University Faculty Design-Thinking Personas for Online Course Development: A Q Methodological Study

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UNIVERSITY FACULTY DESIGN-THinking PERSONAS FOR ONLINE COURSE DEVELOPMENT: A Q METHODOLOGICAL STUDY

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Agricultural and Extension Education and Evaluation

by

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December 2020
This dissertation is dedicated to my parents, whose unconditional love and support made this work possible.
ACKNOWLEDGMENTS

I started my PhD program eight years ago. While I have encountered most joyous highs along this journey—like marrying my best friend, Rob, starting a family and welcoming our two sons, Owen and Andrew, into the world, buying and renovating our first home—the path to completion was also rife with challenges. These challenges were only conquerable with the steadfast support, encouragement, and patience I received from my family and friends, committee members, and colleagues. There were so many timely and serendipitous events along the way that resulted in the better path forward, and I can only look to God for any explanation. He has always provided a way and this is the eternal truth in my life.

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ABSTRACT

To overcome the inherent complexities of planning and implementing effective online learning experiences at scale, it has been suggested that design-thinking tools and practices can be leveraged by faculty and collaborative support staff (e.g., instructional designers). However, little is known about what design-thinking approaches are perceived by faculty to be important to the online course design process, and what tools and practices might be prioritized or avoided given planning stage and individual context. Understanding these nuances would provide much needed insight to align support directly with faculty needs. This study used Q methodology to explore the subjective viewpoints of 20 faculty engaged in online course development regarding preferred design-thinking approaches for planning and implementing effective online learning experiences. Q factor analysis resulted in a three-factor solution indicating that three distinct views existed among the faculty participants. To interpret these views, Q factor data were triangulated with participants’ interview and demographic data, which illuminated three design-thinking personas: Pragmatic Designers, Critical Academic Designers, and Emergent Designers. Each persona viewed changes in student learning as an important design guide as well as the provision of application examples in practice. However, personas operationalized the design process differently, which revealed a predominant lens from which design decisions were made. Pragmatic Designers framed design-decisions in terms of utility and past experience, often referring to classroom experiences when considering the online environment. This persona was open to experimenting with course design if the case could be made that it might improve student learning. Critical Academic Designers were creatively confident and preferred an unstructured design process that relied mostly on past experience and carefully curated sources to intuitively shape the learning experience. Emergent Designers embodied a maturing design process that
aimed to meet current expectations of administration, students, and others while aspiring to make
design improvements over time. The study concludes that tenure status and online experience
appear to distinguish personas, indicating that professional context and prior knowledge of the
online environment may influence design-thinking approaches. Implications for scaling online
course design and development are discussed along with relevant recommendations for practice
for instructional design teams supporting faculty.
CHAPTER 1. INTRODUCTION

In Louisiana, only 44.2% of working-age residents have a baccalaureate degree or work-based credential—a figure that is nearly 3.5% lower than the national average (Lumina Foundation, 2019). To complicate this issue further, it is projected that by 2020, 65% of employment across the nation and 58% of jobs within Louisiana will require advanced educational training (Carnevale et al., 2016; Louisiana Workforce Commission, 2018). Further, it has been suggested that the majority of jobs estimated to be available in 2030 have yet to be determined due to the fast-moving nature of the technology sector and an ever-evolving economy (Institute for the Future, 2017). Moving forward, the Louisiana Board of Regents (The Board) called for “60% of all working-age adults (ages 25–64) in Louisiana to hold a degree or high-value credential by 2030” (Louisiana Board of Regents, 2019, p. 5).

Further, The Board has identified three challenges that must be met to adequately develop talent in the state. These challenges include (1) expanded access to and success in completing postsecondary education, (2) elimination of persistent and damaging equity gaps, and (3) a significant increase in the education level of adults (Louisiana Board of Regents, 2019). Through the latest Master Plan for Higher Education, The Board also detailed strategic ways the state plans to “educate, innovate, and collaborate, to double the number of working adults in Louisiana with meaningful, market-relevant postsecondary credentials by 2030” (Louisiana Board of Regents, 2019, p. 2). Therefore, the central goal of the plan is to tap underserved segments of the population and to better serve adults that need to return to, or enter, postsecondary programs by providing affordable pathways that are effective in facilitating greater higher educational attainment in the state (Louisiana Board of Regents, 2019).
Such a position encourages state higher education institutions in Louisiana to explore and deliver alternative credential pathways for diverse student populations, which, in a majority of cases will use online learning platforms to deliver academic instruction. This is expected since business and industry demand more opportunities for online teaching and learning so that adults can work while earning an advanced degree (Draves, 2013). As such, higher education institutions’ effort to increase access to education through online teaching and learning modalities is a logical step in securing access to this untapped market.

In the broader context of online education, there has been a steady increase in online programs and course offerings over the past few decades (Allen & Seaman, 2013; Seaman et al., 2018). As of 2016, 31.6% of college students were enrolled in at least one online course (Seaman et al., 2018). A national survey of the higher education landscape surveyed 280 institutions regarding areas related to online programs. The results indicated that four-year public institutions grew fully-online enrollment by 7.3% from 2017 to 2018 and that a perceived main source of competition was online programs from other public institutions (Garrett et al., 2019). This finding is echoed by nearly half of executive higher education leaders who indicated that increasing the number of fully-online program offerings was a strategic priority for their institutions (Garrett et al., 2019).

The goal of expanding access to education as a strategic institutional priority aligns clearly with the mission of many state flagship universities as well. For example, although the technology continues to evolve, the primary driver of distance education has always been to provide more access to formal education to underserved people. (Kentnor, 2015). Such social and historical movements remain relevant in higher education today, and particularly in
Louisiana. Therefore, it is critical to understand the historical context of distance education and its evolution within in higher education.

**Historical Context of Distance Education**

Over the last few centuries, higher education has evolved from a Socratic lecture style to one that more commonly promotes and celebrates a variety of student-centered learning modalities. The origins of distance education can be traced to social efforts to create opportunities for underrepresented populations, such as women, to gain access to formal education activities (Casey, 2008). As an illustration, the use of distance education has been in practice since the 1840s, starting with Isaac Pitman’s innovation of mail correspondence for learning English shorthand (Anderson & Simpson, 2012). Further, in the earlier part of the 20th century, radio was used to broadcast lectures, followed by fully televised courses in the 1970s, such as the Educational Television network (Casey, 2008). Through innovations in communication and technology such as correspondence (parcel post), audio (radio), and video (television), distance education has evolved to meet society’s needs over the past century (Anderson & Simpson, 2012; Kentnor, 2015).

**Rise of Online Learning**

The innovation of the Internet and World Wide Web, spurred the most recent evolution of distance education to include what we know today as online learning (Kentnor, 2015). In the early 1990s, the University of Phoenix became one the first higher education institutions to offer online education programs to make higher education more accessible to working adults (Kentnor, 2015). Then, by 1998, New York University emerged as one of the first non-profit intuitions to offer online programs, building on its existing continuing education school. It was during this time that the rate of adoption increased for online education throughout the United
States (Allen & Seaman, 2008). Rapid online growth in the early 2000s could be due to socio-economic factors and also job and labor markets. More and more adults needed to gain access to advanced degree opportunities to have a competitive edge in the job market. Further, these adults desired the flexibility of online education so that they could continue to work and raise families (Seaman et al., 2018).

Definitions and Terminology

The U.S. Department of Education (DOE) defined correspondence education and distance education as completely separate modalities, i.e., correspondence education is not considered a form of distance education. Further, common terminology used in practice such as online learning is not explicitly described or defined. Instead, the DOE uses the broader term of distance education and makes distinction by modality according to the specific technologies used to support interaction between students and the instructor. According to the U.S. Department of Education, distance education is defined as:

Education that uses one or more technologies to deliver instruction to students who are separated from the instructor and to support regular and substantive interaction between the students and the instructor synchronously or asynchronously. Technologies used for instruction may include the following: Internet; one-way and two-way transmissions through open broadcasts…and DVDs and CD-ROMs, if used in a course in conjunction with the technologies listed above. (U.S. Department of Education, 2019, para. 4).

In practice, there continues to be ever evolving definitions and terminologies within distance learning and technology. Further, “terms are often interchanged without meaningful definitions” (Moore et al., 2011, p. 129). Moore et al. (2011) identified the following terms in the literature that are commonly used to define learning environments: distance learning, e-Learning, and online learning. Further, there are two primary modalities through which interactions occur in the context of distance education: synchronously or asynchronously. Synchronous interactions occur in a setting in which participants interact in real time (typically at
a predetermined scheduled time), although they may be geographically dispersed. These interactions can be facilitated with the use of synchronous communication technologies such as web conferencing tools (e.g., Skype, Zoom) and instant messaging. Alternatively, asynchronous interactions occur in different time settings—with a time lag between interactions. Technologies used to facilitate asynchronous interactions include discussion forums, social media, and email (Moore et al., 2011). As technology continues to evolve, techniques to ensure quality in the design and delivery of online education continues to change as well (Kentnor, 2015).

Ensuring Quality in the Online Learning Environment

With a strategic eye on scaling online enrollments and expanding access to diverse student populations the stakes are high for academic programs to deliver effective online learning experiences. In particular, today’s online programs must meet diverse student needs and demonstrate value beyond traditional higher education (Brown et al., 2020). With the pressures of scaling online course offerings and managing other workload priorities, such as research, it is becoming increasingly complex for faculty to efficiently design and deliver effective online learning, such that student diversity in prior knowledge, motivations, and learning environment are taken into account (Bennett et al., 2015; Gregory & Lodge, 2015). As a result, many universities are shifting to more student-centric operations to ensure that institutions are meeting the demands of students across academic experiences (Brown et al., 2020; Dahlstrom & Bichsel, 2014; Penta, 2019). Such demands include an increased effort to ensure that the content and strategies employed in courses are effective and meaningful to students (Craig, 2018). Greater emphasis is also being placed on the intentional planning and development of online curricula with a more formalized multidisciplinary team approach for collaborative course design (Gal & Lewis, 2018; McCurry & Mullinix, 2017; Xu & Morris, 2007). Drawing on the diverse skillsets
of faculty and instructional design and technology staff, this intentional collaboration strategy aligns well with existing literature, which recommends providing faculty with access to academic support structures for instructional design and technology as well as professional development opportunities to promote long term implementation and adoption of online learning (Allen & Seaman, 2008; Larreamendy-Joerns & Leinhardt, 2006; Singh & Hardaker, 2014).

Faculty often balance a variety of institutional factors that can impact design decisions for online instruction (Gregory & Lodge, 2015). Caffarella and Daffron (2013) stated that those involved in the planning process frequently disregard organizational, political, or economic contextual factors that may impact the successful planning and implementation of effective instruction, transfer of learning, or evaluation plans. As a result, the successful preparation and implementation of effective transfer of learning plans is often neglected (Caffarella & Daffron, 2013). As the context of higher education becomes increasingly complex, there is a need for faculty to employ creative strategies to ensure the careful and intentional design of online instruction and transfer-of-learning such that the course design works as a student-centered solution, benefitting the student and the faculty member. As such, planning effective online course design and devising effective plans for transfer of learning requires a growth mindset—one that allows for risk-taking, collaboration, and solution creation (Callahan, 2019). Therefore, a need exists for instructional designers and others in collaborative support roles to better navigate the academic program planning context, mediate faculty needs and those of the institution, and encourage and nurture those solution-focused strategies and tools that will lead to effective learning in online courses.

Outside of course design, design thinking tools and processes are becoming more widely used in higher education as a method for creating solutions for complex problems (Penta, 2019).
The design thinking literature suggests that context and design challenges, or needs, play a critical role in how design activities are formed (Kleinsmann et al., 2017). Further, the literature suggests there is a unique opportunity to leverage design-thinking approaches in the online course design and development process (Callahan, 2019; Gal & Lewis, 2018; Whang et al., 2017). Such approaches may help shift the design and development process from one that manages perceived barriers to one that emphasizes opportunities for valuable learning experiences (Whang et al., 2017; Gal & Lewis, 2018). Drawing on this, shifts in mindset, such as the intentional reframing of teaching practice as design practice, may enhance faculty design capacity to more effectively bridge the logistical, pedagogical, and technical components of online course design to sustainably scale efforts for institution-wide reform (Bennet et al., 2018; Dalziel et al., 2016).

**Statement of the Problem**

While there is extensive research identifying those attributes that contribute to ideal design thinking mindsets, there is little literature within the context of online course design and development that describes design-thinking approaches from the faculty perspective, nor do any of the design thinking mindsets described in the literature reveal the nuanced behaviors between design thinking tools, processes, or other practices that reflect the full life cycle of designing an online course (Brenner et al., 2016). Similarly, existing literature on design thinking mindsets typically uses research methodologies that do not allow for the analyses of operant factor subjectivity (Stephenson, 1977). Self-referent methodologies, such as Q methodology, could reveal greater depth and dimensions of thought (Fluckinger, 2014) that are associated with the more granular details of implementing design thinking processes and tools. Further, there is little research about the processes faculty employ when designing and developing online courses in
various contexts that account for the diversity of institutional factors that influence faculty (Gregory & Lodge, 2015). As faculty support is critical to the success and sustainability of scaling effective online programs, there is a need for this level of contextual detail and understanding—the nuanced approaches faculty employ that help to inform their design decisions as they move through the design process—such that instructional designers could better identify opportunities to support faculty in developing design processes in context, thus bringing in their relevant factors as part of the design discussions and decision-making activities in a collaborative design process. Because of these paucities in empirical research, more work is needed to investigate design thinking from the faculty perspective.

**Purpose of the Study**

The purpose of the study was to explore the perspectives of faculty engaged in online teaching and course development at a doctoral university (RU/VH) in the southern region of the United States regarding their preferred design-thinking approaches for planning and implementing effective online learning experiences.

**Research Question**

1. What personas emerged for faculty regarding their preferred design-thinking approaches for online course design and development (i.e., Q-sort factor load and qualitative data)?

**Significance of the Study**

As design thinking continues to be used across industry sectors and within varying contexts, a need exists to understand how non-designers that are new to the concept of design thinking view the essential processes, techniques, and tools used in design thinking across various personal and institutional factors (Johansson et al., 2013). This study fills a critical gap in evidence-based literature that links design-thinking theory and practice through use of Q
methodology to emerge and interpret faculty design-thinking personas for online course development. As such, this study would also provide useful findings in regard to developing operant factors of potential behavioral patterns for faculty of varying levels of online course design experience and other personal or professional characteristics (Stephenson, 1977; Brown, 1993). As a consequence, this study would identify nuanced design-thinking and course management principles relative to the subjective viewpoint of faculty and their context-driven design process. These findings could provide actionable insights on how such factors could be better initiated and nurtured for faculty who are new online course design (Carlgren et al., 2016; Johansson-Sköldberg et al., 2013; Micheli et al., 2019).

Further, findings from the study could be used to inform future practice for providing instructional design support for faculty who are new to developing of online content. The context of this study, a research intensive university that is strategically scaling online programs offerings, could also help inform approaches to support practices at institutions attempting to scale online quickly, especially in the aftermath of the COVID-19 virus that left many faculty at institutions across the United States grappling with moving to an online format.

**Limitations**

The study is limited by its context specific focus (i.e., design-thinking methodologies for online course design and development in higher education) and by relative academic setting of faculty participants. Specifically, a doctoral university (RU/VH) in the southern portion of the United States that has taken recent and significant measures toward structuring a central academic support unit to support academic colleges through the management (e.g., program, marketing and partnership activities, student recruitment and support, and course design and development) of online degree and certificate programs. Further, as the state flagship land-, sea-,
and space-grant institution, the university’s mission-oriented work and associated academic program planning and governing may also limit the generalizability of the study. It should also be noted that a limitation of this study was that data were collected before the COVID-19 global pandemic. If data would have been collected after the start of the pandemic, results could have varied.

**Definition of Terms**

*Assessment*—The intentional process of measuring the student’s current knowledge and skill level; an assessment can be given during the instructional process to inform progress (formative) and at the end of a unit of learning (summative) (Close, 2017).

*Concourse*—A representation of all the statements related to opinions, attitudes, or other commentary about a particular subject (Brown, 1993).

*Condition of Instruction*—The prompt used to help frame the perspective the participant should use to sort the Q-set (Brown, 1993).

*Design Thinking*—A human-centric approach to solving common and ill-defined problems through use of design practitioners’ mindsets, strategies, and processes (Brenner et al., 2016).

*Distance Education*—According to the U.S. Department of Education, distance education is education that uses one or more technologies to deliver instruction to students who are separated from the instructor and to support regular and substantive interaction between the students and the instructor synchronously or asynchronously. Technologies used for instruction may include the following: Internet; one-way and two-way transmissions through open broadcasts…and DVDs and CD-ROMs, if used in a course in conjunction with the technologies listed above” (U.S. Department of Education, 2019, para. 4).
Empathy—The ability to understand and share people’s thoughts and feelings by putting oneself in another’s context. These inner thoughts and feelings can include, “motivations, emotional and mental models, values, priorities, preferences and inner conflicts” (Suri, 2003, p. 53).

Evaluation—“A process used to determine whether the design and delivery of a program were effective and whether the proposed outcomes were met” (Caffarella & Daffron, 2013, p. 233).

Flagship Institution—A reference from the Morrill Act in the 1950s, an individual public university within a state that is frequently considered the largest, oldest, most selective, and most research-intensive school in the state university system (Knott & Payne, 2004).

Instructional Design—The systematic process of analyzing learning needs and development of quality instruction by following theoretical frameworks for instruction and learning activities (Smith & Ragan, 1993).

Interactive Model for Program Planning—A flexible guide for planning educational programs in a variety of contexts for adult learners that is informed by practitioners’ experiences and grounded in literature in adult learning, cultural differences, relationship building, power and interests, and technology (Caffarella & Daffron, 2013).

Learning Experience Design—Drawing from multiple disciplines such as interaction and user experience design, design thinking, instructional design, and experiential learning, learning experience design is “the process of creating learning experiences that enable the learner to achieve the desired learning outcome in a human centered and goal oriented way” (Floor, 2019, para.1).
Persona—A visual and descriptive representation of a specific end-user of a product, service, or solution. Persona development is an empathetic exercise that designers engage in to understand the functional needs and motivations of the person they are designing for (Newton & Riggs, 2016).

P-Set—the selected group of persons (participants) in the study that perform the rank-ordering of statements (Q-Sort) (Brown, 1993).

Q-Methodology—a research method primarily used to explore human subjectivity (Stephenson, 1953; 1977) in which emerging patterns of thought reflect dominate and concealed perspectives of a particular social group (Brown, 1993).

Q-Set—the subset of opinion statements sampled from the concourse for use in the Q-sort instrument (Watts & Stenner, 2005).

Q-Sort—the main instrument used in Q-Methodology, the ranking of statements (Q-Set) constructed by the study participants (P-Set) and who use the condition of instruction to frame their sorting (Watts & Stenner, 2005).

Scale—the deliberate expansion and widespread implementation of a reform initiative that is successfully sustained. Current conceptualizations view scale as dynamic and include those initiatives that are adopted, replicated, adapted, or reinvented (Morel et al., 2019).

