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Architectural Apprenticeship: A Case Study of Exemplary Practice

Thomas Stephen Szumlic
University of South Florida, tomszumlic@gmail.com

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Architectural Apprenticeship: A Case Study of Exemplary Practice

by

Thomas Stephen Szumlic

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Curriculum and Instruction with a concentration in Career and Workforce Education Department of Leadership, Counseling, Adult, Career and Higher Education College of Education University of South Florida

Major Professor: Victor M. Hernandez-Gantes, Ph.D. William Blank, Ph.D. Edward C. Fletcher, Jr., Ph.D. Yi-Hsin Chen, Ph.D.

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DEDICATION

I wish to dedicate this dissertation to all those who have and all those who are willing to cast wide nets.
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I would like to acknowledge several individuals. To Dr. Victor Hernandez for his insistence and encouragement to treat expanse and parsimony with equal probity, to Jean Lave for her patient and pioneering scholarship, and finally to Sylvia Farnham-Diggory for her sense of responsibility to produce the hard work of classification.
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ABSTRACT

The purpose of the study was to describe the nature of the architectural apprenticeship experience from a curricular, instructional, social, and transformative perspective to help interns move from novice status to entry-level expertise in architectural practice. The study examined the apprenticeship experience from a holistic perspective to develop a better understanding of the architectural internship program. To meet the study purpose and inquiry, a case study research design was used to explore and describe the nature of the apprenticeship experience from the perspectives of three stakeholder groups: the interns, the mentors, and the members of the community of practice (CoP). Overall, as evidenced by the perspectives of the Interns, the Firm serving as the case study emphasized all-aspects of architectural practice as the basis for the development of a holistic apprenticeship experience. That is, the Interns participated in the whole of the Firm’s architectural practice. Additionally, the Firm used work- and project-based learning as the vehicle for the apprenticeship curriculum and instruction. As a result, the Interns were grounded in authentic learning and work contexts requiring the application of architectural knowledge and skills. Further, because of the all-accepts of architectural practice and the grounding of work-based and project-based learning, the interns purposefully progressed in expertise through increased participation in architectural projects requiring enhanced demands in terms of knowledge and skills. Study findings highlighted the role of a holistic approach to the apprenticeship experience, the value of immersion in all aspects of architectural practice, and the firm’s commitment to be engaged in a process of shared transformation. As such, related findings should be helpful in the conceptualization and implementation of the architectural
apprenticeship experience in the field.
CHAPTER 1

INTRODUCTION

To practice architecture in the United States, one must move through a system of educational, regulatory, and professional domains. There are five organizations that oversee the fields of architectural education and practice: the American Institute of Architects (AIA), the American Institute of Architecture Students (AIAS), the Association of Collegiate Schools of Architecture (ACSA), the National Architectural Accrediting Board (NAAB), and the National Council of Architectural Registration Boards (NCARB). However, the right to practice architecture and the right to use the title “architect” are granted only by state registration boards. The NCARB is the organization representing those state boards and works with its member boards to establish registration or licensing policies. The NCARB also regulates the current apprenticeship program known as the Intern Development Program (IDP) and the professional testing instrument known as the Architectural Registration Examination (ARE) (NCARB, 2011). The process is consistent in all fifty states and represents a commitment of ten years to reach the title and practice designation as architect.

As part of this continuum, the completion of a three-year apprenticeship (also referred to as an internship) is a mandatory requirement for architectural practice. Upon completion of formal education, for architectural students, the apprenticeship provides access to national examination, registration, licensure, and finally title and practice. As such, the architectural apprenticeship takes place in the context of an established architectural firm and under the tutelage of licensed architects (National Council of Architectural Registration Boards, 2011). To this end, since 1978,
the curricular structure of the apprenticeship has been defined by the IDP in terms of duration, distribution of experiences, and focus on representative phases of professional architectural practice. That is, the design and intent of the IDP is to provide opportunities for understanding all aspects of professional architectural practice and then test for the intern’s attainment of required competencies through the ARE. In this way the IDP explicitly outlines all aspects of knowledge and skills the intern is expected to learn in four major categories: Design and construction, construction contract administration, project management, and other related activities (see Appendix A).

**Statement of the Problem**

Although, the current IDP was designed to bolster the inadequacies of NCARB’s previous three-year internship, the assessment of the IDP has received mixed reviews. The periodic literature discloses both mutually satisfying implementations of the IDP as well as experiences that are deficient in supplying interns with the necessary education (Boyer & Mitgang, 1996). For example, the number of graduate architects completing the IDP, passing the ARE, and then becoming licensed practitioners has severely decreased with a 75% drop in the number of ARE’s taken since 1990 (Fisher, 2002; Gaber, 2002). This trend is troubling considering that during the same period the nation saw great economic growth. That is, this trend also represents a loss of intellectual capital that graduate architects bring to the workforce and the potential contribution to economic development through the renewal of professional practice.

As it stands, the apprenticeship experience is the most problematic component in the continuum of architectural education (Boyer & Mitgang, 1996). At the core of the problem is the perception that internship experiences represent a rite of passage including menial work and serve a source of cheap labor for cooperating firms. Thus, the quality of the apprenticeship
model has been also criticized as a process where mentorship and learning are often taken for granted. Further, most of the literature makes evident that firms rarely help apprentices move from novices to entry-level expertise. In most instances, firms appear to treat internship experiences and induction into the profession as two separate processes, with the latter more prominently emphasized once architects joined the profession formally upon passing the licensure test (Fisher, 1994).

Contributing to this problem is the fact that, surprisingly, the complex nature of the architectural apprenticeship experience has received little attention from researchers (Boyer & Mitgang, 1996). That is, architectural apprenticeship has not been analyzed as a comprehensive model of learning bridging curriculum and instruction as a process of transformation from novice to expert. Even though the architectural periodic literature has commented extensively on the problems of architectural apprenticeship it has been predominantly focused on defining the underlying curriculum and the administration of the IDP (Gutman, 1995). In turn, much of formal research on apprenticeship has been in the context of trades and craft settings but not within the professions including architectural practice. Further, there is limited research on the complex process of apprenticeship taking into account comprehensive models of learning in the context of professional practice. For example, important longitudinal studies of architectural firms and critical analysis of the sociology of architectural practice have been conducted but with no explicit connections to the learning theory embedded in apprenticeship (Blau, 1984; Collins, Brown, & Holum, 1991; Cuff, 1991; Gutman, 1992; Wenger 1998). Similarly, research on apprenticeship within the discipline of anthropology has produced significant understandings about learning situated in practice (Brown, Collins, & Duguid, 1989) but is typically a fragmented representation of the apprenticeship experience focusing only on instruction (Lave &
Wenger, 1991). In this context, it is important to develop a more holistic understanding of apprenticeship as a process of instruction and acculturation in a community of architectural practice.

**Purpose of the Study**

The purpose of the study was to describe the nature of the architectural apprenticeship experience from a curricular, instructional, social, and transformative perspective to help interns move from novice status to entry-level expertise in architectural practice. To this end, the study was driven by the following research questions:

1. What is the nature of the apprenticeship experience from a curricular perspective?
2. What is the nature of the apprenticeship experience from an instructional perspective?
3. What is the nature of the apprenticeship experience as a process of acculturation?
4. How does the totality of the apprenticeship experience facilitate the induction of architectural apprentices?

To meet this purpose, the study examined an architectural practice with recognized exemplary internship experiences. The curricular elements were examined in relation to knowledge and skills defined by the community of practice, while the study of the instructional means were informed by the tenets of cognitive apprenticeship principles (Brown et al., 1989). In turn, the process of acculturation and transformative induction were informed by the notion of legitimate peripheral participation describing how novices can progressively become full members of a community of practice (Lave & Wenger 1991, Wenger, 1998). Thus, the apprenticeship experience was examined based on a holistic approach including a description of key components along with an overall study of the total apprentices’ experience.
For the purpose of the study, the designation of apprentice and intern was used interchangeably. Similarly, the terms “mentor” and “master instructor” referred to the practitioner working directly with the apprentice and overseeing his or her apprenticeship. The term “community of practice” referred to the collective membership and professional culture of the architectural firm.

**Conceptual Framework**

The conceptual framework for the study built upon the ideas that a comprehensive model of apprenticeship learning should bridge curricular content and the needs of the community of practice (CoP) (Wenger, 1998), feature instructional means appropriate to the apprenticeship experience (Brown et al., 1989), and include a process of acculturation to induct the novice into the world of the expert (Lave & Wenger, 1991). These ideas are embodied in three conceptual strands described below.

The first strand of the conceptual framework refers to the nature of the apprenticeship experience from a curricular perspective (Wenger, 1998). In short, what is the apprentice expected to learn? In the study, the expected knowledge and skills emphasized in the apprenticeship was examined from two perspectives: the Intern Development Program (IDP) curriculum and the actual expectations of the community of practice. As noted above the IDP represents the official curriculum in four areas of practice requiring interns to establish a personal account with the NCARB, and record a total 5600 hours to complete it (NCARB, 2011) (Appendix A). In turn, the explicit and implicit expectations from the community of practice provided a comparative frame of reference. This approach allowed the description of what is emphasized in practice to determine how the curriculum was actually enacted and organized (Doll, 1993; Resnick & Resnick, 1985). As such, the study recognized the explicit knowledge of
the IDP categories as curricular and also included implicit expectations called for by the architectural firm (i.e., community of practice).

The second strand of the conceptual framework focused on how the curriculum is taught by examining the instructional strategies using the tenets of cognitive apprenticeship as a frame of reference. Cognitive apprenticeship represents a constructivist approach to instruction whereby an experienced practitioner, through mentorship strategies, facilitates the skills development of a novice learner who is referred to an apprentice (Collins et al., 1991). Specifically, cognitive apprenticeship calls for an approach to instruction including the following strategies: Modeling, coaching, scaffolding/fading, articulation, reflection, and exploration (Brown et al., 1989; Collins et al., 1991). The overall notion of cognitive apprenticeship and specific instructional strategies provided a frame of reference to describe the nature of the apprenticeship experience in the study.

In turn, the third component of the conceptual framework examined the process of cultural induction to help the apprentice progressively become a full member of the community of practice. The process of acculturation was studied using the notion of legitimate peripheral participation (LPP) suggesting that novices in a community of practice learn by being allowed to take part in different aspects of practice and gradually acculturate into full participation (Lave & Wenger, 1991; Wenger, 1998). As such, novices and experts are often described as being from different worlds, with the world of the expert defined by full participation in the community of practice (Farnham-Diggory, 1994). Although LPP is not an instructional approach per se, it represents a way for understanding learning as a process of acculturation into practice through progressive engagement in activities that define the CoP (Lave & Wenger, 1991). In this regard, how are the interns progressively acculturated into the community of practice?
Together, the three conceptual strands involving an examination of the underlying curriculum, instructional approach, and process of acculturation, facilitated an understanding of the totality of the apprenticeship experience as a holistic induction process. The interface of the conceptual strands in the framework informing the study is illustrated in Figure 1.

![Conceptual Framework](image)

**Figure 1.** Conceptual framework bridging curricular, instructional acculturation, and overall induction experience components.

Given the fact that the architectural practice providing the context for the study was recognized for the quality of the apprenticeship experience, a close alignment between the official IDP and enacted curriculum was expected. Similarly, it was also expected the instructional approach to be aligned with the tenets of cognitive apprenticeship and the process of acculturation with the principles of legitimate peripheral participation. Overall, the induction experience should facilitate the gradual participation of apprentices into the community of architectural practice.
Significance of the Study

The study examined the apprenticeship experience from a holistic perspective and had implications for developing a better understanding of the architectural internship program. It was anticipated that study findings would advance the discipline of architecture and inform other disciplines engaged in apprenticeship learning.

The education of architects has always been inextricably linked to apprenticeship. Throughout history architectural apprenticeships have successfully produced new entrants into the field of architectural practice from countless competent practitioners to iconic figures. Because of this venerable connection to apprenticeship learning, assumptions exist that architects are natural teachers with an unspoken obligation to induct new entrants into the field (Osman, 1977). With the emphasis on teaching and teachers, the periodic literature depicts apprenticeship as an experience shared exclusively between the apprentice and the mentor and situated in the architect's studio (Wiese, 1984). These characteristic understandings of apprenticeship learning are no longer sufficient to effectively transform novices into expert architects (Boyer & Mitgang, 1996). As a result of studying apprenticeships, the tenets of situated learning theory have coalesced to produce a more comprehensive understanding of the nature of apprenticeship learning (Lave & Wenger, 1991). We now know that apprenticeship learning is a complex social practice that includes curricular definition based on the needs of the community of practice, instructional means that parallel cognitive apprenticeship principles, and transformational processes that allow acculturation into the world of the expert. This learning model not only inducts novices into the culture of practice but also affords the conditions for sustained innovation within the community of practice (Lave & Wenger, 1991). Because the process of
apprenticeship transforms both the individual and the community of practice (Wenger, 1998), developing a better understanding of how it works should invigorate architectural practices engaged in apprenticeship learning.

The documentation and dissemination of exemplary apprenticeship learning could also include the drafting of standards for accrediting architectural firms as “Learning Practices”. Additionally, knowledge of apprenticeship learning situated within architectural practice may have implications for other professions engaged in apprenticeship learning such as engineering, law, medicine, and interior design. In general, findings from this study should be useful to broadly inform the design, development, implementation, and evaluation of apprenticeship models to ensure a more consistent and comprehensive learning experience.

**Scope and Limitations**

The scope of the study was concentrated on the process of apprenticeship learning taking place in an architectural practice considered to have exemplary apprenticeship programs. Because the study discretely focused on an architectural practice recognized as an exemplary apprenticeship site and from a specific model of learning theory the results are limited in generalizability. The study did not examine other professional and sociological factors that influence the intern experience such as salary, benefits, firm location and other demographic data. However, spatial configurations within the setting that influence the apprenticeship experience were noted. Finally, because of previous experiences as a practicing architect, the investigator was mindful of the emic or “insider” dialogue and themes as potential bias relating to the apprenticeship experience and the interpretation of data that made use of the categories of the participants being studied. In contrast, the experience bias toward the researchers
architectural background was subordinated as the researcher assumed an etic or “outsider” point of view as an educational researcher.
CHAPTER 2
REVIEW OF LITERATURE

The purpose of the study was to describe the nature of the architectural apprenticeship experience from a curricular, instructional, social, and transformative perspective to help interns move from novice status to entry-level expertise in architectural practice. In this chapter, a review of related literature is reported to expand and clarify the topics underlying the study including a background of architectural apprenticeships, architectural apprenticeships in current practice, and issues within the current practice. The chapter concludes with a description of the conceptual framework informing the study drawing from the apprenticeship model, the community of practice, and apprenticeship as a process of acculturation.

The Architectural Apprenticeship

At the core of the study is the architectural apprenticeship serving as the context for interns aspiring to become architects. Thus, the review of literature begins with a description of the background of architectural apprenticeships, current practice and regulation, curricular emphasis, and related issues.

Background of Architectural Apprenticeships

Throughout history, architectural apprenticeships have successfully produced new entrants into the field of architectural practice including the rank and file of competent practitioners to iconic figures in the field. For example, Ludwig Mies van der Rohe, Le Corbusier, and Frank Lloyd Wright had no formal education in architecture but all had apprenticeship experiences taking place in architectural practices legitimized by expert architects. Specifically, both Le Corbusier and Mies van der Rohe experienced apprenticeship
within the practice of Peter Behrens, while the American architect Frank Lloyd Wright served as an apprentice under the practice of Louis Sullivan (Hitchcock, 1952). In time, Wright developed and established his own apprenticeship system in the studio of Taliesin West that produced many notable practitioners including Richard Neutra and Rudolph Schindler. Taliesin West, located in the state of Arizona, is still in operation after Wright's death in 1959 (Friedland & Zellman, 2009). To be sure, the apprenticeship experience lives on as an integral part of architectural practice in the United States.

Compared to the European architectural tradition, American architectural practice is young and short on precedent, but it has played a significant role in architectural education. Prior to 1860, with the establishment of the first school of Architecture at the Massachusetts Institute of Technology, apprenticeship was the only means of architectural education in the United States. For example, the census of 1900 reported 10,000 practicing architects who had been mostly educated as apprentices (Bannister, 1954). As such, the architectural apprenticeship system predominated and functioned effectively in the United States until the 1930’s when it was eventually displaced with formal architectural education situated in university systems (Bannister, 1954). This transition began a differentiation of architectural education and architectural training (Bilello, 1991).

As the newly formed schools of architecture strived for standardization so did practice. Standardization directly responded to the profession's needs for a control of competence within a body of knowledge (Larson, 1977). It responded to architects' clients' needs for institutional forms and it served professional education's needs for legitimacy. After the Second World War, new distinctions occurred to challenge and redefine the interdependence and a differentiation between training and education begins to appear in the related literature (Cellarius, 1946;
Bannister, 1954). In this context, the mission of university systems was increasingly recognized as formal education, while the mission of apprenticeship was regarded as training.

During the 1950’s and 1960’s, a call for an organized internship program integrated with formal education began to emerge in the profession (Jones, 1989). This call was largely ignored and the separation between formal education and preparation for professional practice continued to widen into the 1970’s (Bilello, 1991; Fisher, 1989; Molinelli, 1996). As a result, it became accepted that American professional architectural education would be characterized as university-dominated, as opposed to the British practice-dominated or European state-dominated systems (Stevens, 2002). In time, the professional organizations moved on and implicitly organized the apprenticeship experience as a complementary component following the evolving standard model of professional practice defined by the AIA.

**Architectural Apprenticeship in Current Practice**

To practice architecture in the United States, one must move through a system of educational, regulatory, and professional organizations. The current curriculum for architectural education includes formal education, a required apprenticeship, and continuing professional education. This three-part educational continuum is consistent in all 50 states and is managed by diverse institutional, regulatory, and professional organizations. As such, the apprenticeship experience is the point where acculturation into the profession and the transformative journey from novice to entry-level expert is accomplished. Additionally, a completed apprenticeship is the only means to access national examination, title, registration, licensure, and finally practice.

**Structure and regulation.** The educational continuum for architects in the United States is consistent in all fifty states and represents a commitment of ten years to reach the title and practice designation as architect. As part of this continuum, a successfully completed three-year
apprenticeship is a requirement for architectural practice, and takes place in an established architectural practice under the tutelage of licensed architects.

