As we moved through the discussion questions, it became more painstaking to engage the students in a thoughtful discussion and I found myself taking over and lecturing about what I believed to be the meaning of the reading.

In analyzing the first discussion of the semester, it appeared that giving the students the discussion questions ahead of time was helpful, but was not enough to produce the engagement I was expecting. There were many
possibilities that could have contributed to the lack of engagement of the class. The reading may have been too complex or inappropriate for the overall developmental levels of the students. Additional factors impacting the students were that they did not know me yet or what my expectations were nor did they know each other or what their classmates’ abilities were. This lack of knowing could very well have contributed to feeling intimidated to engage in the discussion as well as any insecurities they had about their own intellectual capabilities. Other factors impacting the lack of engagement were my own abilities to facilitate the discussion. I was not prepared to respond to the types of comments that were being made and was often stumped on how to proceed forward, which is what ultimately lead to me telling students what to think about the reading.

After the discussion, students were expected to write a short thought paper about the reading. The paper was intended to facilitate critical thinking as students were expected to articulate what they thought the author was trying to say and how they might connect that to their own experiences. Most of students completed the thought paper and were able to articulate critical thinking to some degree. What was most apparent, however, was in the varying degrees of understanding and ability to make meaning of the reading. These two excerpts from student thought papers illustrate the dichotomy of critical thinking ability.

“The purpose of this essay is to show that people define representations differently and view them from a different perspective, but at the same time everything that is design successfully has a purpose and meaning. This idea combines all the theories in the essay and leads me to develop my own theory. No design element is placed without thought; everything has a purpose, but the way that we each view that element leads us each to a new meaning. The representations used in architecture are used to remind us of something, or connect with the viewer in a sensual way. Although what I experience may be different from everyone else, I am still connecting to the design.” —Alaina

“I found this paper hard to understand. The philosophical and theoretical aspect of design/architecture was too abstract for me. At times I did understand what was being discussed in a paragraph or section, but was finding the ideas hard to follow along throughout the whole essay. So, I am not really sure what the author was trying to say as a whole. One idea that was brought up several times was the importance of design and architecture needs to include the user and their experiences. Alongside this idea, the significance of the space and the meaning of a building for more than being a building are emphasized.” —Remi
Alaina had made meaning of the reading and was able to develop her own thoughts and articulate how she believed others viewed representation, while Remi clearly struggled with the reading and could only reiterate the language the author was using. The meaning made by each student appeared to be isolated to the individual student and was dependent upon his or her level of development.

As we proceeded to begin the first project that was based in the symbolic, abstract and representation of the five senses, I attempted to explain the project using the concepts from the reading, but due to the varying degrees of understanding, this was challenging. During the one-on-ones, I was successful at connecting with a few individual students, but as a class, the concepts from the reading appeared to have gotten lost in relation to their projects. Many of the students needed more guidance on meeting the project requirements and time was not allotted for further discussion of the reading. My concern for staying on schedule did not allow me the time to give each student the proper guidance they needed. I moved on to the next assignment, modifying the techniques used the method of critical literature

The next scheduled discussion was over the second assigned critical reading titled, *Emotion Design, Emotional Design, Emotionalized Design: A Review on Their Relationships from a New Perspective* by Amici G. Ho and Kin Wai Michael Siu (2012). For this discussion, I divided the students into small groups and again gave them discussion questions and time to answer together. The intent was to allow students to talk about their thoughts and process out loud in a low-stakes environment prior to having to articulate their thoughts in front of the entire class. This was also intended to bring together those with more complex ways of thinking with those who struggled with the reading, in hopes that the ones who were struggling would begin to make connections as the others articulated their thoughts. The questions for the second discussion included:

1. How do you think a designer's emotions can influence the design outcome?

2. Do you agree with the statement that the consideration of the emotional aspect in the usage and design process should be more important than function? Why?

3. What is the difference between emotional designs and emotionalize design?
4. How might human emotions be the link between users and products (or spaces)?

5. Why do you think that the different states of human emotions and mood could affect the method used for seeking information?

As I opened the floor for the discussion, I began by calling on specific groups to discuss their answers to the questions. This appeared to be more successful than the first discussion as the students seemed to engage more as a group than they had as individuals. They also appeared to have more confidence than they had had in the first discussion. In addition, I had prepared more thoroughly and was better equipped to respond to their comments. Toward the end of the discussion, I had thought that there were still many points that had not been covered and I found myself once again taking over and lecturing about my own meaning of the reading and telling students what to think.

In comparing the two discussions, the number of students with the ability to making meaning of and articulate their thoughts had increased with the second discussion when they were able to work in groups and I was better prepared. However, we were also in the third week of class and most of the unknowing had dissipated as the students were getting to know each other and know what my expectations were. It could also be argued that the first reading was more challenging than the second, thus making the second reading easier to discuss.

The thought papers for this reading were overall better than the first ones as well. Students seemed to be more articulate in how they made meaning of the reading and were able to connect it to their own experience in some degree or another, but again they had demonstrated varying levels of understanding. These two excerpts from student thought papers illustrate the dichotomy of critical thinking ability.

“I felt this reading was somewhat challenging to read, because it bored me and I had a hard time getting through the entire thing without being distracted. It seemed too formal and somewhat scientific to catch my attention because of all the research that was discussed. I learn best from images, or examples, so the part in this reading about the signing system at the hospital was easier for me to understand and relate with. I’ve been in hospitals and I also feel a cold and unwelcoming feel when wandering around. The cloth signs seem a lot more comfortable and calming, which would definitely affect somebody’s emotional response, as a patient in the hospital. If more designers focused on one’s emotions to their design, I think things would end up better in the end result.” — Louisa
“This reading relates to much of my design process. I try to attract my viewers emotionally and get them tuned in to my work because I believe a design is successful if there is a specific emotional connection. If there is a constant emotion people have with my design, I think they get to know my style and me without particularly knowing me on a personal level. Drawings and designs have more of an impact on a consumer than some may overlook because emotions are somewhat taken advantage of. People become happy, angry, sad, excited, etc. so easily therefore when a person may use a product, they may not really realize how it makes them feel until it might not work to its performance. I think after reading this article I, as a designer, have really paid attention to the way things work and when I draw something, I really want people to feel something when looking at my designs.” —Lucy

Louisa was able to grasp some of the main concepts and connect how design has impacted her own emotional responses in experiences she has had. Lucy was able to break down the main concepts and connect them to not only her experiences but also to how she views herself as a designer. Most of the students who had completed the thought papers had developed an awareness of the new knowledge in similar ways and the discussions were reflected in how they articulated their thoughts. The meaning made by each student again appeared to be isolated to the individual student and was dependent upon his or her level of development.

Over the next six weeks the students completed four projects that were based on emotion and involved taking words such as playful and tension and interpreting them in two-dimensional drawings and three-dimensional forms. As we worked through the projects I continued to connect the concepts from the readings on an individual basis during one-on-ones as I did with the previous project and overall there was an increase in the number of students who were connecting the concepts from the reading to the context of their projects. As we had had more time to discuss the readings as we worked through the four projects, the individual attention was effective but as with the first project, much time was often spent guiding the students through the overall objectives of each project and much of the intent of connecting the concepts was lost again. The projects themselves were completed rather quickly and did not provide adequate time for students to process the new knowledge in relation to their decision-making.

The second attempt of using critical reading had increased the overall engagement of the students and had helped them with articulating their thoughts however, few students had been able to apply the new knowledge to the context of the projects. The thought papers were only effective for those students who were at a higher
level of development as they had the capacity to break down the concepts and apply them to their projects. The discussions helped students in making meaning of the readings, but due to my lecturing I had not given them the opportunity to try to think for themselves.

As there were eight projects to complete over the first semester with limited time and the techniques utilized for using critical literature had not proven to be effective, I chose not to complete the scheduled third reading. Instead I focused on meeting the objectives of the existing projects while attempting to connect a deeper understanding of the project objectives through one-on-one sessions.

Beginning the second semester, students were assigned the book, The Diagram Diaries, by Peter Eisenman (1999). This was a complex reading and would be challenging even for students with more complex meaning making abilities. To account for the varying levels of development, I divided the class into groups and assigned each group a different section of the book to dissect. As opposed to a thought paper on the reading, groups were expected to prepare a presentation to give to the rest of the class that would illustrate the main concepts of their section. This was intended to facilitate critical thinking as students would be required to think of ways to explain the concepts to others using their own words and making meaning of the reading would be a shared experience. It would also eliminate the opportunity for me to lecture about what I thought the meaning was.

As the students prepared for presenting the concepts of The Diagram Diaries, I scheduled a day to meet with each group to discuss the concepts they were intending to present and assist them in making meaning of the concepts. I began by letting the group first discuss their intentions and then asked them to elaborate on anything that was unclear. I asked them if they could think of any analogies that might help others connect with what they were saying. If they could not think of any, I would then offer my own, prefacing that this was how I viewed the concept and that their could be other ways to view it as well. If they were struggling on a concept, I would guide them through my own process of how I would approach the concept. Figure 5.2 is a mind map that I worked on with one of the groups to deconstruct the meaning of Indexical Architecture.
I began with asking them to define an index, after that I asked them to think of an example of an index. The example of the alphabet was perfect because it was something they all understood and could connect with. We then looked at the qualities of an alphabet and how those qualities could relate to architecture. I also encouraged students to schedule time outside of class to discuss the concepts further with me if they were still struggling. I asserted that I did not expect anyone to fully grasp the reading immediately and told them to do their best in dissecting the main concepts and we would gradually build on them as we worked through the process.

Each group presented their section of *The Diagram Diaries* and we discussed the concepts as a class. Most of the students engaged in the conversation with questions and comments about the concepts being presented. For the handful of students who remained quiet, I attempted to engage them by asking if there was something that they were still confused by. I would direct their questions to the group who presented that section and if they still seemed confused, I would then step in and try to elaborate on how I was making meaning of the groups’ explanation. After the discussion I had felt that the techniques used in trying to facilitate critical thinking through the critical reading of *The Diagram Diaries* were effective and that most of the students had made a connection to the main concepts. This feeling was reinforced after reading some excerpts from their journal questions.
“I loved our section and I thought I was able to dissect most of it well. I likely read the piece at least 4 times and it felt like watching a movie packed full of dense dialogue—every time you watch it you pick up something you hadn’t before noticed. Every time I read it I picked up more and more, and then did more research (which really was the key to understanding this material, a good base of context). Then it felt really good to put together the presentation because it was like putting together a puzzle piece by piece, slapping some puzzle glue on and hanging it on the wall, and then stepping back to admire it like a painting— one cohesive thought. I probably could have talked for twenty more minutes and would have loved to do a presentation like that for every section even though I know my classmates would kill me if they knew I was saying this.” —Rea

I think that everyone’s interpretations this week were very good. Each section was presented in a different way that made it possible to see the many ways in which Peter Eisenman’s work in the Diagram Diaries could be interpreted. It also made it clearer, for me, to see how the development of his work occurred over a period of time. Even though the subjects were different for each section and were all presented in different ways, the connections between themes were more visible and easier to understand when others explained it in a simpler way that the book did.

“I think all of our interpretations were actually better than the book because everyone seemed to get to the point without going through a long-winded explanation that at times seemed to go in circles. I don’t think I have any problems with understanding the Diagram Diaries now for just that reason. Plus, I liked some of the visuals that were given to try to clarify even further the thoughts. The one group that talked about the carbon copy paper was one that really helped in understanding that concept. Different things like that made understanding the book as a whole much more easily.” —Rici

Having the students work in groups and giving them the time and support to process the new knowledge appeared to be an effective method for facilitating critical thinking using critical reading. Giving the students smaller sections of the reading to dissect allowed the groups to focus on a few main concepts as opposed to having to make meaning of the entire book.

Having them present the new knowledge to others required each group to simplify the meaning in order to explain it to others, which in turn helped others make meaning of the concepts in a less complex way.

As we began the main project associated with the concepts of The Diagram Diaries, each stage of the process was presented in a manner that first explained what we were doing in relation to the reading, why we were doing it and what the outcome should be. During one-on-one meetings we continued to discuss their decision making in relation to the concepts. Each week, students were given journal questions to answer that asked them to
explain their process in the context of the concepts. These questions were intended to facilitate critical thinking as students were expected to articulate their decision-making using the language of *The Diagram Diaries*, thus requiring them to make connections between the concepts and how they were interpreting them. These questions and answers were posted on the OSU intranet system set up for our class and were open for all class members to read. The intent of the open forum was to allow students, who were unsure of how to answer the question, to read other responses first as well as the feedback I was giving. This continued through each phase of the design process and as we progressed students continued to make new connections and eventually developed a complex understanding between their projects and *The Diagram Diaries*. An excerpt from one student’s journal question:

“My rule system for the floors is a bit complicated to write out. The diagonal form and cube forms each have a different flooring type. When the diagonal crosses the cube, the diagonal form flooring type overlaps and all of the interiors “wall lines” are removed, acting as a floor transition rather than a wall. The exterior “wall lines” acts as an exterior wall as soon as they begin to connect to another exterior “wall line”. So pretty much, all lines outside of the main structure become exterior walls, all lines inside of the structure that begin to overlap become interior space, with the lines only acting as a floor type transition. On the second level, a new rule had to be proposed because more elements are introduced. For each new level added, the same rules apply - but the ceiling of the lower level diagonal forms become a flat roof surface outside of the main structure, and act as ceiling beams inside of the structure.”

—Paula

Paula was able to think critically about her decision-making and was connecting the concepts of the reading to the context of her project. Meeting with her individually to discuss these relationships allowed her to process her thoughts out loud, while I served as a sounding board ready to give her feedback. In the end most students had made meaning of the reading and were able to apply the concepts to the context of their projects. The varying levels of development appeared to have an impact on the complexity of their meaning making, but the seeds had been planted and each student would leave the study knowing they had the capacity to think critically.

In general I had indeed challenged them with the provocative experience of critical reading. Comparisons of the techniques used in the first semester to the techniques used in the second semester indicate that using critical literature to facilitate critical thinking requires significant work in part by the professor. The research
suggests that the first step would be to have a complex understanding of the literature you wish to introduce as well as how you intend to apply it. The techniques for implementing critical reading appeared more effective when students worked in groups and were given enough time and support to make meaning of the new knowledge on their own before stepping in and giving direction. Most importantly though, the research reveals the varying levels of development that students are coming to class with and as educators, it is necessary to be aware of each students’ meaning making abilities in order to provide them with the kind of support that is vital for fostering self-authorship.

_Caveat:_ One of the challenges in fostering development during the first semester was due to the amount of projects that students were expected to complete. Complex meaning making and critical thinking both require time to process new knowledge and due to the rapid turn over of projects, often which were disconnected, much of the new knowledge presented through the critical literature had little effect on the students’ meaning making framework.

5.2.2: The Visual Curriculum

The intent of the visual curriculum is to disseminate new knowledge while simultaneously provide visuals which students can relate to, thus making a connection to their own experience. I had had some concerns from the previous semester that many of the students were still not connecting with the foundational knowledge they were supposed to have gained in previous design courses, particularly when it came to the design principles and elements and what they mean in the context of interior design. Although this was initially an observation, when I talked to the students about their foundational knowledge, many had specifically stated that they were not sure how any of it related to interior design. Utilizing the concepts of the Visual Curriculum, I developed an interactive presentation that connected the semiotic meaning of the design principles and elements with real word examples of interior space images. As I went through the presentation, I encouraged students to engage in a discussion about what they were seeing in relation to the meaning of the design principles and elements. After the presentation, students were given a short assignment to select a space and critically analyze it using
the tools I had given them. Figure 5.3 illustrates the visual curriculum presentation with two enlarged sections displayed for readability.
During the following class meeting students were to present their analysis which would be discussed as a class. I began by asking for volunteers to go first and was surprised by their eagerness to present what they had done. The number of students who wanted to comment on the analysis and continue to discuss alternative ways of analyzing the space equally surprised me. They all appeared to have connected the meaning of the design principles and elements to the context of interior design and they were excited about it. This is best represented in a few excerpts from their reflection papers that followed this exercise.

“This presentation was a nice summary of things I have learned (or wish I would have been taught more thoroughly in the past). In life every time I feel I like/dislike something I always try to explain why. This presentation has given me the vocabulary to do so and a better understanding of what I am feeling.” — Edie

“It really has changed my understanding of the design elements and principles. I now have a greater understanding of each element as whole within interior spaces. Now I can read a space in a more professional manner—articulating key design vocabulary.” — Peri

“I think it’s making me become much more articulate and appreciative towards all of the elements that create a space and noticing what makes or breaks its success.” — Lucy

This sentiment of understanding and articulation was shared by almost everyone in the class as if it was an “ah-ha” moment of finally connecting existing knowledge on a deeper level. Figure 5.4 illustrates how Edie analyzed her selected space using the visual curriculum.
Bank concept store for BNP Paribas in Paris.

Created by Paris based architect Fabrice Auset of Zoevox.

Concept bank is located in the historical building of 2, Place de l'Opéra. The bank is 1,000 square-meter funhouse of colors, shapes, textures and forms that make me want to touch and experience the space for hours!

I love how wacky and colorful this space is and one would never be able to tell it is supposed to be a bank. It has a retro touch with honeycomb ceiling, mirrors, and lighting while at the same time the columns give off an elegant ancient Roman vibe that stays true to the buildings history and banks business.

There are ten specific zones of regular banking functions from daily bank- ing to stock-market info. There are spaces for private meetings and staff training that take place with the emphasis on breaking the age-old banking set-up where the client and the teller are on opposite sides.

There is a temporary exhibition area dedicated to kids, a coffee bar, a 25 square-meter green, living wall. One of my favorite parts are that they took into great consideration ergonomics, sustainability, proper lighting and the latest technology.

**Line:**
Horizontal: There are many horizontal lines in this space. The balcony and top and bottom of the columns give off a very stable vibe. The red horizontal stripe on the table stabilizes it. The chandeliers even though they have many parts seem calm and quiet like a blossoming flower.

Curved: The top of the doorway is arched giving stability and strength while the curved lines in the rug are very organic. The curved stair landing and staircase seem very elegant.

Vertical: The columns are strong and rigid and suggest stability (which is desired in a column!) The chairs even thought they are small the vertical circles stacked on each other make the chairs seem very static.

Diagonal: The crazy lines of the honeycomb roof are unbalanced and filled with restless uncontrolled energy. There is tension and excitement that draws the eye up.

**Color:**
I love the use of dynamic rich color in this space! The white columns and light floor contrast amazingly with the red door and staircases and the color accents.

**Light:**
Accent: The light in the red arch has a centered stable placement. It seems organized and dominates the intense red.

General: The chandeliers are layered and give a soft lighting above the table. The lighting that accents the balcony give it a softer relaxing feel.

**Plane:**
Circle: The chairs are centered and express a softness and fluidity to the space.

Square: The base of the columns are pure rational and stable.

**Texture:**
Relief: The screen boxes engage the eye in a dark place and make me want to touch the grid system.

Liquidity: The chairs have a wet feel and seem very smooth and hard.

**Principles:**
Scale and Proportion: Alone the scale of the chairs are small but they proportionally fit into the space.

Figure 5.4: Edie's Analysis of Space Assignment
The students could now think critically in this arena and were confident in discussing their knowledge. The success of using the visual curriculum to deliver new knowledge and connect it with existing knowledge indicated that students were more likely to think critically. Figure 5.5 identifies the techniques and the effects of using the visual curriculum.

<table>
<thead>
<tr>
<th>Techniques: Visual Curriculum</th>
<th>Effects of Techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design visual presentation presents the new knowledge in relation to visuals that students can connect to their own experiences.</td>
<td>Students had connected new knowledge to experience</td>
</tr>
<tr>
<td>Illustrate how the concepts of the new knowledge are connected with each other and within the big picture</td>
<td>Students demonstrated confidence in knowing.</td>
</tr>
<tr>
<td>Design presentation to be interactive where students can participate in the dialog.</td>
<td>Students demonstrated excitement in knowing.</td>
</tr>
<tr>
<td>Assign charrette project</td>
<td>Students were engaged</td>
</tr>
<tr>
<td>Have students present what they know using these tools.</td>
<td>Students could apply new knowledge to charrette project</td>
</tr>
<tr>
<td>Reflective writing</td>
<td>Students could recognize alternative points of view</td>
</tr>
<tr>
<td></td>
<td>Students started developing a design voice</td>
</tr>
</tbody>
</table>

*Figure 5.5: Effects of Techniques Used in Implementing the Visual Curriculum*

After completing the visual curriculum exercise, the effects of the techniques used were documented. No modifications were needed as the techniques used appeared to be effective.

Another technique that was used during the second semester was a scheduled field trip to Peter Eisenman’s Wexner Center. I mention the field trip here in the context of the visual curriculum. As the students were exploring Eisenman’s theories, they had the opportunity to experience his concept of exteriority and phenomenal transparency in a real world environment. In essence this field trip was an embodied curriculum, but similar to a visual curriculum, as it demonstrated the connections between the meaning of the theory and how it could be applied to a project. After our tour was over, many students had remarked on how they were beginning to understand how Eisenman was interpreting his ideas and were excited to begin working on their own projects.
5.2.3: Self Reflection Papers

Finding patterns in the data from the reflection papers during the first semester was difficult, as there seemed to be an inconsistency from project to project and from student to student. The instructions for these papers were as follows:

This assignment is a writing that reflects on your experience with the project. You will turn in one reflection paper for each project. Each paper should be 400-500 words double-spaced and may be written in an informal style. The requirements for the papers are very open ended, however your reflections should include, but are not limited to, the following:

- How you began working on the assignment?
- How and why you made specific decisions?
- What difficulties you may have encountered?
- How you got past these difficulties?
- What you feel is strong about your design solutions?
- What you feel is weak about your design solutions?
- What you would do different the next time?
- What you feel you learned from this assignment?