Subjectivity—“A person’s point of view on any matter of personal and/or social importance” (McKeown & Thomas, 1988, p. 7).

Transfer of Learning—the effective application of what a student learned in a course or program “in terms of observable changes in their knowledge, skills, and attitudes” (Caffarella & Daffron, 2013, p. 211).
CHAPTER 2. REVIEW OF LITERATURE

Purpose of the Study

The purpose of the study was to explore the perspectives of faculty engaged in online teaching and course development at a doctoral university (RU/VH) in the southern region of the United States regarding their preferred design-thinking approaches for planning and implementing effective online learning experiences.

Research Question

1. What personas emerged for faculty regarding their preferred design thinking approaches for online course design and development (i.e., Q-sort factor load and qualitative data)?

Design Thinking

Design-thinking is a human-centered methodology for innovation and solution creation that is grounded in both design theory and practice (Brown, 2008; Kelley & Kelley, 2013). Herbert A. Simon, was the first to mention design-thinking when he described it in his 1969 book, The Sciences of the Artificial, as a particular way of thinking (Brown, 2008). Over the last several decades, design thinking has become an effective innovation methodology after having been continuously developed and applied to various complex engineering, technological, and social projects. The process has primarily been developed and refined through work in the Stanford Department of Engineering and the Hasso Plattner Institute of Design at Stanford, more commonly known as the d.school (Carlgren et al, 2016).

Tim Brown, CEO of the design innovation consulting firm IDEO, defines design thinking as “a discipline that uses the designer’s sensibility and methods to match people’s needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity” (Brown, 2008, p. 86). This definition from one of the founding
experts closely aligns to the complex issues at the center of the proposed study — creating effective online learning experiences within higher education at scale. Dave Kelley, the founder of IDEO defines design thinking as “a way of finding human needs and creating new solutions using the tools and mindsets of design practitioners” (Kelley & Kelley, 2013, p.241). These two definitions reveal a stark contrast to analytical processes (Shamiyeh, 2010). Design thinking combines divergent and convergent thinking by applying a solution creation thought process for complex problems and problem-solving processes for feasibility and implementation of the proposed solution (Brenner et al., 2016). For this reason, design thinking is often applied to wicked problems, or commonly ill-defined problems that require innovative yet practical solutions, across various disciplines and contexts. Design thinking tackles these wicked problems by employing human-centric approaches that encompass a design thinker’s mindset, strategies, and process (Brenner et al., 2016). Design thinking leverages the use of cross-functional teams and a multidisciplinary approach. The diverse composition of those involved in the process can help manage change and improve outcomes by sharing different experiences, backgrounds, and viewpoints (Yukl, 2010; Burke, 2011).

As faculty and instructional designers hold various roles and responsibilities and bring knowledge and expertise to the program planning process, the multidisciplinary approach employed by design thinking approaches aligns well with the nature of program planning in higher education and the context of the study.

Design Thinking Process

There are several versions of design thinking with many overlaps. However, IDEO is cited often in higher education publications when discussing design thinking (Gardner, 2017; Mintz, 2017; Morris & Warman, 2015). Brown (2008) explained that there are three cyclic
phases of (1) inspiration, (2) ideation, and (3) implementation. Within these three phases IDEO has also popularized the stages of (1) empathize, (2) define, (3) ideate, (4) prototype and (5) test. While the model is presented in that order, experts claim that you can start at any point and still come to a creative solution (Brown, 2008; Kelley & Kelley, 2013). Throughout the process, teams leverage different tools and methods like empathy maps, wireframes, journey maps, and brainstorming, to quickly generate ideas that focus on the end-user and can be tested quickly for effectiveness. Information gathered from the test can be used to further refine solutions or start over completely (Brenner et al., 2016). For example, personas are visual and descriptive representations of specific end-users of a product, system, or solution (Newton & Riggs, 2016). The development of personas are an empathetic exercise that marketers, software developers, and user experience designers engage in to understand the functional needs and motivations of the person they are designing for or marketing to. The use of personas enables the designer to focus on design solutions that would most impact the end-user in a way that the user finds valuable. Often created from empathy maps, interviews, or other observations, personas are used to make the theoretical concept of a particular type of person more personal and tangible to the design team (Tschimmel, 2012).

**Discourse and Consensus Efforts in Design Thinking**

Design thinking has a rich history with a diverse discourse surrounding design as practice and design as management (Johansson–Sköldberg et al., 2013). Much of the literature on design thinking separates approaches between those who aim to think like a designer to solve complex problems, and those who are designers in practice. Recent studies have attempted to link the two by identifying overlaps in mindsets, processes, tools, and other characteristics so that empirical studies may better inform design thinking theory and practice (Kleinsmann et al., 2017; Micheli
et al., 2019). Through meta-analyses of design thinking literature, Micheli et al. (2019) determined ten common design thinking attributes. These attributes include, creativity and innovation, user centeredness and involvement, problem solving, iteration and experimentation, interdisciplinary collaboration, ability to visualize, gestalt view, abductive reasoning, tolerance for ambiguity, and blending rationality and intuition (Micheli et al., 2019).

Additionally, Micheli et al. (2019) determined eight common design thinking tools and methods which include ethnographic methods, personas, journey maps, brainstorming, mind maps, visualization, prototypes, and field experiments. Finally, the authors discuss how the design thinking tools and methodologies enable the ten design thinking attributes. For example, personas enable gestalt view, interdisciplinary collaboration, visualize attributes while ethnographic methods enable user centeredness and involvement, blending rationality and intuition, and the gestalt view attributes. Brainstorming enables abductive reasoning, interdisciplinary collaboration, blending of analysis and intuition, iteration and experimentation while prototypes enable iteration and experimentation, early failure, interdisciplinary collaboration, ability to visualize attributes. Lastly, visualization tools and methods enable interdisciplinary collaboration, ability to visualize, abductive reasoning, iteration and experimentation, user centeredness and involvement, gestalt view, and blending of analysis and intuition attributes (Micheli et al., 2019).

This study draws on design thinking approaches defined in the literature to explore which program planning tasks and design thinking tools and processes faculty perceive as valuable to their design and development process. Emerging personas of faculty could help support staff, such as instructional designers, to better understand how to cultivate and nurture positive qualities during the design and development process.
**Design Thinking in Higher Education**

Gal and Lewis (2018) designed a descriptive case study that investigated the user experiences of a multidisciplinary team employing a learner-centered design process to the development of a cost-effective digital environment prototype at Empire State College. The five dimensions related to next generation digital learning environment (NGDLE) were used as a baseline measure of elements to include in design. These dimensions are described as interoperability and integration; personalization; analytics, advising, and learning assessment; collaboration; and accessibility and universal design.

The multidisciplinary team of faculty, instructional designers, students, and technologists wanted the environment prototype to serve as a holistic space for courses within a program experience, rather than the traditional silo sequenced course experience. Although many of the familiar program elements were included, they were redesigned for a more learner-centered space. Specifically, Gal and Lewis (2018) included the following elements in the design:

- course spaces that could be designed with mastery, competency-based, and taught pathways;
- portfolios that support reflective learning and self-publishing (sharing);
- learning object repositories—with options to curate or co-create;
- social networking spaces to include discussion/study groups and microblogs;
- connections with guest experts beyond a simple speech or lecture;
- collaborative research among faculty and students;
- student showcases and space for practice doing research presentations; and
- a mix of private and public facing spaces to showcase work (p. 318).

The authors proposed that design-thinking approaches provide a mechanism for multiple stakeholders in higher education to message across disciplines and perspectives in a way that can be received and facilitated by those participating in the process. In addition, Learning Experience Design (LXD) is presented as a practice that merges user experience design and instructional design, pedagogy, acquisition of knowledge and skill but within a contextual space and to design
for specific needs, often balancing those of the student, faculty, and support system. The team
designed the environment over six months. During the process, the team emphasized student
needs by framing the user experience and learner experience design principles as student needs.
These principles were based on work by Cross (2011) and included value, usability, desirability,
and adoptability. The team leveraged design thinking tools like experience maps, learning
journeys, personas, and student focus groups. Information collected from focus groups helped
design specific features and functionalities of the learning environment. The study revealed that
one of the key features students valued the most was a flexible calendar they could integrate with
their own work schedule and professional calendars. The authors recommended areas for future
research, which included further prototyping and refinement of the environment and studying
faculty pain points and observations as users of the environment (Gal & Lewis, 2018).

**Instructional Design Support Service for Faculty**

Literature suggests that a team approach to developing online courses promotes quality
and effective online learning, but that support tactics by academic support staff should be
empathetic and individualized to faculty (Howland & Wedman, 2004; McCurry & Mullinix,
2017; Mullinix, 2006). When serving as academic support, McCurry and Mullinix (2017)
describe an individualized model that is able to focus the design and development process
“around the unique qualities of individual faculty, their academic and professional knowledge of
the course content, and the body of skills and knowledge introduced by a partner instructional
designer” (McCurry & Mullinix, 2017, p. 1). Further, the authors describe the instructional
designer as a *partner course designer*, who plays a key role in design and development process
by providing supportive skills and expertise (McCurry & Mullinix, 2017).
While this description makes sense, it is important to remember the roles and responsibilities of faculty and academic support staff. As curriculum is faculty-driven and teaching is a highly personal process, expertise provided by the instructional designer should be approached with caution so as to not cross academic or personal boundaries (McCurry & Mullinix, 2017). As such, the instructional designer must learn to navigate the complexity of course development while honoring institutional roles and being mindful of ego, beliefs and values, aspects of self-efficacy, teaching philosophies, and behaviors. Consequently, McCurry and Mullinix (2017) described ten key support practices that take these into consideration so that university instructional designers can employ a more individualized approach to course design and development.

**Conceptualizations of Scale**

A growing body of literature offers definitions and conceptualizations of *scaling up* reforms in the context of education, so that the nature and methods of widespread change implementation in educational settings can be better understood (Coburn, 2003; McDonald et al., 2006; Morel et al., 2019). These conceptualizations are important to present as they help to frame the institutional forces that may influence how and why faculty design online courses in addition to those support strategies developed by service and support staff.

The term *scale* is often defined as a deliberate expansion involving either replication or mutual adoption of models, or those efforts that increase to the point of achieving a critical mass within a particular area (Datnow et al., 2002; Stringfield & Datnow, 1998). However, as attempts to scale educational reforms have seen both success and failures, the former definitions “fail to capture the multidimensional nature of the problem” (Coburn, 2003, p. 8). This is an important issue because definitions of scale inform strategies in practice as well as how researchers study
the problem of scale. Coburn (2003) reviewed and compared over 35 theoretical and empirical studies and descriptive accounts from literature of instructional improvement reform outcomes that resulted in four interrelated themes used to conceptualize at scale within an educational context. Coburn (2003) conceptualized at scale as those reform initiatives that exhibit depth, sustainability, spread, and shift in reform ownership.

In Coburn’s (2003) conceptualization, depth of scale focuses on the nature of the change and quality of the implementation, such that the reform effects teachers’ beliefs, norms of social interaction, and pedagogical principles. Scale is also described by Coburn (2003) as those adopted and implemented reforms being sustained by the original and subsequent adopters over time. Coburn (2003) described spread similarly to the traditional conceptualization of scale by focusing on growth of a reform. However, this growth is conceptualized as being both outward and inward such that the reform enacts consequential and internal systemic change. Finally, a shift in reform ownership indicates that the knowledge and authority of the reform efforts are situated internally and self-generated by those directly involved in the initiative (Coburn, 2003; McLaughlin & Mitra, 2001).

Although Coburn’s research and multidimensional conceptualization of scale considered implementation factors most critical to reformers, this view neglected to consider critical reform consequences of the student as a primary indicator of scale (McDonald et al., 2006). As such, McDonald et al. (2006) argued that the focus of scale should include student achievement as a key outcome and thus integral to its conceptualization.

The most recent attempt to conceptualize scale has been made by Morel et al. (2019) through their extensive review of literature regarding scale within domains of education, organizational theory, social networks, social movements, and digital media studies. Although
the authors define scale as “the outcome or reformers’ desired end-state for how a large number of users engage with an innovation,” (p. 2) they argue that the outcomes of scale efforts can vary depending on the needs and intended outcomes of the reformers. As a result, normative conceptualizations would not be appropriate due to the dynamic nature of scale in real-world implementations. Using qualitative analyses and synthesis of the empirical research and conceptual articles, Morel et al. (2019) identified four conceptualizations and presented these as a dynamic typology of scale. The four conceptualizations include adoption, replication, adaptation, and reinvention (Morel et al., 2019).

The adoption conceptualization of scale includes salient features such as widespread use without end-use or outcomes explicitly defined. Adoption strategies can build legitimacy and network effects as more people adopt the reform (Morel et al., 2019). The replication conceptualization is considered at scale “if it is widespread, implemented with fidelity, and produces expected outcomes” (Morel et al., 2019, p. 3), whereas adaptation at scale allows for modification of implementation to suit the needs of local reformers and users. With the latter conceptualization, local reformers understand their context and intentionally use this knowledge in order to adapt implementation strategies effectively. In these situations, adapters should maintain a “core set of principles that bound local modifications” (Morel et al., 2019, p. 3). Lastly, reinvention at scale occurs when reformers build on previous iterations of the innovation in other contexts. Here, a key difference is that a change in use-cases is an expected outcome as the innovation spreads (Morel et al., 2019).

Complexities of Scaling Teaching and Learning Reforms

As competition is a major driving force for online learning, increasing student enrollments, expanding student support structures, and growing the number of innovative and
high-quality online programs has become part of the strategic plan for many institutions in higher education. As such, the issue of implementing student-centric educational models at scale and within the online environment creates a multidimensional layer of complexity to the current state and attempts to scale high-quality learning experiences. Therefore, complex institutional factors and shifts in faculty teaching paradigms become the context in which online course design decisions are made.

The Learner-Centered Paradigm

Employers today are looking for graduates that are competent in technical, cognitive, and social skills in the workplace. Traditional higher education teaching and learning primarily revolve around an instructor-centered paradigm that includes a passive arrangement of the teacher imparting knowledge on the student. However, research in cognitive sciences has shown that deeper learning can occur when a person is actively engaged in the learning process. As such, a paradigm-shift in practice has centered largely on the notion that the traditional instructor-led approaches are insufficient in effecting the level of understanding expected of the student once out in the real world. Jungst et al., (2003) stated that a prepared citizenry needs to be competent in “higher order thinking skills, problem solving, ability to see from diverse perspectives, ethical reasoning, and life-long learning” (p. 70). Further, this deeper level of understanding is necessary for a student to successfully retrieve and make sense of knowledge such that they are able to synthesize and apply their learning in other situations. For today’s college graduate to effectively apply their learning in the real world, opportunities to engage in active learning processes during their post-secondary career are critical to the success of student learning outcomes and transfer of learning outside of the classroom context. However, this shift from instructor-centered to student-centered teaching practice is not a minor one; rather it has
frequently been framed as a transformational change in higher education teaching (Gardiner, 1994; Jungst et al., 2003; Mullin, 2001).

As the notion of a paradigm shift spread across universities, a need developed for faculty support models for implementing learning-centered design in practice. Since the 1970s faculty professional development programs for effective teaching and learning have become increasingly formalized through the dedicated funding and recognition by the institution and other organizations (Singer, 2002). However, “assessment of complex learning goals remains an aspiration rather than a reality in many institutions,” (Ratcliff et al., 2001, p.18) which can likely be attributed to the complex organizational challenges and misaligned strategies of attempts to scale reforms (Ratcliff et al., 2001).

**High-Quality Online Learning**

Moloney and Oakley (2009) reviewed enrollment trends and characteristics of seven higher education institutions that have significantly scaled online learning initiatives. In completing their review, common themes found among the institutions resulted in the identification of ten key characteristics of successful implementation at scale. These characteristics include: (1) strong institutional support characterized by integration of the online programs in the campus mission and strategic plan, (2) specialized units dedicated to the development and support of online programs, (3) financial models that encourage scaling of online programs either through reinvesting of net revenue in campus units and/or through self-supported initiatives (4), program development emphasizes the delivery of complete online degrees, rather than individual online courses, (5) pedagogy and course design that emphasizes interaction among students and faculty, (6) marketing initiatives insure that online programs reach their target enrollments, (7) high quality training and support for online faculty, (8) student
support services that meet the needs of online students, with students treated as customers, (9) the ability of the institution to scale its online faculty, and (10) an emphasis on teaching and/or outreach and continuing education. Moloney and Oakley (2009) also identified misalignment with institutional mission, faculty focus on research, faculty resistance to change, and limitations of technology infrastructure and support as the common obstacles to achieving scale at non-profit institutions. When both characteristics of success and known obstacles are viewed in light of conceptualizations of scale as reform, the ability to scale high-quality online learning successfully for many institutions implies transformational change and culmination of strategic reforms across organizational, cultural, and environmental structures.

**Factors Influencing Faculty Adoption of Online Teaching**

A number of empirical studies regarding faculty perceptions of online learning have provided evidence for key influences in faculty decisions to adopt reform (Allen & Seaman, 2008; Larreamendy-Joerns & Leinhardt, 2006; Singh & Hardaker, 2014). Compatibility of faculty instructional values and teaching objectives with the online environment have been found to influence faculty decisions to adopt technology-enhanced or fully online learning (Larreamendy-Joerns & Leinhardt, 2006). Singh & Hardaker (2014) found that the relative advantages of online learning, such as flexibility of time and space in learning and instruction, increased access to a more global community, and the opportunity to engage diverse instructional methods, were all factors that lead to faculty adoption. However, Allen & Seaman (2008) found that the relative effort to teach and develop online courses can often negatively counter the perceived relative advantages. Furthermore, frequent barriers to faculty adoption of online instructional technologies include a lack of technology support structures and training in online pedagogy (Singh & Hardaker, 2014).
Factors Influencing Implementation of Online Teaching at Scale

Once institutions have made the decision to move forward with online teaching initiatives or reforms, other challenges exist for successful implementation at scale. When making the case for depth as an indicator of scale within an educational context, Coburn (2003) described how reform is often quantified as having only been implemented, which does not take into consideration how substantive the implemented practice is. Using the example of teaching and classroom reforms, Coburn (2003) described a lack of depth in the nature of the implementation as the manifestation of superficial practices that may outwardly appear as reform implementation but lack any disruptive change in teachers’ norms or routines (Spillane et al., 2002). Spillane (2000), as quoted in Coburn (2003), described that in drawing on their “prior knowledge, beliefs, and experiences to interpret and enact reforms,” (p.4) teachers’ often follow-through with change by adopting approaches that are similar to what they already do in the classroom, which might hinder opportunity to enact deeper pedagogical change (Spillane, 1999; Spillane & Jennings, 1997).