In the United States, there are five principal organizations that oversee the field of architectural education, internship, and practice: the American Institute of Architects (AIA), the American Institute of Architecture Students (AIAS), the Association of Collegiate Schools of Architecture (ACSA), the National Architectural Accrediting Board (NAAB), and the National Council of Architectural Registration Boards (NCARB). However, the right to practice architecture and the right to use the title “architect” are granted only by state registration boards. The National Council of Architectural Registration Boards (NCARB) is the organization representing those state boards and works with them to establish registration or licensing policies. The remaining four architectural organizations play sustaining roles to the registration process.

The American Institute of Architects encourages its member firms to earnestly carry out apprenticeship programs. The Association of Collegiate Schools of Architecture represents the institutions that educate future architects and the National Architectural Accrediting Board accredits those institutions. In turn, state registration boards require a degree in architecture from an accredited program as a precondition to registration. The American Institute of Architecture Students represents future architects and, to that end, monitors the registration process. Within this administrative framework, the National Council of Architectural Registration Boards (NCARB) regulates the current apprenticeship program and curriculum, including the Intern Development Program (IDP), and the Architectural Registration Examination (ARE).

**Curriculum emphasis.** The IDP is the exclusive architectural internship program in the U.S. The current program was designed to bolster the inadequacies of NCARB’s previous
“traditional” unstructured three-year internship. The America Institute of Architects (AIA) and the NCARB sought ways to develop the apprenticeship experience beyond drudgery. What resulted from this collaboration was the formation of the IDP. The purpose of the IDP is to provide an intern with a comprehensive overview of each phase of professional architectural practice. To that end, the curriculum structure of the IDP specifically distributes discrete procedural experiences over representative phases of professional architectural practice to prepare interns for the Architectural Registration Examination (ARE).

The curriculum of the IDP is to provide an intern with a comprehensive overview of each phase of professional architectural practice that professional architectural firms employ for the production of architecture. Essentially, the architectural design process is a deductive method that starts with the analysis and understanding of a spatial or building problem then leads to progressively detailed drawings and written documents diagrammatically representing a future constructed form. The current professional model delineates these activities into four major categories: Design and construction documents, construction contract administration, management, and other related activities.

A total of 700 training units (TU), equal to 5600 hours, are required for IDP completion and for eligibility to sit for the architectural registration examination (ARE). This duration is of three years. In the analysis of the current IDP requirements the most contentious practice area is the category on “design and construction documents.” This was the practice area that the IDP was intended to more equitably distribute. Because this category contains the concentration of production work it is the focus of the harshest criticism from graduate architects. However, a potential of 4680 hours could be acquired in this category, equivalent to 84% of the time required for a successful completion of the IDP curriculum.
Issues in Architectural Apprenticeship

Historically, the apprenticeship experience has been used as a training tool and as a means of induction into architectural practice, as well as an incubator for the promotion of innovative architectural production. In this regard, apprenticeship learning should provide for the application of architectural knowledge and a process of learning to become an architect. However, at present, it is evident that the apprenticeship experience needs to be revisited to emphasize its roots as professional learning and acculturation. Over the years, some critics have pointed out that current apprenticeship experiences in architecture have turned into a source of cheap labor with little room for professional growth and opportunities to get fully acculturated into all aspects of architectural practice (Fisher, 2002). As a result, in the United States, the number of architects completing apprenticeships and becoming licensed practitioners has severally decreased (Fisher, 2002). The National Council of Architectural Registration Boards (NCARB) reports that since 1990, the number of Architect Registration Examinations (ARE) taken has dropped seventy-five percent (Gaber, 2002). This condition is more troubling considering that during the same period the nation saw great economic growth and increased admissions in architectural schools.

Apprenticeship as a Learning Model

Perhaps the progenitor of all instruction and arguably the prototype of learning in the workplace, apprenticeship has been at the core of preparation for human endeavors including agriculture, the arts, manufacturing, and the professions. Historically, apprenticeship has survived as a significant experience for the development and transference of skills, knowledge, and understanding. Even parenting has been seen as a form of apprenticeship (Rogoff, 1990). As such, apprenticeship has been defined as a process of learning an occupation through the direct
experience of working in the actual context of that occupation where experts transfer their knowledge to novices (Yinger 1987). Moreover, apprenticeship provides a context and a community of practice within which novices develop their abilities and discover and form their identity. In this way, apprenticeship has always been associated with rites of passage, initiation, and learning to become an interdependent member of the community of practice. Accordingly, apprenticeship learning should be acknowledged as a transforming as well as a functional process (Fuller & Unwin, 2002).

Through time, the meaning of apprenticeship has moved from romanticized, parochial, and anecdotal notions of learning “on the job” or “learning by doing,” to learning informed by contextual and situated learning principles (Lave & Wenger, 1991).

**Contextual and Situated Learning**

Apprenticeship learning is informed by contextual and situated learning principles rooted in constructivist learning theory, which posits learning as complex, and socially situated in authentic activities. The foundations of constructivism originated from the scholarly work of Jean Piaget and Lev Vygotsky. As a zoologist, Piaget viewed learning in organic ways developing along stages bridging age-appropriate understandings and the surrounding environment. Building on Piaget’s work, Lev Vygotsky argued that learning is a socially mediated and progressive experience. That is, learning requires meaningful social interactions to move from one zone of development to the next facilitated through coaching and scaffolding instructional strategies (Emihovich & Lima, 1995; Holland & Valsiner, 1988).

With the widening influence of Vygotsky’s writings, the Constructivist paradigm expanded and evolved into three typological strands that include the Instructivist model where meaning is defined by the expert, the Social Constructivist model where meaning is negotiated in
social, cultural, and environmental contexts, and the Radical Constructivist model where meaning is defined by the learner (Fox, 2001). It is within the middle ground of the Social Constructivist domain, for the most part, that the principles of situated learning have been grounded and developed (Lave, 1991). Through studies of informal learning involving observations of tailor apprentices, Lave (1988) found that the apprentices learned the skill of constructing garments and ways of performing as a tailor. As Lave observed, this transformation from novice to expert occurred with no noticeable teaching.

Learning in informal settings, such as the workplace, up until Lave’s work was dismissed as being ad hoc and secondary (Resnick, 1985). Thus, Lave’s findings of learning as a sociocultural phenomenon was in total contrast to the standard paradigm asserting that learning is a cognitive process internalized by the individual learner. The standard paradigm also claims that discrete abstract concepts taught out of authentic context will later be transferred to real-life application (Brown et al., 1989). As such, Lave’s work on the workplace relationship between experts and novices, helped understand the instructional and transformational means of apprenticeship learning.

**Apprenticeship as a Cognitive Process**

The study of apprenticeship has also begun to enrich our understanding of how people learn by looking at the relational differences between novices and experts in a variety of contextual situations. Resulting insights have been organized into what is referred to as Situated Cognition theory, which asserts that learning is naturally connected to authentic activity, context, and culture (Brown et al., 1989). This andragogy represents a major shift from traditional learning theory, which is primarily focused on internal and individual processes (Beckett & Hager, 2002), to theories of learning being significantly situated in a social and authentic
contexts (Lave & Wenger, 1991) and where learning is an inherent social and participatory process (Wenger, 1998). Building upon these notions, the apprenticeship experience in the informal setting of the workplace has been further generalized into a model of instruction referred to as "cognitive apprenticeship" (Brown et al., 1989).

Cognitive apprenticeship is an instructional model derived from situated cognition learning theory and may be summarized as experts showing novices how to do a task. In this model, learning is experienced by the novice as an expert first shows the apprentice how to do a task, then watches as the apprentice practices portions of the task, and finally turning over more and more responsibility until the apprentice is proficient enough to accomplish the task independently (Collins et al., 1991). In this way apprenticeship learning is completely situated in the culture of practice and the meaning and nuance of each task is relationally understood within the context of the practice. In this regard, cognitive apprenticeship makes learning visible by deliberately bringing thinking to the surface through modeling and open reflection. This concretization of cognition is the most distinguishing element of cognitive apprenticeship (Collins et al., 1991).

The biggest challenge in cognitive apprenticeships, however, is the novices’ ability to transfer knowledge between different learning contexts. The variety and diversity of learning situations must be intentionally presented in order that the transfer of learning may take place in different contexts and that novices may reflect and distinguish common elements between contexts (Brown et al., 1989).

**Tenets of Cognitive Apprenticeships**

Cognitive apprenticeship is underlined by sequential instructional strategies referred to as modeling, coaching, scaffolding, fading, articulation, reflection, and exploration (Collins et al.,
Modeling involves watching and listening to the expert perform the task, thereby making thinking visible as well as hearing to the expert “thinking aloud”. This form of discourse is an intra-verbal process that reveals to the novice the reasoning and the selection of particular problem solving strategies in real time. Coaching is the guided help given to the novice from the expert. This process is a transition from modeling as the novice moves into the actual participation with the task. Scaffolding is the support provided by the expert to help the student carry out portions of the task that the student cannot currently manage. This strategy is often illustrative of Vygotsky’s Zone of Proximal Development, associated with the gradual distance between the problem solving abilities of the novice and the target expectations in the community of practice (Lave & Wenger, 1991). In this context, as the novice gains competence in a given task, fading is the gradual removal of the support or scaffolding. Articulation is demonstration of what the novice can do during the learning process, which may prompted by a question or by providing opportunities for the novice to perform the task for others. In turn, reflection requires the novices to assess their gradual development of expertise in comparison to the expectations within the community of expert practitioners (Collins et al., 1991). Reflecting in and on practice enables the novice to begin to assume behaviors typical of experts especially the ability to “think on their feet” (Schön, 1983). Finally, through exploration, novices learn how to set and solve new, more complex problems. Expecting novices to participate in exploration is critical if they are to eventually become members of the community of practice (Collins et al., 1991).

Additionally, cognitive apprentice also favors a sequencing of work activities that positions global before local activities along with increasing complexity in tasks and increasing diversity of tasks (Collins et al., 1991). Under these conditions, cognitive apprenticeship can be especially effective when teaching complex, cognitive skills such as essay writing, computer
programming, and mathematical problem solving (Duncan, 1996). In highly cognitive professions students can benefit from insight into the cognitive processes underlying expert performance and can make it easier for them to reproduce certain procedures on their own (Taylor and Care, 1999). Surprisingly, even though architectural practice and the architectural design studio (i.e., apprenticeship learning) have been presented as a paradigm for all professional education (Schön, 1987), the periodic literature of architecture reports little understanding of the tenets of cognitive apprenticeships.

**Gaps in the Literature**

Despite its long history, comparatively little has been written about the tenets of apprenticeship (Sigaut, 1993). Only few ethnographic studies of apprenticeship have been conducted across different work settings (Sigaut, 1993). Also, considering the longstanding relationship that architecture has held with apprenticeship learning, the literature devoted specifically to architectural apprenticeship is scant. Few books, articles, reports, and professional publications have been produced analyzing and discussing the specific nature and phenomenon of architectural apprenticeship. In all cases, the professional literature of the IDP is not reflecting a direct connection to relevant research and principles of situated learning and tenets of cognitive apprenticeship.

**The Community of Practice**

In apprenticeship, learning takes place in the world of the expert and within unique social networks known as the Community of Practice (CoP). It is within the CoP where the novice is situated to learn. Although not a theory of learning per se (Storberg-Walker, 2008), the CoP is based on the notion that learning is part of social practice (Wenger, 1998). According to Wenger (1998), we are social beings and our social nature is a central aspect of learning. In this context,
apprenticeship situates the novice in the social context of the CoP whereby knowledge is a matter of competence with respect to practice. It is competence in the world of practice that sets experts apart from other novices. Further, participation in the CoP can contribute to identity development, the ability to construct or negotiate meaning as a social process; and the ability to view practice from the perspective of the community.

**Role of mentors.** Since 1976, the NCARB has published supervisor guidelines on the IDP and office practices and training material for offices, supervisors, and mentors. The IDP Supervisor Guidelines (2008), presents information to architects participating in the IDP including what is an IDP supervisor, benefits of supervising an intern, supervisor expectations, a checklist for introductory and subsequent meetings, FAQ’s, and supervisor resources. According to the literature from NCARB, to train and develop competent architects who are prepared to practice architecture independently, direct supervision is considered the most effective way “to guide” an intern’s professional development. For this purpose, supervisors must be licensed and possess detailed professional knowledge of the type of work being prepared by the intern architect. Further, supervisor contact time and durational standards represent the main criteria for intern supervision. To this end, daily management is expected and regular assessment of the quality of the worked is recorded and certified in the intern’s experience report.

In addition, the supervisor is also expected to provide reasonable opportunities for the intern to gain experience in each IDP training area. The supervisor is to facilitate learning opportunities including continuing education programs, client meetings, site meetings, and community involvement meetings. In turn, being available for discussion after these types of experiences is also expected from intern supervisors, and giving constructive feedback with specific examples within 48 hours.
The mentor-apprentice relation is variable. The form of the relationship is dependent on the division of labor within the community of practice. Historically, in the relation between expert and novice, there is very little teaching and more informal learning (Lave & Wenger, 1991). Mastery resides not in the master but in the organization of the community of practice of which the master is part. Opportunities for learning are given by work practices instead of by expert-novice relations (Beckett & Hager, 2002; Lave & Wenger, 1991). That is, learning moves away from direct teaching and onto the center of the whole community of practice. Thus, in many ways, the role of the mentor is to facilitate the gradual engagement in the larger community of practice.

Although, the periodic professional literature portrays architectural internship as training closely mentored by an experienced architect, it also differentiates mentor and supervisory roles (NCARB, 2011; Quinn, 2003). The supervisory role is typically viewed as direct supervision under an approved work setting to guide an intern through the administrative process of the IDP and to certify the intern’s experience report (NCARB, 2011). In turn, the mentor role is to provide periodic career advice, give independent feedback, and coach an intern through the registration process. However, a mentor can review any experience submitted for IDP credit and can also certify certain supplementary education opportunities (NCARB, 2011).

**Beyond mentors: Role of the community of practice.** The needs of the community of practice in many ways constitute the curriculum of practice (Wenger, 1998). That is, communities of practice are groups of people who share a concern or a passion for something they do and to that end learn how to improve as they interact regularly (Wenger, 1998). Thus, communities of practice function as a social learning organization where practitioners solve the problems of the practicing community by sharing their collective learning. In this way,
communities of practice are considered informal because they are not necessarily formed from the sanctioned organizational structure of the practicing community. The willingness to participate in practice is the ethos of the community of practice and participation in social practice is the fundamental process underlying collective learning and identity (Wenger, 1998). In this context, participation within the community of practice and its curriculum serves to support apprenticeship learning (Bozarth, 2008).

**Community of practice and the implicit curriculum.** The standard concept of curriculum may be condensed to what is intended to be learned and how is it organized (Resnick & Resnick, 1985). However, the resultant form of a curriculum is a function of many influences: The structure of the discipline being learned, the kind of knowledge that is required, intended outcomes, available resources, and even the perception of the capabilities of the student (Hunkins & Hammill, 1994; Young, 1999). In short, curriculum is the host to explicit and implicit knowledge, often negotiated or constructed with the participating stakeholders (Doll, 1993; Hunkins & Hammill, 1994).

In architectural apprenticeships, the standard and explicit curriculum is established through the IDP. However, it is possible that in practice curriculum may be configured through the implicit and particular expectations, culture, and needs of the local community of practice (Lave & Wenger, 1991). In support of this notion, recent developments in curriculum design are ecological in nature, holistic and interconnected, to bridge official and enacted versions including implicit expectations (Hunkins & Hammill, 1994). This new orientation has led emerging representations of curriculum associated richness, recursion, relations, and rigor (Doll, 1993; Hunkins & Hammill, 1994). A key question here is, how does the character of the CoP intersect and combine with the official curriculum called for by the IDP?
First, *richness* in the curriculum is concerned with the enrichment of the lives for all the participants to help them produce their own knowledge (Doll, 1993). To that end, richness involves an invitation and openness for participation in the negotiation and construction of meaning (Doll, 1993; Wenger, 1998). Second, *recursion* represents a process where important content and expectations are consistently distributed and balanced through the space and time of the curriculum. Change is induced during the course of practice through reflection on what is happening in practice (Schön, 1983). Third, *relations* refer to the coherent order and meaning that must be present in the curriculum to help learners understand the parts and the totality of the learning experience (Doll, 1993; Hunkins & Hammill, 1994). Finally, *rigor* represents an evaluation qualification of the curricular process and experience (Corbleth, 1990; Hunkins & Hammill, 1994; Wenger, 1991). Therefore, a rich, recursive, relational, and rigorous curriculum should engage learners in balanced, coherent, meaningful and challenging work to facilitate knowledge production (Doll, 1993).

In educational research there is a large body of literature related to communities of practice (Bozarth, 2008). However, there is limited research on the characteristics of CoP within a context of specific occupations (Bozarth, 2008). In this regard, despite the fact that the collaborative nature of architectural practice makes curriculum and the needs of the community of practice a locus of learning, the literature of architectural apprenticeship has overlooked the social practice of learning (NCARB, 2011).

**Apprenticeship as a Process of Acculturation**

Apprenticeship encapsulates the study of learning in situated ways. In terms of situated learning theory, apprenticeship learning acculturates novices into full participants in the world of experts (Farnham-Diggory, 1994). In apprenticeship, the novice learns about an enterprise and
learns to be an expert of the enterprise by participating within the CoP of that enterprise. The induction of new members into the CoP is crucial to its continued existence. This process of acculturation sustains the development of the CoP and forms the identities of individuals within the CoP through participation situated in work context. Legitimate peripheral participation (LPP) is an initial form of membership within the CoP. Although LPP is not an instructional form per se, it is a way of understanding learning (Lave & Wenger, 1991). LPP describes the degrees of participation and the means of transformation and acculturation in social practice. In this regard, LPP provides the means for understanding the complex processes of acculturation (Lave & Wenger, 1991).

**Tenets of legitimate peripheral participation (LPP).** According to Lave and Wenger (1991), there are five interconnected and relational characteristics of legitimate peripheral participation representing the acculturation of novices into the CoP: The structuring of resources, the degree of transparency, the discourse of practice, identity and motivation, and the transformation of practice (Lave & Wenger, 1991). The first characteristic of LPP, *structuring of resources*, refers to access to a wide range of ongoing activities, experts, and other members of the community; and to information, resources, and opportunities for participation (Lave & Wenger, 1991). The structuring of—and access to—resources is key to help apprentices acculturate and develop a holistic view of the entire enterprise and enhance participation within the CoP (Lave & Wenger, 1991; Wenger, 1998).