One issue that became apparent with these papers was that students often chose not to write the papers at all. Of the eight assigned reflection papers, two of the students had only completed one paper, one student had completed only two papers and another student had completed only three papers. The remaining students attempted to complete most of the papers, however, there were only three students who had completed all eight assigned reflection papers. The reflection papers had not been given much weight toward their final grade and it appeared that students took that into consideration when they chose whether to complete the papers or not. I tried emphasizing the importance of writing these papers by explaining how beneficial it would be to their learning experience, yet this did not seem to have much of an impact.
Since the objectives of the self reflection papers was for students to begin articulating what they know in the context of the project, how they went about their decision making and to develop an awareness of how they work, I began developing categories that pertained to their ability to articulate their decision making and their awareness of how they performed. Most students would answer the questions about the strengths and weakness of their projects, which indicated that they were mindful of their performance. Students could typically write about what they had done, but there were often inconsistencies in providing a rationale. Two excerpts from reflection papers that illustrate this dilemma follow.

“I researched online the best way to build a paper box and after I found a clean simple design I used a paper cutter that also had a scorer for perfect straight lines and very accurate measuring so I had very nice clean boxes. The specific decisions I made were based on what I felt comfortable doing with paper given the time restrictions. I wanted to make my boxes fairly large to add to the dramatic effect but that made most of the boxes impossible to use the cutting machine. I also wanted to make sure I had some cutouts and nice angles to get dimension into the model. Combining three boxes into one shape was a nice way to explore what shapes I could build.” — Edie

“I started working on this project in a very methodical way, planning out my process from the research stage, all the way through finalization. My preliminary research comprised not only learning about the functions and limitations of the senses but also visual (pictorial) representations. Once I collected a large number of information and pictures, I started the process of tracing and sketching out my ideas. Though I was reluctant at first, I slowly began to feel more comfortable with what I was doing. Rather than focusing on how inferior my work would be compared to others, I concentrated on doing my personal best and making a solid piece.” — Koko

Edie begins by writing about her process and does give a rationale for her decision-making as she describes what she is comfortable with. She is able to describe that she wanted to make the boxes larger to create more drama but she fails to explain why drama is a rational decision in relation to the project. Koko begins with describing her process of planning and researching, but fails to describe any of her decision making after that and immediately begins writing about her feelings as opposed to the actual project. When students answered the questions about the difficulties they encountered and how they solved their problem, answers typically revolved more around their craft as in these excerpts;
"The biggest struggle I had with this project was making the boxes look clean and neat. I took precise measurements and drew everything out before cutting and I think that that really helped. I also used rubber cement on my final piece instead of glue like I did on my first one because I felt that it helped with the neatness factor. I think that my biggest weakness on this project was the line cleanliness around the edges and creases of the boxes. Also, I think I could’ve done a better job at attaching the ones that were angled by using wire instead of tabs."—Peri

"A few difficulties I had with this project were transferring my shape from paper to Illustrator and then making my patterns line up perfectly. When putting my shapes into Illustrator I had to find a diamond shape from online and then repeat that shape multiple times and draw a vertical line that splits every other diamond in half. Once I got that done it was easy to fill in the shapes and make my U form but I then quickly realized that I had to trace over that shape again to insure that the sides were smooth and didn’t have small points from the diamonds breaking the shape on each side."—Alaina

Both Peri and Alaina write in great detail about their difficulties in the actual construction of their projects but do not discuss any difficulties they had with developing their ideas as they worked through the process. By not disclosing any difficulties in working through the process, neither student had demonstrated an awareness of how they work.

Another observation was that students rarely answered all the questions that were asked. In an attempt to elicit more thought in the reflection papers, I began asking additional questions in the feedback I was giving them like, “How do you think working with such constraints affected the design process?” or “In what way do you think this project could relate to the field of Interior Design?” This would sometimes work for the next paper, but did not appear to maintain any consistency. The question that asks about what they felt they had learned would sometimes elicit completely different types of answers from one project to the next, even from the same student. These excerpts from 2 different reflection papers illustrate the inconsistency in how one student chose to answer this the questions about what they had learned.

"For the interior design discipline, this project gave practice on how to construct and utilize a specific amount of space to place objects which is essential in an interior design career when putting furniture or objects in a specific space. Also, this project was made to take objects and show emotion within the space to give people that viewed the design a specific feeling. Interior designers need to be able to make people feel something when they walk into a space like when walking into a hospital room, they need to feel comforted and clean because normally a hospital is used for those purposes. This project gave insight on how to create emotion and utilize space within a design.”—Lucy
“It’s important to be able to build such models for brainstorming and presenting an idea to clients so rather than having a 2D representation they can actually see how it’s going to work when it’s in a 3D space.”—Lucy

In the first paper Lucy is articulate as she explains the connection she has made between the concept of emotion and its relationship to the context of the project. In the second paper Lucy explains why it is important to learn how to represent ideas 3-dimensionally but fails to mention anything she learned about the context of the project. These inconsistencies in how questions were answered appeared all through the data and modifications would need to be made to these methods before the second semester began.

There were two additional categories that continually occurred throughout the data generated by the reflection papers during the first semester, which pertained to students’ enjoyment of the project and students feeling confident about their ability. As these were not answers that related to any of the questions, yet kept appearing in the data, I wanted to gather more data on these categories to better understand how they related overall to making meaning. These categories were explored through a self-evaluation method during the second semester and are discussed in the next section.

In analyzing the reflection papers from the first semester, I began to look at all the factors that may have contributed to the inconsistencies. Each project had its own objectives which were autonomous and lacked connections between one another. This may have contributed to the inconsistency of the reflection papers as the questions were broad and were not focused directly toward the project at hand. Giving feedback on these reflections was challenging as well because we quickly moved to the next project and the comments made were often no longer relevant. Also since most students failed to answer all the questions and frequently gave brief answers that appeared to be written hastily, I deduced that there were too many questions. Students were trying to answer as many of the questions that they could without thinking critically about any one in particular.

This suggested that the questions assigned for writing reflection papers should be well thought out and specific to what the students should be reflecting on and limited to the main points for what you want them to think critically about.
Before beginning the second semester I had modified the methods for implementing reflection papers. As there was one main project that we would be working on throughout the semester where students would also be learning a process, I changed the name of these papers to journal questions. The objective of the journal questions would still be for students to articulate what they know in the context of the project, how they went about their decision-making and to develop an awareness of how they work. The name was changed because these questions were more active and would track their decision making as they worked through the process. The method for answering the questions had also changed to an online format setup within the OSU intranet system. The intent was to allow students to view other students’ responses and the feedback I was giving as a means of learning from others. This was done to provide an opportunity for students to view examples of how to answer the questions if they were unclear about what was expected. Questions were developed to specifically ask about activities that students were currently engaged with each week of the semester. Emotion based questions were asked intermittently to encourage students’ awareness of their feelings in relation to the project. In the first few weeks, prior to beginning the actual project, questions were geared more toward provoking thought that may have been generated by the activity we were working on and to gain a better understanding of how they had made meaning of the activity. Following is an example of the journal questions that were asked after the first week of the second semester and one student’s response.

Reflect on how the presentation on The Analysis of Images has changed your understanding of the design elements and principles. Do you think you will see space differently now? How has this presentation helped you with perceiving and interpreting space? Is there anything you don’t understand? In what ways do you think might help you in understanding?

“After we saw this presentation in class, I am more aware of what is going on in a space. I now notice what will work and what won’t work, and how to move around a space, visually. This presentation definitely helped me in understanding some of the terms, and what to focus on. I have heard many of the terms, but this web format made it a lot easier to understand and the visualization is how I learn best.

I think I will see space differently now, because I know what to look for, such as fluidity and intentional lighting or textures. It’s important to notice these things with interior design because people can feel a certain way depending on how a space is created. If the space is poorly designed, then it will affect the people using it, so all of these ideas we discussed in class play such an important role for a space.” — Louisa
The questions were direct and specific to what I wanted to the student to think about and what I wanted to know about how the students had made meaning of the activity. Louisa had answered all of the questions and had articulated critical thinking as she discussed why it is important to be aware of how others could interpret a space. She is also mindful of how she thinks, as she understands how she learns best.

As the semester progressed and we began working on the project, the journal questions focused more on describing the process in relation to the concepts we had been learning about through the reading. As I wanted the students to connect their decision making to the reading, the questions were specific to the terminology used in the reading. To avoid getting just descriptive answers I also asked students to provide a rationale for their decisions. Questions were also asked about their meaning making to assist me in gauging their overall understanding. Following is an example of the journal questions that were asked after the first week and one student’s response.

Document your process on how you went about decision making for identifying modalities. Why did you make the decisions that you did? How successful do you feel the solutions were? Is there any part of this assignment that you do not understand?

“Starting my process for the Identifying Modalities assignment, I focused on getting the basic diagrams out of the way first. These including L form, squares, public/private, and horizontal and vertical bars. I tried to explore these ideas in more than one diagram however I could only take them so far, so I moved on to the more complex diagrams. I tried to find more complex diagrams in the “random” or angled and curved forms within the house. I started by simply identifying them and finding relationships between them by also using the horizontal and vertical forms. I then used the angles they formed to draw lines across the space and find points of intersection. I was hoping these intersections would lead to specific conditions in the space but most of the time they nearly missed a key element. I feel my diagramming was fairly successful however I still feel like I’m missing a some ideas/diagrams that can be formed relating to other issues such as the surrounding landscape/site. I understood the assignment pretty well.” — Alaina

Alaina had answered all the questions and she had done so using the terminology from the reading. She is articulate in describing her decision-making about her process in great detail and her explanation of trying to find the relationships between the angles in an attempt to discover specific conditions provides the rationale for her decision-making. Alana’s feeling of success and concern indicate that she is mindful of her performance and it is clear that Alaina has made a connection between the reading and the context of her project.
To reinforce the connections between the reading and the projects, and to guide students through the meaning-making process I also used the journal questions to offer feedback on their decision-making. This allowed me to follow up on conversations that were held during one-on-one times and to offer advice on how a student may construct their arguments using the terminology from the reading. Following is an example of the kind of feedback I would often give students on their journal questions.

I think these 3 quotes from your journal entry are the beginning of your argument. Please see my notes after each one.—Me

It contained the most important structures from the floor plan in which I want to continue within my design. The structures are these structural columns within the house that contain skylights at the top, and a cooling pool at the bottom. I feel as though these elements are the heart and soul of the home that need to be utilized.—Stephie

These structural columns also portray a sense of stability, which can be considered when beginning to build.

When rotated, these interesting elements of shape and form start to appear. This sense of continuity within the triangular shapes formed can also be applied and utilized within reconstruction.

Good work overall

In the feedback I gave Stephie, I pulled out three quotes form her journal entry. I first validated her voice in using the correct terminology by responding using the same terms. I then acknowledged her decision-making and how she was thinking about her project. I also offered her an alternative point of view to think about.
followed by a provocative question for Stephie to give additional thought to. As students progressed through the project, I would continue in this type of dialog through the journal questions, which was then reinforced when we met one-on-one.

Overall the methods used for self-reflection during the second semester appeared to be much more effective than the first and typically maintained consistency. This suggests that having fewer and more specific questions along with guidance and proper feedback was more successful at achieving the desired results. Students began to articulate their decision-making and were connecting the reading to their projects when they were required to sit down and organize their thoughts. By writing out their thoughts using the terminology of the reading, they were able to understand its context and eventually incorporate that context into their own voice.

It is worth mentioning here though, that the success I experienced with the second semester journal questions was in part due to the considerable amount of time and critical thinking I spent on a weekly basis. I had a good understanding of how the students were making meaning in relation to their projects and had kept good notes from our one-on-one meetings to help remind me of the direction the students were taking.

Caveat: As with the first semester, reluctance to complete the questions was an issue and as opposed to lecturing in class about how these would be beneficial to their learning experience, I chose to write a well composed email to everyone as a means of getting my point across.

Most of you have also been great at completing the Journal Questions, which is the second thing I wanted to talk about. From here on out, it is imperative that you complete these weekly as we work through the process. I cannot emphasize enough the importance of completing these while you are viewing your process from the perspective you currently understand it. When we end the semester and the project, you will have a new perspective of the overall project and having the process journal will be necessary to present your research (your house project). Also, I do take the time to read and respond to each one, so please take the time to read my comments.
This method of corresponding with the students proved effective for not only the journal questions but also in communicating specific details that I wanted students to be aware of. Figure 5.6 identifies the techniques and modifications made when using self-reflection as a way to foster development.

<table>
<thead>
<tr>
<th>Techniques: Semester #1</th>
<th>Techniques: Semester #2</th>
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<tbody>
<tr>
<td>One reflection paper to be completed following each of the eight assigned projects</td>
<td>Reflection questions were integrated randomly into weekly process journals</td>
</tr>
<tr>
<td>400-500 words</td>
<td>Reflection questions were more emotion based</td>
</tr>
<tr>
<td>Students were provide eight questions to respond to for each paper.</td>
<td>Process questions were specific to current phase of project and asked for a rationale</td>
</tr>
<tr>
<td>Both process based and emotion based questions were asked</td>
<td>Questions were limited to 1 or 2</td>
</tr>
<tr>
<td>Feedback was provided for each paper</td>
<td>No minimum word count</td>
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<table>
<thead>
<tr>
<th>Effects of Techniques</th>
<th>Effects of Modification #1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students rarely answered all eight questions</td>
<td>Most students answered the reflection questions</td>
</tr>
<tr>
<td>Most could explain their process but could not provide a rationale</td>
<td>Students were more aware of how they felt about their work and process</td>
</tr>
<tr>
<td>Most students could articulate their strengths and weaknesses</td>
<td>Most could explain their process and could provide a rationale</td>
</tr>
<tr>
<td>Many students chose to not write the reflection papers</td>
<td>Students learned from others</td>
</tr>
<tr>
<td>Inconsistent paper writing</td>
<td>Students connected with others</td>
</tr>
<tr>
<td></td>
<td>Student participation increased</td>
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<td></td>
<td>Consistency increased</td>
</tr>
<tr>
<td></td>
<td>Students develop design voice</td>
</tr>
<tr>
<td></td>
<td>Most students could articulate their strengths and weaknesses</td>
</tr>
</tbody>
</table>

**Figure 5.6: Effects of Techniques used in Implementing Self Reflection**

The effects of the techniques used for writing reflection papers were documented. Modifications were made to the techniques prior to the second semester and are indicated in green. Effects of the modifications were also documented. Effects listed in gray are those that carried over from the first semester.
The data generated by the method of self-assessments during the first semester appeared to not produce much information at first glance. I had followed Boud’s (Boud, 1995) process tool for self-assessments as outlined and allowed students to determine what their grade would be for each project. The issue I was having with these assessments was that students continually inflated their abilities and were not thinking critically about their own work, particularly in relation to others. Even though I had felt as if the data should have been discarded, I went ahead and mapped it out and analyzed it for any information it could tell me.

I had started the first semester explaining to the students the process of how they would be deciding how their work should be evaluated. We went through the brainstorming technique as described by Boyd for generating a rubric for what students believed constitutes “good work.” As we listed each category for which their work should be evaluated, we discussed what each item means to them and how they would assess good work under these conditions. We then broke down a point system that they believed each item should be weighted. My only interjections were in asking questions about what they thought about certain items and their responses were incorporated into the rubric. Once this was complete, I explained that they would be assessing their own work and that these assessments would constitute their grade for the individual projects.

After the students had finished the first project and filled out their self-assessment sheet I had noticed that everyone had given themselves very high marks in all the categories, even when it was obvious that the score they had given themselves was much higher then what we had discussed about what constitutes good work. They would often take off a point or two in individual categories and occasionally a student would be truthfully honest and assess their work for the level it was being completed, but overall they continually inflated their abilities beyond what they actually deserved. This continued with each project throughout the semester, and in hindsight I should have intervened and either made changes to the methods for how these assessments were being completed or at least had a serious conversation about thinking more critically when assessing their work.
As previously stated, I had thought about discarding this data, but upon further examination, I realized that it was saying more to me than I thought.

The emphasis on critical thinking about craftsmanship was concerning as craft is focused on skill based learning and since the objective of this study was to teach students how to think, I would have preferred to have seen more critical thought focused on thought based learning such as creativity and then preliminary design work. Although I recognize that craftsmanship is a necessary part of learning within the studio based design course, I wanted students to think more about why they were making the decisions they were making as opposed to how they were executing those decisions.

Allowing students to evaluate their own work may be an effective method for fostering self-authorship, but the way in which it was implemented in the course of this study did not prove to be very successful. It could be that students were too immature to evaluate their own work accurately or that they chose to inflate their grades because they could. Either way, using this method to foster self-authorship would need to be explored further including working with students more to establish specific standards for what constitutes “good work”. Alternative techniques could include establishing a system where student evaluations are negotiated with what the educator believes constitutes “good work”. This would place the responsibility of the final grade on the educator while providing an open dialog between the educator and student. The effects of the technique used for self-assessments during the first semester were documented. As this technique proved ineffective, presumably due to its relationship to the students’ final grade, modifications were made prior to the second semester. Figure 5.7 shows the self-assessment rubric used during the first semester and the effects.
During the second semester I attempted to emphasize thinking over craft. Students were required to explore many different ideas quickly that would not allow time to devote to craft. In fact I specifically stated that I was not concerned with craft during these early explorations and that the objective was to analyze the decisions they were making as they worked through the process.

Since the method of self-assessment during the first semester appeared ineffective in fostering development, I decided to implement a new format for self-assessment. The new format provided a continuum, as opposed to hard numbers, for students to evaluate themselves along. The first two categories, comprehension of complex ideas and critical thinking asked students to evaluate their ability to make meaning of the new knowledge and their ability to apply it. These assessments were intended to gain insight into how students viewed their own
thinking and to gauge whether the methods used in helping students connect the new knowledge to their context of their projects appeared to be effective. Students were told that these evaluations were strictly for my research and would have no effect on their final grade. I began distributing the self-evaluation sheets during the fourth week of the second semester and continued every two weeks following. Figure 5.8 illustrates how each student self-assessed themselves over the duration of the second semester.
### Comprehension of complex ideas

| I still have no clue what we are doing | I think I am starting to grasp the concepts | I totally understand the complexity of this project |

### Critical Thinking

| I am just doing what I think I am supposed to do | Some of my decisions have been well thought out, others have not | I think I have thought critically about every decision I’ve made thus far |

### Autonomy

| I am just doing what the teacher is telling me to do | I still need some input from others, but feel that this decisions are ultimately my own | I have made all of my own decisions based on what I know |

### Relation to peers

| My peers clearly understand this process better than me | I think my understanding of this process is comparable to my peers | I think my understanding of this process is superior to that of my peers |

### Enjoyment

| The uncertainty in the process is utterly frustrating | The uncertainty in this process makes me a little uneasy but I’m OK with it. | I find the uncertainty in this process to be totally exciting |

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*Figure 5.8: Revised Technique for Implementing Self-Assessment*
The first observation I had made with the second semester self-assessment was that students appeared to rate themselves more authentically than they had in the first semester. Students who had given themselves full credit when the self-evaluation was linked to their grade were now assessing themselves below exceptional and often as average. It was not surprising that the students inflated their performance when it was linked with their grade. The surprise was with how honest they were when they knew it wasn’t linked to their grade. This implies that the students did have the maturity needed to evaluate their own work accurately during the first semester, they had just chosen not to. Figure 5.9 illustrates the individual results of the revised self-assessments.
Figure 5.9: Individual Results of Revised Self-Assessments
In my analysis of the self-assessments, it appeared that most students experienced moments throughout the second semester when they reported a decrease in how they were evaluating their performance. These decreases were typically random and specific to an individual student and their project. Several students reported a decrease in how they evaluated their performance immediately following the midterm critique, but eventually recovered. As students were expected to present what they knew and were than questioned about their decision-making during the midterm critique, it is reasonable to assume that the decreases in how students were evaluating themselves can be attributed to the challenges they were receiving during the midterm critique.

Most students had reported an increase across the board, from when we began the self-assessment to the end of the semester, specifically when it came to understanding of the complex ideas and critical thinking. This would suggest that the methods used in fostering self-authorship and helping students make connections between the new knowledge and the context of their project during the second semester had been effective. This does not determine which methods were most effective, only that most students were making enough connections to view their performance as improving as they worked on their projects. Figure 5.10 illustrates the results of how students assessed their ability to think critically while Figure 5.11 illustrates how students assessed their ability to comprehend complex ideas.
Figure 5.10: Overall Results of Students’ Self-Assessment of Critical Thinking

- I think I have thought critically about every decision I’ve made thus far
- Some of my decisions have been well thought out, others have not
- I am just doing what I think I am supposed to do

Ricci
Rea
Alaina
Peri
Edie
Louisa
Lucy
Steffie
Paula
Rowan
Koko
Remi
Gio

Figure 5.11: Overall Results of Students’ Self-Assessment of Comprehension of Complex Ideas

- I totally understand the complexity of this project
- I think I am starting to grasp the concepts
- I still have no clue what we are doing
In addition, the increase in how students viewed their own thinking typically aligned with how they viewed themselves in relation to their peers. This would indicate that as students became more confident in their understanding of the complex ideas and critical thinking, so did their presumption that they were surpassing their peers. Figure 5.12 illustrates how students assessed themselves in relation to their peers.