This tendency for a lack of depth within some scaled implementations can be seen in the Blin and Munro (2008) exploratory study in which faculty teaching practices were investigated in the case of using newly adopted instructional technology, such as how faculty used the university learning management system (LMS) for their courses. Results of the Blin and Munro (2008) study indicated that although many faculty were using the learning management system for their courses, they were mainly replicating existing teaching practices within the LMS. For example, faculty were primarily using the LMS to upload static documents for students or traditional learning activities such as multiple-choice quizzes or single assignment submission drop-boxes (Blin & Munro, 2008). Technology was not being used to transform how teachers
created opportunities for learning or how students engaged course content. Blin and Munro (2008) attribute this to teachers’ lack of appropriate competencies, such as tool-related competencies and task-related metafunctional competencies, for designing and developing instruction within the virtual environment. Further, the authors found professional development opportunities provided by university support staff to be misaligned with the needs indicated by faculty, specifically opportunities that would support the development of the appropriate competencies (Blin & Munro, 2008).

Gregory and Lodge (2015) echoed this perspective but with the misalignment related specifically to faculty and staff workload. With strong relationships to academic identity and academic value, there can be resistance to implementation strategies and professional development activities surrounding technology-enhanced learning (TEL). The authors stated that successful implementation would “ultimately require the alteration to academic identity development with regards to the nature and purpose of higher education where TEL is a market-driven operative” (Gregory & Lodge, 2015, p. 6). Gregory and Lodge (2015) found that challenges with implementation strategies was influenced by the following factors: associations of workload with academic identity, how institutions valued technology-enhanced learning, shifts in university focus on academic identity, and how much time was allocated to faculty to up-skill technological capacity.

Factors Influencing Online Teaching Approach

Badia et al., (2017), studied the influence of personal and professional characteristics such as gender, age, academic background, online teaching dedication, and teachers’ roles on the adoption of online teaching approach for faculty at a fully online university. Faculty participants (n = 965) were surveyed to determine characteristics of selected personal and professional
demographic, perception of teachers’ roles in teaching online, and perception of approaches to teaching online, which were grouped by approaches related to content acquisition, collaborative learning, and the knowledge building approach. Using multiple regression analyses, Badia et al. (2017) found that teaching role was the strongest predictor in adopting a certain online teaching approach. Faculty age, academic background, and online teaching dedication were also found to influence certain approaches to teaching online. Ray et al. (2012) investigated faculty perceptions of the purpose of assessment in higher education. The Q study found faculty perceptions were distinct in views of the role and utility of assessment, and that there was a tendency to view assessment activities negatively without involvement in the assessment process.

**Successful Implementation at Scale**

Morel et al. (2019) discussed implications for educational reformers and associated end users within each conceptualization of scale. Morel et al. (2019) focused the discussion largely on the need for reformers to choose strategies that align with the appropriate conceptualization of scale, which is dependent on the intended need or outcome of the reform.

Returning to Coburn’s (2003) initial conceptualization of scale, a reform is considered *at scale* when the following characteristics are evident: “deep and consequential change in classroom practice…and teachers’ underlying assumptions about how students learn, the nature of subject matter, expectations for students, or what constitutes effective instruction” (p. 4). Coburn (2003) stated that, “one of the key components of taking a reform to scale, then, is creating conditions to shift authority and knowledge of the reform from external actors to teachers, schools, and districts” (p. 7).
Rather than promoting the concept of *buy-in* as a lack a concern for the long-tail reform efforts and consequences of change, Coburn (2003) conceptualized this ability to sustain growth as *capacity*. Thus, conditions that favor building the internal reformers’ capacity should be considered in scaling up teaching and learning reforms. This position is echoed by Morel et al. (2019) when the authors stated that, in regard to technology-enhanced learning or other educational initiatives, “reformers encouraging adaptation may also require substantial capacity from the users, as well as from themselves” (p. 6). This is due to the requisite knowledge of both the innovation and local context in order to make successful adaptions. Strategies employed by educational reformers should orient around building capacity of “local users to engage meaningfully in adapting innovations” as well as personal capacity to find and discern appropriate information about the local context to better inform strategy (Morel et al., 2019).

As many design-based models focus on adaptation as iteration for continuous improvement purposes, capacity in infrastructure to support more rapid collection of data and analysis is another important consideration (Cobb et al., 2003; Morel et al., 2019). As faculty problematize the various learning experiences they create, they are frequently “building in choice and challenge for students, anticipating student needs and responses, constantly seeking to improve and working with contextual constraints and influences to achieve teaching and learning goals” (Bennett et al., 2017, p. 1016). Further, context is acknowledged (e.g., workload, experience, etc.) those faculty “empowered to enhance their technological capacities” in conjunction with design support can lead to “both high uptake and relevant alignment of student learning outcomes, graduate attributes and overall positive experience for both staff and students” (as cited in Gregory & Lodge, 2015, p.8). A recent paper by Bennett, et al. (2017) discussed capacity building through the concept of teachers as designers as the shift in mindset.
needed to sustain change in higher education, “building design capacity in teachers offers opportunities for large-scale, sustainable change. Targeting the staff who are directly responsible for teaching acknowledges them as agents of innovation and change” (Bennet et al., 2017, p. 1015).

**Overcoming Barriers: Building Faculty Design Capacity for Sustainable Change**

Multiple researchers have made the case that to effect long lasting change in how faculty approach designing and implementing high-quality learning experiences, whether online or face-to-face, there must be a change in the way faculty think about what they do (Bennett et al., 2015; Bennett et al., 2017; Dalziel et al., 2016; Laurillard et al., 2013). As a consequence, researchers claim that building faculty capacity to design effective learning experiences is a scalable strategy that would help to sustain the wide-spread reform efforts in higher education to improve learning (Bennett et al., 2017). Capacity and one’s tacit knowledge, or competence, to operate in a context with the challenge of seeking the best solution to a problem as opposed to an absolute solution. Dohn (2014) elaborated:

> Competence is a relationship in action between the agent and the environment, including tools and people present, and that knowledge is always locally realized and negotiated. Knowledge therefore always has aspects of situational specificity which are essential to its realization and cannot be abstracted away. In consequence, complex processes of transformation and resituating are involved when content from one setting is utilized in another (p. 36).

Because faculty think differently about what they do, a shift in mindset is needed from designing for instruction to designing for the environment and the student’s experience in it (Becker, 2007). However, various instructional design models commonly used in practice can add to the complexity of course design for novice designers. Becker (2007) described instructional design as being *wicked* in the following ways:
When a practitioner reflects experientially, three events not found in the theory to practice model occur. First, the practitioner approaches problems, not as copies of generalized theory but as unique, personal instances. Here, the practitioner pays attention to the nonconforming or anomalous aspects of a problem—those characterized by uncertainty, instability, uniqueness, and value conflict (Rittel & Webber, 1984). The practitioner’s art is that of working through this ‘mess’, not by applying universal rules but by employing intuition, analogies, metaphors (p. 7).

Caffarella and Daffron (2013) made a similar posture in that educational programs are the result of a negotiated process by the planner. The planner (i.e., designer) must negotiate through various program components relative to their own context (e.g., uncertainty, instability, uniqueness, or value conflict). Becker (2007) investigated a developmental framework that consisted of a macro- and micro-level approaches grounded by the guiding questions related to wicked problems approach (Buchanan, 1992). Results indicated that beyond the visual representations of design models, each model contained themes related to the domains of design, development, utilization, management, and evaluation. Specifically, five elements emerged: (1) requirement analysis, (2) specification, (3) design, (4) implementation, and (5) testing. The primary difference between each model is related to the organization and division of tasks, with the essence of the tasks remaining the same for each model (Becker, 2007). Therefore, Becker (2007) posited that using the overall macro perspective, while using iterative sprints to stay in focus complemented by the micro-level approach to individual course components, would build efficiency and clarity of the project. Further, existing models could be leveraged but within a different point of reference, which would allow the instructional designer to address both design activities and management of the project (Becker, 2007).

**Teaching as Learning Design**

Through synthesis of literature and practice, Dalziel et al. (2016) developed a theoretical foundation for educators in the field of learning design. Specifically, the authors sought to frame
learning design as creative teaching ideas that could be adapted and implemented by other educators. Through the effective visualization and representation of teaching and learning activities as a descriptive framework artifact, educators may be more inspired to create and share learning designs when using the framework with appropriate guidance for application in practice (Dalziel et al., 2016). In this regard, Dalziel et al. (2016) assumed the position that learning design frameworks should not be underpinned by any specific pedagogical model, but rather should serve as a descriptive framework that attempts to express the nature and context of any combination of pedagogically-grounded teaching and learning activities. As such, the success of the framework is dependent on “a complex mixture of accuracy and expressiveness of representation, ease of understanding and historical factors” (Dalziel et al., 2016, p. 9). Further, in sharing learning designs, value is placed on the descriptive and sufficient guidance for creation, adaptation, and implementation, which was viewed by Dalziel et al. (2016) as the impetus for widespread improvements in teaching and learning.

Sufficient guidance included activities that help educators “think through their teaching and learning decision-making” (Dalziel et al., 2016, p. 12) such that deeper understanding of methods can support the adoption and implementation of effective learning design. This is important for sharing to occur across disciplines and discernment of appropriateness of use within a specific discipline context. This view aligns with the Morel et al. (2019) typology and conceptualization of scale as adaptation, such that in using educator-created learning design as a scalable strategy, educator reformers must have an understanding of the descriptive use-case in order to make intentional design decisions best suited for the adaptation and implementation context.
Dalziel et al. (2016) stated that the key challenge of the learning design is for educators to “create learning experiences aligned to particular pedagogical approaches and learning objectives” (p. 10). Through cyclical and iterative phases of designing and planning, engaging with students, reflection, and professional development, Dalziel et al. (2016) conceptually organized learning design to interact with three main components (1) educational philosophy, which can include any pedagogical approach and any discipline (2) theories and methodologies, which are influenced by the learning environment, and (3) the learning environment.

Dalziel et al. (2016) described the context affecting learning design decisions as the learning environment. The learning environment is comprised of the institutions, educators, learners, and external agencies and their unique characteristics and values. Further, Dalziel et al. (2016) describe the values and characteristics of each actor and the interactions within and between as affecting learning design through the influence of respective affordances and constraints on the environment. As an example, educator characteristics such as the type and quantity of pre-service teacher training received, past learning experiences, amount of teaching experience, role of peer-educators and mentors, teacher self-efficacy, and values places on the type of learning experiences perceived as important or unimportant for their students are all factors that influence design decisions about teaching and learning activities (Dalziel et al., 2016). Although, faculty may have autonomy with respect to design learning experiences, institutions influence design by providing the structural, cultural, and mission-oriented parameters in which faculty make their design decisions.

Bennett et al., (2017) conducted a qualitative study of how university faculty design learning experiences. Through investigating design practices and contexts, Bennett et al. (2017) sought to better understand primary influences of design decisions and the primary sources of
support that faculty utilized. Across sixteen Australian universities, thirty faculty participants were categorized into either arts or sciences discipline areas with semi-structured interviews conducted regarding design processes. Emerging factors revealed that faculty continually build on and redesign existing courses. Bennett et al. (2017) found that the nature of faculty research, governance, and teaching responsibilities influenced the developmental support of designing mindset, adding the experience of going through the design process helped to shape their design process. Finally, Bennett et al. (2017) found that faculty “face multiple demands and shifting priorities, shaped by institutional and disciplinary contexts, and prior experiences” (p. 1020).

**Theoretical Framework**

This study draws on two major theoretical concepts to guide the research. These include the Interactive Model of Program Planning (Caffarella & Daffron, 2013) and Design Thinking (Brown, 2008; Buchanan, 1992; Plattner et al., 2009). As there are multiple facets of the planning context that impact online course design and development processes in higher education, this study utilizes IMPP (Caffarella & Daffron, 2013) to systematically explore and interpret faculty perspectives in accordance with critical planning components provided in the model. The IMPP was chosen for several reasons. First, a key aspect of the model is its intended flexibility in practice not only in terms of the sequence of planning phases but also in the context of program. This flexibility aligns with autonomy of higher education faculty and faculty-driven governance structures for program planning and implementation cited in the literature. Second, the model draws on a multitude of literature and empirical evidence on which the model is grounded. Using this is an attempt to consolidate multiple valid findings into a single framework from which to frame findings of the study. Third, the model focuses on the collaborative nature of program planning in practice by highlighting relationship building and power relations as key
influences in the planning process. The model recognizes that the most transformative products are yielded through a negotiated process and the ability to discern context. The model accounts for learning transfer which contributes to graduates being successful in the field. It also includes life cycle to evaluate design. Finally, the foundational knowledge and assumptions of the model provide a holistic lens from which to interpret emerging teacher design factors. Further, this study utilizes design thinking methodologies associated with the planning process to explore and interpret faculty subjective decision-making design thinking activities through each critical planning component.

**Planning Educational Programs**

Educational programs can be planned a variety of ways by a variety of people. A program planning model can be defined as a group of ideas that inform the specific approaches to how programs are built and what elements are required to ensure successful outcomes (Caffarella & Daffron, 2013). Further, the program planning process is influenced by the planner, collaborators, and the context of where the planning is taking place such that each may impact the decisions and actions of the program planner (Caffarella & Daffron, 2013; Cervero & Wilson, 2006). There are several program planning models outlined in the literature. These include (1) conventional or traditional approaches, (2) pragmatic or practical approaches, and (3) radical approaches.

The conventional or traditional approach involves a logical and linear approach to the planning process and has been most widely used in the literature (Allen, 2006; Boone et al., 2002; Houle, 1972; Knowles, 1970; Tyler, 1949). The pragmatic or practical approach assumes that change is an inevitable and necessary aspect of the program planning process due to complex and changing situations (Friedmann, 2008). Major works contributing to the pragmatic
or practical approaches include Cervero and Wilson (2006), Forester (1999, 2009), and Netting et al. (2008). The pragmatic or practical approach often accounts for context-driven methods that promote flexibility, negotiation, respecting differences, and debate to address issues. Additionally, context and culture strongly influence the planning decisions made by those planners using this approach.

The radical approach to program planning primarily concerns social activism and transformation and is less widely used within the adult learning literature. While there is not a formal model associated with it, the primary contribution of this planning approach is through the ideas such as “power, conflict, negotiation, democratic ideals, cooperative and participatory planning, and social learning” (Caffarella & Daffron, 2013, p. 14). Additionally, including the learner throughout the entire planning process is a common approach.

Caffarella and Daffron (2013) described five primary purposes of educational programs, which include (1) encouraging continuous growth and development of individuals, (2) assisting people in responding to practical problems and issues of adult life (3) preparing people for current and future work opportunities (4) assisting organizations in achieving desired results and adapting to change, and (5) providing opportunities to examine community and societal issues, foster change for the common good, and promote a civil society.

**Interactive Model of Program Planning**

The Interactive Model of Program Planning (IMPP) is a guide for planning educational programs for adult learners (Caffarella & Daffron, 2013). The model incorporates the three other common program planning approaches into an integrated framework, which is intended as a flexible guide for novice and experienced program planners that can be applied to a variety of adult educational programs in varying contexts. As a guide, Caffarella and Daffron (2013)
leverage the practical experiences of program planners through in-depth scenarios, which help to frame common challenges and the decision-making process as program planners progress through development. First developed in 1994, the model has evolved over the years to reflect additions to the literature and experiences in the field. The most recent version of the model leverages the integrative nature of each component and the interactions within and across components, as well as the integrated use of technology to plan and deliver programs.

Caffarella & Daffron (2013) view change as the primary outcome of educational programs. Change is further categorized as being either individual, organizational, or community and societal change. Individual change can involve an examination of personal values and beliefs, or the acquisition of new knowledge and skills. Organizational change involves the ways in which people work together, a revision of policies, or redesign of procedures. Finally, community and societal change is described as a difference in approaches people take to respond to the world around them, such that positive change can be achieved.

Despite the focus on change as an outcome, Caffarella and Daffron (2013) posit that in reality many planners do not plan for change outright. Assumptions about learners being able to apply what they have learned unassisted as well as a disregard for organizational and time constraints to implement effective learning transfer plans (Caffarella & Daffron, 2013). Further, the authors argue that many planners make the mistake of viewing change as a one-time event instead of a process that adults move through (Caffarella & Daffron, 2013; Hall & Hord, 2011).

**Description of the Model**

Caffarella and Daffron (2013) developed a diagram model to represent the foundational knowledge and program planning components. The design of the model was intentional in that
there is no obvious start or end, and that each of components interacts with each other. The visual representation of the IMPP (Caffarella & Daffron, 2013, p. 29) is depicted in Figure 1.

Figure 1. The Interactive Model of Program Planning

*Note.* The eleven components of the model are found in the center of the diagram. The overlapping and cyclical depiction of the components represent the integrative and non-linear nature of the components. The five foundational knowledge areas are found on the outer edge of the circular model.

**Foundational Knowledge Areas**

Caffarella and Daffron (2013) described five foundational program planning knowledge areas that help to inform the use of the Interactive Model of Program Planning. These areas include (1) adult learning, (2) cultural differences, (3) relationship building, (4) power and interests, and (5) technology (Caffarella & Daffron, 2013). Each of the five areas are important for program planner to understand to most effectively plan and implement educational programs for adult learners. Further, the knowledge areas are pulled from the literature and practice.
Adult learners ingest and integrate knowledge relevant to their own experiences. Drawing on the literature in adult learning, Caffarella and Daffron (2013) described experiential learning strategies, such as allowing adult learners to voice observations and experiences, the use of storytelling, or reflective practice (Schön, 1983). In addition, transformational learning strategies use processes that provide adult learners opportunities to question personal values and beliefs they hold and how they interact with the world (Mezirow, 1978). Non-western and indigenous ways of knowing and learning is addressed by Caffarella and Daffron (2013) using four themes: (1) the communal nature of learning (2) the oneness of learners with their natural world (3) the oral tradition of learning, and (4) knowledge as holistic and grounded in the experience of daily living and culture. The authors used storytelling, as an example of the oral tradition.

Cultural differences are addressed by Caffarella and Daffron (2013) by promoting an understanding of how culture is defined, relationship-building across cultures, and differences in cultural communication. Relationship building is an important aspect of the program planning process. Planners need to be able to work well with various team members and stakeholders. As such, Caffarella and Daffron (2013) expressed the importance of planners to think carefully about actions surrounding relationship building because they can influence the planning process and outcomes of the program.

Power dynamics are a routine aspect of planning educational programs. As humans interact and work within different structures, power equates to the “ability to influence others through position, reputation, expertise, persuasion, negotiation, coercion, including armed force” (Caffarella & Daffron, 2013, p. 76). Power is used in either negative or positive ways and
Caffarella and Daffron (2013) describe skill in power relations is directly related to planner effectiveness.

Caffarella and Daffron (2013) described technology as a way to increase efficiency, increase access to resources, and reduce human error throughout the process. The authors identify four types of technology tools that are useful to the program planning process. These include (1) physical tools (e.g. telephones, computers, etc.), (2) supportive computer programs (e.g., word processors or spreadsheets, presentation software, etc.), (3) educational programs such as instructional technologies for building knowledge or tools that are used to reach a learning objective, and (4) interactive platforms like social media platforms, online resource centers, and online courses (Caffarella & Daffron, 2013).