The second characteristic of LPP, the *degree of transparency*, refers to the sociopolitical organization of practice, its content, and the artifacts engaged in practice. This implies that the inner workings, strategies, and artifacts and instruments of practice are openly discussed and/or available for the novices’ inspection. This is analogous to a glass box where its transparency...
allows free inspection of its content (Lave & Wenger, 1991). For novices, transparency of practice allows them to gradually move their peripheral understanding to more participation and legitimate knowledge. As such, transparency involves engaging with the technologies of everyday practice, as well as participating in the social relations, production processes, and other activities of the CoP. Further, transparency also means making learning visible and therefore reinforces and aligns with the instructional tenets of cognitive apprenticeship (Lave & Wenger, 1991).

The third characteristic of LPP, discourse of practice, calls for open and reflective communication in the interactions within the community of practice. In this context, the discourse of practice is apprenticeship is superficially understood in apprenticeship, as there is no formal discourse such as the Socratic method or classroom teaching lecturing (Lave & Wenger, 1991). In apprenticeship, the discourse of practice is often characterized as learning how to talk and be silent like experts participants, also referred to “talking within practice” (Jordan, 1989). While talking “about” practice is a social endeavor, talking “within” practice provides direct support to communal forms of reflection, as well as membership evaluation (Lave & Wenger, 1991). For the novices, storytelling is often used a form of communication to describe problem solving episodes and scaffold their identity as they gradually become acculturated in the community of practice (Jordan, 1989; Orr, 1987).

The fourth characteristic of LPP refers to how identity and motivation are generated as novices move toward full participation. While the acquisition of knowledge is important, participation in the CoP provides a formative source of motivation and acculturation (Lave & Wenger, 1991). Because participation in apprenticeship includes both interacting with practitioners and engagement in all aspects of work in a firm, through LPP novices develop an
understanding of the field and identify their own future in it. This personal perspective is an initial form of membership within the CoP and signifies a motivational step in the acculturation of the novice. In this context, increasing participation means greater commitments of time, responsibilities, and expectations of production but more importantly a growing sense of identity. That is, the goal of learning through increased participation may not be directly linked to identity and motivation, but it becomes an implicit part of the gradual process of acculturation through LPP (Lave & Wenger, 1991).

Finally, transformation of practice in LPP context refers to how novices gradually acculturate to become entry-level experts in the community of practice (Lave & Wenger, 1991). In the continuum of expertise, there is an interrelated contradiction in the relationship between novice and expert established by the differences of power, knowledge, and skills (Lave & Wenger, 1991). This relationship is a characteristic of all learning and is a basic framework for social reproduction, transformation, and change (Goody, 1989; Lave & Wenger, 1991). The reproduction of practice by the induction of new practitioners is at the core of the acculturation process (Lave & Wenger, 1991). To establish their own work identity, novices participate in the existing practice in order to understand it and to become full members of the community. The formation of identity is central to the acculturation process and fundamental to the concept of LPP. Hence, Lave and Wenger (1991) argued that apprenticeship learning is a transformation process underlined by the gradual acculturation of novices into the community of practice.

The process of acculturation as transformational learning by participating in community of practices has been documented in education, sociology, and anthropology (Farnham-Diggory, 1994). There are descriptions of teachers (Doerger, 2002), machinists, (Madono, 1998), tailors, (Lave & Wenger, 1991), midwives (Lave & Wenger, 1991), and others being inducted into
community of practices situated in workplace settings. However, there are few descriptions of inductions into professional practice cultures such as nursing (Cope & Cuthbertson, 2002) and no examples of induction into architectural practice.

**Conceptual Framework**

Comprehensive models of learning suggest a tripartite construct consisting of curriculum, instruction, and means of transformation (Farnham-Diggory, 1994). Hence, a comprehensive model of apprenticeship learning should combine curricular content determined by the needs of the community of practice (CoP) (Wenger, 1998), instructional means appropriate to the apprenticeship experience (Brown et al., 1989), and a process of acculturation to induct the novice into the world of the expert (Lave & Wenger, 1991). Thus, the conceptual framework builds upon three conceptual strands to inform the study.

The first strand of the conceptual framework accounts for the nature of the apprenticeship experience from a curricular perspective. At its core, the apprenticeship experience is first situated in the context of curriculum defining the practice of the professional community (Wenger, 1998). In short, what is the apprentice expected to learn? In the study, the expected knowledge and skills emphasized in the apprenticeship were examined using two lenses: the Intern Development Program (IDP) curriculum and the actual expectations of the community of practice. As noted above the IDP represents the official curriculum in four areas of practice: Design and construction, construction contract administration, project management, and other related activities. Each category is further organized into subcategories relevant to the primary domain. An intern is required to establish a personal account with the NCARB and record a total 5600 hours required for completion of the IDP through the NCARB web site (NCARB, 2011) (Appendix A). In turn, the explicit and implicit expectations from the community of practice
provided a comparative frame of reference. This approach allowed the description of what is actually emphasized in practice to determine how the curriculum is actually enacted and organized (Doll, 1993; Resnick & Resnick, 1985). The study recognized the explicit knowledge of the IDP categories as curricular but also included implicit understandings of curriculum emphasized in the architectural firm (i.e., community of practice).

The second strand of the conceptual framework focuses on how the curriculum is taught by examining the instructional strategies using the tenets of cognitive apprenticeship as a frame of reference. Cognitive apprenticeship represents a constructivist approach to instruction whereby an experienced practitioner, through mentorship strategies, facilitates the skills development of a novice learner who is referred to an apprentice (Collins et al., 1991). Specifically, cognitive apprenticeship calls for an approach to instruction including the following strategies: Modeling, coaching, scaffolding/fading, articulation, reflection, and exploration (Brown et al., 1989; Collins et al., 1991). The overall notion of cognitive apprenticeship and specific instructional strategies provided a frame of reference to describe the nature of the apprenticeship experience in the study.

In turn, the third component of the conceptual framework examined the process of cultural induction to help the apprentice progressively become a full member of the community of practice. The process of acculturation was studied using the notion of legitimate peripheral participation (LPP) suggesting that novices in a community of practice learn by being allowed to take part in different aspects of practice and gradually acculturate into full participation (Lave & Wenger, 1991; Wenger, 1998). As such, novices and experts are often described as being from different worlds, with the world of the expert defined by full participation in the community of practice (Farnham-Diggory, 1994). Although LPP is not an instructional approach per se, it
represents a way for understanding learning as a process of acculturation into practice through progressive engagement in activities that define the CoP (Lave & Wenger, 1991). In this regard, how are the interns progressively acculturated into the community of practice?

Together, the three conceptual strands involving an examination of the underlying curriculum, instructional approach, and process of acculturation, should also facilitate an understanding of the totality of the apprenticeship experience as a holistic induction process. The interface of the conceptual strands in the framework informing the study is illustrated in Figure 1.

Given the fact that the architectural practice providing the context for the study is recognized for the quality of the apprenticeship experience, a close alignment between the official IDP and enacted curriculum was expected. Similarly, it was also expected the instructional approach to be aligned with the tenets of cognitive apprenticeship and the process of acculturation with the principles of legitimate peripheral participation. Overall, the induction experience should facilitate the gradual participation of apprentices into the community of architectural practice.
Figure 1. Conceptual framework bridging curricular, instructional acculturation, and overall induction experience components.
CHAPTER 3

METHOD

The purpose of the study was to describe the nature of the architectural apprenticeship experience from a curricular, instructional, social, and transformative perspective to help interns move from novice status to entry-level expertise in architectural practice. The study was guided by the following research questions:

1. What is the nature of the apprenticeship experience from a curricular perspective?
2. What is the nature of the apprenticeship experience from an instructional perspective?
3. What is the nature of the apprenticeship experience as a process of acculturation?
4. How does the totality of the apprenticeship experience facilitate the induction of architectural apprentices?

The nature of the apprenticeship from a curricular perspective refers to knowledge, skills, and competencies emphasized during participation in the internship. From an instructional perspective, the focus is on the pedagogical means for promoting learning of target knowledge, skills, and competencies. Further, the process of acculturation is defined as the explicit and implicit organizational supports and strategies to help the interns learn and adopt the habits and values of the profession. Finally, the induction of apprentices refers to how novices can progressively become full members of an architectural community of practice.

Research Design

To meet the study purpose and inquiry, a case study research design was used. A case study is a form of qualitative inquiry involving a detailed examination and description of a
phenomenon of interest (the case) in the context of its situational conditions and boundaries. A case study is often used to describe interactions, actions, practices, and other issues of individuals or small groups in a context of interest. As such, the emphasis of case study research is on exploration and description (Yin, 1994). Further, in a case study, the primary unit of analysis often includes embedded subunits (e.g., different groups) requiring a cross-analysis to fully describe how they are interconnected in the overall case (Darke, Shanks, & Broadbent, 1998). Under these premises, a case study is suited for studying a complex social phenomenon such as apprenticeship and allowed for the description of the nature of participation taking into consideration the context of the host firm (Darke, Shanks, & Broadbent, 1998). To this end, the case study focused on an architectural apprenticeship deemed as exemplary for an in-depth and rich description of the interns’ experience from a curricular, instructional, cultural, and transformative perspective. Specifically, the case study explored and described the nature of the apprenticeship experience from the perspectives of three stakeholder groups: the interns, the mentors, and the members of the community of practice (CoP).

**Case Study Selection**

An architectural practice recognized as offering exemplary internships was identified and selected as the unit of analysis (the case) in the study. In the midst of the increasing uncertainty of architectural apprenticeships there are professional architectural practices where the apprenticeship process is deemed successful. The success of the architectural apprenticeship process is validated through the Intern Development Program Advisory Committee (IDPAC). Established in 1991, the IDPAC annually recognizes architectural firms from across the country that successfully apply the IDP and demonstrate their commitment by making the path to licensure an integral part of the firm’s culture of practice. A jury comprised of representatives
from the various IDPAC member organizations, selects and designates firms with exemplary internships based on evidence of quality in the following categories: (1) mentoring, (2) supervising, (3) training, (4) commitment to IDP, (5) support of ARE, and (6) other outstanding practices.

From this pool of exemplary apprenticeship sites a case was selected based on current number of interns, firm location, and the firms’ willingness to participate. Nominated firms were contacted to verify the number of apprentices currently participating in the Intern Development Program (IDP) and the willingness of the architectural practice to participate in a case study. The number of participating interns and their distribution along the IDP process served as an important criterion for the selection of the firm. This was based on a minimum population of three interns with an intern located at the beginning, the middle, and the end phase of the apprenticeship (IDP) process. This continuum of sampling represents the three years or 5700 hours of contact time defined by the requirements of the IDP and allowed for the experience of apprenticeship to be studied at different stages in the process of apprenticeship. Regional location of the case was also a consideration based on travel time and budget as well as the firms’ willingness to participate in the study.

Once the case was selected and on board for participation, key stakeholders were identified for participation in the study including three groups: principals of the firm, the assigned mentor(s), and the interns. The primary contact with the firm, as well as the firm’s public information (e.g., firm’s web site), served as the sources for identifying the principals of the firm. Mentors were identified by the assignment to the intern as a specific requirement of the IDP. The interns were identified based on their timeline of participation in the apprenticeship. In turn, other key members of the CoP were located through snowballing techniques during the
interviews with the interns and mentors at the case study site. The inclusion of these four embedded groups in the case study provided for triangulation of data sources and perspectives on the apprenticeship experience (Creswell & Miller, 2000). Conditions and assurance of confidentiality was articulated with all participants in the process of securing access and at the onset of participation in data collection.

**Data Sources and Instruments**

The study explored, analyzed, and described how the participants experience the apprenticeship in the context of professional architectural practice. Data collection relied primarily on interviews and was complemented with field notes, review of relevant documentation, and physical artifacts as noted below for each research question. This strategy allowed for data triangulation and enhanced the integrity of the findings (Yin, 1994).

**Research Question One**

The first research question sought to describe the nature of the apprenticeship experience from a curricular perspective. That is, what knowledge, skills, and dispositions are emphasized in the internship experience? The sources of information for this question included interns, mentors, and other members in the community of practice in the firm for triangulation purposes. To this end, an interview protocol was used to gather data on question one from the identified stakeholder groups as presented in Appendix B. The interview protocol was aligned with the conceptual framework and structured around open-ended questions to gather perspectives on the shared understanding of knowledge, skills, and dispositions that are valued at the firm.

Complementary data sources included field notes and review of relevant documentation and physical artifacts (Yin, 1994). For example, the IDP was a key document that was examined as it represents the nature of the intended curriculum to be learned and how it should be
organized. In this regard, an understanding of what an architectural apprentice is expected to learn is explicitly defined and organized by the four categories and 16 subcategories of the IDP (see Appendix A). As such, the IDP represented a primary data source of target knowledge, competencies, and expectations. In addition, field notes were generated through observations of details, actions, or subtleties of the site environment. Written field notes and audio notes were made and recorded during each site visit. In turn, a review of the firm’s internal documentation including office manuals and standards of practice were also examined to explore research question one. This included a review of public documentation of the firm such as reports, marketing material, web site information, and physical artifacts (e.g., documentation of past projects) that the interns participated in.

Research Question Two

The second research question was concerned with the nature of the apprenticeship experience from an instructional perspective. In this instance, the focus was on documenting the instructional strategies and process to facilitate the learning of target knowledge, skills, and competencies during the apprenticeship. For this question, the primary sources of information included the interns, mentors, and other members of the firms for data triangulation. For this purpose, an interview protocol aligned with the conceptual framework was used to facilitate the interviews (see Appendix C). The interview protocol was structured around open-ended questions to gather shared perspectives on the nature of instructional strategies and interactions characterizing the internship experience to help interns develop entry-level expertise in the profession.

Complementary data sources included field notes and review of relevant documents such as communications between mentors and interns and project artifacts reflecting the contribution
of interns to determine the types of instructional means used in the internship. Other
documentation such as office manuals and reports also served as data sources relevant to
question number two.

**Research Question Three**

The third research question sought to elucidate the nature of the apprenticeship
experience as a process of acculturation. The goal was to understand the nature of the social and
organizational supports and strategies facilitating the processes of acculturation within an
exemplary architectural internship to help the interns learn and develop the habits and values
characterizing the profession. Thus, to document the factors, strategies, and mechanisms of
acculturation, data sources included stakeholders’ perspectives along with field notes and review
of relevant documents. To this end, an interview protocol aligned with the conceptual framework
was used to facilitate interviews with mentors, interns, and key members in the firm. As outlined
in Appendix D, the interview protocol was based on open-ended questions to develop a shared
understanding of the internship experience as a process of acculturation into the world of
architectural practice. For example, what are the formal and informal strategies to help interns
learn the norms and values of the architectural firm? In addition, relevant documentation (e.g.,
internship reports, annual reports, firm’s events) was reviewed. This was complemented with
field notes relevant to formal and informal means of acculturation.

**Research Question Four**

The fourth research question called for an analysis of the totality of the apprenticeship
experience as a transformative induction process. To address this research question, a two-
pronged approach was used. First, interviews were conducted with interns to ascertain their
views on the process of becoming a practicing architect. For this purpose, an interview protocol
aligned with the conceptual framework was used to facilitate interviews with the interns as outlined in Appendix E. The interview protocol was based on open-ended questions to develop an understanding of the interns’ views on the totality of the apprenticeship experience as a transformation process helping them move from novice to practicing architects. The complementary strategy relied on an overall analysis based on data resulting from questions 1-3, to describe the alignment of curriculum, instructional means, and acculturation strategies supporting the induction of interns into the architectural profession.

**Pilot Study**

A pilot study was conducted prior to the start of the actual research study to get practitioners’ feedback on the interview protocols. The cooperation of local architects was sought for this purpose. To this end, two architects with at least five years of experience were selected to review the interview protocols in order to provide feedback on the nature of questions and on related data collection strategies. Additionally the actual research questions were asked in a context of a mock interview. Based on the resulting feedback, no modifications were made to refine the protocol structure and/or specific questions.

**Data Collection Procedures**

Typical of case study research, data was collected over a period of time consisting of 2 site visits of 1 day per visit. Planned data collection procedures were mindful of the use of the participants’ time and work schedule. Once the case study site was selected data collection procedures were organized in three stages including preliminary data collection, first and second site visits, and potential follow-up visits.
**Preliminary Data Collection**

Once commitment for participation was settled, documents articulating the informed consent to participate in the research study were exchanged with the firm’s principals prior to the first site visit. Also, prior to the first field visit, a short questionnaire was used to profile the firm, the current interns, their assigned mentors, and their assigned supervisor. The firm’s principal contact or a designated person was asked to complete the short questionnaire. This information was used to set the context for and plan site visits.

**Site Visits**

The goal of the initial site visit was to identify and establish rapport with key stakeholders and study participants, conduct interviews focusing on research question one and two, and gather relevant documentation about the firm and internship program.

During the first phase of the visit, individual interviews were conducted with the assigned IDP supervisors(s), assigned IDP mentor(s), and interns, using the interview protocol for research question one and two (Appendix B and C). Informed consent to participate in the study was obtained from each participant prior to conducting the interview. All interviews in the study were audio recorded and were transcribed for data analysis.

The second day of the site visit focused on interviewing mentors, interns, and other CoP members with the goal of addressing research question three and four using the corresponding interview protocols (Appendix D and E).

Field notes were made during the site visits to describe the social and physical setting of the firm as suggested in the case study literature (Dube & Pare, 2003). Field notes also supplemented the preliminary demographic and firm profile data acquired in the initial questionnaire. Additionally, during the visits, relevant documentation about the firm and
internship experience was collected. To wrap the site visits up, an exit meeting was arranged with the firm principal at the end of day two. The exit meeting also served as an opportunity to either arrange a follow up site visit or identify ways to gather additional data using other means (e.g., phone, email, Skype).

Follow-up Procedures

Upon completing the site visits, interview data was transcribed, organized, and coded to conduct a preliminary analysis. This initial analysis was complemented with data gathered through field notes and review of relevant documentation. This initial analysis was used to identify data gaps and/or areas requiring further clarification to confirm emerging findings. Based on the extent of data gaps and needs for clarification, it was determined that a subsequent site visit would not be necessary.

Data Analysis

All interviews were digitally recorded and full transcripts of each interview were produced. The interview transcripts constituted the primary data for the study and the analysis consisted of three concurrent activities: data reduction, data display, and conclusion drawing/verification. Data reduction consisted of selecting, simplifying, abstracting, and transforming the case data (Darke, Shanks, & Broadbent, 1998).