![Figure 5.12: Overall Results of Students’ Self-Assessment in Relation to their Peers](image)

Most students who had viewed their autonomy as average in the beginning experienced an increase, while those students who had viewed their autonomy as high to begin with experienced little fluctuation as they progressed through the semester. The results indicate that most students eventually viewed their decision making as something that was governed by what they believed to be true and were willing to negotiate others’ input while making decisions. Since my objective was to teach students how to think, the results suggest that the methods used in guiding students to find their own answers were effective. Figure 5.13 illustrates how students assessed their ability to think autonomously.
What I found to be most interesting through the self-assessment was how students reported their level of enjoyment throughout the project. Most students' levels of enjoyment typically coincided with how they viewed their thinking and their performance. This was interesting because I had observed an increase in rigor in relation to their projects in those students who were reporting an increase in enjoyment of the project. This would suggest that when students felt more confident with the new knowledge and their decision-making, they were more likely to enjoy the project more and work harder in finding solutions. Figure 5.14 illustrates how students assessed their enjoyment of the project.
Overall, the self-assessment techniques used in both semesters provided valuable information, however, it is difficult to determine how the self-assessments contributed to the students’ development. When students were asked to evaluate themselves on a continuum as opposed to using hard numbers and without the connection to their grade, they appeared to think more critically about themselves. As previously stated, utilizing self-evaluations to foster self-authorship would require further exploration to discover techniques that are more effective.

5.2.5: One-on-one Sessions and Demonstrations

One-on-one sessions were designed to correspond with workdays. During a workday, students were expected to bring their materials to class and continue working through preliminary design work as I went around and met with each student individually. These sessions were intended to allow students to discuss their decision making in relation to the project and to provide them with feedback. It was also a time to assist students...
through any struggling they might be having with connecting the new knowledge and offer alternative points of view for how they were making meaning of the project. The goal was to offer guidance in problem solving and to avoid giving students the answers.

In addition, I have included demonstrations in this section as demonstrations were typically done on workdays prior to working one-on-one with students. Demonstrations typically involved showing students how to work through a new phase of the project or to work with new materials. While working through the demonstration I would explain what I was doing and why I was doing it this way in relation to the new knowledge.

The data collected from the one-on-one sessions and demonstrations was generated from general observations and field notes. I included these methods together as the demonstrations appeared to have a direct impact on the effectiveness of the one-on-one sessions. During the first semester, there were many inconsistencies in the effects of the techniques, as seen in Figure 5.15, which made it difficult to discern where modifications should be made. In hindsight I believe that the number of projects that were assigned in the first semester had overwhelmed and confused many of the students. As they quickly moved from one project to the next, any new knowledge gained had been lost as there was not adequate time to process the new knowledge.

After completing the first semester, the effects of the techniques used for one-on-ones and demonstrations were documented. Figure 5.15 illustrates the effect of the techniques used in the intervention. Modifications were made to the techniques prior to the second semester and are indicated in green. Effects of the modifications were also documented. Effects listed in gray are those that carried over from the first semester.
This lack of connection with the new knowledge sometimes made it difficult for students to even begin a project. If a student had come to class unprepared, the time spent during the one-on-one was typically spent helping the student get started to prevent them from getting behind. To accomplish this I would often tell

<table>
<thead>
<tr>
<th>Techniques: Semester #1</th>
<th>Techniques: Semester #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engage with students</td>
<td>Engage with students</td>
</tr>
<tr>
<td>Have students explain their process for decision making</td>
<td>Have students explain their process for decision making</td>
</tr>
<tr>
<td>Ask students to relate their decision making to the new knowledge</td>
<td>Ask students to relate their decision making to the new knowledge</td>
</tr>
<tr>
<td>Provide alternative points of view</td>
<td>Provide alternative points of view</td>
</tr>
<tr>
<td>Guide students toward finding their own answers</td>
<td>Guide students toward finding their own answers</td>
</tr>
<tr>
<td>Assist those who are struggling</td>
<td>Allow time to process new knowledge</td>
</tr>
<tr>
<td></td>
<td>Ask provocative questions</td>
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<tr>
<td></td>
<td>Demonstrate my own thinking</td>
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<table>
<thead>
<tr>
<th>Effects of Techniques</th>
<th>Effects of Modification # 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inconsistent student engagement</td>
<td>Engagement Increased</td>
</tr>
<tr>
<td>Many students could not articulate their process</td>
<td>Most students could articulate their decision making—practice their design voice</td>
</tr>
<tr>
<td>Time constraints prevented discussing new knowledge</td>
<td>Students appeared more confident</td>
</tr>
<tr>
<td>Students who were struggling had difficulty understanding guidance and required more answers</td>
<td>Students could apply new knowledge to the context of the project</td>
</tr>
<tr>
<td>Many students required validation on their decision making prior to exploring new ideas</td>
<td>Most students began making autonomous decisions</td>
</tr>
<tr>
<td>Students were exposed to new ideas</td>
<td>Students appeared more aware of their abilities</td>
</tr>
<tr>
<td></td>
<td>Students were exposed to new ideas</td>
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</tbody>
</table>

*Figure 5.15: Effects of Techniques Used in Implementing One-on-ones and Demonstrations*
students what to do as opposed to offering guidance. Students who were unprepared also had difficulty engaging, as they would not be equipped to talk about their decision-making.

During the first semester I had given a demonstration on developing a mind map for generating ideas and visualizing connections between their ideas. As we worked through the exercise, I asked students to contribute to the ideas I was illustrating in the sample mind map. In demonstrating my process for creating a mind map, I talked through my decision-making and explained why the ideas we were generating were relevant. The students were then expected to develop mind maps of their own as part of their preliminary design work. After the demonstration, most students appeared to know what was expected and were able to begin working immediately. During the following one-on-one sessions there was a significant increase in students’ being prepared as well as their ability to engage and to connect the new knowledge to the context of the project. The time spent on doing the demonstration had made the one-on-one sessions more effective in that I was able to focus time discussing each student’s ideas.

During the second semester I decided to implement demonstrations for each phase of the design process. This required that I first work through each phase of the project to some extent prior to doing the demonstration. Although this took a considerable amount of time, it had proved to be an effective technique of explaining to students what was expected and in showing them how to get started. After the demonstration, I would then meet with each student one-on-one to answer any individual questions or address any concerns. During the following one-on-one sessions, students showed additional increases in being prepared and connecting new knowledge to the context of their project. As their understanding grew, they were also becoming more engaged and appeared to be more confident in their decision-making. This provided more opportunities to discuss their ideas and give them feedback on their strengths and weaknesses as well as offer alternative points of view. This allowed me to give more guidance as I had the context of their decision making to speak to.

The second semester’s one-on-one sessions proved to be more effective than the first. I believe this success to be attributed to having only one project to complete, which allowed both students and myself to maintain consistency in our dialog during the one-on-one sessions. Few modifications were made due to the structure of
the second semester, as students were more prepared when they knew what was expected and were shown how to work through a problem. Having only one project that gradually built on one main body of new knowledge also appeared to be more effective in creating a grounded connection to the context of the project. As students made meaning of the new knowledge they were more engaged and were able to discuss their decision-making.

5.2.6: Critiques

During the first semester there were eight distinct projects followed by eight individual critiques. These critiques were casual and took place in class, with only the class and myself present. Students were instructed to talk about their process and decision-making in relation to their project as well as the new knowledge and the project objectives. Typically I would ask students to also talk about what they thought was weak and what they thought was strong about their decision-making. We would also discuss how they interpreted the problem in comparison to their classmates. In most case I would try to validate a student’s decision making in at least some aspect of the project. Observations made during the first semester indicated a great deal of fluctuation in the students’ ability to articulate their process, to connect the new knowledge to the project, their awareness of strengths and weaknesses and their overall confidence in their projects.
After completing the first semester, the effects of the techniques used for critiques were documented and illustrated in Figure 5.16. Modifications were made to the techniques prior to the second semester and are indicated in green. Effects of the modifications were also documented. The second semester had one project to be completed over the entire 15 weeks. There were two critiques scheduled, one at midterm and a final critique. For the midterm critique I had invited one guest and informed the students of our guest critic. Knowing there was going to be a guest critic appeared to make students

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<thead>
<tr>
<th>Techniques: Semester #1</th>
<th>Techniques: Semester #2</th>
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<tbody>
<tr>
<td>Informal</td>
<td>Formal</td>
</tr>
<tr>
<td>During class with only myself present</td>
<td>Juried</td>
</tr>
<tr>
<td>Students were instructed to explain their process</td>
<td>Provide students with detailed specification lists for what they will be presenting</td>
</tr>
<tr>
<td>Students were asked to discuss their strengths and weaknesses</td>
<td>Students were instructed to explain their process and given talking points</td>
</tr>
<tr>
<td>Provide alternative points of view</td>
<td>Students were required to write a presentation script</td>
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<td></td>
<td>Provide alternative points of view</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Effects of Techniques</th>
<th>Effects of Modification # 1</th>
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</thead>
<tbody>
<tr>
<td>Many students did not take their work seriously</td>
<td>Students were aware of what it means to be a professional designer</td>
</tr>
<tr>
<td>Many students could not articulate their decision making in the context of new knowledge</td>
<td>Students were offered multiple points of view</td>
</tr>
<tr>
<td>Student awareness typically revolved around craft</td>
<td>Students were well prepared</td>
</tr>
<tr>
<td>Students were often under prepared</td>
<td>Students could articulate their process and connect the new knowledge to the context of the project</td>
</tr>
<tr>
<td>Feedback from me was redundant as they had already heard my views</td>
<td>Students practiced their design voice</td>
</tr>
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<td></td>
<td>Students appeared confident</td>
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**Figure 5.16: Effects of Techniques Used in Implementing Critiques**
anxious. I had reassured them that, the critique was semi-formal and that the intent of having a guest was to have someone offer an alternative point of view and offer feedback for future decision-making.

I gave them a list of items they should be prepared to present and a list of talking points. Prior to the midterm critique, students had spent several weeks on their projects and we had time to discuss the new knowledge in relation to their projects. In addition, the required journal questions leading up to the midterm had given students the opportunity to begin thinking about how to articulate their process. With this additional support, most students had demonstrated a significant increase in their ability to present their projects.

For the final critique, I decided to invite several guests and have a juried critique. I explained to the students that this would be a formal critique and informed them on who would be attending. Again they were given a specification list on what to present and talking points, but were also required to write out a presentation script. The script was due prior to the critique so that I could proofread and offer feedback. Following is an excerpt from Alaina’s script with the feedback I had given her.

“I am forcing the occupants to go from one extreme to the other with the only area of being in-between the two is when you circulate up and down throughout the house. This again forces people to be in one or the other and not stay in a comfortable state. I am also calling out the L form and converting it into one that makes a larger impact on the occupant. It brings nature into the house in a more literal way and pushed the occupants further into nature when inside.”—Alaina

“You are articulating your decision making very well. You may consider re- phrasing this one sentence, as it may be perceived as a negative.”—Me

[This again forces people to be in one or the other and not stay in a comfortable state.]

“My suggestion might sound like this. It’s a little rough, but you get the idea. [The dichotomy of the two extremes provides two extreme experiences. One that activates a full sensory experience based on external motivators, and one that allows the occupant to retreat from the external world, into a more internal experience].”—Me

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I also discussed presentation tips including telling them they should dress nice. All of this had made the students extremely anxious and as they prepared they would ask me additional questions on what to expect. I told them that as long as they had a strong argument and could provide a rationale for their decision making that they would be fine.

The final critiques were scheduled to be held over two days to allow student to have adequate time to present what they knew and to receive feedback. To help minimize uncertainty I chose to develop a schedule to establish which students would present on which day and the order in which they would present. I scheduled the strongest students to present on the first day and also placed them first in the order. This was intended to allow the other students to gain a better understanding of what was expected as well as provide the weaker students an additional day to revise their presentations.

As the final critiques commenced all of the students were well prepared. They could articulate their decision-making in the context of their project and the context of the new knowledge and they did so with confidence. As the jurors commented on the strengths and weaknesses of their arguments most students would either defend their rationale or were able to accept the alternative point of view.

Having students present what they know to an audience had provided enough anxiety to motivate them to be well prepared. Providing as much information about what to expect and what is expected had helped minimize their uncertainty and allowed them to concentrate on the task at hand. The additional time I spent on editing their scripts and helping them prepare had also contributed to their success. Overall the methods used during the second semester for implementing critiques had appeared effective in fostering developmental growth.
5.2.7: Emerging Themes

For theory to emerge and a hypothesis to be formed, I first had to return to what it was I was trying to accomplish and what the question was I was trying to answer, “what methods are effective for fostering self-authorship in the context of a studio based design course”? The methods I implemented into the intervention were derived from various pedagogical theories that support identity development. Since the objective was to help students make complex meaning of the new knowledge, I first identified which traits associated with Self-Authorship that students were demonstrating. The traits were identified by the frequency in which they appeared in relation to the techniques and effects associated with each of the methods utilized throughout the intervention. Meaning, most students demonstrated these traits when specific techniques were utilized associated with each method. These traits included articulating decision making, developing a design voice, confidence, awareness, and acceptance of multiple points of view. Figure 5.17 lists each of the emerging themes and its relationship to the methods analyzed. Following is a detailed description of each theme and its relationship to the methods.

![Figure 5.17: Observed Traits in Relation to Methods used for Fostering Self-Authorship](image-url)
Articulating Decision Making

The ability to articulate decision-making requires students to organize their thoughts and explain how they have interpreted the new knowledge. When students are required to articulate their decision-making, they are forced to reexamine the decisions they have made in the context of the new knowledge and look for the connections that will provide a rationale. When students learn to articulate their decision-making they become more confident in their abilities as a designer. Methods that were effective for helping students articulate their decision making were process journals, one-on-ones and critiques. Students who actively wrote weekly process journals were more equipped to talk about their projects in the context of the new knowledge. One-on-one sessions provided an opportunity for students to practice how they talked about their projects and receive feedback on their decision-making. The expectation of having to present their projects to others during critiques motivated students to prepare how they would articulate their decision making. Demonstrating how you articulate your decision-making provides an example for students to follow and also informs them on what is expected. Providing regular feedback on students’ ability to articulate their decision-making helped students improve their skills.

Developing a Design Voice

Articulating decision-making is necessary to the development of a design voice as students must first understand how and why they think what they do in order to engage in a dialog. Developing a design voice refers to the student’s ability to discuss their ideas in the context of design, meaning they can explain the new knowledge using their own words while incorporating the terminology of the language of design. Methods that were effective in helping students develop their design voice included the visual curriculum, critiques, one-on-ones, script writing and process journals. The visual curriculum provided a context to the new knowledge that students could identify with. Writing in general forces students to organize their thoughts as they learn to articulate their decision-making. One-on-ones provided an opportunity for students to practice their voice while receiving feedback for improvement. Juried critiques provoked students to think about what it means to be a professional designer and the expectation of presenting in front of others motivated students to prepare how to use their voice.
Confidence

Confidence emerged when students had made a connection between the new knowledge and their own experience. Students who made this connection could then apply the meaning of the new knowledge to the context of the project. Methods that were effective in helping students build confidence included the visual curriculum, demonstrations, critiques, one-on-ones and process journals. Both the visual curriculum and demonstrations provided a visual context that students could connect new knowledge to and gain a better understanding, which could then be applied in the context of the project. One-on-ones provided the opportunity to help students make the connections between new knowledge and experience. In addition, students became more confident when their decision-making was validated. Process journals require students to organize their thoughts and confidence was built as students learned to articulate their decision-making. Critiques only helped build confidence when students were well prepared and could articulate and defend their argument.

Awareness

Awareness refers to a student’s acknowledgement of his or her behavior, performance, beliefs or emotions. It also refers to an awareness of things outside his or her self. Awareness is the first step in identifying what the student values about design. Methods that were effective in encouraging awareness were discussions, critiques, one-on-ones, self-reflections and self-assessments. Critiques encourage awareness of both self and others in that they provide the opportunity for students to compare their decision making to that of their classmates. Discussions of any kind, whether it be formal, informal or during a one-on-one provide an opportunity to encourage awareness. Asking students provocative questions requires students to think about things they may have never thought about before. Sharing what and why you value certain aspects about design through story telling provides an alternative way of thinking for which students can negotiate their own values with. Self-reflections provide an opportunity for students to articulate how they feel about a particular phase of the design process. Students who acknowledge their frustrations or enjoyment in the process can then begin to think about what new knowledge means to them. Validating students’ emotions through feedback reassures students that it is OK to have their own thoughts about what new knowledge means to them. Self-assessments encourage awareness, as it requires students to think about their strengths and weaknesses in relation to their
behavior and performance. When students are aware of their behavior and performance they have the ability to modify their methods of working to align with what they value about design. Writing methods were most effective when questions were specific, required descriptive answers and were limited to no more than three.

**Acceptance of Multiple Points of View**

Acceptance of multiple points of view refers not only to the context of the project but also to what new knowledge means in other contexts. Students who learn there is more then one way to view knowledge will gain the capacity to apply new knowledge in the context of other arenas. For students to accept multiple points of view they must first be exposed to alternative points of view. Discussions of any kind were most effective in exposing students to alternative points of view especially when they shared stories about their own experiences. Stories provide a context for which students can connect to an alternative point of view that they can negotiate against their own way of thinking. Writing is effective in facilitating students to accept multiple points of view when they are asked specific questions that require them to think in different ways. Critiques are effective in exposing students to multiple points of view as jurors provide feedback. When students can connect with the jurors’ feedback and make sense of alternative points of view, they can begin to accept that there are multiple ways of thinking.

Next, I identified recurring techniques used throughout the intervention that appeared more effective in fostering the desired traits associated with fostering Self-Authorship. I then organized these techniques into common categories for which themes emerged. Figure 5.18 illustrates how the techniques were organized and the themes that emerged from this analysis. Following is a brief description of the emerging themes and their relationships to fostering Self-Authorship in a studio based design course.
<table>
<thead>
<tr>
<th>Connect</th>
<th>Communicate Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design visual presentation that shows the new knowledge in relation to visuals that students can connect to their own experiences.</td>
<td>Provide students with detailed specification lists for what they will be presenting</td>
</tr>
<tr>
<td>Illustrate how the concepts of the new knowledge are connected with each other and within the big picture</td>
<td>Limit questions to 1 or 2</td>
</tr>
<tr>
<td>Assign weekly process journals, open forum, with 1-2 questions</td>
<td>Require students to write a presentation script</td>
</tr>
<tr>
<td>Assign process questions specific to current phase of project and ask for a rationale</td>
<td>Communicate with students</td>
</tr>
<tr>
<td>Have students explain their process for decision making</td>
<td>Reflect</td>
</tr>
<tr>
<td>Ask students to relate their decision making to the new knowledge</td>
<td>Assign reflective writing</td>
</tr>
<tr>
<td>Demonstrate my own thinking</td>
<td>Integrate reflection questions randomly into weekly process journals</td>
</tr>
<tr>
<td>Engage</td>
<td>Provide Feedback</td>
</tr>
<tr>
<td>Divide students into groups</td>
<td>Provide alternative points of view</td>
</tr>
<tr>
<td>Meet with groups to discuss what they know</td>
<td>Guide students toward finding their own answers</td>
</tr>
<tr>
<td>Conduct discussion after presentations</td>
<td>Ask provocative questions</td>
</tr>
<tr>
<td>Engage with students</td>
<td>Provide alternative points of view</td>
</tr>
<tr>
<td>Provide an interactive design presentation where students can participate in the dialog.</td>
<td>Provide feedback for each paper</td>
</tr>
<tr>
<td>Provide open forum</td>
<td>Validate ideas</td>
</tr>
<tr>
<td>Allow Time</td>
<td>Assign Presentations</td>
</tr>
<tr>
<td>Time for processing reading</td>
<td>Students present what they know</td>
</tr>
<tr>
<td>Gradually work on projects</td>
<td>Students are instructed to explain their process and given talking points</td>
</tr>
<tr>
<td>Allow time to process new knowledge</td>
<td>Provide tools for students to utilize for developing presentations</td>
</tr>
<tr>
<td>Assess</td>
<td>Have students present in formal setting</td>
</tr>
<tr>
<td>How students currently make meaning</td>
<td>Invite jurors to provide additional feedback</td>
</tr>
<tr>
<td>How students make meaning of new knowledge</td>
<td></td>
</tr>
<tr>
<td>How effective various techniques are</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 5.18: Emerging Themes Derived from Recurring Techniques Utilized for Fostering Self-Authorship*
Connect

Connect refers to more than just connecting the new knowledge to an existing experience. It also refers to the ability to connect with students. When I used examples and analogies that students could connect to, they were more likely to make meaning of the new knowledge and could begin to articulate how they thought about the new knowledge. Illustrating how the new knowledge was connected to the bigger picture of design as opposed to just the project facilitated a more complex understanding of the new knowledge because students could then view the new knowledge in more than one context. Demonstrating my own thinking showed students how they might go about solving a problem, thus finding connections on their own. Assigning smaller, more exploratory charrette projects in the beginning also helped students connect to the new knowledge on a micro level prior to having to explore the new knowledge on a grander scale. All of these techniques for facilitating connections require the ability to connect with students. Understanding the experiences students have had and how they make meaning are dependent upon the ability to talk to and relate to each student as an individual. Forming connections with students benefits them as they are more likely to view their instructor as approachable and interested in helping them learn. Sharing stories about your own experiences whether they are design related, or of the personal nature, allows students to view you as human and provides a safe environment for students to share their own experiences.