**Components of the Model**

Caffarella and Daffron (2013) defined eleven components of the IMPP that speak to specific areas and tasks the need to be addressed by the program planner at some point in the planning process. The authors emphasize that planners can work through parts of the model in the order that is relevant to their context. The eleven components are identified as (1) discerning the context, (2) building a solid base of support, (3) identifying and prioritizing ideas and needs, (4) developing program goals and objectives, (5) designing instruction, (6) devising transfer of learning plans, (7) formulating program evaluation plans, (8) selecting formats, scheduling, and staffing, (9) preparing and managing budgets (10) organizing marketing campaigns, and (11) details, details, details (Caffarella & Daffron, 2013). The authors suggest six critical components of the model as ones that elements that the planner is likely to deal with and ones that should be addressed for the success of any course. For this reason, the study explored only those
perceptions related to the six critical components. The six components and associated recommended tasks are presented in Table 1.

<table>
<thead>
<tr>
<th>Critical Component</th>
<th>Planning Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discerning The Context</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Become knowledgeable about the human, organizational, and wider environmental contextual facets that affect decisions made throughout the planning process.</td>
</tr>
<tr>
<td></td>
<td>• Know and be able to access sources of information about the context of the planning situation.</td>
</tr>
<tr>
<td></td>
<td>• Be well informed about the issue of power that is present in most planning situations and the influences that power relationships have in the planning process.</td>
</tr>
<tr>
<td></td>
<td>• Cultivate or enhance negotiation skills required to navigate situations in which power is a central issue.</td>
</tr>
<tr>
<td>Identifying Program Ideas &amp; Needs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Decide what sources to use in identifying needs and ideas for education and training programs.</td>
</tr>
<tr>
<td></td>
<td>• Generate ideas through a variety of techniques.</td>
</tr>
<tr>
<td></td>
<td>• Be aware that structured needs assessments are not the only way to identify ideas and needs for education and training programs.</td>
</tr>
<tr>
<td></td>
<td>• Ensure that a structured needs assessment is warranted, and choose or develop a model for conducting this assessment that is appropriate to the situation.</td>
</tr>
<tr>
<td></td>
<td>• Consider contextual issues that might affect how ideas for programs are generated.</td>
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<tr>
<td></td>
<td>• Select people for the prioritizing process.</td>
</tr>
<tr>
<td></td>
<td>• Develop criteria on which the priorities will be judged, and that will also serve as the justification for the eventual choices.</td>
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<tr>
<td></td>
<td>• Select an approach, quantitative, qualitative or a combination of both, for how the program priorities, grounded in the criteria chosen, will be determined.</td>
</tr>
<tr>
<td></td>
<td>• Determine as part of the prioritizing process whether the needs and ideas that have been identified are appropriate for an education or training program, or whether alternative interventions are needed.</td>
</tr>
<tr>
<td>Developing Clear Program Goals And Objectives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Have a clear picture to follow when developing the program goals of the changes that will be made as a result of this program, and why this program is worth doing.</td>
</tr>
<tr>
<td></td>
<td>• Choose the process or processes to be used in developing the program goals.</td>
</tr>
<tr>
<td></td>
<td>• Write program objectives that reflect what participants will learn, the resulting changes from that learning, and the operational aspects of the program.</td>
</tr>
<tr>
<td></td>
<td>• Ensure that both measurable and non-measurable program outcomes, as appropriate, are included.</td>
</tr>
</tbody>
</table>

(table cont’d.)
<table>
<thead>
<tr>
<th>Critical Component</th>
<th>Planning Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Check to see whether the program objectives are written clearly enough to be understood by all parties involved.</td>
<td></td>
</tr>
<tr>
<td>• Use the program objectives as an internal consistency and achievability checkpoint.</td>
<td></td>
</tr>
<tr>
<td>• Negotiate changes in program objectives, as appropriate, among the parties involved with the planning process.</td>
<td></td>
</tr>
<tr>
<td><strong>Designing Instructional Plans</strong></td>
<td>• Develop clear and understandable learning objectives for each instructional session and ensure they match the proposed learning outcomes.</td>
</tr>
<tr>
<td></td>
<td>• Select and organize the content on what participants “must learn,” which is based on the learning objectives.</td>
</tr>
<tr>
<td></td>
<td>• Choose instructional techniques that match the focus of the proposed learning outcomes, that the instructor is capable of using, and that take into account the backgrounds and experiences of the learners and the learning context.</td>
</tr>
<tr>
<td></td>
<td>• Select instructional resources that enhance the learning effort.</td>
</tr>
<tr>
<td></td>
<td>• Choose ways that instructional assessment data related to how the instruction was delivered and the resources used can be evaluated.</td>
</tr>
<tr>
<td></td>
<td>• Select appropriate assessment techniques for assessing the learning outcomes or results of the instructional activity.</td>
</tr>
<tr>
<td></td>
<td>• Use instructional assessment data in formative and summative ways for the instructional aspects of the program as well as the program as a whole.</td>
</tr>
<tr>
<td></td>
<td>• Prepare clear and concise instructional plans as guides that can assist instructors and learners to stay focused as they move through the instructional process.</td>
</tr>
<tr>
<td></td>
<td>• Make the instructional process work by ensuring instructors know their content, are competent learning facilitators, care about learners, use instructional and assessment techniques appropriately and skillfully, and are well prepared for each instructional event.</td>
</tr>
<tr>
<td><strong>Devising Transfer-Of-Learning Plans</strong></td>
<td>• Be knowledgeable about the major barriers and enhancers that influence transfer of learning.</td>
</tr>
<tr>
<td></td>
<td>• Decide when the transfer of learning strategies should be employed.</td>
</tr>
<tr>
<td></td>
<td>• Determine the key players who should be a part of the transfer of learning process.</td>
</tr>
<tr>
<td></td>
<td>• Provide information to learners, supervisors, and other stakeholders about transfer of learning strategies and techniques so they know what strategies and techniques are available and can select or assist in selecting appropriate ones to use in the transfer process.</td>
</tr>
<tr>
<td></td>
<td>• Select, with the assistance of learners, instructors, and others, transfer strategies and techniques that are the most useful in assisting participants to apply what they have learned.</td>
</tr>
<tr>
<td></td>
<td>• Negotiate and change, where possible, the content, skills, or beliefs that are to be transferred, based on barriers and enhancers to learning transfer in the application site.</td>
</tr>
</tbody>
</table>

*(table cont’d.)*
<table>
<thead>
<tr>
<th>Critical Component</th>
<th>Planning Tasks</th>
</tr>
</thead>
</table>
| Formulating Evaluation Plans | • Develop, as warranted, systematic program evaluation or developmental evaluation approaches.  
• Use informal and unplanned evaluation opportunities to collect formative and summative evaluation data.  
• Specify the evaluation type or types to be used.  
• Determine the techniques for how evaluation data are to be collected, or whether some evaluation data already exists.  
• Think through how the data are to be analyzed, including how to integrate data that are collected through any informal evaluation processes.  
• Describe how judgments are made about the program, using predetermined or emergent evaluation criteria for program success. |

*Note. The tasks are adapted from *Planning Programs for Adult Learners: A Practical Guide, 3rd ed.*, Exhibit 15.1 (Caffarella & Daffron, 2013, pp. 371–374).*

**Assumptions**

Caffarella and Daffron (2013) describe nine assumptions about the program planning process for adult education programs. The authors contend that each of the nine assumptions must be reflected upon as the program planner moves through each component of the model. The nine assumptions and main concepts from the literature are described below.

1. **Focusing on learning and change.** “Educational programs focus on what the participants actually learn and how this learning results in changes in participants, organizations, or societal issues and norms” (Caffarella & Daffron, 2013, p. 33; Hall & Hord, 2011)

2. **Applying what is known about adults as learners.** “Having a clear understanding about adult learning and the factors that affect their learning is fundamental to planning programs for adults” (Caffarella & Daffron, 2013, p. 33).

3. **Honoring and taking into account cultural differences.** “People who plan programs for adults need to be sensitive to cultural differences in their many forms” (Caffarella & Daffron, 2013, p. 33; Merriam & Associates., 2007; Reagan, 2005).
4. Discerning the importance of power and interests. “Program planning is contextual in nature; that is, people plan programs within a social, economic, cultural, and political climate” (Caffarella & Daffron, 2013, p. 34; Forester, 2009).

5. Building relationships. The importance of building working relationships throughout the process of program planning and implementation has been highlighted by program planners as a key part of the process” (Caffarella & Daffron, 2013, p. 34; Cervero & Wilson, 2006; Sork, 2010).

6. Making use of technology. “Knowledge and familiarity with the technological tools and programs available, as well as their potential uses, are fundamental to program planning practice” (Caffarella & Daffron, 2013, p. 35).

7. Being ethical is fundamental. “It is critical that program planners act ethically in their practice” (Caffarella & Daffron, 2013, p. 35; Cervero & Wilson, 2006).

8. Accepting that program planners work in different ways. “Designing educational programs is anything but an exacting practice as there is no single method of planning educational programs that ensures success” (Caffarella & Daffron, 2013, p.35)

9. Understanding that program planners are learners. “Individuals, using one or more planning models as guides, can learn to be more effective program planners through practice” (Caffarella & Daffron, 2013, p. 35).

**Theoretical Structure of the Q Sample**

Caffarella and Daffron (2013) identified six essential elements of the program planning process: (1) discerning the context, (2) identifying program ideas, (3) developing clear program goals and objectives, (4) designing instructional plans, (5) devising transfer-of-learning plans, and (6) formulating evaluation plans. Caffarella and Daffron (2013) explained that the principal
outcome variable of the IMPP is to facilitate a positive change in learners. As such, the study used the six essential elements of program planning advanced by Caffarella and Daffron (2013) as a theoretical structure to distill faculty members’ key design-thinking tools and processes. For example, the theoretical structure created for this investigation consisted of two dimensions (main effects): (1) tools, and (2) processes of design-thinking for online design and development with six levels that aligned with IMPP elements (Caffarella & Daffron, 2013) (see Table 4).
CHAPTER 3. METHODOLOGY

This chapter details the methodological approach used to fulfill this study’s purpose. The chapter begins with a description of the research design followed by a detailed rationale for why Q methodology was appropriate. Then, a thorough explanation is provided of the procedures employed to develop the investigation’s instrument as well as data collection procedures. The chapter concludes with a description of techniques used for data analysis and interpretation.

Purpose of the Study

The purpose of the study was to explore the perspectives of faculty engaged in online teaching and course development at a doctoral university (RU/VH) in the southern region of the United States regarding their preferred design thinking approaches for planning and implementing effective online learning experiences.

Research Question

1. What personas emerged for faculty regarding their preferred design thinking approaches for online course design and development (i.e., Q-sort factor load and qualitative data)?

Research Design

This study used Q methodology, which employs both quantitative and qualitative approaches, to illuminate key dimensions of the phenomenon. Specifically, a Q-sort was used to examine faculty subjectivity regarding the design-thinking approaches they use to design and develop their online course(s). In particular, emerging personas were distilled using IMPP (Caffarella & Daffron, 2013) as a lens to interpret participants’ holistic design-thinking approaches in an online context. Therefore, the study yielded rich data by describing how variability among faculty’s perspectives can be correlated and reduced to a simple structure to reveal latent factors, and interpreted using a comparative analysis of participants’ demographic
and qualitative reflections of their beliefs and practices regarding design of online learning. Before describing the study’s methodological procedures, however, it is critical to situate this study contextually.

**The Research Context—LSU Online**

The study took place at a research-intensive university located in the southern portion of the United States. In accord with recent trends in higher education (Dahlstrom & Bichsel, 2014; Penta, 2019), the university has taken innovative steps to move to a student-centric support structure. For example, the university has recently added new elements to its strategic plan to ensure increased enrollment by supporting the development of high-quality learning experiences and expanding the number of online programs offered (Louisiana State University, 2017). To support such, the university recently restructured several departments to form a single academic support and outreach unit, the Department of Online and Continuing Education (OCE), which is responsible for managing the design and development, marketing and recruitment, and student support for online programs. In many ways, therefore, the newly formed department, LSU Online, operates similar to an in-house Online Program Manager (OPM) to ensure the university has the infrastructure needed to scale high-quality teaching and learning experiences and customer service using a sustainable model for the university.

Any academic program, whether online, face-to-face, or a variant of the two delivery options, is faculty-driven and governed. LSU Online supports academic colleges and departments interested in offering existing or new curricula in a fully-online format, by managing strategic program launches and helping faculty navigate the various forces associated with launching a fully-online program. As an illustration, LSU Online is integral to the design and development of online courses that align with an academic program’s curriculum. To
accomplish this, colleges and departments identify and assign faculty as subject matter experts who work with LSU Online instructional designers to design and develop each course within the program in a designated design cycle. Each design cycle lasts sixteen weeks and is scheduled according to corresponding course offering schedule. Courses are expected to be fully developed by the end of the sixteen-week cycle. Of note, only courses that are part of a fully online degree program are required to engage in such activities. LSU Online provides two models of online course design and development support, the first is a one-to-one model where an instructional designer is paired with a faculty member to design and develop the online course, the second model is cohort-based where faculty attend workshops and design and build their courses with the guidance of instructional designers.

For one-to-one model, LSU Online uses an agile development framework and learning experience design methods and tools, the instructional designers and faculty collaborate to design course outcomes, instructional content, activities and assessments that are subsequently developed, implemented within the online learning environment, and user tested by the end of the sixteen week cycle. Students are not enrolled in the courses within this sixteen week period.

In addition to one-to-one design models, LSU Online offers online course design and development support through a group professional development series called the Special Focus Program. Over the course of 12 weeks, there are three professional development sessions that focus on specific aspects of the online course design and development process, such as creating learning objectives, assessments, curating content and learning resources, and building the course structure in the learning management system (LMS). Throughout the program, faculty members have opportunities to “discuss and learn with peers, receive guidance from a Learning
Experience Designer (LXD), and engage in hands-on course design and development experiences.” (Special Focus Program, n.d., para. 1)

After the professional development sessions conclude at 12 weeks, faculty have an additional four weeks to complete the development of their course and prepare for final course review. Once the faculty member indicates that their course is complete and ready for review, a learning experience designer evaluates the course using a rubric validated by LSU Online. The program is often utilized by faculty who desire to develop online courses for on-campus students who desire additional scheduling flexibility. However, faculty who develop online courses for on-campus students are not required to participate in the Special Focus Program. Many faculty design and develop online courses without any direct support from LSU Online. Only courses developed for fully-online degree programs must be developed through one of the two design support models provided.

In this study, the perspectives of faculty that engage in online design and development in various capacities through LSU online were investigated. In some cases, faculty have worked individually with an instructional designer, while some have participated in a Special Focus program that better aligned with their needs. In addition, some faculty have designed many online course offerings while other faculty have only designed their first course and have yet to teach it per the timing of the study. As a consequence, some of the faculty have been teaching online courses for a number of years, while others have little to no experience.

**Rationale for Q Methodology**

Beyond the conceptualizations of teacher design, Bennett et al. (2017) identified the need for further empirical studies to investigate the design processes, influences, decision-making of faculty who design learning experiences. Further, current gaps in teacher design research in
higher education include comprehensive investigations into the “personal characteristics of teachers that influence design decisions, through to the influence of the institutional and professional context” (Bennett et al., 2017, p. 6) on teacher design. As such, Q Methodology is ideal because it is a self-referent unit of measurement in the study of subjectivity. This provides an intact faculty perspective that is emergent and can be interpreted collectively with each operant factor. In addition, Q Methodology allows for investigation into the nuances between perspectives. Finally, as Q methodology investigates groups of people that share a similar viewpoint, the study adds to the literature further by investigating across diverse faculty groups (e.g., discipline, rank, years of experience, etc.).

Existing evidence has demonstrated that Q methodology is an appropriate approach to emerge personas of faculty in regard to instructional design, teaching, and technology (Akhtar-Danesh et al., 2009; Close, 2017; Kopcha et al., 2016; Morrison & Wagner, 2017; Walker et al., 2018). For instance, Close (2017) reported that faculty held divergent viewpoints about formative assessment and implementation practices. As a consequence, implications spoke to the ways in which the instructional designers could use such insights to target faculty needs by offering more tailored support and opportunities for professional development. Further, the use of Q methodology to determine faculty perspectives toward the creation of a new academic school was described by the faculty participants as being inclusive and democratic in nature (Ramlo, 2012). Thus, Q methodology is a powerful and efficient approach to informing design training processes that honor diversity of thought and academic freedom in the university. Q methodology has also been used to study efficacy of course design and educational technology use to illuminate key nuances among faculty (Callahan, 2019; Valenta & Wigger, 1997; Walker et al., 2018). As a consequence, Q methodology served as an appropriate technique to interpret
faculty members’ subjectivity regarding the relative importance of design thinking approaches to their design of effective instruction and student learning in online courses at LSU.

**Q Methodology**

Q methodology has primarily been used to explore human subjectivity (Stephenson, 1953; 1977). For example, thorough use of the approach, researchers seek to understand the ways in which patterns of thought emerge and how such reflects dominate and concealed perspectives of a particular social group (Brown, 1993). To accomplish this, IMPP (Caffarella & Daffron, 2013) was used as a lens to create statements, i.e., the concourse, that reflects the various design-thinking approaches identified by faculty as critical to developing content and experiences that facilitate student learning in online courses. Often, this process results in the creation of a plethora of statements that represent the holistic views of participants on a phenomenon (Watts & Stenner, 2013). However, due to time and resource constraints, it is critical to reduce the number of statements through a sampling of the concourse (Brown, 1980). As an illustration, many Q methodological studies typically sample from 30 to 45 statements to make the data collection and analysis processes more manageable (Watts & Stenner, 2013).

After sampling the concourse, participants in the study were asked to evaluate statements about the design-thinking approaches that are most important to the design process by ranking them on a forced distribution (Brown, 1980). After correlating participants’ sorts, factor analysis procedures were used to reduce the data to a simple structure (Brown, 1980). To interpret the structure, we analyzed how statements loaded on each resulting factor (Schmolck, 2014). Thereafter, follow-up interviews were conducted with high and pure loaders from each factor, which were individuals who loaded high on one factor, but did not load significantly on any other factors. Finally, we employed Mauldin’s (2012) procedures by which we compared and
contrasted factor arrays, distinguishing and consensus statements, eigenvalues, factor loadings, demographic data, and qualitative responses to emerge the design-thinking personas of faculty who teach through LSU Online.

As a result, Q methodology assisted in revealing key contextual factors and faculty behaviors that most critically influence faculty design processes for the online environment. Further, Q helped to reveal the key principles of IMPP (Caffarella & Daffron, 2013) that could serve as a foundation for instructional designers to create meaningful interventions that better support diverse faculty needs in the design and development process.

Institutional Review Board

In compliance with federal and university regulations regarding human-subject research, the study was submitted for review by the Institutional Review Board (IRB) at Louisiana State University. The solicitation letter, informed consent script, researcher script, Q-sort instrument, demographic survey, and post-sort interview questions were submitted for formal review. The study was granted approval and a copy of the approval letter can be found in Appendix A.

Selection of the Research Subjects

Sample Population

The sample population of this study included all faculty listed as the instructor of record for LSU Online courses offered during the 2017–2018, 2018–2019, and 2019–2020 academic years, faculty listed as the instructor of record for campus course offerings designated as 100% web-based during the 2018–2019 academic year, faculty who participated in the LSU Online Special Focus Program, and faculty who participated in the LSU Online one-to-one course design and development process, but have not yet taught their course. A total of 211 faculty have
been identified for the sample population. A breakdown of the number of faculty and corresponding subpopulation category can be found in Table 2.