For question one concerned with the connection to curriculum, the analysis focused on the triangulation of perspectives from interns, mentors, and other members of the firm; and the alignment with the prescriptive curriculum of the IDP. For question two about instruction, the analysis used the tenets of cognitive apprenticeship as a frame of reference to determine the nature and extent of the discrete stages referred to as modeling, coaching, scaffolding/fading, articulation, reflection, and exploration (Brown et al., 1989; Collins et al., 1991). For question
three about acculturation supports, the analysis used the principles of Legitimate Peripheral Participation (LPP) as a frame of reference focusing on the structuring of resources, the degree of transparency, discourse of practice, identity and motivation, and the transformation of practice (Lave & Wenger, 1991). For question four about the overall induction into practicing architects, the analysis focused on the interns’ perspectives complemented with perspectives associated with questions 1-3 (Brown et al., 1989; Wenger, 1998).

In turn, data display involved visual organization to enable analysis and interpretations. The process of data display rearranged and placed evidence in matrixes, charts, and tables. Thus, where appropriate, data was reduced and presented in graphic form including tables and lists. Finally, conclusion drawing/verification involved extracting meaning from data and building a chain of evidence. This process included the coding of data into categories identified in the context of the propositional conceptual framework and tabulating the frequency of different events in order to produce a coherent presentation of the case data (Darke, Shanks, & Broadbent, 1998).
CHAPTER 4
FINDINGS

To recap, the purpose of this study was to describe the nature of the architectural apprenticeship experience from a curricular, instructional, social, and transformative perspective to help interns move from novice status to entry-level expertise in architectural practice. To address the purpose, I used the following research questions:

1. What is the nature of the apprenticeship experience from a curricular perspective?
2. What is the nature of the apprenticeship experience from an instructional perspective?
3. What is the nature of the apprenticeship experience as a process of acculturation?
4. How does the totality of the apprenticeship experience facilitate the induction of architectural apprentices?

To set the context for the findings, this chapter is introduced with a brief profile of the architectural firm and participants in the study. The findings for each research question are presented next describing themes identified through the corresponding data analysis.

Organizational Context: Profile of the Firm and Study Participants

Firm Profile

The “Firm” providing the context for the study was a professional architectural company offering architecture, interior design, planning, and graphic design services. Located in a medium sized city in a Southern state, the Firm serves local and regional clients. The Firm’s client base is comprised primarily of institutional and government clients with architectural projects including college buildings, public buildings, and military base planning. Generally the designs are
traditionally conceived and developed for long-term institutional investments and assets. The father of the Firm’s president started the Firm in 1977 and as a result, the Firm’s ownership and leadership tacitly expressed a strong familial and stable dimension.

Having won the Intern Development Program (IDP) Outstanding Firm Awards two times in recent years (the 2008-2011 term and the 2011-2014 term), the Firm has been recognized as providing exemplary apprenticeship experiences. As such, in its promotional literature, the Firm described and promoted itself as the Firm “Academy” rather than a regular internship program. The effectiveness of the intern experience may best be exemplified by the fact that the Firm has never hired an outside architect. That is, all the registered architects working in the Firm are graduates of the Firm Academy and this outcome represents a tangible measure of the internship’s success within the Firm.

The Firm is considered a small medium size practice with 20 people in the main office and two people in a satellite office located in another part of the state. The demographic composition of the Firm consisted of senior principals, a diverse tier of middle mangers and a robust intern population. At the time of the study the firm had six interns in the IDP program. The Firms principals selected the three interns that were interviewed.

The Firm’s office was housed in a renovated home located within an historic garden district in a medium density setting comprised of predominantly historic structures. This home-like setting engendered an informal and familial atmosphere with space that was adaptive to the needs of the office. The environment communicated a sense of openness and warmth with a welcome sign greeting the visitors from the crushed stone parking lot. Further, the office staff was unguarded and transparent. There was never hesitation for extending hospitality beginning
from the initial phone and email coordination to the case study site visit. There was a palpable willingness to help.

During the coordination period prior to the site visit, the staff was familiar with the schedules of the office personnel and project workflow within the office. The Office Coordinator was fully aware of the cohort of intern’s schedules, experience, and the current and projected assignments for each intern to meet the office workload. In other words, she (the Office Coordinator) was integral to the culture of the office as she was also aware of the senior principal’s appreciation, value, and interest for architectural education and his support of the proposed project.

Firm Principals, Mentors, and Interns

The organization of the Firm consisted of a senior principal, firm principals, project managers, intern architects, and support staff including a director of development and an office coordinator; all structured in a normative office hierarchy.

The senior principal of the Firm, who will be referred to as Harry, served as the assigned supervisor for all the interns. He held a Bachelor of Architecture degree from a state university, had 40 years of professional experience, and held multiple positions with state and local chapters of the American Institute of Architects. As a result Harry was knowledgeable of programs and proposals being posited across the country regarding the administration of the IDP. Additionally Harry felt a strong moral and ethical obligation to develop individuals in the context of work and professional life.

The assigned mentor for all interns, who will be referred to as Dan, was a project manager in the Firm and held a Bachelor of Architecture degree from a major state university. In 2010, Dan passed the Architectural Registration Exam (ARE) and had relevant and current
knowledge of related preparation requirements useful to the cohort of interns. Upon meeting Dan, it was obvious that he had the ability and personality to relate to and nurture the interns. In this regard, Dan demonstrated a curious and creative personality including his ability to draw connections that linked interns with the necessary requirements of the IDP to actual work related experiences. Dan explicitly expressed his personal sense of responsibility to maintain the continuity of the internship leadership being passed down from Harry.

In addition to Dan, there was an individual from the Firm who was mentioned by all the interns as serving as an “unassigned” mentor. This person, who will be referred to as John, was a principal in the Firm with a Bachelor of Architecture degree from a major state university and 20 years of experience. John was direct in his communication and was highly organized. Additionally he was protective in maintaining the continuity of the Firm’s legacy regarding exemplary internships. Both Dan and John had been interns in the Firm.

About the interns participating in the study, Intern One, who will be referred to as Dennis, was completing a Bachelor of Architecture degree and a Minor in Business from a major state university. Dennis had a strong personality that was enthusiastic and outwardly ambitious. At the same time he openly displayed and expressed deep gratitude for being an intern within the Firm. Dennis was at the beginning of his internship with the Firm. Intern Two, who will be referred to as Stephen, held a Bachelor of Architecture, a Bachelor of Interior Architecture, and a Master of Community Planning degree from a state university. Stephen was an insightful, critical, and holistic thinker. Stephen was midway through this internship with the Firm. Intern Three, who will be referred to as Joe, held a B.A. Architecture degree from a state university. Joe displayed a quiet and compliant personality. Joe was at the end of his internship with the Firm.
Nature of the Internship Curriculum

The first primary question driving the study was concerned with understanding the nature of the apprenticeship experience from a curricular perspective. The purpose of this question was to help determine the curriculum emphasis, and the alignment between IDP expectations and enacted curriculum. Upon completing the data analysis on this question, I was able to identify five themes as summarized in Table 1.

Table 1

Summary of Themes on the Nature of the Internship Curriculum

<table>
<thead>
<tr>
<th>Research Question 1</th>
<th>Theme</th>
<th>Characterization</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the nature of the apprenticeship experience from a curricular perspective?</td>
<td>Coherent Curricular Expectations</td>
<td>The curriculum emphasis of the internship at the firm was coherently aligned with the IDP curriculum. As such, coverage of all-aspects of practice was evident as a coherent curricular approach.</td>
</tr>
<tr>
<td></td>
<td>Relational Curriculum Implementation</td>
<td>The curriculum was organized and implemented in a relevant and relational manner to help interns understand the parts and the totality of architectural practice.</td>
</tr>
<tr>
<td></td>
<td>Recursive Curricular Process</td>
<td>The curriculum represents a process with recursive learning experiences to produce balanced and summative understandings in all-aspects of architectural practice over the 3-year internship.</td>
</tr>
<tr>
<td></td>
<td>Rich and Rigorous Curricular Experience</td>
<td>The curriculum was characterized as rich and rigorous due to the combination of learning experiences requiring the production of the interns' own knowledge in the context of meaningful and challenging work.</td>
</tr>
</tbody>
</table>

Coherent Curricular Expectations

One of the goals of the study was to determine the curricular emphasis of an exemplary firm. That is, what would the firm emphasize in the internship? In this regard, the curriculum emphasis of the internship at the firm was coherently aligned with the IDP curriculum. The curricular emphasis was driven by IDP expectations (communicated on the Firm’s brochure) and organized around key areas of architectural practice: Schematic Design, Design Development,
Construction Documents, Bidding and Negotiations, and Construction Administration. In addition to experiences relating directly to architectural production, the IDP curriculum also included community service.

In general, the curricular emphasis set by the IDP was integral to the Firm’s expectations for interns. That is, the Firm’s understanding of the expected content emphasis coherently aligned with the IDP expectations and was implemented through an “all-aspects-of-architectural-practice” approach. The coverage of all-aspects of architectural practice was evident as a coherent curricular approach based on the input from interns, mentors, and principals of the Firm. This was essentially the consensus of all participants and exemplified by the following perspectives:

It’s project related in that we involve an intern on a project. They (the Interns) don’t just contribute to a piece of it, they contribute to the entirety of the project. So, going to the interview to completing a construction project the interns are involved in tasks that give the experience of the whole project and the requirements of the IDP. Now on the business development side of it, when you travel and you’re going to a project with somebody, maybe you stop off and call on a few people. It’s not hidden, there’s no black box there. (Dan, Primary Mentor).

Another example is just the staffing of the office in general. Everybody is involved in staff meetings. Here are the projects that are ongoing, here are our deadlines, so and so is helping me on this project but I feel comfortable that we can meet our deadline so I can let him get off our project for a week and work with your team. Everybody’s involved in that process even the interns. It’s not just principals managing staffing and assigning projects it’s an interaction. (Dan, Primary Mentor)

If I was focused on one particular aspect of a job, I don’t know that I would enjoy it as much. So seeing…seeing from the beginning to the end, there’s something really fulfilling about that. (Stephen, Intern Two).

As gleaned from the voices of the participants, there was no discrepancy between expected and enacted curriculum. Meeting the IDP curricular expectations was ingrained in the culture of the Firm and the use of the “all-aspects” of practice approach ensured that the expectations of the IDP were met. The primary curricular vehicle for alignment and
implementation was a project-based approach grounded in “all-aspects” of architectural practice. The goal of this approach was to have the intern participate in the various aspects of architectural projects during the three-year internship. To this end, and as noted by participants, the requirements of the three-year IDP curriculum were not sequentially distributed as they are officially listed but rather systematically deployed through the context of actual architectural projects and the overall production demands of the Firm. As such, all contributing work to meet the set hours of the IDP was documented by regular summative and formative assessments.

**Relational Curriculum Implementation**

The term *relational curriculum* refers to the relevant order and meaning that must be present in the curriculum to help learners understand the parts and the totality of the learning experience (Doll, 1993; Hunkins & Hammill, 1994). In this regard, the internship curriculum at the Firm appeared to be organized and implemented in a meaningful relational order to help interns understand the parts and the totality of architectural practice as called for actual projects. The relational importance of the IDP scope within architectural practice and culture of the Firm was evident and was reported consistently by the majority of the Interns as characterized by Joe:

> And what’s great here. While you’re an intern, they want you to learn everything. They don’t want you to just get stuck in National Guard projects or postal work or higher education or whatever it might be, they want you to experience everything. So, once you do kind of mature and learn and you get a little more situated in one of these project management roles, you still have knowledge of the other types of projects. (Joe, Intern Three)

Other factors that reinforce the relational emphasis of curriculum included the time when an intern joined the Firm. Because interns entered the sequence of the design process through happenstance, interns were assigned to a project(s) based on the current office workload and not based on discrete particular tasks defined in the IDP curriculum. This means that an intern could enter into the project anywhere between schematic design concepts to building construction.
administration, which are both IDP categories. Both mentors reported the relational significance of timing as exemplified below:

Your timing has a lot to do what’s going on in the firm, therefore there will be opportunities that are there, some get big opportunities sooner than others. (John, Informal Mentor)

The goal is during the three-year IDP internship process that you learn start to finish project management. So I learned a lot about construction administration in this first three months, because I started attending Owner / Architect / Contractor meetings with one of our principle architects to assist him and to start learning that aspect. So it really, it’s going to depend on the workload in the firm, when that person joins, and what projects they’re associated with. (Dan, Mentor One)

In this context, a comprehensive architectural project embeds all requirements of the IDP, so the needs of the Firm to produce the architectural work intersected and combined the needs of the Interns to complete the discrete curriculum called for by the IDP. This distribution of human capital across multiple projects and timelines created a highly relational experience for the Interns. For example if an intern needed a particular credit in an IDP category and the project he/she was assigned to did not offer that opportunity at that time, the intern supervisor or mentor assigned the intern to another project so any outstanding IDP requirements could be completed. These actions were systematic adaptive, ecological, responsive and were intended to meet the needs of Interns and the Firm within and across projects. This relational understanding was reported by all Interns, and best summarized by Joe:

So, if we have a big project in the firm that needs help, you can move over and assist because you’ve worked on a project like that before. So you have prior knowledge and you can help. (Joe, Intern Three)

In order to achieve this level of relevancy the Supervisor, Mentor, and the Interns were keenly aware of the IDP requirements and the progress each intern was making completing the necessarily IDP requirements. Additionally, both supervisor and mentor maintained current
knowledge of the IDP requirements on both state and national levels. To this end, Dan offered the following perspectives to illustrate this point:

Even though [Harry is] very knowledgeable in it and he can still do it at a very high level. And that’s also transitioning now on a state level, he’s stepping out of the IDP licensing advisor role and I’ve taken that over as of a couple months ago. (Dan, Primary Mentor)

As further evidence of the relational emphasis, the Firm observed a balance between immediate and long-term needs of the practice and the interns. That is, balancing a focus on both the production of architecture for the sustainability of the Firm and providing the commensurate IDP experiences to fulfill the requirements for the Interns. The value of this relationship is long-term because the successful completion of the IDP by interns and subsequent passing of the national exam increased the firm’s rating for future work based on the number of licensed architects in the firm. As Dan noted:

The more architects we have, the better we look for some of the institutional clients. If we have, you know, 15 architects versus three architects and 20 drafts people. That looks better. So some of it’s somewhat selfish, but also that’s what Jimmy wants, that’s how he wants it. (Dan, Primary Mentor)

To promote the relational emphasis of the interns’ experience, a consistent firm-wide dialogue was a visible vehicle for assessing the needs of the firm and relating this information across projects with the emphasis on project management. This included placing interns in roles of project management immediately. Assigning the identity of project manager to the interns further reinforced the importance of the project as well as relating the identity of the intern to the project (curriculum). This perspective was prominently reported and exemplified by the following quote:

The firm promotes and wants every intern to be project managers. They push for you to jump in, learn it, learn it in the trenches and become a project manager as soon as you can to handle your own work and your own load. And learning from that was awesome. Like that’s what brought me here was just that immediate responsibility that you were exposed to. (Dennis, Intern One)
Recursive Curricular Process

The notion of a recursive curriculum if typically associated with a process where important content and expectations are consistently distributed and balanced through the space and time of the curriculum (Doll, 1993; Hunkins & Hammill, 1994). At the Firm, it was evident that the internship curriculum represents a process with recursive learning experiences that produced balanced and summative understandings in all-aspects of architectural practice. There were many examples of reoccurring experiences presented within the internship curriculum as the interns participated over a three-year period. Below is an example of this perspective.

So, over the two and three years you’re garnering more skills and more ability to manage bigger projects and then by the end of two or three years, we expect you to be able to do just about anything, from a project size and complexity standpoint. We’ve got one intern that’s basically managing our biggest project in the office right now, and I think he’s been out of school a year and a half. (Dan, Primary Mentor)

In the end, the interns continued to recursively move through projects until the prescriptive phases of the IDP were met. This cycle or “looping” of the learning objectives (IDP) within a changing context of different projects appeared to be obvious and visible for all contributing parties. This emphasis was essentially behind the idea of practice in all-aspects of related work as the basis for the development of progressive expertise and the opportunity to apply knowledge and skills across project contexts. This perspective is illustrated by one of the interns as follows:

I don’t see how someone can learn by doing the same thing. Oh, like say I’m on a project like the same person doing the same phase of a project. One thing that I was so impressed with here is they bring you in, like straight from beginning and following the project all the way through completion. Right? And whether you struggle, fail, whatever like you're learning that process. Everything’s a process. And that that's what’s awesome and how I'm kind of starting myself the process of…of this sort of small project management, but still I’ve worked on multiple phases of certain projects. So it’s awesome. (Dennis, Intern One)
As a result, the recursive nature of the curriculum provided an emphasis of knowledge transfer from different contexts vis-a-vis different projects. As such, it was reported that Interns were aware of specific IDP needs and therefore were encouraged to request particular assignments across the project workload to fulfill the IDP requirements. The opportunities for recursive participation in specific tasks to construct personal knowledge by the Interns was often reported as heard from John below:

The first year mark would be to get somebody involved in a number of different projects to get them experience, as best we can, across every facet, every stage of the process with hopes that by one year, finding the opportunity to have a project management role on a small project. As you progress in the project from start to finish, then you get a bigger set of skills and are more comfortable to go to a bigger project. Before the first year, we try to do what we’ve called our junior project manager. Our junior project manager is where we get the intern associated on a project with a more seasoned architect to go with them to project meetings, to go with them to construction meetings and just kind of observe the process and slowly gather more responsibility. So that’s usually in that first year, which is part of the way we equip the intern to be able to manage something on his or her own. (John, Informal Mentor)

Rich and Rigorous Curricular Experience

The internship curriculum at the Firm was also characterized as rich due to the combination of learning experiences requiring the production of the interns’ own knowledge in the context of meaningful and challenging work. A curriculum is thought to be rich when it seeks to provide meaningful experiences for all the participants to help them expand and/or produce their own knowledge (Doll, 1993). To that end, richness involves an invitation and openness for participation in the negotiation and construction of meaning (Doll, 1993; Wenger, 1998). The experience of curriculum at the Firm was a rich and dynamic balance between structure and anomaly, established needs and emergent needs, summative and formative assessment, and finally the needs of the Intern and the needs of the Firm. To this end, as reported by Harry, interns were provided exposure to multiple project types and all phases of the project:
We don’t have the schematic design department, the design development department, the bidding and negotiating department, or the construction phase department. If you’re the project manager, and I don’t care if it’s re-roofing a post office, you’re the project manager, you’re responsible to that client, you answer to him and you are the project manager from the time we go to the interview to the end inspection. Anything goes wrong, you find out, you…you find out what’s… They’ve going to call you. And then if… If you don’t know what to do, then you come see the principal and you get it. So that’s really the essence of the system. (Harry, Supervisor)