Engage

The word engaged refers to not only engaging with each other but that students are also engaged in learning, with myself and in a dialog about design. When students were engaged they were active participants in the learning process. As the model for learning was derived from The Engaged Learning Model, it would make sense that engaged was an emerging theme. Discussions facilitated engagement and students were encouraged to engage with others during workdays. Having students work in small groups, when appropriate to the project phase, also facilitated engagement as well as group meetings and one-on-ones. Throughout the study, it appeared that the more students engaged, the more they were exposed to alternative ways of thinking and learning from others. Engagement also seemed to form a sense of community within the class and facilitated forming connections.
Assign Presentations

When students were required to present what they knew, they were put on the spot to think for themselves and find their own answers. This theme supports Dewey’s theory (1933) about constructivist education in which he argues that students must construct their own meaning in order to learn how to think. Throughout the intervention, students were given multiple opportunities to present what they know. During one-on-ones, students were always expected to explain their decision making in relation to the new knowledge. I found this technique to be an effective way for students to process their decision making out loud and without fear of judgment as one-on-ones were low-stakes and casual. Students who participated in the one-on-one sessions and completed the process journal each week typically were able to articulate their decision-making more fluently in their writing. In the example during the second semester, when students were required to present what they knew about *The Diagram Diaries* (1999), they appeared to have a greater connection to the new knowledge than I had expected. Critiques, the mainstay of the studio based design course, were an excellent method for having students present what they know, however I found this method to most effective when critiques were formal, juried and students were expected to write out a presentation script prior to the critique. The scripts had helped students learn to articulate their decision making and in turn foster their design voice as they presented what they knew.

Communicate Expectations

One technique that I continually implemented into the intervention was to be very clear about what was expected as well as inform students what to expect. Although this technique was not specifically discussed in the literature for fostering Self-Authorship, I found it to be an effective method for reducing uncertainty within the students’ lives. My thoughts behind this technique were derived from the notion that when students become overwhelmed from too much uncertainty there is potential for them to revert back to earlier methods of meaning making. To achieve this, I made certain to provide students with detailed written explanations of assignments and as well as verbal instructions. When project criteria suddenly changed, there was a change in the schedule or any general confusion erupted, I informed the class via email that detailed the new specifics or explanations. Prior to the critiques, students were told what they should present and what to expect from the experience. I even went so far as to e-mail students to remind them about bringing certain supplies to the
upcoming class meeting. While some might argue that this technique might compare to holding their hands, my goal was to help them succeed, and to do so, students needed to come to class well informed and prepared. I would argue that knowing what is expected helps build confidence, as it allows students to focus on the task at hand as opposed to be distracted by the unknown.

**Provide Feedback**

I found giving feedback to be one of the most essential techniques used in the intervention. Students not only received feedback during every class meeting, but also in their process journal and reflection papers. In giving feedback, I attempted to stay true to the three guiding principles of fostering Self-Authorship; validating students as scholars, situating learning in the learner’s experience and offering opportunities to mutually construct knowledge. This is not to say that all three principles were utilized every time feedback was given, only that all three principles were considered when appropriate. When students were sharing new ideas, I attempted to validate them as scholars by acknowledging something about their ideas that was smart. Even if a student took a big risk and their design decisions failed, I would still validate their decision to take the risk to begin with. This, of course, can only be done within reason, but may be necessary in building a student’s confidence in listening to their internal voice. When students were struggling, feedback was typically given through situating learning in the learner’s experience. Here, I attempted to help the student break down the problem further and tried to help them connect it to something from their own experience. The goal was to guide students toward finding their own answer. Providing students with alternative points of view was also helpful when giving this type of feedback, as it would give the student options as to how they wanted to think about their decision making. Situating learning in the learner’s experience often lead into offering opportunities to mutually construct knowledge, particularly during one-on-ones. After the student had connected the new knowledge to their experience, feedback typically focused on how they would apply the new knowledge to their project. Asking provocative questions, which could have multiple answers, was one technique I often used while attempting to mutually construct knowledge. On several occasions, after offering feedback to students, I watched them leave class with a gleam in their eyes, excited about what they wanted to do next.
Reflect

Students who wrote regular reflection papers appeared to be more self aware of their working habits, their difficulties and their feeling about the design process. They were more likely to answer the reflection questions in greater detail when the questions were presented intermittently as opposed to weekly. I tried to ask questions that were specific and based on emotion. As I introduced new knowledge that was full of uncertainty, I asked the students how they felt about the uncertainty. In the beginning most students wrote about feeling anxious but as they started to make meaning of the new knowledge, their anxiety evolved into excitement. Becoming aware of how uncertainty can be exciting was beneficial to many students, as it allowed them to take more risks and explore alternative ideas with out fear of being wrong. Using a public forum for the reflection papers was also beneficial in that students could read about their classmates’ feelings, which validated their own feelings and helped them feel normal.

Assess

Assess refers to many types of assessments. First, students must be assessed for their current meaning making structure. Formal assessments, as I used in the course of the study, were required for this context, however if the goal is to foster development, formal assessments did not appear necessary. One method that could be effective in assessing students’ existing meaning making is to schedule individual meetings in which students have the opportunity to talk about their past experiences and how they know what they know. These meetings are also beneficial in helping you connect with students in that they provide an opportunity to form a relationship.

Assessing how each student is making meaning of new knowledge is also necessary throughout the entire course. When students are struggling with new knowledge, the methods and/or schedule may need to be modified. Struggling students may also require more one-on-one time to help make the connections needed to move forward. The reason a student is struggling may also be contributed to external forces such as being overwhelmed by their schoolwork, athletics, part-time jobs and/or personal issues. One-on-one sessions are the most effective method in determining why the student is struggling and how to support them. One-on-one sessions are also effective in identifying individual students who are excelling and are making complex meaning
of the new knowledge. These students may benefit from additional challenges, which may also require additional time for support. Process journal are also effective in assessing students’ meaning making particularly when questions require descriptive answers.

Allow Time

Time was a theme that appeared in all aspects of the methods implemented for fostering self-authorship. Development, itself, takes time and should be scheduled into the curriculum to accommodate the students’ needs. Assessing students regularly and connecting with students require time during class and time outside of class to develop and modify new strategies. Providing students with feedback on writing assignments as well as being available to meet outside of class also takes time. In other words, fostering self-authorship requires a commitment to supporting each student along the way.

5.2.8: Discussion

Comparing the methods implemented in the first semester to those of the second semester it is clear that I had originally underestimated the concept of teaching with intent as defined by The Engaged Learning Model (Baxter Magolda, 2004). I had not developed a plan for supporting students through the phase of connecting new knowledge to their own experiences prior to expecting them to apply the new knowledge in the context of the project. Although this issue was resolved by the second semester, I could not ignore the differences in the contexts of the two courses. Had the second semester been more effective because I had a better plan or was it because we had only one project to gradually apply the new knowledge to? This question compels me to think about the nature of a studio based design course that requires multiple projects to be completed, especially when the projects are disconnected from each other. As these types of studio courses are common in the first year of design school, I cannot help but be concerned about the level of meaning that can be made at the foundational level. Should the foundational course be restructured to gradually build on new knowledge as students begin to connect one idea to the next? This is not to say that I believe that the first semester was unsuccessful in fostering development, in fact, many students had made complex meaning of the new
knowledge and were able to apply the knowledge in the context of the project. The issue was that their success was not consistent and often occurred with the same students as opposed to the majority of the class.

I had also not been prepared for the varying levels of development, which caused me to rely on old methods of teaching, where I would tell students what to do as opposed to guiding them through finding their own answers. This resulted in doubt in my ability to achieve what I had started. I raise this point for the sole purpose of acknowledging that fostering self-authorship is more than implementing different methods, it has to be a mindset. Had this not been my thesis research and I had experienced similar doubt, I may have become discouraged and given up completely. This point reinforces the amount of commitment it takes on the part of the educator who wants to foster self-authorship in their courses.

The primary discovery that was revealed through this study was in how interrelated all the methods and techniques really were and no one single technique could be viewed as the ideal method for fostering Self-Authorship. Students had demonstrated many traits associated with development and in relation to the calls for design education reform. Being exposed to multiple points of view appeared to foster the ability to evaluate several points of view. Writing had helped them organize their thoughts and fostered critical thinking as well as their ability to communicate in both writing and verbally. When students reflected on their experience, many discovered how much they enjoyed working on complex problems and their enjoyment often resulted in rigor. As students became more confident in their abilities they were able to think more autonomously and demonstrate volition.

It was clear that making the connection between the new knowledge and the students’ existing experiences was vital to their ability to make meaning of the new knowledge and apply it to the context of the project. As this is the goal of any studio based design course, the question then becomes what makes the meaning making complex? The development of the design voice suggests that the student is also making meaning of the new knowledge in the context of design as well as the project. This implies that the student also understands the new knowledge outside of the project and can view how it would be applied to future projects. Developing self-awareness and confidence suggest that the student has made meaning of the new knowledge in relation to
themselves. This implies that there is also a context of what the new knowledge means to the designer. In other words, what the design student values about the new knowledge. These three contexts are at the core of complex meaning-making framework in the studio based design course.

In relation to Self-Authorship, these three contexts can be compared to the cognitive, interpersonal and intrapersonal dimensions of development. To make meaning of the new knowledge in the context of the project, the student must develop cognitively in order to accept that there are multiple perspectives in which to view the new knowledge. In the context of design, interpersonal development allows the student to view the new knowledge in relation to other perspectives about the knowledge, while maintaining their own sense of meaning and self. In the context of the designer, intrapersonal development allows students to discover what the new knowledge means to them outside of external expectations.
5.3: Assessing Levels of Development

To determine whether the intervention did, indeed, affect the overall development of the students, assessments were completed at the beginning of the study to establish a baseline of development. Once the study had concluded, the assessments were completed again to determine who had experienced growth and to what degree. A control group comprised of 5 sophomores from the visual communications department, who were not part of the intervention, were also assessed at the same times. This section describes how the assessment interviews were administered and analyzed as well as the overall results.

5.3.1: Analysis of Assessment Interviews

Once students had agreed to be part of the study, each student signed up for an hour and a half time slot to complete the assessment interview. All assessment interviews took place over a two-week period. These interviews were recorded and then transcribed to complete the analysis. The format for the interview was based on Robert Kean's SOI (Kegan, et al., 2011) assessment, which I had researched well and felt comfortable administering. Each student was given 10 index cards with one of the following words written on each card; anger, anxious, success, conviction, sad, torn, moved, lost something, change, important. They each wrote a few thoughts on each card explaining a personal experience relating to the corresponding card. After completing the card exercise, students were asked to select one card they would like to talk about. As I began the first interview and attempted to probe the participant to answer additional questions, I quickly realized that assessing students using this format was much more challenging than I had thought it would be. Kegan’s format for assessing meaning-making required quick processing for what the interviewee was saying in order to determine the most effective questions for eliciting responses that would provide evidence of a particular meaning making structure. As I lacked experience in conducting this type of assessment, many of my questions elicited inadequate responses. In an attempt to extract, from the interviewee, stories that would indicate their meaning-making structure, I began telling stories about my own experiences. This method appeared to be more
effective, as the interviewee seemed more open and comfortable discussing their own experiences. Without realizing it, I had essentially conducted the assessment as an informal conversation, which is associated more with Marcia Baxter Magolda’s Self-Authorship Interview.

Since I had strayed from using the SOI format, and the interview assessments were more comparable to Baxter Magolda’s Self-Authorship Interview, I chose to analyze the assessments using Baxter Magolda’s model. To assess each student, I began by reading over their transcript to identify any excerpts that suggested a structure for meaning making as defined by Baxter Magolda’s 10 positions. From these excerpts, I was then able to deduce which position appeared to be predominant. Once the predominant position was defined, I then reviewed the transcripts again to determine if there was any additional information that might contradict this deduction. Following are the pre-study and post-study assessments for Edie and Alaina. The excerpts are direct quotes from the transcripts and are integrated with my rationale for assessing the student at the indicated level.

**Edie’s Assessment**

Edie’s pre-study assessment indicated that her meaning-making structure was in position 5, *constructing an internal voice*. She was beginning to actively construct a new way of making meaning yet continued to rely on earlier positions. This is evident in her excerpt as she described her recent experience with her ex-boyfriend.

“My ex wanted to get in a commitment with me. He was ready to, like, be with me. And I was like, I can’t do that. I was like, I need to get my life back in order. So I was, like, really torn. Because I did want to get back with him, but I knew I wasn’t ready. I should have just told him no, but I liked being with him."

Here, Edie is trying to listen to her internal voice about not being ready to be in a committed relationship with her ex-boyfriend, but instead of acting on what her internal voice was telling her, she chose to continue spending time with him despite her awareness that it was not what she wanted. The reliance on earlier positions continued through the interview as Edie talked about her difficulty with making friends.
“It’s really hard for me to make new friends, cause, like I don’t really find myself very attractive. I think it has to do with all the horrible stuff I’ve done in my past. It’s like, if people really knew about all that stuff they wouldn’t accept me. That’s a scary thing to think that somebody could accept all of that because I still struggle with it. I try to be a good person, but I just feel like no one ever sees that.”

Edie’s desire to be a good person suggests that she is attempting to construct new meaning about how she views herself, but the way she perceives how others view her suggests that she is letting her past behavior define who she is now. The external voice that told her she was somehow a bad person or not worthy of friendship remains present as she continually defines her relationships through others’ perceptions. The lack of worth dictated by her external voice was also present as Edie discussed her feeling about success.

“Last year, when I came here, I told my mom, I’m going to be President of Design Circle. I was really excited about the idea and was like, I’m going to be successful. And then it happened and I became President of Design Circle, except I didn’t feel like a success. Instead it was like they just picked me because I was willing to do it. I kind of felt like, big deal, anyone could have done this.”

Edie’s external voice was not allowing her to take pride in her accomplishments. She had worked hard at trying to redefine herself and to make meaning of what success meant to her, however, she ultimately reverted to earlier positions, as she did not feel as if she was worthy of success.

Throughout the intervention, Edie continually struggled with her identity, but with each challenge, she appeared to listen more to her internal voice. Edie’s post-study assessment indicated that she has developed and her meaning-making structure was entering position 7, cultivating the internal voice. Edie arrived at her scheduled assessment full of anger toward the design department, social issues happening in the world and her own life decisions. She began the interview ranting about her many frustrations.

“It’s so hard for me to honestly feel positive about anything. There 7.2 billion people in the world now, and I feel like that we’re the only thing on this planet that can literally knowingly change our environment and affect everything. And we’re doing that in a very negative way. We just don’t give a shit. We’re literally a virus on this planet. I know a lot of people would just say whatever, but I’m like, this is fucking important”
Edie’s outrage suggests that she is beginning to develop parts of herself that she values. Her concern over the environment appeared to be coming from her internal voice and her lack of concern over what others might think of her values, suggest she has reduced her reliance on external expectations. Her internal voice is cultivated more as she talks about success.

“My perspective of success has changed. I always thought about success in terms of money and things like that. And I guess I’m very torn now as to what I think the definition of success is. I think that I could be a successful designer. But I don’t know what that even means. How does that contribute to anything important? It’s like success has more to do with how you feel about yourself and what you are doing.”

In Edie’s new perspective about success she has begun to sift out old beliefs that no longer worked for her. She was becoming aware that her old definition of success was externally constructed and did not align with what she valued. The awareness Edie was experiencing about her values continued, as she talked further.

“I’m tired of being scared to chase my dreams. I want to be passionate about something. I don’t feel like I’m doing what I’m supposed to be doing here on this earth. I don’t feel like I’m where I’m supposed to be, I think that there’s so much more that I could do and I think that there’s a place that I’m supposed to be. Maybe that’s why I feel so much turmoil. Because it’s like my body and my self knows, but I just didn’t want to accept it in my mind. Anyway, I’m ready to accept it now, and I intend to do something better for this earth”

Edie’s intention to do something greater suggests that she is establishing priorities in what she believes and ready to tackle the challenges that come with following her dreams. She is listening to her internal voice and is cultivating her passion for what she believes.

Alaina’s Assessment

Alaina’s pre-study assessment indicated that her meaning-making structure was in entering position 7, cultivating an internal voice. She occasionally conversed with her external voice but she had learned to listen to her internal voice enough to reduce her reliance on the external voice. In her first excerpt, Alaina talks about her decision to switch majors.
“Last year I was an architecture major and I was pretty set on it since like sophomore year of high school. And then I was taking design classes as well since I wanted minor and design and realized I no longer wanted to do architecture and instead wanted to design. I feel like I’m better at it and, like, I can just relate to more and come up with more ideas about it. So when I decided to switch, it was a big ordeal with my parents, trying to explain everything. But it was weird, because it changed the relationship I had with my parents. It’s like I was changing my major but it’s also like me changing the way I think about decisions, I guess, because I was always relied on them before and now I don’t have to.”

Alaina was able to sift out the belief that she needed her parents’ input on decision making and was beginning to value her internal voice as an independent person. As Alaina continued to listen to her internal voice she began developing other parts of herself that she valued.

“I’m a little OCD about things, like everything needs a place and life should be put away if you’re not using it. I need things to be clean and orderly. I’m living in an apartment now with two guys and one of my friends, and it’s not clean. They’re just not that way, so it’s like hard for me to understand why they can put their things away. At first it made me angry and I did talk to them and they have gotten better. Eventually I came to realize that I should not expect them to live by my rules, it is their apartment too. I still get annoyed at times, but I’m trying to accept that they are just different from me.”

Alaina’s awareness of her preferences for order over her roommates’ lack of order suggest that she has developed a part of self that values her environment. She was able to view her own values as being distinct from others, while maintaining independent relationships, as she cultivated her internal voice about how to relate to others. The cultivating of the internal voice about relating to others continued as she spoke about a recent experience with her best friend.

“This past summer my friend Jill’s house burnt down. Everyone was fine but they lost everything and Jill became really depressed. She just sat on the couch and like she wouldn’t go anywhere. So it was like really difficult. So I’m kind of like well somebody needs to worry about Jill. Are you going to go to your classes, are you going to get out? Sometimes her mom would call me to ask about her and I thought, why aren’t you calling Jill yourself. I started to feel like I was Jill’s mom. After a while the whole situation became exhausting and I had my own things to take care of. It was not my problem, it was theirs, so I chose to step back and let them work it out themselves.”
Alaina’s was able to establish her own priorities after her internal voice told her it was not her responsibility to parent her friend. This also allowed her to reduce her reliance on authority more as she handed the parenting role back to Jill’s actual parent. Throughout the intervention, Alaina continued to cultivate her internal voice and eventually trust her internal voice. Alaina’s post-study assessment indicated that she had developed and her meaning-making structure was entering position 9, building an internal voice. This is evident as she discusses the ways she had changed over the year.

“At first, I was kind of freaked out that Rea and Edie were so much older than me. And I was like, Wow, this is going to be really different but I tried to keep an open mind. I ended up liking it a lot because there’s a lot of experience they’ve had that I haven’t that I can learn from and grow from now. They have a different mindset, it is where they are in life and I am where I am. I’m now comfortable with differences and I like that we’re all not the same.”

In this excerpt, Alaina realizes that she can’t control reality but can control how she responds. When she trusted her internal voice about keeping an open mind, it shaped her reaction. She was able to connect with the older students while maintaining her sense of self. Alaina’s comfort with differences, suggest that she is building a philosophy for life and is committed to staying open to new ideas. She also appeared committed to her internal values as she discussed external expectations.

“Recently I was taken aback I guess, by how willing other people are to let people be who they are. In the beginning of the year, I kind of hid the fact that I don’t drink just because I don’t want people to automatically know that and not talk to me or something. But I was totally wrong and I don’t think anyone really does that. I think that’s just perception that you kind of get from that. So that has definitely changed. I’m not afraid to tell people anymore, even if they do judge me, I’m willing to say, so what? This is who I am.”

Here Alaina has realized that she cannot control what other people think and is committed to being her true self regardless of how others react. This suggests that Alaina’s desire to be authentic can be viewed as another philosophy for living as she begins to build her internal foundation. This authenticity continued as she spoke further.
“I really enjoy thinking about bigger things that don’t necessarily involve me and don’t necessarily need to be thought about. I just enjoy thinking about them. And, like, exploring them just for fun and just talking about them with people and just, like, those “what if” scenarios. I think your class really relates to all that and all these connections and complexity and how that can relate to your life in the real world and stuff. There never seems to be just one answer.”

Alaina’s ability to relate the content from my class to the real world and life suggests that she is making complex meaning of the knowledge. This is reinforced by her awareness that there is never just one answer or that there could be multiple truths.

After completing all of the analysis on the pre and post assessments, I graphed the results to examine where development had occurred. Figure 5.19 depicts the pre and post assessments of each student.
Overall Development

The overall development indicates the position of development a students assessed at prior to beginning the intervention and the position they assessed at once the intervention was complete.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Alaina</th>
<th>Ricci</th>
<th>Edie</th>
<th>Rea</th>
<th>Peri</th>
<th>Lucy</th>
<th>Louisa</th>
<th>Stephie</th>
<th>Paula</th>
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I then measured the difference between their pre and post assessments to determine the amount of development increase. Overall the results indicated that students who were assessed at higher levels of development when they began the intervention were more likely to experience a greater amount of development increase. This, however, was not consistent, as some students experienced greater development increases in relation to their equivalent peers. This would suggest that a high beginning level of development is not a prerequisite to experiencing a greater amount of development increase.