Table 2. Faculty Engaged in Online Course Design and Teaching

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor of LSU Online course (2017/18, 2018/19, 2019/20)</td>
<td>79</td>
</tr>
<tr>
<td>Instructor of 100% web-based campus course (2018/19)</td>
<td>59</td>
</tr>
<tr>
<td>Participated in the Special Focus Program (2018/19)</td>
<td>25</td>
</tr>
<tr>
<td>Participated in one-to-one design and development (2018/19)</td>
<td>76</td>
</tr>
</tbody>
</table>

*Note. Categories are not exclusive.*

It is important to note that faculty may fall in more than one of the subpopulations described. For example, a faculty member may have participated in the LSU Online Special Focus Program and is listed as an instructor of record for an LSU Online course and 100% web-based campus course during the 2019–2020 academic year. The population included LSU faculty from every academic college or school within the university, but varied in their experience teaching online and working with academic support to design and develop their course.

**The Study’s P-Set**

In Q, the participant sample is known as the p-set (person-set) (Brown, 1993). To accomplish this, the study used purposive sampling procedures to select 20 members from the sample population who represented diverse personal and professional characteristics (Walker et al., 2018) as obtaining a diverse sample will more likely produce findings that reflect the range of views on the phenomenon. Existing literature (Brown, 1993; McKeown & Thomas, 2013; Stephenson, 1977) has demonstrated that sample sizes can be small because participants are purposefully selected to ensure representativeness in Q. To facilitate this, faculty members were recruited based on whether they elected to provide naturalistic responses during the creation of the concourse, which served as the foundation of the instrument used in this study. In addition, faculty members were recruited based on their faculty rank, appointment, tenure status, and
academic college to promote diversity of discipline areas within the p-set. A copy of the recruitment email request for participation in the study can be found in Appendix B. Of the 20 faculty participants recruited for the study, 18 participants held full-time appointments and two participants were part-time, seven were tenured, four were tenure-track, and nine were non-tenure track. Of the seven tenured faculty, three were full professor rank and four held the rank of associate professor, while the four tenure-track faculty were assistant professors. Of the nine faculty participants that were non-tenure track, there were eight instructors and one assistant professor. Further, eight of the ten academic schools or colleges at the university were represented in the study with participants from the College of Agriculture ($n = 1$), E.J. Ourso College of Business ($n = 3$), the College of the Coast and the Environment ($n = 2$), the College of Engineering ($n = 3$), the College of Human Sciences and Education ($n = 1$), the College of Humanities and Social Sciences ($n = 7$), the College of Science ($n = 2$), and the School of Veterinary Medicine ($n = 1$). The faculty characteristics and associated academic college of the p-set ($N = 20$) are found in Table 3.
Table 3. Faculty Participant Rank, Appointment, and Tenure Status, and Academic College

<table>
<thead>
<tr>
<th>Participant Number</th>
<th>Faculty Rank</th>
<th>Appointment</th>
<th>Tenure Status</th>
<th>Academic College</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Full Professor</td>
<td>F</td>
<td>T</td>
<td>Agriculture</td>
</tr>
<tr>
<td>07</td>
<td>Instructor</td>
<td>F</td>
<td>N</td>
<td>Business</td>
</tr>
<tr>
<td>15</td>
<td>Instructor</td>
<td>F</td>
<td>N</td>
<td>Business</td>
</tr>
<tr>
<td>17</td>
<td>Full Professor</td>
<td>F</td>
<td>T</td>
<td>Business</td>
</tr>
<tr>
<td>09</td>
<td>Asst. Professor</td>
<td>F</td>
<td>TT</td>
<td>Coast &amp; Environment</td>
</tr>
<tr>
<td>10</td>
<td>Instructor</td>
<td>P</td>
<td>N</td>
<td>Coast &amp; Environment</td>
</tr>
<tr>
<td>01</td>
<td>Assoc. Professor</td>
<td>F</td>
<td>T</td>
<td>Engineering</td>
</tr>
<tr>
<td>02</td>
<td>Asst. Professor</td>
<td>F</td>
<td>TT</td>
<td>Engineering</td>
</tr>
<tr>
<td>16</td>
<td>Assoc. Professor</td>
<td>F</td>
<td>T</td>
<td>Engineering</td>
</tr>
<tr>
<td>19</td>
<td>Asst. Professor</td>
<td>F</td>
<td>TT</td>
<td>Human Sciences &amp; Education</td>
</tr>
<tr>
<td>03</td>
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<td>F</td>
<td>N</td>
<td>Humanities &amp; Social Sciences</td>
</tr>
<tr>
<td>06</td>
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<td>F</td>
<td>T</td>
<td>Humanities &amp; Social Sciences</td>
</tr>
<tr>
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<td>F</td>
<td>N</td>
<td>Humanities &amp; Social Sciences</td>
</tr>
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<td>N</td>
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</tr>
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<td>TT</td>
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<td>Science</td>
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<td>T</td>
<td>Science</td>
</tr>
<tr>
<td>04</td>
<td>Asst. Professor</td>
<td>P</td>
<td>N</td>
<td>Veterinary Medicine</td>
</tr>
</tbody>
</table>

*Note. F = full-time; P = part-time; T = tenured; TT = tenure-track; N = non-tenure-track.

Instrumentation

Development of the Concourse

In Q methodology, the concourse represents the full range statements regarding participants’ opinions, attitudes, and other commentary (Brown, 1993). As a result, building a representative concourse is critical to creating an instrument that can illuminate participants’ views on a phenomenon of interest, a concept known as validity in R (quantitative) methodology (Watts & Stenner, 2013). In this study, I used the following techniques to ensure a representative concourse: (1) a thorough review of the literature, (2) a synthesis of opinions expressed through leading blogs regarding online teaching and learning, and (3) naturalistic responses obtained from faculty engaged in online course design and teaching. Using this procedure, I generated a collection of statements, which represented the concourse of the study. However, the large
volume of statements necessitated that we engaged in sampling of the concourse to ensure that participants would not be too overwhelmed during data collection.

**Q Sample**

The Q sample (also known as the Q-set) is the set of statements that participants will sort. The primary goal of the Q sample is to ensure representative statements from the concourse. As a consequence, it was critical to ensure the Q-set was selected in a way that emphasized representativeness of the concourse (Brown, 1970). To accomplish this, I used IMPP (Caffarella and Daffron, 2013) as a way to theoretically structure the sampling of the concourse.

Through use of the Fisherian structure (Brown, 1993) in Table 4, I sampled six statements from each of the six cells to develop a Q sample of 36 statements based on their perceived fit. A list of the 36 Q statements organized by theoretical category can be found in Appendix C. Although the procedure helped structure the Q sample, no assumptions were made about the statements’ ability to measure the identified category. Instead, emphasis was placed on the meaning distilled from the patterns of thought that emerged from the Q sort process (Brown, 1993). As such, the intent of using the Fisherian structure was to ensure that a comprehensive Q sample is attained (Brown, 1993). Further, this approach ensured that the Q sample promoted homogeneity in each category as well as heterogeneity between categories (Brown, 1993). Upholding these standards for quality in the instrument development phase ensured that quality data would be collected.
Table 4. Theoretical Structure of the Q Sample

<table>
<thead>
<tr>
<th>Main Effect</th>
<th>Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMPP Component</td>
<td>Discern context</td>
</tr>
<tr>
<td></td>
<td>Program Ideas</td>
</tr>
<tr>
<td></td>
<td>Goals and Objectives</td>
</tr>
<tr>
<td></td>
<td>Instructional Plan</td>
</tr>
<tr>
<td></td>
<td>Transfer of Learning</td>
</tr>
<tr>
<td></td>
<td>Evaluation Plan</td>
</tr>
<tr>
<td>Design Thinking</td>
<td>Tools (Process)</td>
</tr>
<tr>
<td>Approach</td>
<td>Tools (Process)</td>
</tr>
<tr>
<td></td>
<td>Tools (Process)</td>
</tr>
<tr>
<td></td>
<td>Tools (Process)</td>
</tr>
<tr>
<td></td>
<td>Tools (Process)</td>
</tr>
<tr>
<td></td>
<td>Tools (Process)</td>
</tr>
<tr>
<td></td>
<td>Tools (Process)</td>
</tr>
</tbody>
</table>

*Note.* IMPP components are adapted from the Interactive Model of Program Planning (Caffarella & Daffron, 2013).

**Data Collection**

Three forms of data were collected from 20 p-set members for the study: (1) Q sorts, (2) post-sort demographic data and oral reflections on their sorts, and (3) semi-structured interviews with highest pure loaders. Participants were notified of their participation rights including the ability to discontinue participation in the study before engaging in the Q sort procedures.

**Q-sort Procedure**

The primary data collected for this investigation was the Q sort (Brown, 1993). Although Q sorts have historically been performed face-to-face with printed statements and foam boards depicting a forced distribution, web-based instruments can be used as well (Thomas & Watson, 2002). The study used Q-sortware, which uses a drag and drop function to facilitate participants’ Q sort (Pruneddu, 2011).

There is some debate about the quality of Q sorts completed online (Dairon et al., 2017). Dairon et al. (2017) explored the relationship between participant engagement and data quality of online Q sorts. The study revealed that random sorts (i.e. low quality sorts) have the potential to pollute the Q-sort analysis and interpretation. The authors posit that online Q sorts do not provide opportunities for the researcher to clarify procedures or other concerns that may be presented by participants during the sorting process. This may lead to participants becoming frustrated or confused and ultimately disengaged with the sort (Dairon et al., 2017). Poor computer skills is
also described as a possible factor. As such, disengaged participants may lead to low-quality sorts since the resulting arrangement may reflect random placement as opposed to thoughtful reflection and placement of statements. To combat this issue, Dairon et al. (2017) described several recommendations for online Q sorts: (1) apply more stringent selection criteria, (2) reduce gap between participant and researcher, and (3) insert randomly generated sorts into participant-derived dataset.

The study addressed the potential for low-quality Q sorts by purposively sampling participants with online technology experience. Since the study explored perspectives of faculty engaged in online course design and teaching, participants had some level of experience using computer and web-based technologies. In addition, Q-sortware allowed for descriptive text or media entry which was used to provide instructions in a manner that was relevant to the procedures and web-interface. The study reduced the gap between participant and researcher by using Zoom video conferencing software to connect with participants synchronously during the sorting process as well as for post-sort interviews. A copy of the researcher script for facilitating the online Q sort can be found in Appendix D.

Participants accessed the web-based software through a private link that did not require participants to download and install software locally to a computer. After starting the sorting exercise, participants were presented with the condition of instruction, which helped them understand the perspective they should use to sort the statements (Brown, 1993). For this study, the following condition of instruction was used: *When I’m designing my online course, I...*

Participants then sorted statements into one of three piles: (1) most important to my process, (2) neutral, and (3) most unimportant to my process. After statements were dragged and dropped into the three piles, participants were asked to read each statement and rank them on a
forced distribution from -4 to +4 (de Graaf & Van Exel, 2005). To qualify the distribution, categories were described as follows: (-4) extremely unimportant; (-3) highly unimportant; (-2) unimportant; (-1) somewhat unimportant; (0) neutral; (1) somewhat important; (2) important; (3) highly important; (4) extremely important. An example of the forced distribution is provided in Figure 2 below.

Figure 2. Forced distribution used to collect data for the Q sort

Post-sort Interview

To study the various institutional factors that may contribute to faculty members’ subjective responses to the Q-sort stimuli, two forms of data were collected for each participant who performed a Q-sort. First, participants were asked to respond to several open-ended reflections of their sorts. Participants were asked to reflect on the two statements that they found to be extremely important to their design process as well as those two statements found to be extremely unimportant to their design process. In addition, participants were asked to reflect on how any professional responsibilities they had impacted the way they sorted the statements and how their experience at the university impacted the way they sorted the statements. These
questions aimed to clarify participant sorts from their perspective. Second, a demographic questionnaire (see Appendix E) was used to determine the following professional characteristics:

- Academic college or school they represent;
- Average number of credit hours taught per semester;
- Average class size;
- Number of years teaching fully-online courses;
- Number of years working in higher education;
- Faculty rank, appointment, and tenure status;
- Course design experience according to course offering designation (i.e. designed for LSU Online or campus 100% web-based)
- List of professional responsibilities outside of teaching and research.

After data analysis, additional follow-up interviews were conducted with high and pure loaders. This data, in conjunction with the professional demographic questionnaire, provided additional data points used to interpret emergent factors after data analysis.

**Data Analysis**

After participants completed their sorts, data were downloaded from Q-sortware in an Excel file and then uploaded to PQMethod version 2.35 (Schmolck, 2014) for analysis. Data were stored according to university security policy (see Appendix F). Using PQMethod, I conducted three major statistical tests: (a) correlation, (b) factor analysis, and (c) a summated computation of factor scores. It should be noted that in Q, however, correlational and factor analysis will focus on participants’ sorts rather than items from the instrument—a key distinction from traditional quantitative procedures (Brown, 1980; McKeown & Thomas, 2013; Stephenson, 1977).
PQMethod (Schmolck, 2014) is designed to allow data to be entered in the same manner the data was collected, thus helping to control for human influence and preserving the self-referent nature of the data (Thomas & Watson, 2002). Additional software features include the ability to compute the intercorrelations among Q sorts, choice of method for factor analysis, and choice of analytical or judgmental factor rotation method, and the ability to select relevant factors and tag entries that define the factors (Schmolck, 2014). The software also produces reports tailored to Q; for example, tables clearly delineate “factor loadings, statement factor scores, discriminating statements for each of the factors as well as consensus statements across factors, etc.” (Schmolck, 2014, para. 1). It is also important to note that PQMethod is free to download.

**Correlation Coefficients**

The first step of data analysis was to determine correlation among and between Q sorts (Schmolck, 2014). This procedure helps determine if relationships existed between participants’ Q sort. Participants’ similarity in rank-ordering (i.e. sorting) was indicated by a high, positive correlation between two Q sorts. In PQMethod, such is represented through a correlation matrix that helps distinguish among relationships of faculty regarding their salient design-thinking processes and tools they use to conceptualize, design, and implement instructional content and materials in the online environment. Correlations were considered significant if they were 2.58 times greater than the standard error (Brown, 1993). The study used a Q sample of $N = 36$ statements; therefore, $SE = 1/\sqrt{36} = 0.1666$. As a consequence, correlations were considered significant at 0.41665 or higher.
Factor Analysis and Summated Computation of Factor Scores

The following section provides a description of techniques used for factor analysis and summated computation of factor scores.

Factor Model

There are two main factor analysis approaches used in Q. These include Centroid and Principal Component Analysis (PCA) (Brown, 1980; McKeown & Thomas, 2013; Stephenson, 1977). A debate exists among Q researchers as to the most appropriate statistical approach, with PCA being the most commonly used extraction method (Krysher, 2012). In this study, PCA was used to extract factors and to calculate the amount of explained variability (McKeown & Thomas, 1988).

Factor Rotation

Factor rotation is used to fit the model more closely such that the Q sorts load on a single factor thus improving clarity and interpretability of the results (McKeown & Thomas, 1988). Similar to Q researchers’ approaches to factor extraction, there are two primary methods of factor rotation used Q. These methods include theoretical rotation and varimax rotation. This study used varimax rotation as the natural extension of principal component factor extraction. Then, to extract factors, PCA was used to compare one, two, three, four, and five factor solutions (Schmolck, 2014) to examine fit. Rotated factors were inspected for Eigenvalues, correlation between factors, number of participants captured, and the amount of explained variance (McKeown & Thomas, 2013) to determine which factor solution was the most appropriate.

Factor Loading and Computation of Scores

Statistical significance of factor loadings were determined at $p < .01$ (McKeown & Thomas, 2013), and thus any factor loadings that were greater than 0.4166. Since it is possible
for sorts to include multiple significant factor loadings, only sorts that loaded significantly on
one factor and non-significantly on all other factors were considered in the final solution, which
eliminated the possibility of interpreting confounded factors. In the current study, therefore, each
factor represented an emergent persona held by faculty regarding salient design-thinking tools
and processes they perceived as important to the online course design and development process.

**Factor Reliability and Validity**

In contrast to the quantitative paradigm, in Q methodology, validity and reliability are not
primary concerns (Brown 1980; McKeown & Thomas, 2013). Rather, in Q studies, researchers
emphasize the importance of *replication*. For instance, instead of seeking to produce consistent
internal factor structures, value is placed on determining if, using a similar condition of
instruction, whether similar factors emerge. As a consequence, the goal of Q is not to generalize;
instead, Q researchers provide an interpretation of the subjective viewpoints held by participants
in their study at a particular moment in time (Brown, 1980).

Despite this, however, some conventions of rigor are advanced in the Q literature. In
particular, McKeown and Thomas (2013) maintain that for a factor to be considered reliable, at
least three participants should load significantly. Further, the standard error of factor scores
is also a key indicator of rigor (McKeown & Thomas, 2013). To ensure factors are consistent, SE
differences were calculated by multiplying the significance level ($p < .01$) or 2.58 and rounding
to the nearest whole number (McKeown & Thomas, 2013).

Finally, although statements in the Q sample do not attempt to measure constructs,
statements should be clearly written to ensure that sorters are not confused of their meaning.
Because faculty will likely not be familiar with design-thinking concepts, clarity was emphasized
by utilizing a panel of experts to ensure face validity (Paige & Morin, 2016).
Factor Interpretation

After identifying factors, I used the following data points to facilitate factor interpretation: (a) eigenvalues, (b) factor arrays, (c) factor loadings, (d) factor scores, and (e) each factor’s unique consensus and distinguishing statements (Mauldin, 2012). Further, I also identified defining sorts by analyzing the factor matrix, using a significance level of .41.

To interpret the findings, I conducted follow-up interviews with one individual from each factor who loaded high on the factor but did not load significantly on the other factors. Then, using NVivo® (QSR International Pty Ltd, 2020) qualitative analysis software, I analyzed the high and pure loaders responses using the constant comparative method (Corbin & Straus, 2015). After qualitative analysis, I used Mauldin’s (2012) interpretation procedures to compare the emergent qualitative findings against: (a) participants’ demographic information, (b) array positions of statements on each factor, (b) correlations between factors, (c) Z-score differences, (d) distinguishing statements, and (e) consensus statements. Using this comparison procedure, I constructed a profile of each factor (Mauldin, 2012). Finally, I interpreted each profile through IMPP (Caffarella & Daffron, 2013), a process that helped to emerge personas regarding the preferred design-thinking tools and processes faculty perceived as important to their online course design process. Finally, using a combination of Q data collected for this study, I narratively described each emergent faculty persona while also providing relevant statistical evidence in the presentation of findings in Chapter 4.
CHAPTER 4. FINDINGS

In this chapter, results from my analysis of the data are provided. Specifically, the final factor solution, factor loadings, and interpretations in regard to how the personal, professional, and institutional factors reported by faculty helped describe their views on preferred design-thinking approaches for online course design and development.