Under these premises, the Supervisor and Mentors consistently expressed the desire for the Interns participate in their own administration of the IDP management to ensure they have a rich experience. In this case, the entire Firm was motivated by the goal to promote full participation in architectural practice bridging the IDP in the context project work. The following is an example of this perspective:

Well, it’s obviously expected that they fill out their IDP Periodic Assessment Forms. We encourage quarterly, just to make it a little easier, so we have better opportunities to keep up with it, it’s easy for the intern to record it accurately. So it’s expected that they do that without involvement from us. I’ve tried to keep a calendar of when reports have been submitted and then try to keep up with that so I can encourage them to do that if they seem to be a little behind. But we expect them to be self-motivated and fill those out and send them in. (Harry, Supervisor)

We usually spend the better part of a day with an individual trying to get a feel for how would they fit in with our workforce. Because we work together a lot and project managers will often draw toilet details and the minutia of a set of drawings just as much as they’ll do the schematic design parts of it, so we all pitch in on every project so somebody who’s willing to both take a leadership role but also take…take the not-so-fun roles when times call for it. (Dan, Primary Mentor)

Also, meeting the needs of the Interns happened within and independently outside the Firm, and increased the richness of the internship experience. While many architectural firms prohibit “outside moon lighting work” for liability reasons, the Firm supported the interns’ independent development (i.e., enrichment) if presented in a transparent manner. The Firm’s equal probity toward “outside work” is evidenced in the following quote:

An intern came to me one day and said: I need some code help. I said sure. He said, well, I’m doing a kind of on the side project, can we look at it after work one day? I said, okay,
sure. And it turned out he’s helping a non-profit organization with a small renovation project that somebody told him they needed an architect to look at. So, again, it’s that self-motivation. He’s found something that was important to him and he’s giving back to the community using his skill and talents and that’s a really good sign, a good metric. (John, Informal Mentor)

In turn, rigorous *curriculum* represents an evaluation qualification of the curricular experience as a challenging process of discovery (Cornbleth, 1990; Hunkins & Hammill, 1994; Wenger, 1991). In this case, the relational and recursive nature of the curriculum embedded in the context of actual architectural projects provided the basis for rigorous experiences leading to the development of progressive expertise. As noted previously, interns moved through projects involving challenging process until they could reach a manager role. Then, when serving as project managers, they would essentially have to problem-solve all aspects of project work as related tasks move along. That is, the hallmark of the interns’ experience was the involvement in real-world architectural projects moving from selected contributions to managerial role. In this regard, the Firm measured the Interns’ experience of the curriculum consistently by a system designed through purposeful planning. As Harry reported, the rigor of the curriculum structure builds around progressive project work:

The project itself is pretty important. And that’s what we try to do as soon as possible and this is kind of our system. It takes them about six months of being assigned to projects and working, to understand the system and know how to find stuff on the server and all the different files and all that kind of stuff. So, they’re learning all that stuff so It takes them about six months to get this kind of core, understanding of learning where figure out where to find everything. (Harry, Supervisor)

Thus, in order to sustain this rigor the Supervisor, Mentor, and Interns were keenly aware of the IDP requirements. For this purpose, regular summative assessment from Interns provided knowledge of the progress each Intern was making completing the necessarily IDP requirements; and to ensure they were involved in rigorous work. Harry shared the following perspective about the emphasis on rigorous experiences:
One thing that’s interesting when I review the interns progress reports on the IDP, I usually ask them to come in and say okay, how are you doing? Is there anywhere you need experience that you’re not getting? And sometimes they’ll say, well I haven’t been on any job sites or I haven’t been out very much. And I say, okay. We’ll fix that. Let’s take care of that. (Harry, Supervisor)

In general, as evidenced by the perspectives of Interns, Mentor, and Supervisor, the nature of the apprenticeship experience from a curricular viewpoint, can be characterized as being coherently implemented in terms of the expectations and content of the IDP. Further, the curriculum of the apprenticeship can be also described as relational because it is structured in a way that makes sense for Interns to help them develop an understanding of the key elements and the totality of architectural practice. In addition, the underlying curriculum may be also viewed as recursive in nature due to the multiple opportunities to learn and participate in projects so interns can continue to build on what they are learning and applying. Finally, the curriculum of the apprenticeship can be characterized as rich and rigorous given the focus on immersing the interns in authentic architectural project work.

**Nature of the Internship Instruction**

The second level of inquiry aimed to characterize the nature of the internship experience from an instructional perspective. In this regard, of particular interest was to determine and describe how the internship instruction aligned with the tenets of cognitive apprenticeship. levels of cognitive apprenticeship instruction compared with understanding the nature of the apprenticeship experience from an instructional perspective. For the purpose of this study, this question was required to determine the instructional emphasis (internship organization, instruction, and assessment) of cognitive apprenticeship with the enacted means, methods, and techniques of instruction and an analysis of the nature of the internship instruction. Upon completing the data analysis on this question, I was able to identify three themes as summarized
in Table 2: Instruction grounded on work-based learning, project-based approach to work-based learning, and instruction as a cognitive apprenticeship process.

Table 2

Summary of Themes on the Nature of the Internship Instruction

<table>
<thead>
<tr>
<th>Research Question 2</th>
<th>Theme</th>
<th>Characterization</th>
</tr>
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<tbody>
<tr>
<td>What is the nature</td>
<td>Instruction grounded on work-based</td>
<td>Instruction was characterized by a prominent emphasis on work-based learning to</td>
</tr>
<tr>
<td>of the apprenticeship experience from an instructional perspective?</td>
<td>learning</td>
<td>help interns experience all-aspects of the Firm’s practice (i.e., architectural work).</td>
</tr>
<tr>
<td></td>
<td>Project-based approach to work-based</td>
<td>The primary instructional approach in the internship was the use of projects to</td>
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<tr>
<td></td>
<td>learning</td>
<td>help interns develop progressive expertise in the context of real-world</td>
</tr>
<tr>
<td></td>
<td>Instruction as a cognitive</td>
<td>architectural practice.</td>
</tr>
<tr>
<td></td>
<td>apprenticeship process</td>
<td></td>
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</tbody>
</table>

Instruction Grounded on Work-based Learning

Work-based learning accentuates the experience of the workplace as the locus of learning that subsumes the acquisition of technical skills and is grounded in actual projects that are of importance to the community of practice (Raelin, 2000). All of the Interns participated in work-based learning resulting from engaging work experiences. Not only did these experiences intentionally and directly provide instruction to all aspects of architectural practice but also contributed to the personal and career development of the interns. To this end, the work experience was supplemented with instruction and activities that reinforced the learning that occurred during work. As a result, the interns developed attitudes, knowledge, skills, and habits that might not have developed from work experience alone. To illustrate this point John described the Firm’s commitment to work-based learning through all aspects of practice below:
We do everything from taking out the kitchen trash to the drafting of contracts or amendments. Around here we wear a lot of hats. And I think that’s a good thing, because that teaches it all, it helps the Interns become more well rounded and I believe that ultimately helps the Interns to understand the big picture better and be more prepared and understand the questions on the architecture exams. Because the questions are not just one plus one equals two, they’re application-based and…like how would you do in this, or what’s the best way to handle that? And therefore, having the opportunity to work with the Interns and teach them how to project manage is my goal to see the big picture, understand all the dynamics and variables that are going on from the contractor, from the owner, from our details, from minding engineers to how do you meet the deadlines, how do you get paid, how do you deal with sticky situations. I try to preach we’re all adults, we can sit down and have a big man conversation if we have to. You know? So, just try to prepare the Interns for what to do in certain situations to reduce their exposure. So that’s everything from drawing to specs to meetings. (John, Informal Mentor)

In addition, Stephen described the significance of the work based all aspects of practice (i.e., work) experience from an Intern’s perspective:

I think our firm is kind of unique in the fact I think the knowledge base is meant to be as sort of a jack-of-all-trades. We’re expected to know everything on a project; whether meeting with clients, working on specs, doing site visits. If it there’s something to learn, we’re expected to learn it. I don’t think there’s anyone in our office that really just stays working on one item. We may start, depending on our experience, we may get sort of focused on a particular client or a particular type of work, but it’s really covering every aspect of that work. (Stephen, Intern Two)

Project-based Approach to Work-based Learning

All of the Interns engaged in work-based learning experiences that involved complex architectural projects. Project-based learning allowed the Interns to work autonomously and to construct their own understanding by participating in actual architectural projects. More specifically, project-based learning allowed Interns to progressively develop expertise by applying skills and knowledge in the context of projects. Stephen describes how projects served as the instructional structure for the internship substantiated in the quote below:

With my Community Planning background, I’m working on two different master plan projects right now. All under the guidance of one of the principals in the office, but they just hand me the project and let me run through it and they give me examples of past work. And then the Architecture part, I’m working on both small and large projects and
Stephen continued to reflect on the importance of project-based learning as a means of personal development to understand all aspects of architectural work:

Yeah, again it goes back to the project, it’s simply that by seeing the whole range of experience as you go through in completing a project you begin to understand what sort of responsibility you have as an architect. Even the earliest decisions you make on a project have long-reaching effects. That detail that you drew when you tagged a particular item is something that’s going to have an effect somewhere. You have a great deal of responsibility throughout a project and I think that’s what I would take away. (Stephen, Intern Two)

Also, the framework of project-based learning provided the Interns the means to transfer knowledge across multiple projects. For example, Joe described below his experience of managing resources and information to solve similar problems in the context of different projects:

The project [involving management of resources and information] has given me specific skills for that specific project. If I got handed another residence hall, I think I could do it over again. I wouldn’t have to ask as many questions going through that process. Now, if I got handed a state military department project, I wouldn’t necessarily know how to do that, but I…I know the framework, I know the steps to the project and I know where to look to get an answer now. (Joe, Intern Three)

Alignment With Cognitive Apprenticeship Process

As gleaned from the perspectives of Supervisor, Mentors, and Interns, the nature of instruction followed the general tenets and process of Cognitive Apprenticeship: Modeling, Coaching, Scaffolding, Fading, Articulation, Reflection, and Exploration.

Modeling

Modeling involves the intern watching and listening an expert perform the task, thereby making thinking visible as well as hearing the expert “thinking aloud” (Collins et al., 1991). The voices of the Firm expressed a high frequency of modeling including the realization that modeling was the Firms baseline form of teaching and learning. To this end, modeling was the
most reported category in the coding of these data. As a result, the visibility of the Mentors was consciously understood within the Firm as typified by Harry below:

The selection of a mentor probably boils down to be the person has gotten to the point where he can teach others and do it well. We look for people that have kind of reached that level. Good communicators, people feel comfortable with them. The mentor he’s still really pretty young and he’s closer to their level. Of course we like to think that any one of the principals, if they have a concern or something, the interns feel comfortable in coming and talking to us about it also. So, I kind of like to think that we’re all mentors to the interns, too. (Harry, Supervisor)

Additionally, the values of the Firm were personally embodied in the culture of the Firm and were easily modeled. As such, the younger interns naturally modeled older interns as described by the senior Intern Joe below:

What he [the supervisor] doesn’t want is someone just to be working on construction documents or getting stuck doing something. I guess in my position as the senior intern, kind of doling out work. So, if I’m only doling out construction documents, that is not really fair to him (younger interns). So I’ll try to diversify that and I’ll try to do a part and give him the other parts of a project like a cost estimate or something, I’ll give that to them and walk them through it even though they don’t know exactly how to do it, I can show them how to do it so they can get experience and get familiar with it. (Joe, Intern Three)

It was also reported that the more experienced interns were expected to take on modeling roles and assignments. After working with the mentor, experienced interns would be asked to provide additional assistance to ensure the growth of novice interns. Joe described this perspective in the following quote:

So, especially the newer guys, when they first come in we focus a lot on them. Just because they’ve never done it before, they don’t know what to do. And so I guess it is trickle-down support. And so, he (the supervisor) asked me to encourage the younger interns that aren’t as active in testing. They’re taking one and then they’ll wait and then they’ll take another one and wait. She asked me to see if I could encourage them to test along with me. (Joe, Intern Three)

Within the Firm, the actions of the experts were also consistently observable and easily modeled by Interns because of the project-based work within the architectural practice. At the
same time verbalization of internal processes of conceptual and procedural knowledge was reported as part of the process to demonstrate (i.e., model) work activities. John provided reflections from his experience below:

The word that comes to my mind is just educate on a practical basis, not out of a book. This is what I’m talking about, watch this. This is what’s going to happen. I can do it riding up and down the road with the interns and tell them what to expect. I’ll say watch, watch for this, see if this isn’t how it shakes down. Maybe it will, maybe it won’t. But if it gets them thinking about the motivations on the other side; whether it’s the owner, whether it’s the user, whether it’s the contractors. I’ll enjoy that conversation time in the car coming and going, and we follow up on the way back maybe and say, what’d you think about that, did that go like you thought or what…what were you surprised on? (John, Informal Mentor)

Joe reported a similar experience of modeling and its benefits to learning from an intern’s perspective by the following:

I’m a strong believer in leading by example. So I’ll watch and see what other people are doing. Now, does that always mean it’s the best way? No. But you can get a good idea of how it needs to be done. Because everyone’s going to do things differently, I mean that’s just who we are. (Joe, Intern Three)

Coaching

Coaching is the guided help given to the novice from the expert (Collins et al., 1991).

Under this tenet, coaching assisted the Interns into the actual participation within the Firm and with particular tasks. It was recorded in the data that regular coaching from the Supervisor and Mentor was consistently provided to Interns to help them develop progressive expertise in all aspects of architectural practice. Both the Mentor and Interns described this experience below:

The other role I think I play is one of having been through the ARE more recently and being a source of information for what was hard on this test? What do I need to focus on? What other study materials do I need other than the ones that the firm has provided? Just helping and encouraging the IDP by asking them, you know, have you scheduled the test? When’s your next test? You know, just trying to gently urge the process along. (Dan, Mentor One)

Well, he's always sort been the final go-to, which I mean like the… I mean the same way he’s a principal, but…but, at the same time, he's also the one, if you have a question, he’ll
come down and sit beside you and just sit and discuss it and discuss processes and, you know, kind of mentor you like side-by-side with him and he teaches you. So that’s really awesome. (Dennis, Intern One)

**Scaffolding**

*Scaffolding* is the support provided by the expert to help the student carry out portions of the task that the student cannot currently manage (Collins et al., 1991). As reported previously about the nature of the internship experience as curriculum, the Supervisor and Mentor have discussions with the Interns to determine what they are missing in terms of practical experience or whether they need assistance for scaffolding purposes. In this regard, scaffolding played an important role in the Firm because it instilled confidence and security. Dan described his experience when he was an intern in the Firm below:

Six years ago we rewrote our office manual. We put in there kind of a sub-manual of intern architect responsibilities, so they’re explicitly put in writing and handed to a prospective employee when they agree to join the firm. Then, implicitly, just usually that junior project manager role you…the project architect will give you tasks that you’re expected to complete and those give you that experience and give you tools to do that on your own when the time comes on your projects. (Dan, Primary Mentor)

**Fading**

*Fading* is the gradual removal of the support or scaffolding (Collins et al., 1991). In this case, the Interns unanimously reported the experience of fading as they were encouraged to work independently and interdependently. To this end, supervision and support were gradually and intentionally removed. As a result, *fading* appeared as the second most frequently coded category. The Supervisor and the Mentors were fully aware of removing the scaffolding to promote *fading* by promoting interns into a junior manager role before assigning them to full manager responsibilities. As interns moved from junior to primary manager role, fading will progressively occur along the way. Dan outlined the rationale behind this approach as follows:

We understand that learning is by participation in doing and the value Jimmy has put on
that sometimes trumps the bottom line of the firm. We know that I can write a contract much quicker than a guy that’s six months out of school. But that doesn’t do him any good. So we sacrifice a little bit of the time that it would take to do things to get somebody involved. So you look at a guy that’s just graduated, you know, three months and he’s going to be working on this project for the project manager. Well, I need an Owner / Architect / Engineer (OAE) agreement. Go, there’s Article XII paragraphs on the server here, go read through those and determine which ones you think we need to put in the special provisions. Here’s where you find this. Just kind of pull it all together, take a stab at it and we’ll look at it. Go do it and we’ll look at it and then we can talk about what…what else we need to do with it and you can learn by what did I do right and what did I leave out that’s important. (Dan Primary Mentor)

Specifically, the following is an example of fading as reported from an Interns’ perspective:

First you were given work and you were learning that whole time of how to do technical aspects of the firm’s system. And then you’re more in charge and you’re running it, to the extent you can, but you have that. I mean there’s definitely a structure here, but at the time looking back on it, I see it and it makes complete sense, but at the time it wasn’t very rigid, it just seemed so fluid. I’m looking back, it’s like well there was actually a plan of how it works. And maybe that just goes back to the philosophy of the firm. Investing in an intern, takes a lot of time, it takes a lot of money, too. It takes a lot of overhead that is not always needed, but it’s investment. So if you were looking for short term gain, that wouldn’t be a smart investment because, you lose money on interns because you’re taking the principle’s time, you’re taking the project manager’s time, and both of these are working heavily with the interns so they can do whatever it is. And more times than not, it takes more time to do that and have him do the work than it does for the project manager or the principal. You know, something that I could crank out in 30 minutes, it’s taking 45 and of that 45 is 30 minutes of my time and 15 minutes of the principal’s time. (Joe, Intern Three)

**Articulation**

*Articulation* is a demonstration of what the novice can do during the learning process, which may be prompted by a question or by providing opportunities for the novice to perform the task for others (Collins et al., 1991). To support this proposition, the Interns gave feedback often in order to inform the Supervisor and Mentors of their current level of learning. The Supervisor and Mentors of the Firm were attentive to the engagement of articulation as described in the following:
Go do it and we’ll look at it and then we can talk about what else we need to do with it and you can learn by what did I do right and what did I not, what did I leave out that’s important? But I guess the formal way that we assess is we usually do performance reviews often, sometimes they’ll come to me and/or another project architect that’s had some interns working with them, and say, okay, how is he doing on this, that and the other, and where do we need to focus our effort to increase his skillset in some areas? So the entire… It’s a formal performance review from…from one of the principals of the firm, but the mentors (myself, and others) are involved in that process as far as more hands on. Usually all of our project managers have worked closely with the interns so that they usually know that, but sometimes we get that middle tier individual involved just to make sure we get a good grasp where the intern is. (Dan, Primary Mentor)