Figure 5.20: Amount of Development Increase
Next I compared the results from the experimental group to the results of the control group. All members of the control group had begun at relatively high levels of development, based on the 10 positions, and all members experienced overall growth. Figure 5.21 illustrates the results from the control groups’ assessment and their amount of development increase. Since all the members of the control group began at higher levels of development, I chose to compare their results to the equivalent members from the experimental group as seen in Figure 5.22.
In these comparisons, Alaina, who had begun the intervention in the same position as both Carl and Kelly form the control group, experienced a significant amount of developmental increase over her counterparts. In comparing Ricci, Edie and Rea from the experimental group to Shannon and Tina from the control group, Edie had surpassed her equivalent peers while the others each had comparable amounts of developmental increase. Experimental group member Peri who had begun in the same position as Jack from the control group also experienced a greater amount of developmental increase than her equivalent peer.
Next I identified the remaining members from the experimental group whose amount of developmental increase was either greater than or comparable to those members from the control group and compared their beginning levels of development. Figure 5.23 illustrates these comparisons.

![Bar chart](image)

**Figure 5.23: Comparison of Beginning Levels of Development to Amount of Development Increase**

Scale: Each horizontal line indicates an advancement to the next position as defined by Marcia Baxter Magolda (2004)
In this comparison the members from the experimental group began the intervention at lower positions than those of the control group, yet both Lucy and Paula had greater amounts of developmental increase, while Stephie and Louisa’s amount of developmental increase was comparable to those of the control group. These results suggest that, the techniques used throughout the intervention may have had a greater impact on development for the experimental group regardless of what level of development the students began. Specifically, these results emphasize the importance of responding to the individual needs of the student.

5.3.2: Discussion

While completing the assessment interviews I had the privilege of listening to the personal stories about each student. Many of them thanked me afterwards saying, “It was kind of like therapy.” Although the objective of the stories was to perform an assessment, an unexpected benefit came out of the assessments. While they told their stories, I had to listen; I could not react or judge their experiences. I expressed compassion when they told sad stories, joy when they told happy stories, understanding when they told shocking stories and in doing so we had established a relationship. The assessment interviews turned out to be more then getting a baseline. They had helped me connect with the students and, in turn, they had learned to trust me.

After completing the post assessments with the control group, there was one commonality with the five students, which I found interesting. All five students had discussed their dislike for the competition they felt in their course. Each one mentioned how they had began the year feeling really connected to their classmates but over the year they had all separated into small cliques and didn’t really talk to each other anymore. Although this had no bearing on how the students were assessed, I just couldn’t help but wonder what challenges were they experiencing that would create such a divide. This phenomenon suggest that the students from the control grouped were lacking development on the interpersonal dimension as they appeared to have difficulty viewing themselves in relation to others.
5.4 The Dimensions of Development

Development in the journey toward self-authorship is viewed as holistic development in the three dimensions of cognitive, intrapersonal and interpersonal. Each dimension is characterized by the ability to demonstrate a variety of traits. This analysis looks at how the different methods and techniques may have influenced development in each of the different dimensions. This section begins with how the data were coded and the rationale for interpreting the data in this manner. The analysis looks at how these codes compare, on both the macro and micro levels, against the methods used and the developmental assessments.

5.4.1: Coding Development of Traits

To begin to code the data, I began by identifying three predominate traits, based on Baxter-Magoldas (2004) journey toward Self-Authorship, associated with each of the three dimensions and developed strict criteria for identifying these traits when demonstrated by the participants. These include Cognitive; critical thinking, reflective judgment and contextual meaning, Intrapersonal; autonomy, self-awareness and confidence, Interpersonal; multiple points of view, volition and authenticity. I then mapped out all of the methods and techniques utilized throughout semester one (S1) and semester two (S2) and marked when these traits were demonstrated in association with the method or techniques. These criteria are illustrated in Figure 5.24. Following is an elaborated explanation of how these traits were identified with examples that illustrate this rationale.
Figure 5.2: Coding Criteria for Dimensions of Development

**Cognitive**
- **Critical Thinking**
  - Demonstrating the ability to think with awareness and clearly define a set of criteria for analyzing ideas. Are able to adjust opinions when new facts are found, examine problems closely and are interested in finding new solutions.

- **Reflective Judgement**
  - Demonstrating the ability to construct solutions that are evaluated by criteria such as the weight of the evidence, the utility of the solution, and the pragmatic need for action.

- **Contextual Meaning**
  - Demonstrating the ability to connect a congruent relationship between two parts.

**Intrapersonal**
- **Autonomy**
  - Demonstrating the ability to existing or acting separately from other things or people through autonomous decision making.

- **Self-Awareness**
  - Demonstrating the ability of awareness of oneself, including one's traits, feelings, and behaviors.

- **Confidence**
  - Demonstrating the quality or state of being certain or faith or belief that one will act in a right, proper, or effective way.

**Interpersonal**
- **Multiple Points of View**
  - Demonstrating the ability to view more than one idea as a truth.

- **Volition**
  - Demonstrating the ability to act in making a choice or decision.

- **Authenticity**
  - Demonstrating the ability to be true to one’s own personality, spirit, or character, despite external pressures.
Cognitive Development; Critical Thinking

Students were identified with demonstrating the ability to critically think when they showed an awareness toward a clearly defined set of criteria, analyzed ideas and were able to adjust opinions when new facts were found as well as examined problems closely and were interested in finding new solutions. Multiple methods and techniques were utilized to provoke critical thinking and demonstrating this trait was seen in the students’ writings as well as how they approached projects. Students who were present for discussions were identified as demonstrating critical thinking as they were exposed to new ideas that they had not been previously aware of and were expected to verbalize their own opinions in the context of the discussion.

The S1 Thought Papers were short critical writings that were completed after students had read an assigned article and participated in a class discussion. For each writing students were given general questions to answer that would reflect how they made meaning of the article. Students were identified as demonstrating critical thinking when writing the S1 Thought Papers when they were able to articulate in their own words what the author was saying and were able to develop their own opinion. After reading and discussing an article about architectural representation, Peri articulates her thoughts in this excerpt;

“I believe that the main point of what the author was trying to show was that there are two sides of what architecture is trying to represent. In one sense, there is the “as is” representation which is what the building actually is; the foundation, the purpose, and the basic structure itself. In the other sense, there is the meaning behind what you physically see; the feeling you get from the surroundings and the experience you have while inside the building. The experience, I believe, is different for each individual and the aura and function of the space is original to everyone that steps foot in it. However, no matter if the representation is physical or a sensual experience, it all derives from something that is real.”—Peri

Peri demonstrates critical thinking in her thought paper as she is was able to examine the new knowledge closely and determine that the author was writing about two separate ideas. She was able to explain both ideas in her own words and then developed her own opinion as she describes what it is that she believes.

S1 Reflection papers were papers that were completed at the end of each of the eight projects assigned during the first semester. Students were given several questions to address in these papers that included their
explaining how they approached their project. Students were identified as demonstrating critical thinking when writing the S1 reflection papers when they were able to articulate their decision making process and a rationale for why they made those decisions. Louisa explains her process for a project that involved depicting several assigned words using either points or lines;

“Beginning this project, I first researched the definitions of all nine words. I felt like I understood them pretty well so I began to draw my sketches by thinking of the definition and how it made me feel. I would definitely say I struggled with trying to come up with that many ideas, but I was overall pleased with most of the ones I drew. I overcame this struggle by Googling images and just scrolled throughout all of them, drawing down anything that caught my attention. After narrowing down the top 8 or 9 sketches, I picked my final 6 ideas. I picked the final drawings because of the aesthetics, and the readability of the word associated with the sketch.” — Louisa

Louisa’s reflection articulates how she approached this project by first connecting the words to her own feelings and her interest in finding a solution to this project, which lead her to do additional research when she began to struggle. Her rationale for selecting her final drawings based on aesthetics and readability is also articulated.

The journal questions in S2 typically asked students to articulate their process of decision-making, which would require critical thinking. Each week students were given new questions to answer that were associated with the current phase of the project they were working on. Rea demonstrates critical thinking in the following excerpt.

“When I went back to work, I tried to think about why the designers put certain major features of the house in the places they did. Like, why are the doorways, walkways, seating areas, private spaces are where they are? Then I outlined them and found ways with which they interrelate to each other. I let the “moments” become evident to me instead of trying to too actively seek them out. One particular moment that continued to win my attention was that of the sight line/walking path from one end of the first building to the end of the next.” — Rea

Rea’s description of how she outlined certain major features of her house and then explored how they were interrelated indicates that she was using a set criteria for analyzing her ideas. She articulates her process of decision-making and is able to discuss how she came upon her solution.
The projects and project research in both S1 and S2 provoked critical thinking in that students were given a clearly defined set of criteria for analyzing problems and developing their own solutions. Students were identified as demonstrating critical thinking when they were able to think with an awareness encompassing this set of criteria as they progressed through all phases of the project.

Figure 5.25 illustrates Remi’s ability to think critically about the project research and the final project. Her research of thumbnail sketches included over 200 separate ideas depicting various words using both point and line. The sketches were then analyzed based on the criteria of the project and six were selected for her final solution.

**Cognitive Development; Reflective Judgment**

Students were identified as demonstrating reflective judgment when they showed the ability to construct solutions that are evaluated by criteria such as the weight of the evidence, the utility of the solution, and the pragmatic need for action. Reflective judgment was often demonstrated in the writings of the thought papers, reflection papers and the journal questions. Students were also identified as demonstrating reflective judgment with project phases, final projects and critiques if it was clear they had explored many ideas prior to
constructing their final solution. In Peri’s reflection paper from S1, she articulates her process for decision making using reflective judgment.

“For this assignment, I had an extremely slow start. For each word I came up with for the center of my mind map, I would get stuck coming up with the branch words pretty early on. I did about five unsuccessful mind maps before I started coming up with words that gave me more ideas. Looking back, I realize the words I was stuck on were either not broad enough or too abstract to gather concrete ideas to go along with them. For example, the first word I thought about doing was fear and every word I connected it with was more of a feeling than something that could be portrayed through an image. Another word that I really wanted to do was “fall” because I was able to connect a lot of ideas and words to it, however it wasn’t really what the assignment was asking for. I found that this part of the project to be the most difficult because without a solid grouping of ideas and words, the final piece would most likely not be as successful as possible. After brainstorming for a while, I finally decided to use the word “beauty” for my final collage.”—Peri

Peri’s solution for using the “beauty” to complete her project was based on the evidence that the previous words she tried to use had not been successful in generating enough ideas. As she realized the previous words were not going to work for meeting the criteria of the project, she was forced to construct a new solution.

Stephie also uses reflective judgment in her description of her process in answering a journal question from S2.

“My decision making and process for the 3D exploration of the Planar house has slightly changed from last week. After researching and exploring more into the depths of the theory of phenomenology, my design and construction was not connecting to this idea. The theory of phenomenology revolves more around the idea of intimacy and significance of overlap and shadow. So instead of just constructing separate rectangular box-like structures, I needed to connect them to create a sense of togetherness.”—Stephie

Stephie realizes that it was evident that the decisions she was making were not working. After she completed more research on architectural phenomenology and evaluated its meaning in context of her design, she took action to construct a solution that was based on the criteria of the theory. In addition, Stephie demonstrated reflective judgment in how she approached her project as she evaluated her decision making as she worked through the process and constructed solutions to her project that were based on the evidence that was revealed.
Cognitive Development; Contextual Meaning

Students were identified as demonstrating contextual meaning when they showed the ability to connect congruent relationship between two parts. Contextual Meaning was often demonstrated in the writings of the thought papers, reflection papers and the journal questions. Students were also identified as demonstrating contextual meaning with project phases, final projects and critiques if it was clear they had made a connection between the new knowledge and the context of their project. Students who were present for demonstrations, one-on-one sessions and discussions were all identified as demonstrating contextual meaning as the intent of these methods was to connect congruent relationship between two parts and the techniques utilized in these methods focused on making a connection between new knowledge and existing knowledge. In the S1 Thought Paper Louisa demonstrates contextual meaning as she describes how she has come to understand the reading.

“The author emphasizes how important the sensual experience is to the person occupying the space. Anybody who has visited Knowlton Hall probably can understand what the author is trying to say by this. I have experienced Knowlton Hall many times and the vast, open space definitely changes my mood. It gives me a colder, more unwelcoming feeling. This reading might apply to the design discipline because design can make you feel a certain way. It's not all just form and physical boundaries. When experiencing a room, the colors, furniture, and overall layout can make you feel happy or sad or even mad.”—Louisa

Louisa has connected the author’s idea of the sensual experience to her own experience of walking through Knowlton Hall. As she describes her experience of feeling cold and unwelcomed in the space she is able to view this idea as congruent to how occupying a space can be a sensual experience. Lucy also demonstrates contextual meaning in her S1 reelection paper after completing her project.

“This project was made to take objects and show emotion within the space to give people that viewed the design a specific feeling. Interior designers need to be able to make people feel something when they walk into a space like when walking into a hospital room, they need to feel comforted and clean because normally a hospital is used for those purposes. This project gave insight on how to create emotion and utilize space within a design.”—Lucy

Lucy is able to connect the criteria for the 3 dimensional project that is based on emotion, to the discipline of interior design. The two congruent parts are emotion and interior design. Lucy is connecting these ideas through her understanding of how a person might want to feel when they entered a hospital.
Paula demonstrates contextual meaning in her project using abstract and symbolic representation of the five senses, Figure 5.26. Her abstract renderings of sight, smell and taste all depict the literal context of the senses while her symbolic renderings of the eye chart, olfactory molecules and dietary percentages of food depict iconic symbols derived from a scientific context. Here she has connected the two congruent relationships of the two contexts.

**Intrapersonal Development; Autonomy**

Students were identified as demonstrating autonomy when they showed the ability to exist or act separately from other things or people through autonomous decision-making. Demonstrating the ability to think autonomously typically occurred in how they approached their projects. Occasionally students would demonstrate autonomy in their writing as demonstrated by Stephie in her thought paper from S1.
“Warm earth toned colors, soft textures, and natural materials captivate the senses as one enters into the tranquil and familiar oasis. The soft and freshly washed Egyptian cotton sheets flow across the bed—tucked away under the fluffiest white down comforter and pillows. A wood paneled accent wall, modern lamp, art accent, and sheer forest green drapes give the interior a modern yet natural appeal. As one steps inside the room, the smooth carpet wraps around their feet in a cozy embrace. Creating a warm and comforting oasis that captivates the senses and gives that familiar comfort of home is one of the key design intentions behind hotel design. The “sensual experience” described in Anastasia Hiller’s essay is an important aspect that should be learned and applied within architecture and interior design.”—Stephie

Stephie took an autonomous approach to how she described what the author meant by the sensual experience. Her narrative walks the reader through an experience as Stephie attempts to connect the reader with what the experience would feel like using descriptive and superfluous words. Since providing this type of description was not required for the thought papers, Stephie had made the autonomous decision to include the narrative in her paper.

Alaina had made an autonomous decision when she decided to explore a complex diagram during the S2 project phase, Figure 5.27. Students had been given a list of required diagrams to complete and were told they should also explore their own ideas. In this example Alaina acts separately from others as she explores relationships in her inspiration house that are unlike any others in the class.
Intrapersonal Development; Self-Awareness

Students were identified as demonstrating self-awareness when they showed the ability to be aware of themselves, including their traits, feelings, and behaviors. Self-awareness was typically demonstrated through their writing but also viewed in how they approached their projects. Students who were present for one-on-one sessions were identified as demonstrating self-awareness as their behavior associated with the progress of their project was something that was discussed. Peri’s thought paper from S1 demonstrates self-awareness as she quickly points out an aspect about herself.
“In my life, I have noticed that when I am designing or just involved in something that I am passionate about and enjoy, the outcome will always be better than something that my whole heart is not in.”—Peri

Peri is aware of how the outcome of her work is influenced by how much passion and enjoyment she is feeling when she is working on it. Rea’s example in the S2 journal question is more detailed as she demonstrates self-awareness.

“It is requiring me to work on it for a while, and then I seem to get stuck and have to walk away and come back to it. I feel like I will get into a groove and then the construction and the glue drying starts to frustrate me and makes me impatient. I feel like then that knocks me out of my groove and all the ideas that I thought were so awesome start to look obvious and contrived and like it has lost its meaning. So that’s what I’m struggling with now.”—Rea

Rea had become aware of her frustrations with working on her project and realized that she needed to step back and allow herself to process what she was thinking. She is also aware that when she is forced to stop working due to technical reasons, she loses focus on what her objectives were.

Intrapersonal Development; Confidence

Students were identified as demonstrating confidence when they exhibited the quality or state of being certain or had faith or a belief that they were acting in a right, proper, or effective way. Students demonstrated confidence more literally in their writing. Confidence was also observed in how they worked on the projects and during presentations and critiques. The two following excerpts from writing completed during S1 and S2 demonstrate confidence.

“I felt the strongest part of my project would be the overall layout. It reads exactly how I want it to read, and I thought I did a very good job at organizing and balancing it. My strongest part of the individual cubes would be the ones in the middle, for “playful”. They balance perfectly on top of each other, and with the use of wire, I got it to come out just how I wanted it to. I also spent around 12+ hours working on this project, which is a lot longer than I’ve spent on most projects, so I think my hard work paid off.”—Louisa
“I LOVE how my model turned out to be honest. It portrays my base idea of phenomenal transparency pretty perfectly. I sat down and analyzed my model to see if made since for what I’m trying to do so I conclude it’s pretty successful and I have good understanding and confidence of what I’m doing for my project.” — Lucy

Louisa is certain that she did a good job and that her decision-making was effective in conveying the meaning she had intended. Lucy articulates her feeling of confidence and believes she has made the right decisions based on her analysis.

**Interpersonal Development; Multiple Points of View**

Students were identified as demonstrating an awareness of multiple points of view when they showed the ability to view more than one idea as a truth. The awareness of multiple points of view was identified in student’s writing as well as projects. Students present for one-on-one sessions, demonstrations, critiques and discussions were all identified as demonstrating an awareness of multiple points of view as the intent of these four methods was to provide alternative ways of thinking and help students understand that there is always more than one way to view a situation. Ricci demonstrates the acceptance of multiple points of view in the following excerpt from her thought paper during S1.

“It was interesting to see the different ways other people interpreted each category differently. With emotion design, some would see that as a way to deliver messages through emotions, while others would describe it as an experience that involves the user’s connection with the object or space. I think these could both be right since a person could put their emotion into something that they design and have that emotion reflect back from their design to other people. Basically, people can sense the emotion put into a design if the designer chooses to involve that emotion in the design process.” — Ricci

In Ricci’s analysis of the reading she first recognizes that different people could have different interpretations of the same condition. Her awareness of multiple points of view comes when she acknowledges that there could be more than one truth in how emotion impacts design. Lucy’s awareness of multiple points of view is a little subtler in her reflection paper from S1.
“After walking around in class and looking at everyone’s sketch books, I learned that many people see the five senses in many different ways which made me also realize that we use the five senses for so many different purposes that I may not have realized before. My outlook on the five senses somewhat changed.”—Lucy

Lucy’s account of how her experience of seeing her classmates’ viewpoints of how they interpreted the five senses had changed her outlook indicates Lucy’s awareness of multiple points of view. She had began the project with only her point of view, and by the end she had accepted that there were many other ways to solve the same problem. Paula also has an awareness of multiple points of view as she writes in her S2 journal question following the midterm critique.

“I think my review went decently. There is a lot more that I wanted to say and to explain my arguments more thoroughly. It’s a bit hard when you develop such a strong connection with your work that it becomes hard to look at it from another’s point of view. I think the things that were said made a lot of sense and allowed me to think about some issues that I hadn’t thought of before. I am excited to see how these new ideas can be interpreted into my project.”—Paula

Paula confesses difficulty at first with her awareness of multiple points of views but then recognizes that the jurors at the critique had made sense with their points of view. Her excitement to begin exploring the new ideas indicates she had accepted that there were multiple points of view in which to interpret her project.

Interpersonal Development; Volition

Students were identified as having volition when they demonstrated the ability to act in making a choice or decision. Volition was typically identified in student’s actions toward their projects, however it was also identified if they wrote about their decisions in their reflection papers of journal questions. Following are two examples from S2 journal questions that demonstrate volition.

“For my research of Richard Neutra and the Kaufmann Desert House, I began by searching for any images of floor plans that I could find. There were many, but not a lot that showed what was happening on the top floor section, which is known as a ‘gloriette’. So, I then had to search for the gloriette separately to find floor plan images for that also so I could later figure out where it was placed exactly on top of the house. I then found some exterior and interior images of the home which helped a lot in further understanding some of the things going on inside and outside the house.”—Ricci
“Before I began surfacing, I went back to my diagrams and started figuring out how the forms were layered and how the floors of each level would work in relation to each other. I created a new set of diagrams for each level—mapping out floors, exterior walls, high ceilings, and roofs. I made each level color coordinated so I could overlap the trace to see how everything matched up. This was extremely helpful, creating a sort of template to make each form and floor.” — Paula

Ricci’s account of how she went about completing her research describes her struggle to find the information she needed. Once she had made the decision to complete the research she acted on that decision and changed her approach to find everything she needed. Paula demonstrates volition in that she had made the decision to redraw her diagrams so that she could better understand her project. Redrawing the diagrams was not required, however once Paula had decided that she wanted to better understand the complexities of her diagrams, she found a way to achieve this and acted on her decisions.

Interpersonal Development; Authenticity

Students were identified as demonstrating authenticity when they appeared to be true to their own personality, spirit, or character, despite external pressures. The identification of a student demonstrating authenticity may be viewed as subjective, and perhaps it was. This trait was not demonstrated too often but when it was, it was identified through the observation of a student appearing to embrace their sense of self and willingness to act in accordance with how they viewed themselves. Paula demonstrates authenticity in her journal question from S2.