Purpose of the Study

The purpose of the study was to explore the perspectives of faculty engaged in online teaching and course development at a doctoral university (RU/VH) in the southern region of the United States regarding their preferred design thinking approaches for planning and implementing effective online learning experiences.

Research Question

1. What personas emerged for faculty regarding their preferred design thinking approaches for online course design and development (i.e., Q-sort factor load and qualitative data)?

Analysis of the Data

In this study, principal component analysis (PCA) was used to extract factors and to calculate the amount of explained variability (McKeown & Thomas, 1988). Factor rotation is used to fit the model more closely such that the Q sorts load on a single factor, which improves clarity and interpretability of the results (McKeown & Thomas, 1988). In particular, varimax rotation was used as the natural extension of principal component factor extraction. The final solution for the three rotated factors accounted for 50% of the total variance. Factors 1 and 2, \( r = 0.233 \), and Factors 2 and 3, \( r = 0.258 \), demonstrated low correlation between factors. However, a moderate correlation, \( r = 0.4665 \), was found between Factors 1 and 3 (see Table 5).
<table>
<thead>
<tr>
<th>Factor</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1</td>
<td>1.0000</td>
<td>0.2333</td>
<td>0.4665</td>
</tr>
<tr>
<td>Factor 2</td>
<td></td>
<td>1.0000</td>
<td>0.2581</td>
</tr>
<tr>
<td>Factor 3</td>
<td></td>
<td></td>
<td>1.0000</td>
</tr>
</tbody>
</table>

Statistical significance of factor loadings were determined at $p < .01$ (McKeown & Thomas, 2013). As such, sorts that loaded significantly at $\pm 0.43$ on one of the three factors were considered in the final solution. The factor solution (see Table 6), provides the 20 Q-sorts collected in the study, of which 15 Q-sorts loaded significantly on one of the three factors and five Q-sorts were considered non-significant or confounded. The non-significant Q-sorts (Participants #11 & #18) are the viewpoints that are not shared among each factor, while confounding Q-sorts (Participants #4, #5, and #19) met significance criteria at $\pm 0.43$ for more than one factor indicating a sharing of multiple viewpoints among factors. Therefore, the three confounding Q-sorts and two non-significant Q-sorts were not used in the interpretation of the three factors.
Table 6. Factor Solution of the Three Emergent Factors

<table>
<thead>
<tr>
<th>Participant Number</th>
<th>Factor Loadings</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>01</td>
<td>0.67&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.26</td>
<td>0.10</td>
</tr>
<tr>
<td>02</td>
<td>0.13</td>
<td>-0.01</td>
<td>0.65&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>03</td>
<td>0.11</td>
<td>0.21</td>
<td>0.79&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>04&lt;sup&gt;d&lt;/sup&gt;</td>
<td>0.59</td>
<td>0.12</td>
<td>0.45</td>
</tr>
<tr>
<td>05&lt;sup&gt;d&lt;/sup&gt;</td>
<td>0.03</td>
<td>0.52</td>
<td>0.60</td>
</tr>
<tr>
<td>06</td>
<td>0.59&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.29</td>
<td>0.13</td>
</tr>
<tr>
<td>07</td>
<td>0.01</td>
<td>0.15</td>
<td>0.77&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
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<td>0.33</td>
<td>-0.20</td>
<td>0.59&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>09</td>
<td>0.27</td>
<td>-0.19</td>
<td>0.51&lt;sup&gt;c&lt;/sup&gt;</td>
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<tr>
<td>10</td>
<td>0.69&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-0.18</td>
<td>0.36</td>
</tr>
<tr>
<td>11&lt;sup&gt;e&lt;/sup&gt;</td>
<td>0.07</td>
<td>0.19</td>
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<tr>
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<td>0.28</td>
<td>0.15</td>
</tr>
<tr>
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<td>0.71&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-0.14</td>
<td>0.39</td>
</tr>
<tr>
<td>14</td>
<td>0.66&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>-0.02</td>
</tr>
<tr>
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<td>0.10</td>
<td>0.59&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.37</td>
</tr>
<tr>
<td>16</td>
<td>-0.06</td>
<td>0.74&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-0.08</td>
</tr>
<tr>
<td>17</td>
<td>0.12</td>
<td>0.76&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-0.12</td>
</tr>
<tr>
<td>18&lt;sup&gt;e&lt;/sup&gt;</td>
<td>0.42</td>
<td>-0.04</td>
<td>0.01</td>
</tr>
<tr>
<td>19&lt;sup&gt;d&lt;/sup&gt;</td>
<td>0.43</td>
<td>0.51</td>
<td>0.08</td>
</tr>
<tr>
<td>20</td>
<td>0.05</td>
<td>0.55&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.32</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Defining Sorts</th>
<th>6</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Explained Variance</td>
<td>18%</td>
<td>14%</td>
<td>18%</td>
</tr>
</tbody>
</table>

*Note.* Sorts loading > 0.43 on a single factor are considered significant.

<sup>a</sup>Indicates a defining sort for Factor 1. <sup>b</sup>Indicates a defining sort for Factor 2. <sup>c</sup>Indicates a defining sort for Factor 3. <sup>d</sup>Indicates a confounded sort. <sup>e</sup>Indicates a non-significant sort.

**Factor 1: Pragmatic Designers**

*The Pragmatic Designers.* This factor represented six participants and accounted for 18% of the total variance. *Pragmatic Designers* viewed successful student learning as the ultimate goal of their course design and emphasized practicality, utility, and efficiency their course design process. Table 7 presents the factor matrix with the *Pragmatic Designers*’ professional characteristics. The persona included all faculty ranks and tenure status, and ranged from six to 30 years of experience teaching in higher education. However, faculty that held this perspective
reported minimal experience teaching online, with one participant having less than one year of experience and the remaining five participants reporting one to two years.

Table 7. Factor Matrix with the Pragmatic Designer Faculty’s Professional Characteristics

<table>
<thead>
<tr>
<th>P</th>
<th>Academic College</th>
<th>Faculty Rank</th>
<th>Tenure Status</th>
<th>Years Higher Ed</th>
<th>Years Online</th>
<th>Credit Load</th>
<th>Class Size</th>
<th>Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>ENGR</td>
<td>Asse P</td>
<td>T</td>
<td>11-15</td>
<td>&lt; 1</td>
<td>4-6</td>
<td>51-100</td>
<td>0.67 0.26 0.10</td>
</tr>
<tr>
<td>06</td>
<td>HSS</td>
<td>Asse P</td>
<td>T</td>
<td>11-15</td>
<td>1-2</td>
<td>4-6</td>
<td>&gt; 100</td>
<td>0.59 0.29 0.13</td>
</tr>
<tr>
<td>10</td>
<td>COENV</td>
<td>Inst</td>
<td>N</td>
<td>16-20</td>
<td>1-2</td>
<td>1-3</td>
<td>&lt; 15</td>
<td>0.69 -0.18 0.36</td>
</tr>
<tr>
<td>12</td>
<td>SCI</td>
<td>Full P</td>
<td>T</td>
<td>21-30</td>
<td>1-2</td>
<td>1-3</td>
<td>&gt; 100</td>
<td>0.66 0.28 0.15</td>
</tr>
<tr>
<td>13</td>
<td>HSS</td>
<td>Inst</td>
<td>N</td>
<td>6-10</td>
<td>1-2</td>
<td>&gt;12</td>
<td>51-100</td>
<td>0.71 -0.14 0.39</td>
</tr>
<tr>
<td>14</td>
<td>HSS</td>
<td>Ast P</td>
<td>TT</td>
<td>6-10</td>
<td>1-2</td>
<td>4-6</td>
<td>31-50</td>
<td>0.66 0.04 -0.02</td>
</tr>
</tbody>
</table>

Note. COENV = College of the Coast and the Environment; ENGR = College of Engineering; HSS = College of Humanities and Social Sciences; SCI = College of Science. Faculty rank is categorized as Full P = Full Professor; Asse P = Associate Professor; Ast P = Assistant Professor; Inst = Instructor. Tenure status is categorized as non-tenure track (N), tenure-track (TT), and tenured (T). Credit load is the range of credit hours taught in a given semester. Class size is the range of student enrollments in classes taught both online and face-to-face, if applicable.

The Pragmatic Designers viewed what students will learn and what students should be able to do as a result of that learning as a constant guidepost in their course design process (Statement No. 8, Array Position: +3, Z-score: 1.499). Table 8 presents the statements, array positions of the statements, and Z-scores for the Pragmatic Designers. The factor array board for Factor 1 can be found in Appendix G. Unique to this persona, Pragmatic Designers viewed the close integration of program-level outcomes with course-level and module-level outcomes as highly important to their course design process (Statement No. 4, Array Position: +3, Z-score: 1.174). Further, the Pragmatic Designers often viewed this important task of course alignment as the natural first step of their design process, which became evident through several participants’ comments about starting the process by determining what they wanted students to achieve by the end of their course and then using a backwards planning design to include the relevant course content. With this in mind, this individuals who represented this persona were also open to the use of visual design tools, like course alignment maps, because they appeared to view such a
Table 8. Factor 1 Array Positions for the Pragmatic Designer Statements

<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
<th>Theoretical Category</th>
<th>Array Position</th>
<th>Z score</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>rely heavily on my past experiences and from those connections with people currently working in the field</td>
<td>DC</td>
<td>+4</td>
<td>1.836</td>
</tr>
<tr>
<td>20</td>
<td>follow a step-by-step outline of a course design process</td>
<td>DC</td>
<td>+4</td>
<td>1.624</td>
</tr>
<tr>
<td>8</td>
<td>consider what students will learn and the resulting changes from that learning as my guide throughout the process</td>
<td>DPGO</td>
<td>+3</td>
<td>1.499</td>
</tr>
<tr>
<td>4a</td>
<td>closely integrate degree program outcomes with my course-level and module-level outcomes</td>
<td>DPGO</td>
<td>+3</td>
<td>1.174</td>
</tr>
<tr>
<td>17</td>
<td>provide students with multiple examples of application in practice and criteria for how to assess</td>
<td>DTL</td>
<td>+3</td>
<td>1.121</td>
</tr>
<tr>
<td>15</td>
<td>adjust criteria based on insights from student feedback and course data tracked over time</td>
<td>FEP</td>
<td>+3</td>
<td>0.954</td>
</tr>
<tr>
<td>36</td>
<td>experiment with various technologies to facilitate more active learning strategies in my course</td>
<td>DTL</td>
<td>+2</td>
<td>0.865</td>
</tr>
<tr>
<td>13</td>
<td>change course content and assessments to help students overcome barriers to the successful application of their learning</td>
<td>DTL</td>
<td>+2</td>
<td>0.821</td>
</tr>
<tr>
<td>18</td>
<td>leverage technology to enhance collaboration</td>
<td>DIP</td>
<td>+2</td>
<td>0.797</td>
</tr>
<tr>
<td>2</td>
<td>brainstorm with others to collaborate on instructional and assessment strategies</td>
<td>DIP</td>
<td>+2</td>
<td>0.788</td>
</tr>
<tr>
<td>6</td>
<td>use storytelling to improve student understanding of key principles and concepts</td>
<td>DIP</td>
<td>+1</td>
<td>0.719</td>
</tr>
<tr>
<td>11a</td>
<td>visually map my course outcomes to the program's outcomes</td>
<td>DPGO</td>
<td>+1</td>
<td>0.710</td>
</tr>
<tr>
<td>27a</td>
<td>integrate quantitative and qualitative data points to create a holistic interpretation for evaluation</td>
<td>FEP</td>
<td>+1</td>
<td>0.564</td>
</tr>
<tr>
<td>16</td>
<td>get ideas from books, research, professional organizations and conferences</td>
<td>IPNI</td>
<td>+1</td>
<td>0.354</td>
</tr>
<tr>
<td>33</td>
<td>consider other courses in my program when determining what students need to be able to apply outside of my course</td>
<td>DTL</td>
<td>+1</td>
<td>0.295</td>
</tr>
<tr>
<td>29</td>
<td>consult with key knowledgeable people to accelerate understanding about course design and use university provided sources of data</td>
<td>DC</td>
<td>0</td>
<td>0.261</td>
</tr>
<tr>
<td>25a</td>
<td>will revise initial objectives based on iterations of the course design</td>
<td>DPGO</td>
<td>0</td>
<td>0.136</td>
</tr>
<tr>
<td>30a</td>
<td>leverage technology to collect useful data for evaluation</td>
<td>FEP</td>
<td>0</td>
<td>0.044</td>
</tr>
</tbody>
</table>

(table cont’d.)
<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
<th>Theoretical Category</th>
<th>Array Position</th>
<th>Z score</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>gather as much information as I can so that I can make decisions based on what is feasible</td>
<td>IPNI</td>
<td>0</td>
<td>0.044</td>
</tr>
<tr>
<td>32</td>
<td>adapt my course to align with recommendations and policies set by university governance and our curriculum committee</td>
<td>DPGO</td>
<td>0</td>
<td>-0.009</td>
</tr>
<tr>
<td>35</td>
<td>collaborate with instructional designers and other support staff to identify and collect various types of course data to evaluate</td>
<td>FEP</td>
<td>0</td>
<td>-0.125</td>
</tr>
<tr>
<td>5</td>
<td>gather as much information as I can so that I can make decisions based on what is desirable</td>
<td>IPNI</td>
<td>-1</td>
<td>-0.200</td>
</tr>
<tr>
<td>21a</td>
<td>look for model frameworks to collect evaluation data</td>
<td>FEP</td>
<td>-1</td>
<td>-0.203</td>
</tr>
<tr>
<td>24</td>
<td>gather as much information as I can so that I can make decisions based on what is viable</td>
<td>IPNI</td>
<td>-1</td>
<td>-0.255</td>
</tr>
<tr>
<td>26</td>
<td>use various career paths of graduates to help devise practical plans for applying what students have learned</td>
<td>DTL</td>
<td>-1</td>
<td>-0.401</td>
</tr>
<tr>
<td>31a</td>
<td>connect with people currently working in the field to identify needs I should address in my course</td>
<td>IPNI</td>
<td>-1</td>
<td>-0.567</td>
</tr>
<tr>
<td>7</td>
<td>spend time reviewing example online courses to get an idea of design expectations</td>
<td>DC</td>
<td>-2</td>
<td>-0.638</td>
</tr>
<tr>
<td>12</td>
<td>use the course shell to experiment with different Moodle activities or course layout</td>
<td>DIP</td>
<td>-2</td>
<td>-0.948</td>
</tr>
<tr>
<td>14</td>
<td>administer a pre-course survey that gathers information on students’ background, interest in the course, concerns, etc.</td>
<td>DC</td>
<td>-2</td>
<td>-1.000</td>
</tr>
<tr>
<td>9</td>
<td>find inspiration in the complexity of balancing my professional and personal needs with those of my students and program</td>
<td>IPNI</td>
<td>-2</td>
<td>-1.025</td>
</tr>
<tr>
<td>23</td>
<td>pay special attention to aesthetics, which constitute an important and integral part of my course design</td>
<td>DIP</td>
<td>-3</td>
<td>-1.055</td>
</tr>
<tr>
<td>1</td>
<td>let students choose how they can best demonstrate a skill based on parameters I provide</td>
<td>DTL</td>
<td>-3</td>
<td>-1.354</td>
</tr>
<tr>
<td>22</td>
<td>seek out student input to inform objectives</td>
<td>DPGO</td>
<td>-3</td>
<td>-1.364</td>
</tr>
<tr>
<td>28</td>
<td>consult latest research on adult learning</td>
<td>DIP</td>
<td>-3</td>
<td>-1.533</td>
</tr>
<tr>
<td>10a</td>
<td>rely on current evaluation mechanisms used in my department</td>
<td>FEP</td>
<td>-4</td>
<td>-1.945</td>
</tr>
<tr>
<td>3</td>
<td>prefer to follow an unstructured and emergent course design process</td>
<td>DC</td>
<td>-4</td>
<td>-1.986</td>
</tr>
</tbody>
</table>

Note. DC = Discerning the Context; IPNI = Identifying Program Needs & Ideas; DPGO = Developing Clear Program Goals & Objectives; DIP = Designing Instructional Plans; DTL = Devising Transfer-of-Learning Plans; FEP = Formulating Evaluation Plans.

* Indicates a distinguishing statement at $p < .01$ for the Pragmatic Designer.
means to a more important end (Statement No. 11, Array Position: +1, Z-score: 0.710).

For the Pragmatic Designer, past experiences heavily influenced them when designing online courses (Statement No. 34, Array Position: +4, Z-score: 1.836). Since the persona had minimal online teaching experience, the persona often turned to prior face-to-face teaching experiences and attempted to translate those to the online course design, as reflected in several of the participants’ comments. From the Pragmatic Designers’ perspective, the design process and course flow were inherently intertwined. Further, the persona viewed an unstructured and emergent course design approach as extremely unimportant (Statement No. 3, Array Position: -4, Z-score: -1.986) and following a step-by-step course design process as the most logical when planning and for course management (Statement No. 20, Array Position: +4, Z-score: 1.624). When referencing statement, “[I] prefer to follow an unstructured and emergent course design,” Participant #1 stated that is was “completely not an engineering approach,” and that it would make her nervous to design and facilitate the course in that manner. Similarly, Participant #12 stated that, “as a highly materials-intensive course….it needs to be delivered in a very structured way.”

The Pragmatic Designer also emphasized efficiency in the course design process. For example, time constraints were frequently referenced as an explanation for the sorting of statements such that many of the statements were given higher importance if they were perceived to more efficiently implement the design process. For example:

This is one piece out of everything I'm doing this semester. I'm teaching another class and also doing research. So, some of the things I chose as important help me streamline the process, like being able to collaborate with an instructional designer who can take care of getting everything into Moodle, whereas I don't have to upload documents and figure out the layout of the course. That really helps me to be able to focus on the content (Participant #1).
Reinforcing the persona’s namesake, those statements that had no seemingly direct connection to course outcomes or student learning, such as course aesthetics (Statement No. 23, Array Position: -3, Z-score: -1.055) or research in adult learning (Statement No. 28, Array Position: -3, Z-score: -1.533), were viewed as inconsequential and thus not an important part of the Pragmatic Designers’ design process.

Although the Pragmatic Designers valued the input of colleagues regarding course curriculum and perceived programmatic fit, the persona was resistant to other departmental intervention, such as the use of departmental course evaluations to help inform their course design (Statement No. 10, Array Position: -4, Z-score: -1.945). This was further reflected in the participants’ comments, as described by Participant #1 as, “Not very useful, so I wouldn’t consider it” and similar comments from several other participants. This view further reinforces the Pragmatic Designers’ desire to design a course focused on students’ learning needs and successful acquisition of knowledge, rather than to appease seemingly trivial administrative expectations.

**Factor 2: Critical Academic Designers**

The Critical Academic Designers, represented by four participants, accounted for 14% of the total variance. This faculty persona reflected the position that online course design should be created with emphasis on more practical experiences for students. Table 9 presents the factor matrix with the Critical Academic Designer’s professional characteristics. This persona includes the faculty ranks of instructor, associate professor, and full professor. Further, it also represents faculty from the College of Business, College of Engineering, and College of Humanities and Social Sciences. Unique to this persona is the level of experience in higher education and teaching online. The Critical Academic Designer ranges from 11 years of experience in higher
education to over 30 years. Additionally, this persona includes faculty that range from three to five years to over 10 years of experience teaching online. Participant #17 is important to note, due to its negative loading on Factor 2. This negative loading indicates a rejection of views of that factor, meaning this person holds an inverse view of the other defining sorts of the factor.