The Interns played an active role in the process of articulation as well by engaging with their Supervisor and Mentor about what they needed to meet the IDP requirements. Dennis described his experience as an Intern in the following manner:

Just logistically on paper he’s the one [the Supervisor] who checks our hours and everything. But one thing that's nice about it is just about every day or twice a day either he…either him or…him or one of the principals comes around and like talk directly to us and they would ask us what we're doing, you know, if we have any questions, you know, and then…and they actively engage us and are…are interested in what we're doing and why we're doing it and it’s really so consistent and regular. In fact, daily sort of, you know, of checking,…asking. Right. Discussion. Just, you know, like they'll come up to us and ask us, you know, “What are you doing?” And you’re just……and….and we’d have a discussion about what we’re doing, why we’re doing it. If we have any concerns that’s really active. (Dennis, Intern One)

In this context, interns are expected to play an active role to ensure that they are getting what the need through the process of articulation. To characterize this perspective, Joe described his experience in the following two examples:

I guess the mentor’s role, and I think our firm’s…our firm’s different because he’s kind of…. He’s the top guy and then…We’ll show him where we are and he’ll come by and ask every once in a while, You keeping up with your IDP time? You know. Are you getting ready to start testing? Whatever the question might be, and then the supervisor will also do the same thing. And so they’re kind of general checking on people, seeing how they’re going. And then below that you have people that are testing, that are getting the IDP, and then will check on the people below us. So it’s kind of this trickle down effect. almost, not… But It’s almost like a, maybe a culture that, you know, we’re going through it, we’re trying to get everyone else to get through it with us. So there’s probably more down here and we kind of check back and they’re just kind of overseeing it all, making sure everything’s happening. (Joe, Intern Three)
Joe continued to describe his experience below:

So, the mentor would say hey, how are you doing on the IDP, okay? Are you lacking any...any time? Are you getting what you need? So, you know, especially the newer guys when they first come in we focus a lot on them just because they’ve never done it before, you know, they don’t know what to do. I guess trickle down, David (the Mentor) comes ask me and David goes around and asks everyone that question, …it’s not just me. But then I’ll go...be going through, I’ll just start testing and whatever and then I’ll ask, you know, someone below me or whatever. (Joe, Intern Three)

Reflection

Reflection requires the novices to assess their gradual development of expertise in comparison to the expectations within the community of expert practitioners (Collins et al., 1991). Reflecting in and on practice enables the novice to begin to assume behaviors typical of experts especially the ability to “think on their feet” (Schön, 1983). In the Firm, the Supervisor and Mentors reported the experience of reflection yet also realized the need for more opportunities for reflection. Harry mindfully considered the value of reflection in the following example:

We’ve had some of our folks go up and teach a professional practice course at the university. We’ve shared a lot of our time with them and my father taught there so we’re involved with the faculty. But if we involved some of the faculty to come here when we’re doing a design we could actually have a little more structure in our design process. And really, on a larger project, you need somebody. And I guess it’s almost like having a board of directors or something? You’ve got somebody that doesn’t work here but knows what’s going on. I think we could improve that by getting some faculty members to come in and give us a critique and tell us some things we could do to improve. And I think, too, if there’s a shortcoming, we get really intensely involved in trying to get the project and satisfy our client, but we sometimes need to back up and get the holistic view of what we’ve designed and say what can we do to improve it? (Harry, Supervisor)

The interns corroborated this observation and all reported a low frequency of reflection. To this end, the reporting of reflection scored the lowest emphasis in the coding process. Stephen described his experiences on the need for reflection below:

It always goes back to emphasizing design. We focus so much on throwing everyone
into a project and everything’s moving so quickly and you’re so heavily involved that because you’ve got all this paperwork and other red tape and all the official things sort of hanging over you throughout a project that the design, again, sort of fades to the background. Because you don’t have anyone in the office that’s solely focuses on the creative aspect. You’re got to cover all the bases. I think if there was going to be some improvement… I’d actually spoken to one of the principals just the other day about it, is trying to find some time to pick a day maybe instead of having a staff meeting, slow down for an hour and have a “crit.” Do some charettes. Take the time to reinforce that design. I think that gets lost when you’re working on a whole project. (Stephen, Intern Two)

Exploration

Finally, through exploration, novices learn how to set and solve new, more complex problems. Expecting novices to participate in exploration is critical if they are to eventually become members of the community of practice (Collins et al., 1991). The Firm encouraged the transfer of knowledge to new contexts and to explore domains of particular interest to the intern. These values were prioritized by the Supervisor and Mentors and evidenced below as Harry described his support for exploration in the following quote:

Recently was a drafting software boot camp. I had an intern say, I think we could really benefit from this, can I go? But it was like a great idea so I replied, Let’s find the opportunity to make that work. (Harry, Supervisor)

Additionally the firm encouraged personal exploration from the Interns by providing financial support. Dan shared the following account of Intern exploration below:

The Firm encourages and supports it financially for interns to join civic clubs so they can be involved in the professional community and see what other people are doing. (Dan, Primary Mentor)

Overall, as evidenced by the perspectives of Interns, Mentor, and Supervisor, the nature of the apprenticeship experience from an instructional viewpoint, can be characterized as being firmly grounded on work-based learning which helped the interns experience all-aspects of the Firms practice. Further, a project-based approach was the central feature of the work- based learning context. It was the use of projects that helped interns develop progressive expertise in
the context of real-world architectural practice. Finally, instruction as a cognitive apprenticeship process supported the work-based learning approach broadly using modeling, coaching, scaffolding, fading, articulation, reflection, and exploration strategies.

**Nature of Internship Acculturation**

The third line of inquiry aimed to understand the process for the acculturation of interns into the architectural profession in the context of the firm drawing from the perspectives of the interns and firm members. The focus of this line of inquiry was on the characterization of the acculturation emphasis in terms of supports and strategies to help interns develop a full understanding of formal and informal expectations of architectural practice in the firm. Upon completing the data analysis on this question, three themes were identified as summarized in Table 3: Transparent and interactive process of acculturation, structured process supporting progressive acculturation, and shared process of transformation.

Table 3

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<thead>
<tr>
<th>Research Question 3</th>
<th>Theme</th>
<th>Characterization</th>
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<tr>
<td>What is the nature of the apprenticeship experience as a process of acculturation?</td>
<td>Transparent and interactive process of acculturation</td>
<td>The Firm provides an interactive process of acculturation by engaging interns in all aspects of architectural practice. That is, the Firm features a transparent process through an approach openly communicated to interns, and through reflective dialogue between the Interns, the Mentors, and the Supervisor.</td>
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<td></td>
<td>Structured process supporting progressive acculturation</td>
<td>The Interns had structured opportunities to learn that were evenly distributed, prioritized, and purposefully presented within the Firm. The structuring of the internship and related resources underlined the goal to develop progressive expertise and acculturation into the profession.</td>
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<td></td>
<td>Shared process of transformation</td>
<td>Both the Interns and the Firm were transformed as a result of the apprenticeship experience. The Interns developed a personal and sustained sense of belonging and identity within the Firm. The Firm shared and celebrated the Interns’ development and quest to become one of their own.</td>
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Transparent and Interactive and Process of Acculturation

Transparency refers to the open sociopolitical organization of practice, its content, and the artifacts engaged in practice. This implies that the inner workings, strategies, and artifacts and instruments of practice are openly discussed and/or available for the novices’ inspection (Lave & Wenger, 1991). From this perspective, the process to help interns acculturate into the architectural professional was transparent in the Firm. For example, the approach to the internship is clearly communicated as an “academy,” and the history and expectations of the Firm are openly communicated to Interns. As such, the process is open and transparent. This process is further complemented with an interactive approach to engage Interns in their professional development during the Internship (see results on the nature of curriculum and instruction). The interaction with senior architects and different projects provided a platform for authentic and direct acculturation into the profession.

To this end, the Interns freely and immediately explored and participated within the Firm’s practice and the culture of the Firm. As such, Transparency and the interaction it supported was a substantial resource of the Firm and was unanimously reported by all participants as described below by Dan:

Everybody’s involved in that process even the interns. It’s not just principals managing staffing and assigning projects it’s an interaction. I think we’ve created a culture where the interns feel comfortable saying, I’m really interested in LEED and I heard you say that you’ve got a LEED submittal coming up. Can I help you with that? I said, absolutely, I need help, that’d be great. (Dan, Primary Mentor)

Dennis comments on transparency from an Interns perspective:

What’s nice is you can ask anybody anything. It doesn’t matter, age, how long you’ve been here, there are no barriers. I guess the most educating part about it and learning part about it is because there’s no, there’s no lines, there’s no barriers. So, like even when you do get your license here, there’s not much different. (Dennis, Intern One)
There was also open communication about the Firm. The discourse, which consisted of future actions and past accomplishments, was consistent and occurred regularly. As a result, the Mentors and Interns were connected to the history of the Firm. Dan and Stephen reflect on the discourse of practice evidenced in the following quotes:

The most important aspect of this firm that an intern should learn is its culture. Learn the culture so that you can participate in it as you grow. 20 years ago there were only eight of us but it’s been a slow growth over time and we hope that continues. And we hope to hire more young graduate interns that, well, that people that are interns now that will be their mentors in the junior project management role, the more informal mentor. So understanding the value and the process we’ve been through and being willing and wanting to participate in that’s important. (Dan, Primary Mentor)

During presentations we always mentioned the firm’s history. So you hear that. I know it started as a small firm with Jimmy and his father and then Frank came on. And they originally were doing residential work and military engineer work and sort of developed from there. I mean it’s been growing ever since. Our firm is heavily focused in institutional work just because we value clients that are interested in buildings that are going to be around for a while and you just sort of pick up that as you go along, you sort of learn about that. It’s sort of an open book we’re always talking about each other’s family. (Stephen, Intern Two)

The Firm prioritized communication. The interns regularly communicated with all members of the Firm. As heard below the Interns unanimously reported the efficacy of interaction within the Firm:

The most important thing is just communication. Just the whole broad of working within the firm and the other, the other interns, and then working on projects is just communicating clearly. That’s kind of like… I mean it’s… It’s not really stated like learned thing, but that’s like the most important thing that that honestly architecture is, is communicating with individuals, graphically, clients, everything is clear communication. (Dennis, Intern One)

We normally meet every two weeks firm wide to have like a staff meeting where each individual tells what we’re working on, deadlines, if we need help, you so everybody can hear. So that’s sort of a firm sort of collaboration. Then, in a smaller project, we will have like smaller group collaborations. We do discuss dates, like days and scheduling, then…then if anybody needs help on something, anybody has questions on something, if somebody is… If somebody’s finishing up something and can help on help somebody else in the project to… It’s sort of, I guess like a two-fold collaboration of how it’s structured. (Stephen, Intern Two)
In addition, discussion about the larger role of professional practice outside the Firm was also reported as Dennis recalled:

The conversations are fairly prevalent. It’s obvious that our profession is losing value in the public. There has been the open discussion where we at the firm can start to add value to the client in our services where we can begin to differentiate ourselves from a traditional thing. And, the conversation really the other kind, the other interns that, we sit around with and just kind of throw back and forth daily, you know, it’s like our role. I would say it probably occurs more with the peers, but certain discussions about value and additional services that we offer we’ll bring up to the principals. We should be billing for weeks of rendering... the stuff that we’re doing. Then we start discussing how can we alter our contracts to begin providing additional services for some sort of structured rendering schedule or visualization schedule? (Dennis, Intern One)

**Structured Process Supporting Progressive Discovery and Acculturation**

Structured process refers to purposeful and meaningful access to a wide range of ongoing activities, experts, and other members of the community; and to information, resources, and opportunities for participation (Lave & Wenger, 1991). Access to resources and access to the whole enterprise of the Firm was prioritized and purposefully presented including the classification of values. In this regard, the Firm documents and therefore structures the value and purpose of architectural practice as a human resource. Dan described the codification of the Firms values below:

The first thing we give an intern is the office policy. The mission statement talks about our role as architects, we have been gifted with specific skills and you wouldn’t have gotten through architecture school if you didn’t have any desire to use your unique set of skills. We want to better our environment and those around us in the built environment, but also, it’s important that we be well-rounded individuals. (Dan, Primary Mentor)

The structure of the Firm was unambiguously presented to the Interns as soon as possible. As a result, the structure guided the interns to immediately participate in the Firm. This structure was unanimously reported by the Interns and best recapped by Dennis:

They do explicitly tell you how each project has a dedicated principle and project manager and interns. Like each project team will always be made up of that. So as far as that organizational, they do that a lot. The project itself, if you will, is the organization.
Because that is the consistent way of “doing this.” Yeah, the project. The organization surrounds itself around the project. (Dennis, Intern One)

Further, the Firm was configured to share all of its resources with the Interns during the apprenticeship experience to help them develop professionally. Thus, opportunities to learn were evenly distributed and structured within practice including informal settings. Dan described this position taken by the Firm in the following quote:

We do informal training such as a marketing seminar. It includes what kind of clients do we like to work for and why? So that everybody in the firm understands the business model. How do you call on a client, who do you call on, and how do you do that process? And it’s not for project managers, it’s not for the principals, it’s for everybody, because everybody needs to be involved in that process. So that’s a resource. (Dan, Primary Mentor)

In general, it was evident that the Firm was dedicated to prepare the Interns for successful entry into architectural practice. To support this mission the Firm provided the physical resources for successful completion of the IDP and the ARE. Both Interns and Mentors reported the Firms commitment to the structuring resources as heard in the following quote:

We try to provide interns with the resources and the study materials. But then again, back to the family, we try to encourage them to encourage each other. But they work together great and they study together on occasions. (John, Informal Mentor)

Joe provided an additional perspective to exemplify this point:

The firm provides access to these resources. They’re on a shelf in our library. So anyone who’s studying, you check it out. At the very beginning we tried to get us all testing at the same time and having us all taking the same test. And so we started with site planning and we had probably four people, and so during lunch every day we’d come in here and meet and kind of go over the chapters that we read and then run through a vignette on the screen. (Joe, Intern Three)

The culture of the Firm was rich and provided the setting for the Interns sense of belonging to the Firm. As a result, the Interns discovered their identity through increased participation and increased responsibilities. This personal discovery signified a motivational step
in the acculturation of the Interns and a growing sense of identity. In this context, Stephen reflected on his personal growth in the following example:

I think I’ve got three examples that have been of particular interest and they all fall within my three degrees. One of them was, within the first two weeks here, I was given a lobby on an otherwise pretty generic project, retrofitting mechanical electrical on a detention facility. I was given the design of the lobby. They just said, hey, we need to do something nice in here and I was able to sort of take my interiors experience and design this fantastic lobby. And that’s… I… I touched the project at that end and then I came back at the very end just to see that again and sort of see the finished product. I got to create something that I saw done and that… that was big for me, that sort of personal creative aspect. (Stephen, Intern Two)

The process of self-motivated discovery and identity was transformative. In this regard, Dan differentiated learning to become an architect and learning about architecture by the following quote:

I think being an intern here is not very different from being an architect here. The experience that you have as an intern, especially after a year or two is very similar to one of a registered architect in that you’re managing projects. You get the experience that you need in IDP just naturally from being involved in the projects, so it doesn’t feel like you’re just going to work. So architect is more than a title it is an attitude. (Dan, Primary Mentor)

As a result of the structured process of acculturation, the Interns developed a personal and sustained sense of belonging to the Firm. As such, the Interns were inspired to discover their future within the Firm as Joe described below:

I like a direction that we’re going, I don’t want to just float along, I want to have some sort of direction. I’m kind of more that big picture, end game person. So it’s important for me to know. And, you know, it makes me feel good that they communicate that with me because it means, to me anyway, is that I’m involved in this plan somehow. I don’t really know how at the moment, but for some reason they’re feeling the need to tell me this so somehow, unless they’re just making conversation, which I don’t know why you would have small talk about the future. (Joe, Intern Three)

**Shared Process of Transformation**

The reproduction of practice by the induction of new practitioners is at the core of the acculturation process (Lave & Wenger, 1991). The formation of identity is central to the
acculturation process and fundamental to the concept of progressive expertise and acculturation. Hence, Lave and Wenger (1991) argued that apprenticeship learning is a transformation process underlined by the gradual acculturation of novices into the community of practice. However, while the Interns may be the most transformed, the expert members of the Firm were also transformed. This phenomenon was purposefully celebrated within the Firm and produced visible and demonstrable change, often described as a reciprocal learning process. Dennis described the transformation of the Firm through the influence of Interns below:

I feel like we teach them just as much as they teach us sometimes. Because we have the new set of skills, you know, the...the computers, the visualization stuff that they can show us or they basically tell us what we’re looking at and then we can do it all on the computer and then print it out and then we’ll, then we’ll, like us and the principle or the senior will kind of get a sketch together and all kind of stuff. And there’s this sort of...sort of we kind of can educate them on like new materials sometimes, new stuff that’s coming out, and then they educate us with their like past stuff. Well, this kind of works, this detail works. (Dennis, Intern One)

Dennis continued to give further perspectives about the notion of shared transformation:

I feel like they don’t take what we’re telling them and just kind of in one ear and out the other because I feel like they are just as open to learning as we are because, you know, I mean again, and it kind of goes back to the firm’s nature of always being aggressive. You can’t be aggressive if you’re not willing to learn. (Dennis, Intern One)

In general, as evidenced by the perspectives of Interns, Mentor, and Supervisor, the nature of the apprenticeship experience from a viewpoint on acculturation, can be characterized as being an transparent process that supported an interactive process. Further, the process was structured and supported a progressive acculturation where the Interns had opportunities to learn that were evenly distributed, prioritized, and purposefully presented within the Firm. The structuring of the internship and related resources underlined the goal to develop progressive expertise and acculturation into the profession. Finally, acculturation was a shared process of transformation where both the Interns and the Firm were transformed as a result of the apprenticeship
The Interns developed a personal and sustained sense of belonging and identity within the Firm. The Firm shared and celebrated the Interns’ development and quest to become one their own.

**Role of Internship Experience on Professional Induction**

The fourth and final line of inquiry sought to characterize how the totality of the apprenticeship experience facilitates induction into the architectural profession from the interns’ perspective. To address this research question, the interns were asked open-ended questions to develop an understanding of the interns’ views on the totality of the apprenticeship experience as a transformation process helping them move from novice to practicing architects. The analysis also relied on data resulting from research questions 1-3, to describe the alignment of curriculum, instructional means, and acculturation strategies supporting the induction of interns into the architectural profession. Upon completing the data analysis on this question, I was able to identify four themes as summarized in Table 4. As expected, based on the nature of this line of inquiry, the themes shared underlying roots with themes identified for the questions related to the nature of curriculum, instruction, and acculturation.