“Looking though our Student Analysis posted on Carmen gave me more detail on what everyone was focusing on and pulling out from their images. I also like looking at people’s presentations to see who is really grasping the concepts. I love all the spaces that were chosen. The Cool Hunter was incredibly fascinating and got me even more excited to work in commercial space. After each class, I literally get so excited I start to shake, and all I want to do is run home and learn more on my own. I never thought I would be so interested in commercial space. I am obsessed with design books and websites, are there any websites or books you would recommend for images, descriptions, and teachings on commercial space?”—Paula

Paula’s ability to discuss her obsession and excitement about design to the point of shaking and running home to learn more is a demonstration of authenticity. In knowing Paula, I would say this reaction was true to her character and spirit, but more importantly she was willing to share this part of whom she is regardless of how others might think.
The Mappings

As previously stated, all of the methods and techniques utilized throughout S1 and S2 were mapped out. This created a timeline of the journey through the interventional study. As students demonstrated one or more of the developmental traits associated with the methods and techniques, this trait was identified and marked on the timeline. Methods and techniques on the timeline that do not indicate any demonstration of developmental traits are due to either a student not being present for an activity or their failure to complete an assignment.

Timelines were created for each of the 14 students for each of the 2 semesters. Figure 5.28 illustrates each students’ mappings throughout the intervention.
Figure 5.28: Mappings of Dimensions of Development (continued below)
Figure 5.28: Mappings of Dimensions of Development (continued)

Second Semester Interventions: challenges & support—Alaina
Figure 5.28: Mappings of Dimensions of Development (continued below)
Figure 5.28: Mappings of Dimensions of Development (continued below)
Figure 5.28: Mappings of Dimensions of Development (continued below)
Figure 5.28: Mappings of Dimensions of Development
5.4.2: Analysis of the Dimensions of Development

The analysis of the dimensions of development traits examines the individual student’s ability to demonstrate specific traits from each of the three dimensions of development in relation to their overall assessments and to the methods used throughout the intervention. Section 5.3 provides a detailed analysis and descriptions of the methods used through the intervention and section 5.4 describes the methods used for assessing levels of development and the amount of development increase. The intent of this analysis was to determine both how demonstrating specific traits compared to overall development as well as to determine which methods used in the intervention impacted the cognitive, interpersonal and intrapersonal dimension of development.

To begin the analysis of the dimensions of development I redistributed the identified traits of each student that were demonstrated into a concentric circular format. This would provide a comprehensive visual in which to compare the number of times a student demonstrated developmental traits with their overall development that was determined by their assessments. Figure 5.29 describes how the dimensions of development were redistributed. The following figures display the results of each students' redistribution of the dimensions of development.
Redistributed Dimensions of Development
The dimensions of developmental traits demonstrated by each student over the duration of the intervention were redistributed within the concentric circle format. The intent was to provide an alternative form to visualize the data as the dimensions were clustered. To redistribute the dimensional traits, each trait was calculated by color. The blank circle template identifies the starting point of each graph. The spaces were then filled in counter clockwise and in the order as they are presented.

Figure 5.29: Description of how Dimensions of Development were Redistributed
Figure 5.30: Redistribution of Dimensions of Development (continued below)
Figure 5.30: Redistribution of Dimensions of Development (continued below)
The results suggested that the more a student demonstrated developmental traits, the more likely they were to have a greater increase in overall development. In most cases as the amount of development decreased, so did the frequency of demonstrating developmental traits. Figure 5.31 shows the comparison between Alaina and Rowan’s amount of development in relation to their dimensions of development.
This particular example was of no surprise as Rowan frequently chose not to complete the writing assignments, had several absences and often came to class unprepared. Alaina, however, was always present, prepared and often went beyond what was expected. In addition, Alaina’s general attitude toward her schoolwork appeared to be heightened in comparison to Rowan, who often appeared comfortable with completing the minimum requirements.

These results however, did not necessarily coincide with their levels of development as indicated in their actual assessments. An example of this is seen in the comparisons between Alaina, Ricci and Lucy. Alaina and Ricci were both assessed as being at a higher level of development than Lucy but Ricci experienced less overall growth than the other two students. Alaina and Lucy had experienced comparable increases of development and had also demonstrated more developmental traits than Ricci. Figure 5.32 illustrates the comparisons between the three students.

![Figure 5.32: Comparison Two: Overall Development, Development Increase and Dimensions of Development](image-url)
One explanation for Ricci’s lower increase in development could be that Ricci rarely engaged with her classmates and often chose to wear her headphones during work days. Ricci was a strong student and typically prepared but preferred to work independently as opposed to asking for guidance. Lucy and Aliana however, were consistently engaged with others and frequently asked for feedback both in and out of class. Lucy, who began at the lowest level of development, was also extremely enthusiastic, eager to open her mind to new ideas and continually pushed herself beyond what she thought she was capable of. All three students began at different positions within the crossroads, but it appeared that Ricci’s lack of engagement prevented her from learning from others, thus impacting her overall development while Lucy’s eagerness to learn had facilitated a greater development increase.

Students who had assessed at a lower level of development were also not immune to the phenomenon. In the comparison between Rowan and Trina, Rowan had assessed higher than Trina, yet Trina had a slightly higher increase of development and had demonstrated more developmental traits than Rowan. Figure 5.33 illustrates the comparison between the two students.
As previously mentioned, Rowan had chosen not to complete most of the writing assignments, missed several classes and was often not prepared. In addition, Rowan appeared resistant to feedback and often chose to do things his own way. Trina, on the other hand, completed some of the writing and typically came to class. Trina tried hard to be prepared but often would require validation on her decisions before she could move forward. Given that Trina began the study still following external formulas, her need for external validation was expected. My attempts to guide Trina, as opposed to giving her the answer, could explain why Trina had more of a development increase than Rowan. Rowan, began and completed the intervention in position four, entering the crossroads. Rowan’s lack of development increase could best be attributed to his resistance and lack of participation.
These results would suggest that the ability to demonstrate developmental traits was not necessarily dependent upon the initial level of development. Since the identification of developmental traits was based on student output in relation to the methods used for fostering self-authorship, the results would indicate that students who actively participated throughout the intervention were more likely to have a greater amount of development regardless of their initial level of development.

Next I began to look at the individual methods in relation to the dimensions of development and the students’ ability to demonstrate developmental traits. Figure 5.34 illustrates the method I used for visualizing the developmental traits in relation to the cognitive, interpersonal and intrapersonal dimensions of development.

To simplify the visualization of the developmental traits I integrated the individual traits into the relevant dimensions of identity of the cognitive, intrapersonal and interpersonal. The frequency of demonstrating developmental traits was then calculated for each dimension. The graph to the left illustrates the frequency of developmental traits demonstrated by Alaina over the course of the study. Dimensions of developmental traits were calculated for each student and in relation to the specific methods utilized for fostering self-authorship.

Figure 5.34: Description of how Mappings of Dimensions of Development were Redistributed

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Following are the dimensions of development for each student in relation to the specific methods used through the intervention.

*Figure 5.35: Individual Dimensions of Development in Relation to Methods (continued below)*
For the one-on-one sessions students were always identified as demonstrating traits from all three dimensions, which means any differences within this method would be attributed to the number of one-on-one sessions a student had participated in. As previously stated, the techniques used in one-on-ones consisted of the student first explaining their decision making in relation to either the new knowledge or in their own context. When students used the new knowledge to explain their decision-making, I responded by providing another context to view their ideas. Students who explained their decision-making using their own context would receive feedback in relation to the new knowledge. Either way, students were able to connect two congruent contexts and make contextual meaning (i.e., cognitive development). As students then explained their intent on what they would do next or if they were unsure of what to do next, I responded by giving them several alternative
points of view (i.e., interpersonal development) and guidance on what would be a reasonable decision on how to proceed. During one-on-ones we also discussed each student’s methods for working and thinking in relation to others, thus making students more self-aware (i.e., intrapersonal development).

One-on-one sessions were scheduled throughout both semesters of the intervention, however some students would schedule additional time to meet outside of class while others would choose to not come to class at all.

In comparing the one-on-one sessions to the amount of development increase, there appeared to be a direct connection between the two. Greater amounts of development appeared to be achieved when frequency of one-on-one sessions increased. These results support Astin’s findings of the effects of student-faculty interaction on development (Astin, 1984), in which he concluded that the more a student interacts with faculty, the more likely he or she is to experience development.

The writing assignments utilized to foster self-authorship throughout the intervention included thought papers, reflection papers, journal questions and presentation scripts. These writings were implemented using a variety of techniques that often overlapped. Because of the overlaps, I chose to analyze the writing as a whole in relation to the dimensions of development demonstrated by each student through the intervention. Most
students’ demonstrations of development fluctuated across the three dimensions, however demonstrating traits on the interpersonal dimension was identified the least. One explanation for why the interpersonal dimension levels were low could be that students were typically asked to write critically about their thinking and process or to write about how they personally felt or viewed an idea as opposed to writing about their ideas in relation to others.
In comparing the dimensions of development to the amount of developmental increase the most obvious
difference appeared between Louisa and Trina. Demonstrating dimensions of development decreased greatly as
the amount of development decreased. Incidentally, all 5 students to the right of Louisa frequently chose not to
complete the writing. In comparing the dimensions of development to the initial assessments of development,
a pattern emerged between students’ initial level of development and their ability to demonstrate traits in the

Figure 5.37: Writing Comparison; Amount of Development, Dimensions of Development and Pre-intervention Assessments
cognitive dimension. These results would suggest that students who came into the intervention at a higher level of development were more likely to complete the writing and that those students who did complete the writing were more likely to have a higher increase of development.

The methods used for implementing critiques into the intervention differed greatly between the two semesters. During the first semester, students had a total of eight critiques that covered eight distinct smaller projects. Students were asked to talk about their process of how they solved the design problem, but no further instructions were given. Feedback about their projects typically pertained to the strengths and weaknesses of their solutions as discussions revolved around alternative points of view. These critiques were casual and interactive and free from harsh criticism. During the second semester there were only two critiques that revolved around one project. Students were given specifications on exactly what to present and were expected to write a presentation script detailing their process and rationale for decision-making. In addition, students were also told what they should expect. The second semester critiques were juried and feedback was given on the strengths and weaknesses of their arguments and their ability to articulate their decision-making. These critiques were more formal and discussions revolved around the complexity of ideas and thoroughness of research.

To analyze the results from the critiques I chose to look at the each semester individually and calculations were made to adjust for the critique frequency between the two. In comparing the dimensions of development to the amount of development for the first semester, students who had a greater increase in development appeared to demonstrate more holistic developmental traits. Those with lower increases in development had comparable levels in the cognitive dimension to their peers, however the frequency in demonstrating traits in the intrapersonal dimension appeared relatively low. In comparing the second semester critiques to the amount of development, the main difference appears in a slight decrease of demonstrating dimensions of development for the last five students. As these five students had also not completed many of the writing assignments, the results suggest there may be a link between the writing assignments and their ability to demonstrate the dimensions of development while presenting their own work. Figure 5.38 illustrates these comparisons.
The greatest difference found in these comparisons was between the first and second semester critiques. Most students demonstrated an increase between semesters in all three dimensions of development. This would suggest that the techniques used for implementing critiques in the second semester were more effective in fostering development than the methods used in the first semester. However, these results do not account for the difference in class structure between semester one and semester two. As semester one had eight projects and semester two had only one project, additional research on techniques for implementing critiques would be needed to determine what is most effective in a course with multiple projects.
Finally I examined the overall development and compared the results against the overall dimensions of development and the amount of developmental increase. This first comparison was done between Alaina, Ricci and Lucy as seen in Figure 5.39.

All three students started at varying levels of development. Ricci’s development in the cognitive dimension was comparable to Lucy’s who had begun at a lower level of development. Both Alaina and Lucy had a greater increase in development than Ricci. The difference is that Ricci’s intrapersonal and interpersonal dimensions of development had both been lower than the other two students’. As previously stated, Ricci often chose to wear her headphones and not engage with her classmates. All three were good students, were well prepared and generally completed all the assignments. I then repeated the comparison with three additional students who began with lower levels of development.
In the next comparison, Trina, Rowan and Koko, (see Figure 5.40), had comparable beginning levels of development, comparable dimensions of development and comparable amounts of developmental increase. Rowan, who began at a higher level of development, had the lowest amount of developmental increase out of the three students. The difference is in Rowan’s cognitive and intrapersonal dimensions. Although both Koko and Trina had only intermittently completed the writing assignments, their attempts still out weighed Rowan’s, as he chose to rarely participate in the writing. In addition, Rowan also chose to not attend class far more often than both Trina and Koko.

These results suggest that there is a connection between the amount of developmental increase and the methods used for fostering development in the intrapersonal and interpersonal dimensions. Students who had demonstrated traits in these dimensions in relation to the methods were more likely to experience a greater amount of developmental increase regardless of where their development began.

Figure 5.40: Comparison Three; Measure of Development, Overall Development and Overall Dimensions of Development
5.4.3: Discussion

This analysis reveals that the amount of development increase is directly connected to the students’ ability to engage and actively participate in the techniques utilized to foster Self-Authorship. It also reveals that lack of development in the intrapersonal and interpersonal dimensions typically produced lower amounts of developmental increase. This would suggest that methods implemented in a studio based design course would best benefit students when techniques utilized in these methods focused on all three dimensions of development.

One-on-ones and demonstrations were the most holistic when efforts were made to first evoke the students’ understanding of the new knowledge prior to offering guidance or alternative points of view as well as provoking students to think about how they think and work. Writing also had a big impact but development in any particular dimension was dependent upon the questions that were asked and the format of the writing. Students who regularly wrote process journals were more likely to demonstrate development in the cognitive dimension while students who regularly wrote reflection papers and thought papers were more likely to demonstrate development on intrapersonal and interpersonal dimensions. The techniques used for critiques during the second semester were more holistic when students had a clear understanding of what was expected, and efforts were made to help them prepare.

Whether or not a student chooses to actively participate in a class, complete assignments or push themselves is ultimately their decision, however, if we as design educators strive to foster development, we need to continually devise new techniques that will encourage design students to engage.
5.5: Identity Development through the Lens of Psychosocial Development Theory

The intent of this section is to examine the experiences of three individual students in the journey toward identity development. Viewing their journey through the lens of psychosocial development theory, each student’s story is told and accounts for their past experiences prior to the invention as well as their experiences during the intervention. The objective of this analysis is to gain insight into how a student’s experiences can impact their overall development. The three students selected for this analysis were chosen because they had the greatest measure of development yet each student had their own unique journey.

5.5.1: Lucy’s Story

When Lucy was just 10 years old, her father had been diagnosed with a terminal disease. As Lucy talked about her relationship with her father during her assessment interview, she described how he had always been her biggest champion and had supported her through all her efforts in completing her entrance exam for design school. Throughout his illness, Lucy’s mother had spent a great deal of time managing the house, the family and, of course, Lucy’s father’s condition and had little time to spend with Lucy and her younger brother. On New Years Eve of 2012 Lucy’s father passed away. The winter quarter began one week later and Lucy returned to school, as she had promised her dad she would follow her dream of becoming a designer.

I first met Lucy nine months following her father’s death. She was a bright, enthusiastic 21 year old design student and during her assessment interview I was surprised to hear about the extraordinary experiences that preceded her coming to design school. She had clearly been through a provocative experience and I wondered how she was making sense of the world. Lucy talked about her fears in the world explaining how she often expected bad things to happen. She also talked a lot about her anxieties of being a design student and trying to manage everything in her life. Her mother had not wanted her to come to school and was constantly pressuring
Lucy to come home over weekends and school breaks. This was creating conflict within Lucy as she wanted to stay at school but she also did not want to disappoint her mother.

During the first semester of my study Lucy was always present in class and prepared to begin her next challenge. She had a strong work ethic and was eager to learn all there was to know about design. Although her projects were typically well thought out, Lucy often chose safe solutions to the design problems. She continually lacked confidence in her ability and criticized her work in negative ways. Psychosocial Identity Development Theory (PIDT) may explain this lack of confidence as being attributed to the lack of support Lucy was given throughout her life (Chickering and Reisser, 1993). More specifically, she had unresolved tasks in the first vector of competence as defined in the seven vectors of development. Her biggest champion and supporter was now gone and her mother appeared incapable of fulfilling Lucy’s needs. In an effort to help Lucy resolve this task, I began encouraging her to take more risks in her design solutions and praised her highly once she had done so. When she would attempt to say negative things about her work, I would quickly point out the strengths and dismiss her negative comments. I also tried to include positive feedback on all of her thought papers and reflection papers, specifically pointing out when she had made a smart decision. As the semester progressed, Lucy began to experiment more and you could see the sense of pride she had for her work.

For the final project of the semester, students were expected to interpret a 2 dimensional pattern into a 3 dimensional form. I had worked with Lucy in class to guide her through her decision-making and she was showing great excitement to go home and build her project. When the projects were due the following week, Lucy appeared anxious about presenting her project. She explained that it had not come together as she intended and had to make many modifications to her original design in order to complete the project. One of the modifications Lucy had made was to add some colored lights to her form. Although her solution had looked really cool she had not met the objectives of the project. As I knew Lucy had taken a huge risk with this modification as well as demonstrated autonomy and volition, I chose to applaud her decision making as opposed to criticizing it.
During the second semester Lucy was just as enthusiastic as before. She was grasping the concepts of the new knowledge but would often struggle with applying them to the context of the project. I was still encouraging her to take risks and doing what I could to help her make connections. She would often set up meetings with me outside of class to get additional one-on-one time. During these meetings I would try to ask Lucy about how everything was going in her personal life. At one meeting Lucy suddenly broke down in tears and began telling me about the difficulties she was having with her mother. Her mother had become incapable of taking care of herself and Lucy was going to have to move home and commute to school. It was winter and Lucy was also worried that commuting in the bad weather might prevent her from getting to class sometimes. Her tears did not appear to be coming from sadness or out of concern for her mother, they appeared to be coming from anger and guilt. Lucy was having difficulty establishing emotional independence and had unresolved tasks in the third vector (Chickering and Reisser, 1993). I feared that this new situation was going to derail Lucy from achieving her goals and the lack of emotional independence would keep her relying on external sources for validation. In the moment I had said what I could to reassure her that I would do what I could to help her succeed. If she had to miss a class, we would just schedule more one-on-one meetings to help her stay on course. I found myself responding to her in the way a mother should respond and tried to give her the emotional support she needed. I had also encouraged Lucy to seek help professionally as the issues she was having reached beyond my expertise. When she left that day she thanked me and said she was feeling much better.

As the semester progressed I continued to nurture Lucy both academically and emotionally. She had begun to make meaning of the new knowledge and had a growing excitement in applying the new knowledge to the context of her project. During each phase of the project, Lucy would make more connections in her understanding that would make her more excited, which ultimately turned into a sense of rigor. When Lucy presented her project at the final critique she delivered a flawless performance and was well received by the jurors. Lucy had a new confidence and had developed her design voice. During the post assessment interview it was clear that Lucy had resolved some developmental tasks. She was aware of how much she had changed and had noted that prior to the intervention, she never would have believed that she was capable of such complex
thought and have the ability to talk about her ideas with such confidence. As we discussed her personal life, Lucy expressed still feeling a lot of anger. I had wondered if Lucy’s anger was associated more to grief from losing her father. I again encouraged her to speak to a professional but let her know that my door was always open.

5.5.2: Alaina’s Story

Alaina was what I often refer to as a deep thinker; a person who somehow knows intuitively that the world is more complex even when they don’t know how to articulate these thoughts. That was based on my own personal observation not any concrete evidence. I would not have thought that she was a deep thinker when I first met her as she was extremely quiet and kept to herself. This, however, became apparent during our assessment interview. Alaina had spent her first year in college as an architecture major and had just recently switched to the interior design program. She said she had felt as if design had more meaning than the work she was doing in the architecture program and was more interested in exploring those ideas further. Switching majors had not been easy for her as her parents initially had not supported her in this decision. Although they had since come around to choice, she had felt as if her relationship with them was now different.

Alaina also spoke a lot about her relationships were her peers since coming to college. She often struggled with making new friends as she did not drink, which, of course, is a common activity for young college students. Alaina feared people would judge her and she was not comfortable telling them that she didn’t drink. When she talked about the friends she did have, those stories also appeared to be full of conflict. Alaina lived with her female best friend and two other male friends from school. Her best friend had recently gone through a difficult experience and Alaina was spending much time supporting her friend. She talked about how this was becoming exhausting for her and she was beginning to wonder why it was her responsibility to take care of her friend. Her male roommates were a constant source of contention as they continually would not clean up after themselves. When I had asked her if she ever tried talking to them about this, Alaina said that she really didn’t want to create any additional conflict in her house. One of her male roommates was studying to be a priest and
Alaina was finding it increasingly difficult to talk to him because many of his viewpoints did not align with hers. It appeared as if Alaina feared emotional rejection in her personal life, which was preventing her from acting on her own volition. This suggested that Alaina still had an unresolved task in the third vector of PIDT (Chickering and Reisser, 1993).

During the first semester Alaina was an extraordinary student. She was the kind of student who could be left to her own devices and she would still produce good work. Because of this I wasn’t too concerned with her and she was making good design decisions. Toward the end of the semester I began to realize that although Alaina’s design decisions were complex she was having difficulty talking about her work and appeared intimidated to discuss her ideas with others. Her inability to relate to her peers in this arena suggested that she still feared emotional rejection, which was impacting her identity development. I had met with Alaina at the end of the semester to discuss her strengths and weaknesses as we progressed to the next semester. I had shared with her some of the ideas behind my research and told her that next semester we would be working on helping her find her design voice. She was inquisitive about the theory and said the whole idea of meaning fascinated her.