Table 9. Factor Matrix with the Critical Academic Designer Faculty’s Professional Characteristics

<table>
<thead>
<tr>
<th>P</th>
<th>Academic College</th>
<th>Faculty Rank</th>
<th>Tenure Status</th>
<th>Years Higher Ed</th>
<th>Years Online</th>
<th>Credit Load</th>
<th>Class Size</th>
<th>Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>BUS</td>
<td>Inst</td>
<td>N</td>
<td>&gt; 30</td>
<td>6-10</td>
<td>10-12</td>
<td>&gt; 100</td>
<td>0.10 0.59 0.37</td>
</tr>
<tr>
<td>16</td>
<td>ENGR</td>
<td>Assc P</td>
<td>T</td>
<td>11-15</td>
<td>3-5</td>
<td>4-6</td>
<td>&gt; 100</td>
<td>-0.06 0.74 -0.08</td>
</tr>
<tr>
<td>17</td>
<td>BUS</td>
<td>Full P</td>
<td>T</td>
<td>16-20</td>
<td>&gt; 10</td>
<td>10-12</td>
<td>50-100</td>
<td>0.12 -0.76 -0.12</td>
</tr>
<tr>
<td>20</td>
<td>HSS</td>
<td>Assc P</td>
<td>T</td>
<td>21-30</td>
<td>6-10</td>
<td>4-6</td>
<td>16-30</td>
<td>0.05 0.55 0.32</td>
</tr>
</tbody>
</table>

Note. BUS = College of Business; ENGR = College of Engineering; HSS = College of Humanities and Social Sciences. Faculty rank is categorized as Full P = Full Professor; Assc P = Associate Professor; Ast P = Assistant Professor; Inst = Instructor. Tenure status is categorized as non-tenure-track (N), tenure-track (TT), and tenured (T). Credit load is the range of credit hours taught in a given semester. Class size is the range of student enrollments in classes taught both online and face-to-face, if applicable.

Highly experienced as faculty, the Critical Academic Designers were creatively confident but judicious in their online course design thinking approach. Although the Pragmatic Designers had distinct opinions on extreme ends of the spectrum, the Critical Academic Designers had diverse opinions of varied importance across design categories. This diverse view revealed a level of mindfulness and more nuanced online course design process.

Unique to this factor, the Critical Academic Designers preferred to follow an unstructured and emergent course design process (Statement No. 3, Array Position: +4, Z-score: 1.344) (see Table 10; the factor array board for Factor 2 can be found in Appendix H). Further, the Critical Academic Designers viewed online course design as a highly creative and intuitive process. During the post-sort interview, Participant #16 emphasized the importance of the unstructured process because it allowed for creativity to flourish, whereas a more constrained or siloed approach would to stifle creativity. Similarly, Participant #20 described online course
design as an open-ended process that suited personality and teaching style. The *Critical Academic Designers* relied heavily on their own personal experiences and those currently working in the field to inform their course design (Statement No. 34, Array Position: +4, Z-score: 1.726). Confidence through personal experience and reflection was salient feature of this view, which was often reinforced in participants’ comments. For example, Participant #15 described his own understanding of the course material, his level of experience and knowledge, were all a very important frame of reference in the online course design process.
Table 10. Factor 2 Array Positions for the Critical Academic Designer Statements

<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
<th>Theoretical Category</th>
<th>Array Position</th>
<th>Z score</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>rely heavily on my past experiences and from those connections with people currently working in the field</td>
<td>DC</td>
<td>+4</td>
<td>1.726</td>
</tr>
<tr>
<td>3a</td>
<td>prefer to follow an unstructured and emergent course design process</td>
<td>DC</td>
<td>+4</td>
<td>1.344</td>
</tr>
<tr>
<td>25</td>
<td>will revise initial objectives based on iterations of the course design</td>
<td>DPGO</td>
<td>+3</td>
<td>1.308</td>
</tr>
<tr>
<td>31</td>
<td>connect with people currently working in the field to identify needs I should address in my course</td>
<td>IPNI</td>
<td>+3</td>
<td>1.275</td>
</tr>
<tr>
<td>15</td>
<td>adjust criteria based on insights from student feedback and course data tracked over time</td>
<td>FEP</td>
<td>+3</td>
<td>1.266</td>
</tr>
<tr>
<td>24a</td>
<td>gather as much information as I can so that I can make decisions based on what is viable</td>
<td>IPNI</td>
<td>+3</td>
<td>1.242</td>
</tr>
<tr>
<td>8</td>
<td>consider what students will learn and the resulting changes from that learning as my guide throughout the process</td>
<td>DPGO</td>
<td>+2</td>
<td>1.223</td>
</tr>
<tr>
<td>23a</td>
<td>pay special attention to aesthetics, which constitute an important and integral part of my course design</td>
<td>DIP</td>
<td>+2</td>
<td>1.114</td>
</tr>
<tr>
<td>17</td>
<td>provide students with multiple examples of application in practice and criteria for how to assess</td>
<td>DTL</td>
<td>+2</td>
<td>1.053</td>
</tr>
<tr>
<td>19</td>
<td>gather as much information as I can so that I can make decisions based on what is feasible</td>
<td>IPNI</td>
<td>+2</td>
<td>0.984</td>
</tr>
<tr>
<td>36</td>
<td>experiment with various technologies to facilitate more active learning strategies in my course</td>
<td>DTL</td>
<td>+1</td>
<td>0.813</td>
</tr>
<tr>
<td>13</td>
<td>change course content and assessments to help students overcome barriers to the successful application of their learning</td>
<td>DTL</td>
<td>+1</td>
<td>0.534</td>
</tr>
<tr>
<td>18</td>
<td>leverage technology to enhance collaboration</td>
<td>DIP</td>
<td>+1</td>
<td>0.429</td>
</tr>
<tr>
<td>5</td>
<td>gather as much information as I can so that I can make decisions based on what is desirable</td>
<td>IPNI</td>
<td>+1</td>
<td>0.411</td>
</tr>
<tr>
<td>9a</td>
<td>find inspiration in the complexity of balancing my professional and personal needs with those of my students and program</td>
<td>IPNI</td>
<td>+1</td>
<td>0.226</td>
</tr>
<tr>
<td>33</td>
<td>consider other courses in my program when determining what students need to be able to apply outside of my course</td>
<td>DTL</td>
<td>0</td>
<td>0.100</td>
</tr>
<tr>
<td>12a</td>
<td>use the course shell to experiment with different Moodle activities or course layout</td>
<td>DIP</td>
<td>0</td>
<td>-0.067</td>
</tr>
<tr>
<td>29</td>
<td>consult with key knowledgeable people to accelerate understanding about course design and use university provided sources of data</td>
<td>DC</td>
<td>0</td>
<td>-0.097</td>
</tr>
</tbody>
</table>

(table cont’d.)
<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
<th>Theoretical Category</th>
<th>Array Position</th>
<th>Z score</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>adapt my course to align with recommendations and policies set by university governance and our curriculum committee</td>
<td>DPGO</td>
<td>0</td>
<td>-0.106</td>
</tr>
<tr>
<td>16</td>
<td>get ideas from books, research, professional organizations and conferences</td>
<td>IPNI</td>
<td>0</td>
<td>-0.192</td>
</tr>
<tr>
<td>27a</td>
<td>integrate quantitative and qualitative data points to create a holistic interpretation for evaluation</td>
<td>FEP</td>
<td>0</td>
<td>-0.242</td>
</tr>
<tr>
<td>14</td>
<td>administer a pre-course survey that gathers information on students’ background, interest in the course, concerns, etc.</td>
<td>DC</td>
<td>-1</td>
<td>-0.367</td>
</tr>
<tr>
<td>26</td>
<td>use various career paths of graduates to help devise practical plans for applying what students have learned</td>
<td>DTL</td>
<td>-1</td>
<td>-0.393</td>
</tr>
<tr>
<td>2a</td>
<td>brainstorm with others to collaborate on instructional and assessment strategies</td>
<td>DIP</td>
<td>-1</td>
<td>-0.505</td>
</tr>
<tr>
<td>10</td>
<td>rely on current evaluation mechanisms used in my department</td>
<td>FEP</td>
<td>-1</td>
<td>-0.513</td>
</tr>
<tr>
<td>6a</td>
<td>use storytelling to improve student understanding of key principles and concepts</td>
<td>DIP</td>
<td>-1</td>
<td>-0.546</td>
</tr>
<tr>
<td>35</td>
<td>collaborate with instructional designers and other support staff to identify and collect various types of course data to evaluate</td>
<td>FEP</td>
<td>-2</td>
<td>-0.674</td>
</tr>
<tr>
<td>7</td>
<td>spend time reviewing example online courses to get an idea of design expectations</td>
<td>DC</td>
<td>-2</td>
<td>-0.677</td>
</tr>
<tr>
<td>4a</td>
<td>closely integrate degree program outcomes with my course-level and module-level outcomes</td>
<td>DPGO</td>
<td>-2</td>
<td>-0.796</td>
</tr>
<tr>
<td>30</td>
<td>leverage technology to collect useful data for evaluation</td>
<td>FEP</td>
<td>-2</td>
<td>-0.867</td>
</tr>
<tr>
<td>11a</td>
<td>visually map my course outcomes to the program's outcomes</td>
<td>DPGO</td>
<td>-3</td>
<td>-1.212</td>
</tr>
<tr>
<td>20a</td>
<td>follow a step-by-step outline of a course design process</td>
<td>DC</td>
<td>-3</td>
<td>-1.239</td>
</tr>
<tr>
<td>22</td>
<td>seek out student input to inform objectives</td>
<td>DPGO</td>
<td>-3</td>
<td>-1.366</td>
</tr>
<tr>
<td>1</td>
<td>let students choose how they can best demonstrate a skill based on parameters I provide</td>
<td>DTL</td>
<td>-3</td>
<td>-1.377</td>
</tr>
<tr>
<td>28</td>
<td>consult latest research on adult learning</td>
<td>DIP</td>
<td>-4</td>
<td>-1.880</td>
</tr>
<tr>
<td>21</td>
<td>look for model frameworks to collect evaluation data</td>
<td>FEP</td>
<td>-4</td>
<td>-1.932</td>
</tr>
</tbody>
</table>

Note. DC = Discerning the Context; IPNI = Identifying Program Needs & Ideas; DPGO = Developing Clear Program Goals & Objectives; DIP = Designing Instructional Plans; DTL = Devising Transfer-of-Learning Plans; FEP = Formulating Evaluation Plans.

*a Indicates a distinguishing statement at \( p < .01 \) for the Critical Academic Designer.
As this faculty group had a wealth of experiential knowledge in higher education and teaching online, the Critical Academic Designers placed greater importance on the big picture and for students to be successful beyond their course. This was demonstrated by the perceived importance of connecting with people currently working in the field to identify course needs (Statement No. 31, Array Position: +3, Z-score: 1.275) and providing students with multiple examples of application in practice and criteria for how to assess such (Statement No. 17, Array Position: +2, Z-score: 1.053). In the post-sort interview, Participant #15 reflected on using salient stories and making learning practical as an important design consideration for student learning. Further, Participant #17 described the online course design process with the goal of preparing students for what is most important and “connecting with people already working the field to understand what kind of students we should be producing.” In addition, this view gathered information from sources deemed important to frame the course design in regard to what is viable rather than what is feasible (Statement No. 24, Array Position: +3, Z-score: 1.242). This view was also reflected in participants’ comments. In particular, Participant #15 stated:

I want to create a course that's going to have a shelf life. It's going to be rich. So if there's somebody else that’s going to step into the course it would make sense to them. If I were to step aside and somebody else were to step in, would it still be a significant course that can be taught well, and would the students learn enough?

Unique to this faculty persona was the importance of aesthetics as an integral element of the course design process (Statement No. 23, Array Position: +2, Z-score: 1.114). Although other factor groups rejected this view, the Critical Academic Designers maintained that course layout and design elements as components that could influence how students consumed instructional content and could be used as an additional tool to teach in a digital format. When reflecting on this distinguishing statement in the post-sort interview, Participant #20 described using font color and formatting to draw the students’ attention to different information within the course.
Although the Critical Academic Designers synthesize multiple sources in their online course design, this group does not necessarily value knowledgeable sources outside of their subject area, such as instructional designers (Statement No. 2, Array Position: -1, Z-score: -0.505) or research on best practices in adult learning (Statement No. 28, Array Position: -4, Z-score: -1.88). To the Critical Academic Designers, the online course design process is more of an intuitive process that required a personal synthesis of information and sources. This view became evident in participants’ comments as well. Participant #15 described making design decisions as a “feeling” or just “knowing” while Participant #20 explained the following about the online design process:

At the beginning I'm sort of collecting and paying attention to things, but I haven't moved on yet to what I would call, the “shaping” of the class, which is the culling things out and making decisions about what do I want this class to communicate and look like and why.

The Critical Academic Designers also perceived experimentation with technology to create active learning strategies (Statement No. 36, Array Position: +1, Z-score: 0.813) and leveraging the use of technology to promote collaboration (Statement No. 18, Array Position: +1, Z-score: 0.429) as an important part of the design process. In light of this faculty group’s confidence and a willingness to experiment, the Critical Academic Designers showed a greater tolerance for ambiguity and supported a trial and error approach. As such, the Critical Academic Designers viewed iteration of objectives (Statement No. 25, Array Position: +3, Z-score: 1.308) and adjustment of criteria based on course insights over time (Statement No.15, Array Position: +3, Z-score: 1.266) as an important aspect of online course design.

Finally, a unique perspective of the Critical Academic Designers was the ability to find inspiration in balancing professional and personal needs with those of their students and programs (Statement No. 9, Array Position: +1, Z- Score: 0.226). When asked to reflect on the sorting process in light of professional responsibilities during the post-sort interview, many of
the participants in this group referred to the online course design process as one that required balancing. For example, Participant #17 described online course design as “a balance between what we would like to ideally accomplish with our teaching versus what we can pragmatically accomplish given our other sets of requirements and duties.” Although Participant #15 described the online course design and work responsibilities as a “blend” of experiences that could be used in further benefit of each other.

**Factor 3: Emergent Designers**

The *Emergent Designers*, representative of five participants, accounted for 18% of the total variance. Overall, the *Emergent Designers* reflected a maturing persona, which was embodied by their professional characteristics and preferred design thinking approach to course design. Table 11 presents the factor matrix with the *Emergent Designers*’ professional characteristics. This persona included only two faculty ranks—tenure-track assistant professors (40%) and non-tenure-track instructors (60%)—and aligned with four academic colleges, the College of Business, College of the Coast and the Environment, College of Engineering, and College of Humanities and Social Sciences. Tenure-track faculty participants in this group had the fewest years of experience teaching online compared to the others, with some participants having less than one year of experience while others indicated a range of six to 10 years of experience. Instructors in this group typically taught more than 12-credit hours per semester and three participants reported average class sizes of over 50 students.
To the Emergent Designers, online course design was successful if it was effective for student learning and the expectations of others. As participants in this persona held more junior faculty ranks and had fewer years of experience teaching online, Emergent Designers relied less on personal experience to inform course design decisions and more on the input of students, colleagues, and other key knowledgeable persons. Emergent Designers also tended to focus first on what they viewed as critical elements of the course with the intention of improving the course design over time. When considering course design needs and ideas, desirability was an important theme for the Emerging Designers (Statement No. 5; Array Position: +3; Z-score: 1.350) (see Table 12; the factor array board for Factor 3 can be found in Appendix I).

Similar to the Pragmatic Designers, the Emergent Designers also rejected using an unstructured course design process (Statement No. 3; Array Position: -4; Z-score: -1.925). Instead, participants representing this group viewed structure as integral to promoting strong foundations of knowledge for the student. For example, Participant #7 stated that, “all of our information kind of builds as we move through the course. I don’t think having an unstructured process is the best way for student to learn.” Participant #2 described the process as similar to
following the chapter outline of a textbook, while Participant #8 expressed the importance of students needing to know exactly where they were and what was happening in a course, and so as a result rejected an unstructured process for its negative impact on the student. In addition, the Emergent Designers favored a step-by-step process (Statement No. 20; Array Position:+3, Z-score: 0.979) and viewed this structured approach as guidelines to follow when implementing the online course design as opposed to reviewing exemplar online courses as guidelines for online course design (Statement No. 7, Array Position: 0; Z-score: 0.392). For example, Participant #9 expressed the desire for a course template that was explicit about where to put instructional materials and activities in the course.
<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
<th>Theoretical Category</th>
<th>Array Position</th>
<th>Z score</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>consider what students will learn and the resulting changes from that learning as my guide throughout the process</td>
<td>DPGO</td>
<td>+4</td>
<td>1.875</td>
</tr>
<tr>
<td>15</td>
<td>adjust criteria based on insights from student feedback and course data tracked over time</td>
<td>FEP</td>
<td>+4</td>
<td>1.710</td>
</tr>
<tr>
<td>5a</td>
<td>gather as much information as I can so that I can make decisions based on what is desirable</td>
<td>IPNI</td>
<td>+3</td>
<td>1.350</td>
</tr>
<tr>
<td>13</td>
<td>change course content and assessments to help students overcome barriers to the successful application of their learning</td>
<td>DTL</td>
<td>+3</td>
<td>1.330</td>
</tr>
<tr>
<td>17</td>
<td>provide students with multiple examples of application in practice and criteria for how to assess</td>
<td>DTL</td>
<td>+3</td>
<td>1.076</td>
</tr>
<tr>
<td>20</td>
<td>follow a step-by-step outline of a course design process</td>
<td>DC</td>
<td>+3</td>
<td>0.979</td>
</tr>
<tr>
<td>2</td>
<td>brainstorm with others to collaborate on instructional and assessment strategies</td>
<td>DIP</td>
<td>+2</td>
<td>0.945</td>
</tr>
<tr>
<td>29</td>
<td>consult with key knowledgeable people to accelerate understanding about course design and use university provided sources of data</td>
<td>DC</td>
<td>+2</td>
<td>0.906</td>
</tr>
<tr>
<td>25</td>
<td>will revise initial objectives based on iterations of the course design</td>
<td>DPGO</td>
<td>+2</td>
<td>0.856</td>
</tr>
<tr>
<td>31</td>
<td>connect with people currently working in the field to identify needs I should address in my course</td>
<td>IPNI</td>
<td>+2</td>
<td>0.686</td>
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<tr>
<td>19</td>
<td>gather as much information as I can so that I can make decisions based on what is feasible</td>
<td>IPNI</td>
<td>+1</td>
<td>0.632</td>
</tr>
<tr>
<td>14a</td>
<td>administer a pre-course survey that gathers information on students’ background, interest in the course, concerns, etc.</td>
<td>DC</td>
<td>+1</td>
<td>0.513</td>
</tr>
<tr>
<td>16</td>
<td>get ideas from books, research, professional organizations and conferences</td>
<td>IPNI</td>
<td>+1</td>
<td>0.500</td>
</tr>
<tr>
<td>34a</td>
<td>rely heavily on my past experiences and from those connections with people currently working in the field</td>
<td>DC</td>
<td>+1</td>
<td>0.454</td>
</tr>
<tr>
<td>32</td>
<td>adapt my course to align with recommendations and policies set by university governance and our curriculum committee</td>
<td>DPGO</td>
<td>+1</td>
<td>0.427</td>
</tr>
<tr>
<td>7a</td>
<td>spend time reviewing example online courses to get an idea of design expectations</td>
<td>DC</td>
<td>0</td>
<td>0.392</td>
</tr>
<tr>
<td>6</td>
<td>use storytelling to improve student understanding of key principles and concepts</td>
<td>DIP</td>
<td>0</td>
<td>0.304</td>
</tr>
</tbody>
</table>