**Table 4**

*Summary of Themes on the Totality of the Apprenticeship Experience*

<table>
<thead>
<tr>
<th>Research Question 4</th>
<th>Theme</th>
<th>Characterization</th>
</tr>
</thead>
<tbody>
<tr>
<td>How does the totality of the apprenticeship experience facilitate the induction of architectural</td>
<td>Focus on all-aspects of architectural practice and project-based learning</td>
<td>The Firm focused on all-aspects of architectural practice as the basis for the development of a holistic apprenticeship experience. That is, the Interns participated in the whole of the Firm's architectural practice. The Firm used work-based and project-based learning as the vehicle for apprenticeship instruction. The Interns were grounded in authentic learning and work contexts requiring the application of architectural knowledge and skills.</td>
</tr>
</tbody>
</table>
apprentices? | Focus on the promotion of progressive expertise | The interns purposefully progressed in expertise through increased participation in architectural projects requiring enhanced demands in terms of knowledge and skills.
---|---|---
Symbiotic process of transformation | Both the Interns and the Firm were transformed through the apprenticeship experience. The effective induction of interns into the culture of the Firm produced visible and demonstrable change.

**Focus on All-Aspects of Architectural Practice**

The Firm offered and encouraged full participation in all-aspects of practice as the basis of the internship experience. This perspective was unanimously reported by all participants and exemplified by the following quote:

> Just that I wish more interns in other firms got to sort of experience the whole…the whole process. I mean it’s… I’ve had a fantastic time. I’d tell anyone that asks, because I…I love my job. And it’s just… It’s… If I was focused on one particular aspect of a job, I don’t know that I would enjoy it was much. So seeing…seeing from the beginning to the end, there’s something really fulfilling about that. (Stephen, Intern Two)

The all-aspects of practice coherent curricular approach allowed the Interns to see and participate within the context of an architectural project from start to finish including experiencing mistakes. This assessment is illustrated by one of the Interns as follows:

> Honestly, some of the most helpful experiences have been the things that I’ve…I’ve had the chance to make mistakes at, seeing the things that went wrong during these construction projects and realized the impact. Giving a project to an intern, there’s a great deal of risk in that. Because we’re making big decisions that we don’t have experience doing. But we’re expected to ask questions and learn from it, and when we make mistakes, we’re expected not to make the mistake again and there aren’t… I guess the repercussions for it is…is seeing a failure. (Joe, Intern Three)

**Integration of Work-based and Project-based Learning**

The apprenticeship experience of the Interns was reported within a broad context of architectural work and projects. In other words, the experience of specific curricular content and sequence of the IDP was not reported as a series of sequential learning activities, but as a rather
non-linear comprehensive experience through the integration of work- and project-based learning. In short, the project(s) and the specific requirements of the projects combined with outline requirements of the IDP became the curriculum of apprenticeship. That is, the curriculum was not experienced through the discrete tabulation of the IDP in isolation but rather deeply embedded within the context of projects. This viewpoint was unanimously discussed by all participants and embodied by the following quote:

We’re expected to know everything on a project; whether meeting with clients, working on specs, doing site visits. If there’s something to learn, we’re expected to learn it. I don’t think there’s anyone in our office that really just stays working on one item. We may start, depending on our experience, we may get sort of focused on a particular client or a particular type of work, but it’s really covering every aspect of that work. (Stephen, Intern Two)

**Focus on Promoting Progressive Expertise**

Upon assessing the totality of the apprenticeship experience, it is evident that the Firm promoted the progressive expertise of the Interns. This ontogenic process occurred through participation and entry at any point along the natural phases of a project. Stephen succinctly reported this in the following quote:

One of the big things that we’re expected to do is pick up as we go, right now. We’re expected to be able to address whatever task we’re given with tools that we have available. (Stephen, Intern Two)

Further evidence of progressive discovery from a Mentors perspective was shared in the following quote from John:

We get you (intern) in, get you setup. Discover what you know, what you don’t know. Our goal is to nudge the intern further along as we see what he can handle. We don’t want to put an intern in a situation that you would be in over his head, but then again, we don’t want him to sit complacent. We want to go with me to construction site. Come, you’re going to be part of this interview. And, you get the experiences of all of that. So then, you see the big picture of what it takes from start to finish. So that’s kind of how the system works. (John, Informal Mentor)
Symbiotic Process of Transformation

The interns unanimously reported the Firms degrees of transparency best facilitated their transformation into architects and the world of architectural practice. This phenomenon included the Firms willingness and ability to assuage the natural asymmetric relationship between interns and supervisors commonly experienced in apprenticeships. In other words, the Firm considered the Interns status as architects upon entry into the culture of the Firm not upon completion of the internship. This experience of induction was exemplified by the following quote:

I think the process works. I think our firm’s process works very well in getting intern to become architects… Because there’s no barrier or line, oh, you’re an intern, oh, you’re an architect. I guess the most educating part about it and learning part about it is because there’s no lines, there’s no barriers. So, like even when you do get your license here, there’s… There’s not much different. Everybody, the whole firm really. I mean it is like everybody I’m around, everybody I talk to. It’s just everybody here. I’ll bet you’ve heard that before. Ha…ha…I feel like I’m on, I guess, on par where I’m supposed to be becoming an architect. (Dennis, Intern One)

As a result of transparent access, the interns were enabled by the support and encouragement from the entire Firm. Stephen describes his experience of personal transformation in the following quote:

I think, aside from my mentor one of the other principals has been indispensable in creating this sort of culture of architecture with me because I’ve been working with him on the residence hall. But it’s also that everyone is sitting around me, because there aren’t walls between me and the guy next to me, I can ask questions. And we get to know each other and I get to hear about his experience on his projects and… And it’s really just… no black boxes. (Stephen, Intern Two)

As it turns out, the greatest resource of the Firm was its reciprocal treatment of human capital.

In short, the same premise of transparency allowed the Firm to access the resources of the Interns. Dan recalled a project that the Interns were the most qualified to manage. Dan describes this transformative opportunity afforded to the Firm by the Interns by the following quote:

The one we have right now I think has been pretty significant. It’s the Kress project. It’s a rare project for us in that it’s a private developer that’s doing downtown revitalization,
which is an interesting project. We had a large group of our interns working on that. And it’s been a hard deadline, been working a lot of hours on that project and has been strenuous from that degree, but I think…I think it’s been valuable because those interns are learning a lot because they’re doing a lot, but it’s also a very important project for the, probably one of the more modern… A lot of our clients are institutional so we do a lot of classical type buildings, you know, on university campuses and for state government and things you don’t normally do at school. This one is much more modern in its design. It’s a mixed-use project; all the things that, you know, kids these days are doing at school.

(Dan, Primary Mentor)

And finally, the youngest of the Interns discussed recommendations he proposed for the transformation of the Firm. Dennis reflects on the Firm’s transformation in the following quote:

The conversation as like… I guess most of our conversation is a traditional architecture role, but we’re…there has been discussion of additional services that the firm could provides and doesn’t…isn’t recognized by AIA and so like visualization and rendering services that we do and when does the firm starts getting compensated for these additional services? You know, so… So that talk and sort of like a managing the clients’ expectations of what we provide…that…that conversation is discussed. (Dennis, Intern One)

Overall, as evidenced by the perspectives of the Interns, the Firm focused on all-aspects of architectural practice as the basis for the development of a holistic apprenticeship experience. That is, the Interns participated in the whole of the Firms architectural practice. Additionally the Firm used work- based and project-based learning as the vehicle for apprenticeship curriculum and instruction. As a result the Interns were grounded in authentic learning and work contexts requiring the application of architectural knowledge and skills. And finally, because of the all-accepts of architectural practice and the grounding of work- based and project-based learning the interns purposefully progressed in expertise through increased participation in architectural projects requiring enhanced demands in terms of knowledge and skills.
CHAPTER 5

DISCUSSION AND CONCLUSIONS

The purpose of the study was to describe the nature of the architectural apprenticeship experience from a curricular, instructional, social, and transformative perspective to develop progressive expertise and acculturation into the profession. To this end, the study was driven by the following research questions:

1. What is the nature of the apprenticeship experience from a curricular perspective?
2. What is the nature of the apprenticeship experience from an instructional perspective?
3. What is the nature of the apprenticeship experience as a process of acculturation?
4. How does the totality of the apprenticeship experience facilitate the induction of architectural apprentices?

In this chapter, the major findings of the study are summarized and discussed in terms of relevant review of literature and the conceptual framework informing the study. Implications for practice and further research are also reported.

Summary of Findings

In general, the nature of the apprenticeship experience in the selected exemplary firm represented curricular expectations aligned with the IDP. From a curricular perspective, the apprenticeship was grounded in work- and project-based learning around all-aspects of architectural practice and broadly following the tenets of cognitive apprenticeship. In turn, the acculturation process was transparent for interns and primarily focused on providing progressive opportunities for developing architectural expertise. As such, the totality of the apprenticeship experience relied heavily on opportunities to engage in all aspects of architectural practice.
through work-based and project-based learning.

Specifically, the nature of the apprenticeship experience from a curricular viewpoint was characterized as being coherently implemented in terms of the expectations and content of the IDP. Further, the curriculum of the apprenticeship was relational because it was structured in a way that made sense for Interns to help them develop an understanding of the key elements and the totality of architectural practice. In addition, the underlying curriculum was recursive in nature due to the multiple opportunities to learn and participate in projects so interns could continue to build on what they are learning and applying. Finally, the curriculum of the apprenticeship was rich and rigorous given the focus on immersing the interns in authentic architectural project work as well as consistently assessing the Interns’ progress.

About the nature of the apprenticeship experience from an instructional viewpoint, it was evident that mentorship was firmly grounded on work-based learning, which helped the interns experience all-aspects of the Firm’s practice. A project-based approach was the central feature of the work-based learning context. It was the use of projects that helped interns develop progressive expertise in the context of real-world architectural practice. In addition, the Interns had the opportunity to work on projects involving knowledge and skills related to all-aspects of architectural practice; from planning to implementation. Further, instruction as a cognitive apprenticeship process supported the work-based learning approach broadly using modeling, coaching, scaffolding, fading, articulation, reflection, and exploration strategies. However, not all of the tenets of cognitive apprenticeship were equally emphasized to the same extent. Specifically, it appeared that the precepts of modeling, coaching, scaffolding, fading, and articulation were emphasized more than reflection, and exploration.
In turn, the nature of the apprenticeship experience from the viewpoint of acculturation was characterized as a transparent and interactive process. That is the firm openly communicated its history, expectations, processes, and resources to Interns. As such, the process was transparent. This process was further balanced with interaction between senior architects and different projects thus providing a program for authentic personal development and acculturation for the Interns. The process was also structured and supported acculturation where the Interns had opportunities to learn that were evenly distributed, prioritized, and purposefully presented within the Firm. The structuring of the internship and related resources underlined the goal to develop progressive expertise and acculturation into the profession. In addition, acculturation can be characterized as a shared process of transformation where both the Interns and the Firm were transformed as a result of the apprenticeship experience. That is, the Interns developed a personal and sustained sense of belonging and identity within the Firm, while the Firm transformed itself through a renewal process by developing new talent. As such, the Firm shared and celebrated the Interns’ development and quest to become one of their own.

**Discussion of Major Findings in the Context of Relevant Literature**

The recent periodic literature of architectural internship paints a dull picture of the internship experience where architectural apprenticeships have turned into a source of cheap labor with little room for professional growth and opportunities to get fully acculturated into all aspects of architectural practice (Fisher, 2002). As such, for a long time the apprenticeship experience has been designated as the most problematic component in the continuum of architectural education (Boyer & Mitgang, 1996). The findings of this study are at odds with this thread of the literature. As noted in the conclusions section, in this study, the internship experience was consistently reported by the interns as being quite different from the drudgery
work that has been reported in the periodic literature (Fisher, 2002). The effectiveness of the intern experience at the Firm may best be exemplified by the fact the Firm has never hired an “outside” architect. That is, all the registered architects working in the Firm are all previous interns of the Firm. This outcome represents a conclusive measure of successful apprenticeships within the Firm and stands in stark contrast to the periodic literature. The contrasting results may be explained that the Firm recognized that creating a meaningful apprenticeship experience (instead of focusing on drudgery work) was the best means to successfully sustain and continue the culture of the firm. As such, this is a form of investment that pays off in the long run.

From the perspective of what makes for a productive internship experience, the findings of the study aligned with the literature of situated learning as the Interns were situated in work-based and project-based learning (Lave & Wenger, 1991). As a result, the meaning and nuance of each task is relationally understood within the context of the project. In this regard, situated learning brings thinking to the surface through work-based and project-based contexts (Collins et al., 1991). In the study, the internship experience was supplemented with instruction and activities that reinforced the learning that occurred during all-aspects of the Firms practice such as client contact, contracts, community service, contractor negotiations, project management, and construction administration. As a result, the interns developed attitudes, knowledge, skills, and habits that might not have developed from work experience alone such as interpersonal communications and leadership expertise.

The findings also suggested that a broad application of cognitive apprenticeship strategies drove the instructional process in the Firm. The normative model of cognitive apprenticeship is discrete and is defined sequentially in seven steps: modeling, coaching, scaffolding, fading, articulation, reflection and finally exploration (Collins et al., 1991). In general, cognitive
apprenticeship can be especially effective when teaching complex, cognitive skills (Duncan, 1996). Along these lines, the study findings showed the instructional methods as broadly and informally aligned with the tenets of cognitive apprenticeship, which were embedded in the Firm’s practice. As such, the findings pointed to a strong emphasis of modeling, coaching, scaffolding, and fading within the Firm. To this end, the findings showed modeling as a prevalent practice in the Firm’s internship and recognized by interns and mentors as a key component of learning all aspects of architectural practice. That is, modeling was the most reported category in the findings by both interns and mentors. An example of modeling can be best represented by the following situation: In the Firm, the mentors would typically demonstrate what they were doing and share their thinking while performing a task to make architectural practices visible and transparent allowing Interns to model underlying approaches in their own project work. In this regard, the findings align with related tenets of cognitive apprenticeship as modeling requires that tasks and corresponding thinking process are made visible to the apprentices (Collins et al., 1991).

However, some aspects of cognitive apprenticeship were not consciously addressed compared to the literature of cognitive apprenticeship. For example, the findings showed the aspects of reflection and exploration were not consciously integrated into the sequential nature of the cognitive apprenticeship model. That is, reflection requires the purposeful clarification of the meaning of instructional experiences, while exploration allows the Intern to apply what they learned in different contextual situations on their own (Collins et al., 1991). In the study, reflection was sometimes construed as part of an informal assessment strategy to articulate how a task was performed. However, although articulation was used to verify what was understood (i.e. feedback), the findings showed that related interactions did not quite represent purposeful
reflection about the totality of a learning experience. Instead, when reflection occurred, it was between the Supervisor and the Mentors and not necessarily with the Interns. As a result, the interns reported a weak emphasis of reflection and a certain degree of frustration due to the resulting lack of exploration. From the Interns’ perspective the absence of reflective practice naturally blocked exploration, the last tenet of the cognitive apprenticeship sequence, and potentially the expression of innovative design solutions through the Interns own expression (Collins et al., 1991). This omission could be due to the Firm’s lack of discrete and normative knowledge of the literature of cognitive apprenticeship. As such, the CoP relied on the more innate and natural processes of apprenticeship learning as stated (modeling, coaching, scaffolding, fading, and articulation). In short, the activities that produced concrete and demonstrable results to the firm were easily engaged in contrast to the less obvious tenets of reflection and exploration that were benignly understated.

Further, the findings are generally compatible with the literature regarding the role of community of practice (COP) in the process of expertise development and acculturation. That is, as represented in the literature, learning takes place in the world of the expert and within unique social networks known as the Community of Practice (CoP) (Lave & Wenger, 1991). The CoP is where the novice is situated to learn based on the notion that learning and acculturation are part of social practice (Wenger, 1998). In this regard, the study findings aligned with the general basis of CoP. According to Wenger (1998), we are social beings and our social nature is a central aspect of learning. In this context, apprenticeship situates the novice in the social and work context of the CoP whereby knowledge is a matter of competence with respect to practice. As interns engaged in progressive project roles, they were introduced to the community contributing to all aspects of architectural practice such as supervisors, business staff, contractors, and other
stakeholders. In this regard, they were put in situations where they had to learn the social norms and expectations of the interacting community to navigate the completion of architectural projects.

The findings also supported the literature that asserts the CoP plays a critical role in the personal and professional development of Interns. For example, Lave and Wenger argued that there is a profound connection between identity and practice (Lave & Wenger, 1991). In short, personal identity is formed through participation with the members of the CoP (Lave & Wenger, 1991). In this regard, in this study, the IDP defined the official mentor as a loyal advisor, teacher, or coach and a person who will make a long-term commitment to the intern’s professional growth (NCARB, 2011). For this purpose, the IDP insists that the official mentor must be a licensed architect. In the case of the selected Firm, because of its exceptionally high ratio of licensed architects, and as a result of the Firm’s history of successfully inducting interns into the profession, the interns had unfettered access to many unofficial mentors within the cohesive CoP of the Firm who allowed and encouraged the Interns to construct personal knowledge of practice. It was also apparent that the small size of the Firm also contributed to an enhanced sense of identity and belonging within the community of practice. While interns may be isolated in a larger firm, in a small firm interns are more visible and it is obvious they have greater opportunities to interact and develop a sense of belonging in the firm.

In addition, the findings are consistent with the literature of legitimate peripheral participation (LPP) relevant to the development of progressive expertise and acculturation. LPP has been characterized as the initial form of membership within a CoP involving increasing degrees of participation and the means of transformation and acculturation in social practice (Lave & Wenger, 1991). In this regard, LPP provides the means for understanding the complex
processes of acculturation (Lave & Wenger, 1991), and in this study, the structuring of resources, transparency, identity and motivation, discourse of practice, and transformation of practice appeared to facilitate the acculturation of the Interns into the culture of the Firm and the profession of architecture. Additionally, as noted earlier, the cohesive nature of the Community of Practice augmented the Interns’ acculturation into the Firm and its practice of architecture. To wit, the findings showed that access to the Firm’s resources was prioritized and was transparently presented to the Interns including the totality of the architectural projects. To this end, the internship was purposefully structured to share all of the Firm’s resources to facilitate and evenly distribute opportunities to learn all aspects of architectural practice among the Interns. Consistent with the literature these findings depicted a dynamic balance between the individual needs of the Interns and those of the Firm (Lave & Wenger, 1991). Further, and also in alignment with the literature of LPP, the findings showed that the Firm acknowledged both transformation of the Intern and of the Firm. The reproduction and subsequent transformation of practice by the induction of new practitioners is at the core of the acculturation process (Lave & Wenger, 1991). All in all, the study findings are largely consistent with the literature of LPP and the characteristics of workplace acculturation.