The second semester project was the perfect project for Alaina to begin exploring more complex meaning. During the first phase of the project, I had given the students a list of required diagrams to complete but told them they should also explore their ideas further in directions that weren’t on the list. As I met with each student, I had them explain their process in generating their diagrams and allowed them to select the one diagram they wished to explore through the remainder of the project. This decision was to be based on the rationale that made the most sense to them as well as the possibilities for producing a good project. When I met with Alaina she had completed all of the diagrams as expected but she also had one that looked like no other. She had taken indexical architecture to a deeper level and had developed a complex diagram. When I asked her which of the diagrams she wished to explore further she became indecisive and did not want to choose. I knew if Alaina was going to resolve the task of fearing emotional rejection, she would need to be challenged to follow her intuition and I insisted that she use the complex diagram for further exploration.
support her in this endeavor, I had researched additional sources for indexical architecture and emailed her the links. In class Alaina and I discussed the readings and talked about ways in which to interpret the readings into her project. As the class progressed students were required to continually explain their process of decision making through their journal questions. This allowed Alaina to articulate her complex rationale and decisions without fear of rejection. I continued this dialog with Alaina through each phase of the project as we prepared for the final critique. As she presented her final project, Alaina was able to articulate all of the complexities of her explorations with certainty. No one had rejected her, in fact, the jurors and her classmates were all impressed by what she had accomplished.

During her post assessment interview, Alaina’s overall demeanor appeared to have changed. She talked about how much she enjoyed the project and exploring design’s complex meaning. I told her how I thought she was a deep thinker and she agreed. She was beginning to embrace this part of herself and realized that she no longer feared it. When I asked her about her overall development, Alaina said she believed she had developed significantly. She told me about her new friendships and how she no longer cared what people thought about her not drinking. Her plans for the next school year included new roommates.

5.5.3: Edie’s Story

Edie was a non-traditional student approaching her 30th birthday. Originally she had applied to the visual communications major and was not accepted. As there were still openings in the interior design major, she was asked if she would want to do that instead and she agreed. When I first met Edie in class she was forthcoming about the switch in majors but appeared enthusiastic about being part of the design department. During her assessment interview she talked a lot about her past and the bad choices she had made early in her adult life. She described her parents as extremely religious, sheltered and naive. Although she felt her parents provided her with warmth, regularity, and dependable affection, she also feels at times that this was overwhelming and stifling. Edie was not encouraged to try new things and was often restricted from exploring things she was interested in. As a child, she was not permitted to express anger and now has difficulty controlling her
emotions. Edie reported suffering from anxiety, depression, sleeping disorders, obsessions, compulsions, and self-sabotaging behaviors. In addition, Edie often put others’ needs before her own. She said that she often thinks about other things when people are talking and believes that she responds in inappropriate ways all the time. This was a side of Edie that I often saw in class, as she frequently interrupted class discussions with off-handed comments.

During her first semester Edie worked hard on her projects but typically criticized her own work in negative ways. I attempted to provide Edie with the validation she needed to overcome her insecurities, by pointing out why the design decisions she was making were smart decisions, but at times, I felt as if my efforts were unrecognized. As the semester progressed her attendance in class became sporadic and she often chose to work at home. She was engaged with others when she was present, but was more concerned with how her project compared against others as opposed to trying to understand the differences. Edie often chose to meet outside of class for additional assistance, but spent most of the meeting time talking about her frustrations and emotions as opposed to her project. During one of these meetings, Edie said, “I can’t seem to connect with anyone in our class and I just feel like everyone else’s project is better than mine”.

PIDT might explain Edie’s issues toward development and suggest she had unresolved tasks in developing emotional competence due to her parent’s authority, which had restricted her from forming her own identity. Their inconsistent parental behaviors appeared to have sent her mixed messages that she would be loved, but only if she became who they wanted her to be. Edie had internalized a lot of messages about who she was and her worthiness in the world. (Chickering and Reisser, 1993). The experiences Edie had had prior to coming to design school had helped Edie achieve many self-authored ways of knowing, but her unresolved issues were causing her to define herself by the bad choices she had made in early adulthood.

As the second semester began, Edie tried harder to be engaged in the new class but continued to request outside meetings. As with the first semester, Edie spent much of the meeting time talking about herself more than her project. She had taken an interest in my research in identity development so I began telling about the
theories in an effort to help her understand why she was the way she was. I also began sharing with her my past experiences and some of the bad choices I had made in my own young adult life. The intent was to show her that our past choices do not have to define who we are today.

As the semester progressed Edie started to get behind in her work and it was clear that she needed more one-on-one help than time permitted. I was fearful that Edie’s conflict would result in self-destructive behavior if she did not get the level of support needed to resolve her issues. Although unconventional, I had decided to invite her to my home on a Sunday afternoon to help her with her project. Over the several hours we spent that day, we talked about a lot of things, including the importance of listening to your internal voice. I had told her about why I had decided to come to grad school and my desires to find meaning in design. I also talked about the conflicts I had experienced throughout my life and how I was able to experience peace once I stopped defining myself by others.

Edie completed her project on time, it was well thought out and she was able to present her ideas in an articulate, confident manner. During the post assessment interview, I was surprised to hear that Edie had made the decision to leave design. She talked about how design did not hold meaning for her and even though she was more than capable, she could no longer see herself following a career path without meaning. Edie had developed an internal voice and was listening to what it was saying. I recently met with Edie for lunch and was delighted to hear her talk about her new major in zoology. Her conflict was no longer visible as she spoke with excitement about the experiences she was now having and the people with whom she was connecting.

Edie’s story may seem like an odd story to tell in this thesis, given that she decided to leave design, but the intent of this thesis is about fostering development. If Edie had stayed in design, I doubt that she would have ever reached her full potential, as she could not find the value in it. The insight I provided her throughout the intervention had fostered her development as she was well on her way to achieving something great in a major that held meaning for her. Edie could now define her identity in the present as she believed in what she was doing and recognized the value.
These stories illustrate the complexities of identity development and the need in giving appropriate support to students as they attempt to overcome the challenges that hinder their development. Each of these students had a completely different journey yet each was able to achieve a high amount of developmental increase. The individual support given to each student had impacted their overall development, as they were able to resolve cognitive tasks that had been preventing them from reaching their full potential. These stories highlight the individual experiences that a student comes to class with and the importance of responding to their individual needs.
5.6: Conclusion

The analysis and results illustrated in this chapter clearly indicate the complexities and challenges related to fostering self-authorship in a studio based design course. My personal story of how I came to understand my own identity and the identity of others reveals that embarking on such a journey is not for the weak-minded. Commitment and a true belief in the impact that a self-authored designer could have on the world is recommended for anyone attempting to foster self-authorship in a studio based design course.

The findings in the analysis of methods for fostering self-authorship in a studio based design course suggest that complex meaning making involves three separate contexts. Once new knowledge is introduced, development of the complex meaning-making framework includes making meaning in the context of the project, the context of design and the context of the designer. The analysis also exposes the reality of the old adage, “easier said than done.” Developing a plan to introduce the appropriate level of new knowledge and incorporating methods and techniques to provide the appropriate support requires a certain degree of trial and error. It also requires a certain degree of adaptability, as even the best-laid plans do not account for the levels of development students come to class with.

Assessing students both pre and post study was necessary for the context of my research, but formal assessments would not be required for those educators who want to foster self-authorship in their course. Assessing students at the beginning of the study was beneficial in helping understand who they were and how they understood the world. The greater benefit in the assessment interviews came from the relationships that were established during these sessions that made it easier to connect with students. Establishing relationships with students could be just as easily accomplished through individual meetings when new students are encountered.

The findings in the dimensions of development provide insight into developing a plan that supports all three dimensions. Although the results indicate that most methods have the potential to foster development in all
three dimensions, the technique used in implementing a particular method may impact one dimension over the others. Even though development in one dimension may facilitate development in the others, there is no guarantee, which would suggest that a variety of techniques be used for fostering self-authorship.

The stories amplify the complexities of the individual experiences that a student comes to school with that could help or hinder their journey toward development and bring to light the importance of recognizing individual needs. This reinforces the relevance of establishing relationships with students and connecting with them in order to discover what they need to grow and develop.
Chapter 6: Synthesis

Currently design curricula vary from one institution to another, but most design degree programs have some common characteristics. Typically, the first year focuses on the foundations, where students learn about the design elements and principles. Methods often utilized for teaching foundation course can be rooted in the famous art and design school, the Bauhaus (Meggs & Purvis, 2006). Although the Bauhaus can be credited with providing design education with systematic processes for exploration and design, the pedagogical construct utilized in the Bauhaus of master, journeyman, apprentice appears to have lost its value in contemporary design education. The concept of master connotes that the educator is the authority who holds all the answers and that the students are told what to think. The concern with using this method of teaching is that the student is taught to view the new knowledge as having only one right answer and it encourages a reliance on the authority who holds the answers. As the foundation courses are typically the design students’ first introduction to the studio based design course, the master, journeyman, apprentice pedagogy sets a precedence as students advance in their major and has the potential to inhibit development.

After foundations, design students continue to take studio based design courses at all levels of their education and are expected to know how to apply the design elements and principles in the context of the new knowledge. Their lack of ability to know how to think about the foundation courses puts them at a disadvantage, as they are unable to make contextual meaning in relation to the new knowledge. This condition is not the only one that I have personally experienced as a design educator, but one that I have heard countless times from both my colleagues and the students themselves. Lucy, a bright student who had completed her foundation courses still expressed confusion in her journal question following the presentation I had given on the design elements and principles.
“Would a space be much more successful when using all of these elements of interior space? Or could it still be just as successful if you focused maybe on just a few elements that were in the presentation. I feel like it would be extremely difficult to include all of them.”—Lucy

Although I was able to clear up her confusion, her question makes me think that there were probably others who had similar thoughts, yet chose not to voice them. Recently, I heard my advisor say that, “It seems like the students just forget everything they learned during their first year.” My response of course was, “no, they just never made meaning of the new knowledge, they hadn’t forgot it, they just never learned how to think about it.

Learning how to think is precisely the intent of this thesis, specifically in the context of the studio based design course. The answer to this question, however, is not rooted in design, but in psychology and alternative pedagogical philosophies. The research indicates that learning how to think requires the development of the whole human being and fostering such development requires a shift in how we, as design educators, teach the design students of today.

In synthesizing the results from this study, I began by responding to the question posed by Knefelkamp et al. (1978)(Chapter 3). Who is the college student in developmental terms? This study reveals that the college student today cannot be described demographically or could even be described as typical. The classroom is full of students from various social economic backgrounds; students who grew up in rural environments and those who grew up in urban environments. There are non-traditional students who have had experiences in the real world and international students whose experiences took place in another culture. In developmental terms, the classroom is filled with students that come to class with a variety of diverse experiences behind them, which have had an impact on their development and how they make meaning of the world. In developmental terms, the college student is an individual and must be recognized as such, in order to determine the appropriate levels of challenge and support. It is through this recognition of the individual that the educator can then understand what changes occur and what these changes look like. The individual stories of Lucy, Alaina and Edie illustrate the importance of acknowledging each student as an individual and responding to their individual needs.
Having a grasp on the psychological and social processes which influence development requires more than a comprehensive literature review. My own identity development that occurred through the course of this study had given me insight into the psychological and social processes and helped me make complex meaning of the new knowledge provided by the literature. This is not to say that the educator must experience their own development in order to grasp the psychological and social processes, but that they would benefit from reflecting on their past experiences in an attempt to understand how they know what they know. Working with the students throughout the intervention also provided insight into grasping the psychological and social processes which influence development as understanding theory and applying theory are two very separate things. A certain degree of trial and error may be necessary to totally grasp the psychological and social processes which influence development as the educator can begin to view what developmental changes look like.

Knowing what factors in the particular environment of a college/university student that either encourage or inhibit growth has become as challenging and complex as the students themselves. Outside of the classroom, the college environment is a unique experience for each individual student. Coming to the college environment to begin with is a challenge in itself. Students who live in college housing may have the benefit of support from their residential managers or other types of transition programs. Students who still live at home and commute to college may have the support of their parents but the lack of challenge of living on campus may also inhibit their growth. Students who live off campus often have additional challenges as they negotiate the real world of finances and organizing their time effectively. As these out-of-classroom factors associated with the college environment are out of the control of the educator, the only recourse the educator has is to understand the environmental challenges that each student is experiencing and attempt to provide the appropriate support as needed.

Inside the classroom, where the educator has more control, knowing what factors encourage growth is essential for designing a learning environment conducive to development. In the course of my study, the learning environment that I designed was active, open, free of judgment and casual. Development was encouraged by
requiring students to explore their own solutions and providing the appropriate feedback to guide them through the meaning making process. An environment that is open and free of judgment allows students to be themselves and authentic in their own identity. As I personally modeled my own authentic identity in the classroom environment, I was able to establish relationships with each student that was based on mutual trust and respect. Creating a casual environment reduces the amount of pressure and anxiety that a student may feel toward succeeding and provides an atmosphere where students can feel safe when asking questions or needing additional help. Being flexible and adaptive to the students’ needs encourages development as it shows them that you are genuinely concerned about their learning which, in turn, makes them try harder. A factor that can inhibit development in this type of environment would be too much flexibility, to the point where students do not know what is expected. Ideally, the environment would be balanced in such a way that there is a clear understanding of when it is time to play and when it is time to work.

“Toward what ends should development in college should be directed?”, the final question posed by Knefelkamp et al (1978), is one that I find difficult to answer. As providing the challenge or provocative experience is required for development to occur, it also raises issues of ethics. Providing a highly provocative experience may indeed foster more development, but would making meaning of this provocative experience be of true benefit to the student or worse, could it be damaging? The only way I can answer this question would depend on the context of the situation. As an educator who truly cares about the well-being of her students over their development, I have no doubt that I will make ethical decisions associated with fostering development, but how others define what is ethical may vary.

The results from this study reveal that development can, indeed, be fostered in a studio based design course when the appropriate methods of challenge and support were given. The themes that emerged from the analysis of methods exposed the holistic impact that certain methods had on development or lack thereof. Overall the study reinforced the concept of the intentional design of the learning experience proposed by the Engaged Learning Model (Baxter Magolda, 2004). In addition, these results emphasized the educator’s role in connecting with students and establishing relationships that are built more on mentorship rather than authority.
The findings of the dimensions of development serve to inform which techniques associated with the methods were more likely to impact development in one dimension over the others and provides insight into developing a plan that supports all three dimensions. The cognitive development that was demonstrated appeared beneficial in fostering development in the other dimensions, however greater overall development appeared more likely when the other dimensions also had appropriate challenges.

The results also reveal that fostering development requires a great deal of thought, time and commitment. Of the 14 sophomores in the study, only one had entered the Self-Authorship phase, however many students began listening to and cultivating their internal voices. Many of the traits being called for by the design industry in regards to design education reform were also demonstrated by students showing the capacity for complex thought, critical thinking, autonomy, volition, rigor and clarity in written, verbal and visual communications. As these traits were demonstrated in the context of the interventional study, it is unclear whether these students will continue to develop or if they will revert to any of their previous meaning making structures once the context has changed. Given that they still had their junior and senior years to complete, there is potential for achieving Self-Authorship with continual challenges and support as they advance through their education. As fostering development is most effective when there is a gradual increase in complexity, introducing new knowledge pertaining to cultural awareness and a global perspective for design, traits that have also been called for, may be better suited for the junior or senior years. Bernard Canniffe’s (2011) success with the GR&D and his students ability to make meaning of the complexity and inter connectivity of the world as well as how they viewed themselves as designers within this complex system suggests that the more advanced student is better equipped to tackle the challenges of such complexity.

The hard work that is required for fostering development does not always provide an immediate pay-off, which is why I chose to embrace the words of Marcia Baxter Magolda who said in press,

“Students who achieve self-authorship do not simply enter the workforce, but participate in social change, shaping society and contributing as effective citizens. Research demonstrates that self-authorship benefits all learners because they are able to manage complex intellectual, work, and personal challenges” (Baxter Magolda, 2001).
As educators who choose to answer the calls for design education reform and are devoted to teaching students how to think, these words must be viewed in the context that change occurs. Change does not happen over night. It takes time, determination and a willingness to adapt to unforeseen conditions. The following chapter provides a proposed model and framework for fostering self-authorship in a studio based design course as a impetus for redefining and creating a shift in design pedagogy.
6.1: Proposed Model For Fostering Self-Authorship In A Studio Based Design Course

The model to be discussed was derived from the emerging themes that were identified in the findings in section 5.2.6. and in relation to the theories for fostering development. To develop the model for fostering Self-Authorship in a studio based design course, I began with Nevitt Sanford’s (1966) theory of challenge and support. The challenge was to make meaning of the new knowledge in the context of the studio project, the context of design as a whole and in the context of the designer. Making meaning of new knowledge in the context of the studio project means that the student understands how to apply the new knowledge to their
Making meaning of the new knowledge in the context of design means that the student understands how the new knowledge might apply to the bigger picture of design, how they might apply the new knowledge in another context and how it might relate to professional practice. New knowledge introduced to meet this objective may require using sources outside the field of design. This technique supports Steven McCarthy and Christina Melibeu De Almeida’s recommendation for fostering Self-Authorship using an integrative pedagogy, where students cross disciplines to broaden their meaning-making abilities. Making meaning of the new knowledge in the context as designer means the student understands what it means to them or what it is they value about design. As students become more aware of what they value as a designer, they develop commitments to these values, thus an internal voice to guide them through design decisions. The three contexts were integrated to form a Venn diagram that represents complex meaning making. It is holistic in that, as the student makes meaning in one context, meaning is often facilitated in the other two.

An example of this challenge would be a studio based interior design course that focused on the psychology of space. In this example, the psychology of space is considered the new knowledge and is based on the concept that certain types of spatial relationships evoke certain behaviors within the user group. If the project were to design an environment for autistic children, the students would most likely complete extensive research on the psychological needs of children with autism and how those needs might be interpreted and applied into an interior space. The students would therefore have made meaning of the new knowledge in the context of the project. To make meaning of the new knowledge in the context of design, the student would also need to understand the relevance of the psychological effects that a space can have on particular user group as well as apply those theories associated with the psychology of space in the context of an alternative project. To meet this objective, students would benefit from new knowledge that introduced broader psychological effects and an understanding of how people perceive space. To make meaning of the new knowledge in the context as designer, the student would need to understand how the psychology of space affects them personally and then decide how much they valued the theories. One technique that could be effective in this context is to have students document their own feelings and behaviors when they experience different types of spaces.
To identify the appropriate support, I returned to the emerging themes to determine what appeared to have the greatest impact on fostering developmental traits. The supporting themes were identified as connect, assess and time and are illustrated as a continuous triquetra that is interwoven through the Venn diagram of the challenge. It is continuous because the educator never stops connecting with students or connecting the new knowledge to the students’ experiences. Assessments are constant to determine each student’s ability to make meaning as well as to assess techniques and whether connections are being made. Time is continuous, as development takes time but there is also time involved in connecting with and assessing students as well as providing them with the appropriate feedback and expectations. Time is also involved in developing an intention plan for fostering development and may require additional time to modify the plan in the event that students’ needs change.

The development of the proposed model for fostering Self-Authorship in a studio based design course was intended to serve as formula for the development of the framework for fostering Self-Authorship in a studio based design course (see section 6.2). I believe the model to be appropriate for any level of design student as it defines the objectives for fostering self-authorship in the context of design. The concept of developing an intentional plan, as described by Marcia Baxter Magolda (2004), for fostering Self-Authorship should not be underestimated and those who desire to embark on such a journey would be advised to take these words seriously as they develop a well-designed plan.
6.2: Proposed Framework for Fostering Self-Authorship in a Studio Based Design Course

Utilizing the model for fostering self-authorship in a studio based design course, a framework was developed to as a tool for design educators who wish to foster Self-Authorship in a studio based design course. The framework was designed to be modified as students’ needs change and to evolve as new techniques are discovered. The framework incorporates the methods explored in this study associated with the typical studio based design course. Each method has three objectives that align with the challenges illustrated in the model for fostering Self-Authorship in a studio based design course; to make meaning of the new knowledge in the context of the studio project, the context of design as a whole and in the context of the designer. The framework also integrates the three themes of support, or the educator role, also illustrated in the model for fostering Self-Authorship in a studio based design course. The methods were divided into three distinct categories based on their overall intent and include introducing new knowledge, making meaning of new knowledge and application of new knowledge. A description of how the framework is organized is as follows;

*Intent:* To make meaning of the complex design problem in the context of the project, in the context of design and in the context as designer.

*Methods:* Each method utilized in the study was given an objective in relation to the context of the project, in the context of design and in the context as designer.

*Techniques:* Techniques for supporting each of the three objectives associated with each method were derived from the findings and were based on their overall effectiveness and in relation to the three dimensions of development. Like the three dimensions of development, the techniques work holistically with each other and are designed to foster overall development.

*Connect:* Connections are linked to each technique as part of the educator role and were established based on the three guiding principles for fostering self authorship, which are validating students as knowers, situating learning in the learner’s own experience and defining learning as mutually constructing learning.

*Assess:* Assessments are also linked to each technique as a means of determining if the objectives are being met.
Time: Time is integrated into the framework to identify where additional time would be necessary for providing feedback, modification of schedule and additional work with individual students.