Albeit the general alignment with the CoP and LPP literature, there were some observed discrepancies. For example, the study findings differed from the relevant literature on CoP regarding like-minded people forming unofficial social networks in response to conflict within the workplace (Lave & Wenger, 1991). In other words, it has been suggested in the literature that CoP’s are formed in reaction to work related problems that are not being solved by the sanctioned administrative structure (Lave & Wenger, 1991). To this end, the findings portrayed a social milieu free of social conflict and where the CoP and the formal organization of the Firm
were one of the same in the quest to bring projects to successful completion. This may be explained by the relatively small size of the firm and purposeful focus on providing Interns with progressive opportunities to learn and move from novice to full project manager.

**Discussion of Findings in the Context of the Conceptual Framework**

The conceptual framework for the study built upon the ideas that a comprehensive model of apprenticeship learning should bridge curricular content and the needs of the community of practice (CoP) (Wenger, 1998), feature instructional means appropriate to the apprenticeship experience (Brown et al., 1989), and include a process of acculturation to induct the novice into the world of the expert (Lave & Wenger, 1991). These ideas are robustly aligned with the findings of the study. To that end, the study participants unanimously reported the experience of curriculum, instruction, and means of transformation as explicitly embedded in the culture of Firm. For example curricular content included both discrete requirements of the IDP and the needs of the CoP defined by the knowledge necessary to complete actual architectural projects. Additionally the instructional means of cognitive apprenticeship were effectively employed through modeling, coaching, scaffolding, fading, and articulation. Finally, a purposeful process of acculturation was demonstrated by the structuring of resources and transparency within the Firm.

However, certain study findings did not quite align with the premises of the conceptual framework and the linear representation of time and expertise development. That is, according to conceptual framework, expertise development is often viewed as a linear process involving discrete participation in progressive stages of growth (Lave & Wenger, 1991). In this regard, study findings showed that the Firm did not follow a linear approach regarding the Interns’ growth and participation in architectural projects. Instead, the Firm invited the Interns to assume
the identity of an expert upon initiation into the Firm so they could experience all aspects of architectural work. Namely, the Interns entry into the world of the expert started directly and was sustained through the Interns’ increasing participation in all aspects of architectural practice and was grounded in work-based and project-based learning. In other words study findings showed that over time, skills were acquired progressively but the transformation of the Interns identity as an expert in the making was immediate upon entry into the culture of the Firm.

Based on the study findings, the properties of a revised conceptual framework would include two elements that contributed to a successful internship experience. First, a revised framework should articulate and differentiate between the Interns progressive acquisition of skills and knowledge about architecture and the immediate initiation and identity of the Intern becoming an architect. That is, the view of interns should shift from that of a student-type to the recognition as novice professionals entering architectural practice. Additionally and closely related to curriculum, the presence of a longitudinal project(s) or involvement in a series of projects as the vehicle for project-based learning should be a critical component in providing exemplary internship experiences.

**Implications for Practice and Future Research**

**Recommendations for Practice**

There is a great and urgent need to energize the professional practice of architecture. In this context, it is important to develop a more holistic understanding of apprenticeship as a process of instruction and acculturation in a community of architectural practice. The findings of the study should be informative to firms interested in the design and implementation of exemplary architectural apprenticeship experiences. To this end, the following recommendations should contribute to revitalizing architectural apprenticeships: Emphasizing a holistic approach
to the apprenticeship experience, early immersion in all aspects of architectural practice, and the firm’s commitment to be engaged in a process of shared transformation.

First, architectural firms should come to an understanding that a comprehensive model of apprenticeship learning includes three constituent parts: a curricular content that meets the needs of the community of practice, an instructional means of cognitive apprenticeship, and a transparent and structured firm culture. In short, the needs of the community of practice constitute the curriculum of practice (Wenger, 1998), the instructional means are applicable to the apprenticeship experience (Brown et al., 1989) and finally the transformative experience of apprenticeship is one of acculturation (Farnham-Diggory, 1994). Of great importance, based on the deficiencies of refection and exploration as constituent parts to instruction disclosed from the study, would be the assertion that the longevity of a firm is inextricably tied to innovation associated with these practices.

Second, it is the totality of this three-part model of learning that provides an intern a productive setting to learn about architecture and to become an architect. As a result, the initiation of an intern into a firm’s culture and CoP should be immediate. In other words, the intern acquires the identity of an architect and is recognized as such without title. This is in contrast to the literature where interns are stationary for a while before given project responsibilities (Lave & Wenger, 1991).

Third, firms and interns should view the internship as a shared process of transformation. This process of mutual transformation sustains the development of the CoP and the intern through participation situated in work-based and project-based learning. As a result, harnessing the power of learning between expert and novice leads to innovation and a competitive advantage to a professional firm. Particularly the intern benefits from the opportunity to develop
authentic progressive expertise in situ and the firm benefits from its own talent development and production of new knowledge by insuring that the interns are participating in the cognitive processes of reflection and exploration.

Additionally, the findings of the study could also be developed and generalized as guidelines for other disciplines that traditionally employ apprenticeship practices such as engineering, law, medicine, and interior design by engaging the same emphasis previously outlined. And finally the findings of the study could be adapted to assert the effectiveness of work-based and project-based learning within domains and settings not familiar or accustomed to “the project” and project-based learning such as general business practice and retailing.

Recommendations for Future Research

The breadth and cohesiveness of the CoP in the case study firm stands out as a key discovery of the study. The Firm’s familial roots and geographic location remain as possible variables to the unity of the CoP. Given the same focus on architectural apprenticeships within exemplary architectural practices, conducting future research using the approach to this study as a frame of reference in different geographic locations and firm size would be worthy of further study; chiefly to investigate other factors that contribute to the cohesiveness of the CoP. For example, studying smaller firms in larger populations in different geographical areas and larger firms within similar geographic settings would be of interest.

Because the study disclosed limitations in the Firms practice of reflection and exploration, conducting longitudinal research studying the relationship between reflective practices, exploration, and innovation would be a valuable thread of future research. Additionally because the Interns experiences within the Firm were grounded in work-based and project-based learning, conducting longitudinal research studying the relationship between work-based and
project-based learning and effective intern acculturation would be a future research program.

And finally conducting a survey based on the revised suggestions of the conceptual framework, and follow-up study of interns who moved into architectural practice upon participation in contrasting internships should yield further insights on the nature and role of holistic approaches to the apprenticeship experience. To that end, designing and providing a survey instrument using the conceptual framework of the study would establish the generalizability and therefore the usefulness of the study.

Conclusions

Overall, as evidenced by the perspectives of the Interns and mentors, it was apparent that the Firm focused on all-aspects of architectural practice as the basis for the development of a holistic apprenticeship experience. That is, the Interns participated in the whole of the Firm’s architectural practice. Additionally the Firm used work-based and project-based learning as the vehicle for apprenticeship curriculum and instruction. As a result the Interns were grounded in authentic learning and work contexts requiring the application of architectural knowledge and skills. And finally, because of the focus on all-aspects of architectural practice and the grounding of work-based and project-based learning, the interns purposefully progressed in expertise through enhanced roles in architectural projects requiring increasingly higher demands in terms of knowledge and skills.

The efficacy of what was to be learned—and how it was to be taught, was realized by the interns’ access to the entire resources of the firm through its organization and transparency. As such, it was the totality of the internship experience in the context of an exemplary architectural practice, which allowed the progressive development of expertise to help interns become architects.
REFERENCES


Gaber, T. (2002). Changing the face of internship—the 2002 internship summit. (Fall) *Architrave*.


Appendix A

IDP Training Requirement

You must acquire 700 training units to satisfy the IDP training requirement. One training unit equals eight hours of acceptable activity in a given training area. The following chart lists the IDP training categories and areas and the required training units for each.

### Category A: Design and Construction Documents

<table>
<thead>
<tr>
<th>Minimum Training Units Required</th>
<th>Required Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Programming</td>
<td>10</td>
</tr>
<tr>
<td>2. Site and Environmental Analysis</td>
<td>10</td>
</tr>
<tr>
<td>3. Schematic Design</td>
<td>15</td>
</tr>
<tr>
<td>4. Engineering Systems Coordination</td>
<td>15</td>
</tr>
<tr>
<td>5. Building Cost Analysis</td>
<td>10</td>
</tr>
<tr>
<td>6. Code Research</td>
<td>15</td>
</tr>
<tr>
<td>7. Design Development</td>
<td>40</td>
</tr>
<tr>
<td>8. Construction Documents</td>
<td>135</td>
</tr>
<tr>
<td>9. Specifications and Materials Research</td>
<td>15</td>
</tr>
<tr>
<td>10. Document Checking and Coordination</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total Training Units Required</strong></td>
<td><strong>350</strong></td>
</tr>
</tbody>
</table>

*This total includes the 275 minimum training units required, plus 75 additional training units that must be earned in any of the training areas 1-10.

### Category B: Construction Contract Administration

<table>
<thead>
<tr>
<th>Training Areas</th>
<th>Required Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Bidding and Contract Negotiation</td>
<td>10</td>
</tr>
<tr>
<td>12. Construction Phase—Office</td>
<td>15</td>
</tr>
<tr>
<td>13. Construction Phase—Observation</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total Training Units Required</strong></td>
<td><strong>70</strong></td>
</tr>
</tbody>
</table>

*This total includes the 40 minimum training units required, plus 30 additional training units that must be earned in any of the training areas 11-13.

### Category C: Management

<table>
<thead>
<tr>
<th>Training Areas</th>
<th>Required Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>14. Project Management</td>
<td>15</td>
</tr>
<tr>
<td>15. Office Management</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total Training Units Required</strong></td>
<td><strong>35</strong></td>
</tr>
</tbody>
</table>

*This total includes the 25 minimum training units required, plus 10 additional training units that must be earned in either training area 14 or 15.

### Category D: Related Activities

<table>
<thead>
<tr>
<th>Training Areas</th>
<th>Required Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. Professional and Community Service</td>
<td>10</td>
</tr>
<tr>
<td><strong>Other Related Activities</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Training Units Required</strong></td>
<td><strong>10</strong></td>
</tr>
</tbody>
</table>

**TOTAL IDP TRAINING UNITS REQUIRED** .......................... 700*

*The required minimum in Categories A, B, C, and D totals 465 training units. The additional 235 training units may be acquired in any of the listed categories.
Appendix B

Interview Protocol #1

FOCUS ON KNOWLEDGE, SKILLS, AND ATTITUDES

As in semi-structured interviews this is a tentative list of questions. Follow-up questions will be made based on the interviewees’ answers.

Participant: Role: Supervisor (S) Mentor (M), Intern (I) Date:

1. Thank the participant for willingness to participate
   a. Provide an overview of the project
   b. Describe nature/extent of requested participation

2. Obtain informed consent
   a. Provide standard assurances for participation
   b. Have participant sign consent form
   c. Request permission to record the interview

3. Conduct interview

   Background Questions

   S/M: Please describe your professional background. How did you get to where you are now?
   S/M: Describe your current role in the firm.

   I: Please describe your educational background.
   I: What was the process for securing an internship in this firm?
   I: Describe your current assignment in the firm.

   Perspectives on Curriculum: Views on Knowledge, Competencies, and Attitudes

   S/M: What would you say is the required knowledge base of an architect with prospects to join the firm?
   S/M: In that context, what are the key competencies or skills that you look for in a prospective architect?
   S/M: What about attitudes and personal dispositions? What do you look for in a potential hire?

   I: Through your participation in the internship, what is the knowledge base you are expected to learn?
   I: What are the expectations regarding architectural competencies or skills?
   I: What about attitudes and personal dispositions? What are the related expectations?
Internship Structure

S/M: Now, please tell me about the general organization of the internship at your firm. Let’s say I am a new intern, what should I expect to happen prior to and during my first month with the firm?

S/M: Then, what should I expect to happen during my first, second, and third year of the internship?

S/M: At the end of my internship, what are the areas I should have grown professionally?

I: Go back to the start of your internship, what were the learning expectations from the firm? How were the expectations communicated?

I: Then, as you have progressed in your internship, what happened during your first, second, and third year with the firm?

I: At the end of your internship, what do you think are the areas that you should have grown professionally?

4. Ending the interview

• Thank the participant for the interview
• Is there anything that you would like to add to this conversation regarding architectural knowledge and skills expectations?
• Are the any questions you would like to ask me regarding this interview or study?
Appendix C

Interview Protocol #2

FOCUS ON INTERNSHIP ORGANIZATION, INSTRUCTION, AND ASSESSMENT

As in semi-structured interviews this is a tentative list of questions. Follow-up questions will be made based on the interviewees’ answers.

Participant: ____________________  Role: Supervisor (S), Mentor (M), Intern (I)  Date: __________

1. Thank the participant for willingness to participate
   • Provide an overview of the project
   • Describe nature/extent of requested participation

2. Obtain informed consent
   • Provide standard assurances for participation
   • Have participant sign consent form as needed
   • Request permission to record the interview

3. Conduct interview

   About mentor selection and role

   S/M: How does the firm select a mentor for each intern?
   S/M: Is there any training associated with the preparation of mentors? If so, please tell me about it.
   S/M: What is the expected role of the mentor?

   I: As an intern, do you know how your mentor was selected?
   I: Do you know if there is any training associated with the preparation of mentors? If so, please tell me about it.
   I: What has been the role of your mentor during your internship?

   About the internship

   S/M: What is the expected role of the intern?
   S/M: How are expectations communicated between mentors and interns?
   S/M: What is the process through which mentors ensure that interns meet learning expectations?
   S/M: Describe the process through which specific knowledge or skills are learned and practice by interns.
   S/M: Describe the strategies to help interns learn and/or develop expected professional dispositions.
   S/M: How do you determine when interns have acquired the expected knowledge, competencies, and dispositions they need?
S/M: What are the instructional and/or learning experiences that you think work best with interns at your firm?
S/M: What areas of the internship, if any, you think can be improved and in what ways?

I: What is your expected role in the firm during the internship?
I: How are expectations communicated between mentors and interns?
I: How does your mentor work with you to ensure that you meet the learning expectations for the internship?
I: Please describe the process through which specific knowledge or skills were learned.
I: Describe the strategies, if any, to help you develop expected professional dispositions.
I: How do you know when you have met the expected learning requirements?
I: What are the instructional and/or learning experiences that you think work best at the firm?
I: What areas of the internship, if any, you think can be improved and in what ways?

4. Ending the interview

• Thank the participant for the interview
• Is there anything that you would like to add to this conversation regarding how the internship is facilitated and structured?
• Are the any questions you would like to ask me regarding this interview or study?
Appendix D

Interview Protocol #3

FOCUS ON ACCULTURATION SUPPORTS AND STRATEGIES

As in semi-structured interviews this is a tentative list of questions. Follow-up questions will be made based on the interviewees’ answers.

Participant: Role: Mentor (M), Intern (I) Date:

1. Thank the participant for willingness to participate.
   - Provide an overview of the project
   - Describe nature/extent of requested participation

2. Obtain informed consent
   - Provide standard assurances for participation
   - Have participant sign consent form as needed
   - Request permission to record the interview

3. Conduct interview

   M/I: How does the firm provide access to resources and the entire firm to help interns get acquainted to the community’s environment?
   M/I: How are the opportunities to learn architectural practice distributed and structured in the apprenticeship?
   M/I: What are the strategies to help the interns learn the social and organizational structure of the firm?
   M/I: How do interns get to process and internalize what they are getting in their apprenticeship experience?
   M/I: What are the strategies to ensure that the three-year internship is rigorous and interesting?
   M/I: What projects have been particularly significant to the interns? How come?
   M/I: What would you say is the most important aspect of this firm that an intern should learn?
   M/I: Are there any other type of supports provided to the intern besides mentorship assistance?

   I: As an intern, do you know about the origin and outlook of the firm?
   I: As an intern, how has your apprenticeship experience helped you learn and develop the habits and values of an architect?

4. Ending the interview

   - Thank the participant for the interview
• Is there anything that you would like to add to this conversation regarding internships supports?
• Are the any questions you would like to ask me regarding this interview or study?
Appendix E

Interview Protocol #4

FOCUS ON THE OVERALL INDUCTION EXPERIENCE

As in semi-structured interviews this is a tentative list of questions. Follow-up questions will be made based on the interviewees’ answers.

Participant: Role: Intern (I) Date:

1. **Thank the participant for willingness to participate.**
   - Provide an overview of the project
   - Describe nature/extent of requested participation

2. **Obtain informed consent**
   - Provide standard assurances for participation
   - Have participant sign consent form as needed
   - Request permission to record the interview

3. **Conduct interview**

   I: Beside your assigned IDP supervisor and mentor, who in the office plays a significant role in your experience of becoming an architect?
   I: At this point in your internship, to what extent do you feel you have acquired the expected knowledge, skills, and dispositions for becoming an architect?
   I: Is there an area where you wish you had spent more time learning related knowledge and skills?
   I: Compared to how you started in your internship, how do you perceive your overall knowledge and skills in architectural practice compared to a practitioner architect in the firm?
   I: Besides knowledge and skills, how do you perceive your overall knowledge and understanding of the profession, compared to when you started in your internship?
   I: Reflecting on your internship experience as a whole, what would you say were the most helpful experiences and/or supports?
   I: By the same token, what were the components, strategies, and/or supports that you feel did not work as well and need improvement?
   I: Not withstanding licensure, do you now consider yourself an architect?

4. **Ending the interview**
   - Thank the participant for the interview
   - Is there anything that you would like to add to this conversation regarding your overall internship experience?
   - Are the any questions you would like to ask me regarding this interview or study?
ABOUT THE AUTHOR

Thomas Stephen Szumlic Szumlic is an architect and design educator with diversified and accomplished professional experience. He earned his six-year professional undergraduate degree in architecture at the University of Cincinnati College of Design, Art, and Architecture where he received the benefits of cooperative education. After graduation he served a 2-year apprenticeship with Michael Graves, Architect after which he successfully passed the architectural registration examination and then on to private practice and ownership, which he still enjoys. He received his Master’s Degree in Interior Design from Florida State University where his thesis research focused on the application of design theory in design education. His post secondary teaching experience includes instructor and academic chair.