Figure 6.2 depicts the proposed framework for fostering self-authorship in a studio based design course.
<table>
<thead>
<tr>
<th>Method and Objectives</th>
<th>Techniques</th>
<th>Connect</th>
<th>Assess</th>
<th>Time</th>
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</thead>
<tbody>
<tr>
<td><strong>Critical Literature</strong></td>
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<tr>
<td>Challenge student’s ability to make meaning of new knowledge</td>
<td>Allow student to make meaning of critical literature independently</td>
<td>Provide analogies of how you might make meaning of new knowledge</td>
<td>Assess students’ meaning making of new knowledge</td>
<td>Students who are struggling may require additional one-on-one time</td>
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<tr>
<td>Challenge student’s ability to accept multiple points of view</td>
<td>Divide students into groups to make meaning collaboratively</td>
<td>Moderate group meetings to ensure all voices are heard</td>
<td>Assess who is engaged in the group</td>
<td>Schedule group meeting time</td>
</tr>
<tr>
<td>Challenge student’s beliefs about who they are as a designer</td>
<td>Have students present what they know</td>
<td>Validate students’ voices. Demonstrate your own thinking</td>
<td>Assess how the class is making meaning</td>
<td>Adjust schedule as needed</td>
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<tr>
<td><strong>Visual Curriculum</strong></td>
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<tr>
<td>Student connects new knowledge to an existing experience</td>
<td>Present how new knowledge can be connected to their experience</td>
<td>Use real world imagery that student can relate to</td>
<td>Assess students’ ability to relate to imagery</td>
<td>Additional time may be needed to find appropriate imagery</td>
</tr>
<tr>
<td>Student understands relevance</td>
<td>Situate relevance in the “big picture”</td>
<td>Use visuals to depict graphically how new knowledge fits within the study of design</td>
<td>Assess students’ ability to make meaning of relevance</td>
<td>Additional time may be required for further discussion</td>
</tr>
<tr>
<td>Student is confident in knowing</td>
<td>Develop presentation to be interactive using visual images that students connect with</td>
<td>Demonstrate how you would apply new knowledge in this context</td>
<td>Assess students’ ability to apply new knowledge in context</td>
<td>Additional time may be required for further discussion</td>
</tr>
<tr>
<td><strong>Demonstrations</strong></td>
<td></td>
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<tr>
<td>Student knows how to proceed with next step</td>
<td>Demonstrate effective processes and methods for problem solving</td>
<td>Explain your own process for problem solving</td>
<td>Assess students’ ability to think autonomously</td>
<td>Additional time may be required for further discussion</td>
</tr>
<tr>
<td>Student knows what is expected</td>
<td>Show examples of how others have solved this problem</td>
<td>Explain how others have solved this problem</td>
<td>Assess students’ ability to solve problem</td>
<td>Allow time for students to explore solutions independently</td>
</tr>
<tr>
<td>Student is confident in knowing</td>
<td>Provide work time in class for students to practice with guidance</td>
<td>Share stories of past experiences when you had to solve similar problems</td>
<td>Assess students’ confidence in moving forward</td>
<td>Additional time may be required for further discussion</td>
</tr>
</tbody>
</table>

*Figure 6.2: Proposed Framework for Fostering Self-Authorship in a Studio Based Design Course (continued below)*
Figure 6.2: Proposed Framework for Fostering Self-Authorship in a Studio Based Design Course (continued below)

<table>
<thead>
<tr>
<th>Method and Objectives</th>
<th>Techniques</th>
<th>Connect</th>
<th>Assess</th>
<th>Time</th>
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<tbody>
<tr>
<td><strong>Writing</strong></td>
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<tr>
<td>Student organizes thoughts and learns to articulate thinking</td>
<td>Have students write weekly process journals about their decision making</td>
<td>Validate decision making, suggest alternatives for articulating their thinking</td>
<td>Assess students’ ability to articulate what they know</td>
<td>Provide feedback</td>
</tr>
<tr>
<td>Student develops design voice</td>
<td>Have students write a presentation script before critiques</td>
<td>Offer alternative points of view</td>
<td>Assess students’ use of appropriate language</td>
<td>Provide feedback</td>
</tr>
<tr>
<td>Student becomes aware of they value about design</td>
<td>Have students write weekly reflections about what new knowledge means to them</td>
<td>Validate students’ emotions</td>
<td>Assess students’ comfort with uncertainty</td>
<td>Provide feedback</td>
</tr>
<tr>
<td><strong>One-on-ones</strong></td>
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<tr>
<td>Student presents what they know</td>
<td>Have students describe their process of decision making</td>
<td>Mute voice as authority, offer guidance and alternative points of view</td>
<td>Assess students’ meaning making of new knowledge</td>
<td>Additional time may be required for further discussion</td>
</tr>
<tr>
<td>Student accepts multiple points of view</td>
<td>Offer alternative points of view, provoke new thought</td>
<td>Provide examples from everyday life that student can relate to</td>
<td>Assess students’ ability to accept multiple points of view</td>
<td>Additional time may be required for further discussion</td>
</tr>
<tr>
<td>Student knows how to proceed</td>
<td>Offer guidance for moving forward</td>
<td>Validate decision making</td>
<td>Assess students’ confidence in moving forward</td>
<td>Additional time may be required for further discussion</td>
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<tr>
<td><strong>Discussions</strong></td>
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<tr>
<td>Student makes meaning of new knowledge</td>
<td>Have students present what they know, discussion revolves around context</td>
<td>Provide analogies for helping students to connect with meaning</td>
<td>Assess students’ meaning making of new knowledge</td>
<td>Additional time may be required for further discussion</td>
</tr>
<tr>
<td>Student understands relevance of new knowledge</td>
<td>Explain how you know the new knowledge is relevant</td>
<td>Share personal stories of how you know what you know</td>
<td>Assess students’ ability to accept multiple points of view</td>
<td>Additional time may be required for further discussion</td>
</tr>
<tr>
<td>Student is aware of what they value about new knowledge</td>
<td>Have students explain why they think new knowledge would have value</td>
<td>Share personal stories about how you have come to value new knowledge</td>
<td>Assess students’ awareness of their own values</td>
<td>Additional time may be required for further discussion</td>
</tr>
</tbody>
</table>
Figure 6.2: Proposed Framework for Fostering Self-Authorship in a Studio Based Design Course

<table>
<thead>
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<tbody>
<tr>
<td><strong>Project</strong></td>
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<tr>
<td>Student applies new knowledge to project</td>
<td>Have a well developed plan for connecting and applying new knowledge</td>
<td>Be adaptable to unforeseen conditions</td>
<td>Assess students’ meaning making of new knowledge</td>
<td>Modify schedule as needed</td>
</tr>
<tr>
<td>Student understands relevance of new knowledge outside of context of project</td>
<td>Explain why new knowledge is relevant to practicing design</td>
<td>Share stories about how new knowledge could be used outside of project</td>
<td>Assess students’ ability to view new knowledge in other contexts</td>
<td>Additional time may be required for further discussion</td>
</tr>
<tr>
<td>Student is aware of what they value about new knowledge</td>
<td>Explain the value new knowledge</td>
<td>Share stories about how you have come to value new knowledge</td>
<td>Assess students’ comfort with uncertainty</td>
<td>Additional time may be required for further discussion</td>
</tr>
<tr>
<td><strong>Critiques</strong></td>
<td></td>
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</tr>
<tr>
<td>Student articulates their thinking and accepts multiple points of view</td>
<td>Schedule a juried critique</td>
<td>Inform students on who will be attending and what to expect</td>
<td>Assess students’ meaning making of new knowledge</td>
<td>Additional time may be required for further discussion</td>
</tr>
<tr>
<td>Student knows what it means to be a professional designer</td>
<td>Execute the critique in a formal format</td>
<td>Provide a detailed list of what students should be presenting and talking points</td>
<td>Assess students’ ability to accept multiple points of view</td>
<td>Additional time may be required for further discussion</td>
</tr>
<tr>
<td>Student practices their design voice</td>
<td>Schedule strongest students to present first, so others learn what is expected</td>
<td>Explain to students the intent of the schedule</td>
<td>Assess students’ confidence in moving forward</td>
<td>Additional time may be required for further discussion</td>
</tr>
<tr>
<td><strong>Self Assessment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student is aware of their own ability to make meaning</td>
<td>Have student assess the complexity of their ideas</td>
<td>Offer guidelines for assessing ideas</td>
<td>Assess students’ ability to think critically about their work</td>
<td>Provide feedback</td>
</tr>
<tr>
<td>Student is aware of how they make meaning</td>
<td>Have student assess the rationale behind their decision making</td>
<td>Provide examples of what a “good argument” looks like</td>
<td>Assess students’ ability to recognize strengths and weaknesses</td>
<td>Provide feedback</td>
</tr>
<tr>
<td>Student is aware of their meaning making in relation to others</td>
<td>Have student assess their ideas in comparison to others</td>
<td>Demonstrate how you would assess your ideas in relation to others</td>
<td>Assess students’ awareness of self</td>
<td>Provide feedback</td>
</tr>
</tbody>
</table>
To elaborate on the framework I have selected one method from each category for further discussion. Using critical literature for introducing new knowledge appeared to be an effective method for provoking new thought and challenging students on what they believed to be true. These challenges create a certain degree of uncertainty within the student, as they cannot predict an outcome in relation to the project. The objectives for using critical literature are to challenge students to make meaning of new knowledge, challenge students to accept multiple points of view and to challenge students’ beliefs about who they are as a designer. To meet these objectives, the techniques that appeared most effective were to first allow students to make meaning of the reading independently, then within groups and then having the groups present what they know. Allowing students to make meaning independently first forces them to think for themselves as opposed to being told what to think by the educator. Having students work in groups exposes them to alternative ways of thinking and allows them to make meaning collaboratively. When students have to present complex ideas to others, it provokes them to think about their own ability in being a complex thinker. Depending on the complexity of the reading, providing the appropriate amount of time is necessary for students to complete and process the reading, meet with their groups and meet with the educator to ensure they are making the connections needed to proceed. Making these connections, as outlined in the framework, typically will occur during group meetings. Meeting with groups is similar to meeting one-on-one as the goal is to first allow students to explain what they know. If students are struggling with specific concepts, they may need guidance by offering analogies of how the knowledge could be connected or by demonstrating your own process for dissecting complex ideas. Moderating the group meetings is necessary, as it is not uncommon for students who are shy or insecure to not share their ideas. Validating students’ voices throughout this process is beneficial as it helps build confidence in tackling complex ideas. After students present what they know, engaging in a class discussion provides an opportunity to reinforce and elaborate on specific meanings a concept may have. It also provides an opportunity for anyone to offer alternative points of view, which may facilitate a stronger connection for others.

Assessing students throughout this process is necessary to ensure that appropriate connections are being made. Assessing students individually will determine who may need additional support and who might benefit from
additional challenges. While working in groups, students who are disengaged should be assessed to determine the reason behind their disengagement; is it because they don’t understand or because they don’t work well in groups? Assessing the class as a whole will determine if the schedule needs to be modified or if new strategies should be developed to help students make the appropriate connections. Students who do not make these connections may still be capable of completing a well-done project, but may have difficulty applying the new knowledge in a context outside of this experience.

*Caveat:* Introducing complex ideas in the form of literature can be intimidating to students, especially if they are not strong readers to begin with. Depending on their level of development, this intimidation may develop into insecurities about their intellectual ability. To combat these insecurities, I made a point of continually reassuring students that it was OK if they did not fully yet grasp everything and that as we worked through the project, the concepts would become more clear. In an attempt to reinforce the connections, each new phase of the project was introduced by explaining what we were doing in the context of the critical reading and impromptu discussions were held as a class and during one-on-ones throughout the course.

Writing as a method for making meaning of new knowledge appeared effective in helping students organize their thinking as well as fostering awareness. The objectives of using writing as a method are for students to articulate their thinking, to develop their design voice and to become aware of what they value about design. To meet the first objective, students benefit most from completing regular writing assignments that require them to articulate their decision-making. Process journals appeared most effective when students were asked specific questions in relation to what they were currently working on. Having students define their decision making, especially when asked to do so in the context of the critical literature, provokes them to think critically about what their decisions mean. Learning to articulate their decision-making is the precursor to students’ developing their design voice. To meet the objective of developing the design voice, having students write out their presentation script prior to critiques appeared to be an effective technique. Students who wrote strong, detailed arguments in their process journals typically had little difficulty with script writing. Having students write regular reflection papers appeared to be effective in meeting the third objective. Students appeared to
become more aware of what they value when they wrote about their strengths and weaknesses and acknowledged their feelings about working with so much uncertainty.

All three techniques require a great deal of time, as feedback is essential for their development. Students benefit from any feedback that includes validation regardless if it is directed toward their ideas or their emotions. Feedback also requires that the writing first be assessed to determine the appropriate way to respond. Students who are struggling to articulate their decision-making may need suggestions with finding more appropriate words or alternative ways to frame an argument. Students who can write well and defend their arguments may benefit from feedback that provokes more complex thought.

_Caveat:_ Never underestimate the power of students learning from one another. During the second semester of my study, students were required to post both their process journals and reflections in an on-line public forum. Students who entered the study at a higher level of development and could write well typically posted their answers first. These answers provided examples for those students who were unsure of how to begin. Also, because it was public and students knew that others could read what they wrote they typically worked harder on their writings. Allowing students to read each their classmates’ reflections was also beneficial, particularly when a student wrote about their anxiety or confusion. Students who felt anxious or confused then read the reflections from their classmates, who felt similar, reported feeling less isolated.

_Caveat:_ One issue I continued to have throughout my study was with students refusing to do the writing. I had not weighted the writing assignments very high and a few students chose to take the slight grade deduction as opposed to completing the writing. Implementing writing as a method in a studio based design course would benefit from exploring alternative strategies for encouraging students to complete writing assignments.

Critiques as a method for applying new knowledge appeared effective in that they require students to be a part of the dialog between the new knowledge and their project. When students were required to present their decision-making and argument to others, they appeared to be more motivated to think critically about how they
have applied the new knowledge in an attempt to deliver a comprehensive presentation. The objectives of using critiques as a method is for students to articulate their decision making, accept multiple points of view, learn what it means to be a design professional and practice their design voice. The technique that appeared most effective for meeting these objectives was to plan formal, juried critiques. Juried critiques provide an audience and an expectation of having to defend an argument, which in turn provides motivation for delivering a comprehensive presentation. Jurors also have the potential of offering multiple points of view and can ignite a new dialog. When the critique is formal it suggests a degree of professionalism and certain expectations of behavior and dialog. By scheduling the strongest students to present first, a discourse is established from the beginning that sets the tone for the students who follow. The connections as outlined in the framework all revolve around preparing the student prior to the critique. As formal critiques typically cause students a lot of anxiety, reducing as much uncertainty as possible is beneficial in helping them focus on the task at hand.

Having students write their presentation script is one method of helping them prepare. Another method is giving them a detailed list and specifications of what they should present and talking points. Simply explaining what to expect, informing them on who will be attending and explaining the rationale behind the schedule also serve to reduce uncertainty as well as telling your own personal experiences with presenting in comparable formats.

If the critique is a final critique, there may be no additional time following for discussion and assessing would not be necessary. Assessing during midterm critiques however provides great insight into how the student has made meaning of everything thus far. Students who understand the complexity of their decision-making can typically engage in a dialog with jurors and do so with confidence. Students with weak arguments typically have difficulty engaging in a dialog as their meaning making of the new knowledge is still at a surface level. Either way, time after the critiques should be allotted for further discussions. It is not uncommon for a student, even a well developed one, to ask for an interpretation of a jurors’ comments later on.

The proposed framework for fostering Self-Authorship in a studio based design course was informed by the study I completed with the sophomore interior design students. Although I attempted to account for the
varying degrees of development that students come to class with, the framework, as it stands, should be viewed in the context of sophomore students. It does not address the issue and concerns associated with foundation courses and other classes typically completed prior to the sophomore year. The needs of foundational students are equally as complex and would benefit from additional research to discover more effective methods for building a strong foundation that will support the future learning of these students. As students develop and advance to their junior and senior classes their needs will also change and this framework may to be modified to account for new developmental needs.
6.3: Discussion

The proposed model and framework for fostering Self-Authorship in a studio based design course can be viewed as an impetus for redefining and creating a shift in design pedagogy. The shift is in moving away from the traditional methods of teaching design, created by our predecessors, toward a strategic plan, rooted in grounded theory, for fostering the next generation of design thinkers. It is a starting place for the individual educator to begin teaching design students how to think. As previously stated, the framework was designed to be modified and evolve as educators discover new techniques for fostering development.

The reason for developing the framework to be flexible was based on what I have come to understand about the contemporary design student, the complexity of our world and how development occurs. The contemporary design student is an individual, like no other. Each student who participated in this study, as well as the many design students I have encountered since, all came to class with a unique set of experiences behind them. Their individual needs were diverse and often complex. The complexity of our world, which appears to be expanding on a daily basis, only makes meaning-making more challenging, as students are being inundated with new knowledge in every aspect of their lives. To foster the development of the individual student, the design education needs to be prepared to adjust their plan at any given time in order to adapt to needs of their students.

Knowing what their individual needs are requires knowing who the students are, which means forming relationships with each student is a necessary component of fostering development. The typical design program has less than 20 students per year, per discipline and the typical design faculty is made up of a handful of educators that continually work with the same students throughout the students’ tenures in design school. Due to these low numbers, it is not unusual for design educators to establish relationships with their students. What the model and framework advocate though is to purposely establish relationships early as opposed to letting them eventually occur. Early intervention has the potential for planting the seeds and setting up students for future growth.
Chapter 7: Conclusion

This chapter provides a summary of the project, the implications of this research and topics for future study. This research serves to inform designer educators as it introduces what it means to know how to think. Many of the implications of this research are visible, however, when planting seeds, you never really know what might grow from them. The possibilities for future research are endless and the few discussed here are a mere sampling. I am excited about this research for what it offers immediately and for the possibilities of what it could become.

7.1 Project Summary

The goal of this research was to discover how to foster self-authorship in a studio based design course. As self-authorship is only one term that refers to mature development and the identity of self, this research explored the developmental journeys of the students who participated in the study. This project provided a comprehensive view of both the nature of identity development and the fostering of identity development. The challenges in understanding the nature of identity development became clear to me once the study had commenced. This was partly due to the lack of secondary research I had completed prior to beginning the study and partly due to underestimating the numerous variables that make up a person’s identity. As my only recourse was to learn and adapt, I eventually came to make meaning of the nature of identity development and how to foster it. I raise this point primarily for the designer educator who is interested in shifting toward a holistic pedagogy, as having a clear understanding of identity development is a necessary component to fostering identity development. Although I believe the overall study to be successful in determining how various techniques can foster development in a studio based course, only one student who participated in the
study achieved self-authorship. The development experienced by the other students, however, should not be overlooked. Through their journeys seeds had been planted, minds were opened and thoughts were provoked. As previously stated, change takes time and it is my belief that by providing the appropriate levels of challenge and support, that many of these students will achieve self authorship during their tenure as an undergraduate.

Working within the constraints of the typical studio based design course and utilizing existing projects revealed two competing interpretations. First, fostering development within these constraints is doable. This would imply that any design educator could shift their pedagogy within the courses they teach without having to alter their curriculum or without support from others. These results are promising in that change can begin to occur on a micro level as we, design educators, continue to explore more effective methods for implementing change.

The second interpretation refers primarily to the first semester of the study and the difficulties I had with the disconnected multiple projects. Fostering development within those constraints was not as effective in teaching students how to think. Although I admit that this was partly due to my own inadequacies, the current structure of these type of courses (typically foundation course) do not appear to be as conducive to teaching students how to think.

What has become clear throughout this study is that if the design industry were truly calling for design education reform, they would benefit from less talk and more action. I offer one stepping stone for the individual educator who is committed to the development of the whole student. Reform on the other hand will require the commitment of many and a thorough examination of existing methods currently used in teaching design students how to think.
7.2 Implications

Even as a stepping-stone, this research has significant implications for the design discipline and beyond. The study participants were from the Interior Design major, however, both the model and framework were developed to be applicable to all design disciplines and could also serve to inform others outside of design.

The self-authored designer who enters the work force will have the capacity to negotiate the world using his or her own internal frameworks. They will know what they believe and value and they will be committed to it. These will be the designers who know how to navigate the complexities of the world and will have the capacity to induce positive change, as they will know how to think.

As a stepping-stone, this research is accessible and can be explored by other design educators to varying degrees. Any success experienced by other educators, will undoubtedly be recognized, thus, raising more awareness about the alternative pedagogy. This awareness has the potential to begin shifting educational objectives and overall curricula. The implication of this research is that it is the first step in building a bridge toward design education reform.
7.3 Topics for Future Research

The proposed model and framework only scratches the surfaces of how to foster development in the field of design. The framework itself identifies methods that are typically utilized in a studio based design course and does not take into account alternative methods that may also be effective. Additional research into alternative methods could benefit this framework as they may serve to enhance the learning experience. The studio based design course is only part of the design school experience and additional research that explores other types of required courses within the design curriculum would also be beneficial to the overall development of the design student.

Additional studies should be considered in relation to the foundation classes as a means of teaching students how to think from the moment they enter design school as well as longitudinal studies that would follow the students through their entire tenure as a design student. As our world grows more diverse and our schools attract more international students, research into cultural identity may also become necessary. Finally, as the Engaged Learning Model was derived from the Learning Partnership Model (Baxter Magolda, 2004), continued research in exploring the Learning Partnership Model in the context of design could prove to illustrate the benefits of fostering development when the entire department works together to support development across the curriculum.
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