*(table cont’d.)*
<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
<th>Theoretical Category</th>
<th>Array Position</th>
<th>Z score</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>collaborate with instructional designers and other support staff to identify and collect various types of course data to evaluate</td>
<td>FEP</td>
<td>0</td>
<td>0.181</td>
</tr>
<tr>
<td>10</td>
<td>rely on current evaluation mechanisms used in my department</td>
<td>FEP</td>
<td>0</td>
<td>0.132</td>
</tr>
<tr>
<td>4</td>
<td>closely integrate degree program outcomes with my course-level and module-level outcomes</td>
<td>DPGO</td>
<td>0</td>
<td>0.024</td>
</tr>
<tr>
<td>24</td>
<td>gather as much information as I can so that I can make decisions based on what is viable</td>
<td>IPNI</td>
<td>0</td>
<td>-0.241</td>
</tr>
<tr>
<td>1</td>
<td>let students choose how they can best demonstrate a skill based on parameters I provide</td>
<td>DTL</td>
<td>-1</td>
<td>-0.256</td>
</tr>
<tr>
<td>22</td>
<td>seek out student input to inform objectives</td>
<td>DPGO</td>
<td>-1</td>
<td>-0.418</td>
</tr>
<tr>
<td>11</td>
<td>visually map my course outcomes to the program's outcomes</td>
<td>DPGO</td>
<td>-1</td>
<td>-0.419</td>
</tr>
<tr>
<td>33</td>
<td>consider other courses in my program when determining what students need to be able to apply outside of my course</td>
<td>DTL</td>
<td>-1</td>
<td>-0.534</td>
</tr>
<tr>
<td>26</td>
<td>use various career paths of graduates to help devise practical plans for applying what students have learned</td>
<td>DTL</td>
<td>-1</td>
<td>-0.742</td>
</tr>
<tr>
<td>12</td>
<td>use the course shell to experiment with different Moodle activities or course layout</td>
<td>DIP</td>
<td>-2</td>
<td>-0.817</td>
</tr>
<tr>
<td>18</td>
<td>leverage technology to enhance collaboration</td>
<td>DIP</td>
<td>-2</td>
<td>-0.954</td>
</tr>
<tr>
<td>9</td>
<td>find inspiration in the complexity of balancing my professional and personal needs with those of my students and program</td>
<td>IPNI</td>
<td>-2</td>
<td>-1.000</td>
</tr>
<tr>
<td>28</td>
<td>consult latest research on adult learning</td>
<td>DIP</td>
<td>-2</td>
<td>-1.054</td>
</tr>
<tr>
<td>27</td>
<td>integrate quantitative and qualitative data points to create a holistic interpretation for evaluation</td>
<td>FEP</td>
<td>-3</td>
<td>-1.239</td>
</tr>
<tr>
<td>36</td>
<td>experiment with various technologies to facilitate more active learning strategies in my course</td>
<td>DTL</td>
<td>-3</td>
<td>-1.305</td>
</tr>
<tr>
<td>21</td>
<td>look for model frameworks to collect evaluation data</td>
<td>FEP</td>
<td>-3</td>
<td>-1.314</td>
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<tr>
<td>30</td>
<td>leverage technology to collect useful data for evaluation</td>
<td>FEP</td>
<td>-3</td>
<td>-1.496</td>
</tr>
<tr>
<td>23</td>
<td>pay special attention to aesthetics, which constitute an important and integral part of my course design</td>
<td>DIP</td>
<td>-4</td>
<td>-1.558</td>
</tr>
<tr>
<td>3</td>
<td>prefer to follow an unstructured and emergent course design process</td>
<td>DC</td>
<td>-4</td>
<td>-1.925</td>
</tr>
</tbody>
</table>

*Note. DC = Discerning the Context; IPNI = Identifying Program Needs & Ideas; DPGO = Developing Clear Program Goals & Objectives; DIP = Designing Instructional Plans; DTL = Devising Transfer-of-Learning Plans; FEP = Formulating Evaluation Plans.

a Indicates a distinguishing statement at \( p < .01 \) for the Emergent Designer.
In comparison to the *Pragmatic Designers* and the *Critical Academic Designers*, the *Emergent Designers* relied the least on their own experience to inform online course design decisions (Statement No. 34; Array Position: +1; Z-score: 0.454) and instead focused more on gathering information from multiple sources throughout the online course design process. In discerning the context of the online course design process, this group viewed consulting with key knowledgeable people about course design and available resources as an important factor that could accelerate their understanding of the design process (Statement No. 29; Array Position: +2; Z-score: 0.906). This view was exemplified in comments made by participants. For example:

> I like to talk to different people, different professors, for example, the new faculty technology center to basically gather more resources or more information to develop the course and also how to gather student feedback, especially real student comments. At the end of the evaluation, they will have written down some comments there and I especially like to read them so I can further improve my course (Participant #2).

Unique to the *Emergent Designers* was the importance of gathering student information such as background, interests, or concerns to help inform course design decisions (Statement No. 14, Array Position: +1, Z-score: 0.513) and placing greater importance on collaboration and brainstorming with instructional designers (Statement No. 2, Array Position: +2, Z-score: 0.945). Participant #9, reported they preferred working with an instructional designer because they had little experience designing an online course. When reflecting on the important placement of this statement, Participant #9 stated: “when I developed my course I had an instructional designer help me, and I just don’t think I could have done it without her.”

The *Emergent Designers* framed course design decisions in light of professional responsibilities, and as a result placed greater importance on design components that would have an immediate impact on student learning, but did not conflict with the ability to perform their job. As such, the *Emergent Designers* placed increasingly less importance on design components that seemed time-intensive or inhibiting even if participants in this group viewed them as
valuable to student learning. For example:

Teaching is a small portion of my overall job, there’s always pretty strong limit on the amount of time that I have to think about things like course design and so for instance I ranked some things like consult latest research on adult learning relatively low because I don’t have time to consult the latest research or attend those types of conferences. In an ideal world I would spend more time thinking about how students learn with regards to the research but realistically I just don’t have time to do it (Participant #9).

Considering how the Emergent Designers framed design importance, the Emergent Designers rejected the importance of experimentation with various technologies to better facilitate active learning in their courses (Statement No. 36, Array Position: -3, Z-score: -1.305) as well as the use of various technologies to enhance collaboration (Statement No. 18, Array Position: -2, Z-score: -0.954) or to collect useful data to evaluate course design (Statement No. 30, Array Position: -3, Z-score: -1.496), often seeing these design practices as additional effort rather than a natural extension of teaching. This view was also reinforced by participants:

It’s mostly been about survival in terms of time and getting things done like revising assigned book readings or working with student feedback—all of that kind of stuff is stuff that I just naturally do anyway so it doesn’t feel extra—whereas leveraging new technologies, doing storytelling and doing more in depth tasks, I don’t have time for that right now—even though I know it’d be a really good thing to do (Participant #8).

Further, the Emergent Designers did not view course layout experimentation in the online environment as an important step in the course design process (Statement No. 12, Array Position: -2, Z-score: -0.817) and rejected outright the importance of course aesthetics in their course design (Statement No. 23, Array Position: -4, Z-score: -1.558). Participant #8 also reflected on this sentiment:

I'm here to educate students and I understand that there's different components that go into learning and student engagement, but at the end of the day, I would rather spend my time on course design and finding the best course material and giving them feedback then trying to make something really flashy for them.

This view did not hold strong feelings about the importance of integrating degree
program outcomes with course-level and module-level outcomes (Statement No. 4, Array Position: 0, Z-score: 0.024) or departmental course evaluations (Statement No. 10, Array Position: 0, Z-score: 0.132). This faculty persona also did not often consider other courses within their program whether to determine what students should learn in their course (Statement No. 33, Array Position: -1, Z-score: -0.534) or use visual tools to map outcomes across courses in programs (Statement No. 11, Array Position: -1, Z-score: -0.419). The Emergent Designers also perceived certain design processes were critical when considering their professional roles and responsibilities. The instructor, non-tenure track faculty shared similar explanations for this view. These participants described putting less importance on mapping their courses to program-level outcomes or other design-related administrative tasks due to a lack of involvement or control with their faculty role. One participant described feeling out of the loop compared to other faculty in the department, while another participant described a lack of emphasis by the department on similar expectations. Further Participant #3 stated:

What I see as valuable to the learning process are things that I can actually make a difference in, as opposed to things that maybe I don't have skill and knowledge or maybe don't have that much control over like setting up certain program outcomes and department outcomes and university outcomes. I don't set those things. So, you know, for me, I just try to structure my course, the best that I can and then see where it goes from there.

The tenure-track assistant professors that represented this persona emphasized how departmental expectations influenced what this group viewed as important to the online course design process. For example, Participant #9 described that he needed to more heavily consider departmental course evaluations or mapping course outcomes to program outcomes because of the incentives and criteria outlined by department.

The Emergent Designers viewed adjusting course criteria based on insights from student feedback and course data tracked over time (Statement No. 15, Array Position: +4, Z-score: 1.71)
as an extremely important aspect of the course design process. Further this group proactively changed course content and assessments to help students overcome barriers (Statement No. 13, Array Position: +3, Z-score: 1.333) and revising initial objectives based on iterations of the course design (Statement No. 25, Array Position: +2, Z-score: 0.856). Participant #3 stated that:

I also get course teacher evaluations from students and I pay attention to things that they say have worked in the class, or don't work in the class. And I ask my students every semester to tell me one thing that we did that helped you learn and tell me something that could be changed to help future students do better in this class.

Despite the need for the Emergent Designers to focus on the immediacy of design tasks, this group also displayed a willingness to learn and viewed the online course design as a process that could be improved over time.

**View Similarities**

While the three factors held different views, there were several statements of which all three factors agreed. These statements are referred to as consensus statements. Of the 36 statements, five were considered consensus statements with no significant difference between factors at $p > .01$, three of which were at $p > .05$ (see Table 13).

All three factors agreed that the consideration of what students will learn and the resulting changes as a guide was an important part of the design process (Statement No. 8; Z-score [Factor 1]: 1.50, Z-score [Factor 2]: 1.22, Z-score [Factor 3]: 1.87). In addition, all three factors viewed providing students with multiple examples of application in practice and criteria for how to assess as highly important to their design process (Statement No. 17, Z-score [Factor 1]: 1.12, Z-score [Factor 2]: 1.05, Z-score [Factor 3]: 1.08). However, all three factors rejected informing their design process with the use of various career paths of past graduates to help devise practical plans for applying what students have learned (Statement No. 26, Z-score [Factor 1]: -0.40, Z-score [Factor 2]: -0.39, Z-score [Factor 3]: -0.74). This reveals that while
faculty understand the importance of showing the connection between what is learned in the course and how it should be applied in practice, there is a disconnect in using the stories of past graduates and their resulting careers as possible relevant examples of application for current students.

Table 13. Consensus Statements of the Three Factors

<table>
<thead>
<tr>
<th>No.</th>
<th>Statements</th>
<th>Z-score Factor 1</th>
<th>Z-score Factor 2</th>
<th>Z-score Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>consider what students will learn and the resulting changes from that learning as my guide throughout the process</td>
<td>1.50</td>
<td>1.22</td>
<td>1.87</td>
</tr>
<tr>
<td>16</td>
<td>get ideas from books, research, professional organizations and conferences</td>
<td>0.35</td>
<td>-0.19</td>
<td>0.50</td>
</tr>
<tr>
<td>17a</td>
<td>provide students with multiple examples of application in practice and criteria for how to assess</td>
<td>1.12</td>
<td>1.05</td>
<td>1.08</td>
</tr>
<tr>
<td>26a</td>
<td>use various career paths of graduates to help devise practical plans for applying what students have learned</td>
<td>-0.40</td>
<td>-0.39</td>
<td>-0.74</td>
</tr>
<tr>
<td>32a</td>
<td>adapt my course to align with recommendations and policies set by university governance and our curriculum committee</td>
<td>-0.01</td>
<td>-0.11</td>
<td>0.43</td>
</tr>
</tbody>
</table>

*Note. Consensus statements and corresponding z-scores for each factor. Factor 1 = Pragmatic Designers, Factor 2 = Critical Academic Designers, Factor 3 = Emergent Designers. Consensus statements are non-significant at \( p > .01 \); \(^a\) Indicates consensus statements that are also non-significant at \( p > .05 \).*

None of the three factors held strong feelings about the importance of getting ideas from books, research, professional organizations, and conferences relative to their design process (Statement No. 16, Z-score [Factor 1]: 0.35, Z-score [Factor 2]: -0.19, Z-score [Factor 3]: 0.50). This statement reflects a lack of consideration toward other authoritative sources of knowledge to inform course design processes. All three factors did not hold strong views about the importance of adapting course design to align with recommendations and policies set by the university governance and curriculum committee (Statement No. 32, Z-score [Factor 1]: -0.01, Z-score [Factor 2]: -0.11, Z-score [Factor 3]: 0.43). However, the neutral placement and negative
Z-scores of Factors 1 and 2 may reflect a rejection of consideration outright (i.e., it is not relevant to their design thinking at all) while Factor 3 did not hold strong feelings possibly due to feeling as though they do not have authority over the subject. This feeling is supported by comments from Factor 3 participants about feeling disconnected from other faculty in the department or the notion of being “just” an instructor. Non-tenure track faculty may not regularly participate in curriculum discussions in the same manner senior tenured faculty would, which could help explain the perceived lack of experience collaborating with other faculty in the department in regard to the design of course objectives. This view may help to clarify the moderate correlation seen between Factors 1 and 3 as they both showed agreement on Statement No. 32, but for different reasons.
CHAPTER 5. SUMMARY, CONCLUSIONS, DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

In the previous chapters, the background and purpose of the study, review of literature, research design and methodology, and the study’s findings were presented. This chapter provides a summary of the study, the conclusions, discussion, implications, as well as recommendations for practice and future research.

In 2018, there were over 3.67 million students enrolled in at least one distance education course at degree-granting postsecondary institutions in the United States (National Center for Education Statistics, 2019). Even as online learning becomes more commonplace in higher education, institutions are continuing to innovate academic program offerings and improve access to better serve diverse student populations in an ever-changing market landscape. For example, the Louisiana Board of Regents has called upon the universities and colleges across the state to take collaborative action to provide affordable access to innovative and market-relevant postsecondary credentials (Louisiana Board of Regents, 2019). Literature suggests that faculty support is critical to the success and sustainability of scaling effective online programs (Blin & Munro, 2008; Moloney & Oakley, 2009; Singh & Hardaker, 2014). Further, researchers have posited that design thinking approaches could be leveraged within the online course design and development process as scalable practice, especially when collaborating with multidisciplinary teams, such as instructional designers (Callahan, 2019; Gal & Lewis, 2018; Whang et al., 2017). However, there is little understanding of the nuanced behaviors in the online course design-decision making process from the faculty perspective (Brenner et al., 2016). To better support faculty endeavors to scale high-quality online courses, there is a need for a deeper understanding of the decision-making processes faculty employ that account for individual contexts and the diversity of institutional factors that influence online course design and development (Gregory &
Lodge, 2015). In response to such a need, the current study investigated design thinking from the faculty perspective.

**Purpose of the Study**

The purpose of the study was to explore the perspectives of faculty engaged in online teaching and course development at a doctoral university (RU/VH) in the southern region of the United States regarding their preferred design thinking approaches for planning and implementing effective online learning experiences.

**Research Question**

1. What personas emerged for faculty regarding their preferred design thinking approaches for online course design and development (i.e., Q-sort factor load and qualitative data)?

**Summary of Methodology**

Q methodology has primarily been used to explore human subjectivity (Stephenson, 1953; 1977). Through use of the approach, researchers seek to understand the ways in which patterns of thought emerge, and how such patterns reflect dominant and concealed perspectives of a particular social group (Brown, 1993). Previous studies have demonstrated that Q methodology is an appropriate approach to emerge personas of faculty in regard to instructional design, teaching, and technology (Akhtar-Danesh et al., 2009; Close, 2017; Kopcha et al., 2016; Morrison & Wagner, 2017; Walker et al., 2018). Further, self-referent methodologies, such as Q methodology, would reveal greater depth and dimensions of thought (Fluckinger, 2014) that are associated with the more granular details of implementing design thinking processes and tools. As such, for the research design of the study, Q methodology was determined to be an appropriate technique to investigate the design-thinking perspectives of faculty engaged in online course design and development through LSU Online. A Q-sort was used to examine faculty’s
subjective views regarding various online course design and development practices. The personas that emerged were refined using IMPP (Caffarella & Daffron, 2013) as a lens to interpret the participants’ contextualized design thinking approaches. Comparative analysis using participants’ reported demographic characteristics and qualitative data from post-sort reflections further illuminated predominant views of each design-thinking persona. In further situating the intentional research design and relevant faculty population investigated in the study, the following paragraph provides a brief summary of the research context.

In recent years, LSU has made a strategic effort to enhance its online and distance programs, protocols, and educational opportunities to meet the needs of nontraditional students (Louisiana State University, 2017). For example, as outlined in the LSU Strategic Plan 2025, the university aims to “further develop and enhance its commitment to expanding the availability of LSU educational opportunities by significantly growing its online presence through the LSU Unlimited initiative” (Louisiana State University, 2017, p.16). In 2018, LSU Online and the university’s division of Continuing Education were reconfigured into a single support division, Online and Continuing Education, in an effort to provide long-term and robust support for faculty and online students. As part of this process, an instructional design and development unit was created that develops and facilitates professional development opportunities for high-quality online course design and best practices in teaching online. In coordination with the faculty, a comprehensive development process for online programs was created that comprises design consultation for each academic program, scheduling course development of the curriculum, and pairing with an instructional designer who, through a backwards design process managed over 16 weeks, collaborates with faculty to design and develop each online course within the Learning Management System (LMS). From this context, faculty participants were recruited for the study.
To determine the participants (P-set) of the study, purposive sampling procedures were used to select 20 faculty members who have taught or developed an online course for LSU during the 2019-2020 academic year. In addition, faculty participants were selected based on their faculty rank, appointment, tenure status, and academic college to promote diversity of discipline areas within the P-set.

To determine the Q-sample statements that participants sorted, opinion statements were representatively drawn from the concourse. To first ensure a representative concourse, statements were derived using techniques described by Watts and Stenner (2013). Next, the 36-statement Q-sample was selected in a way that emphasized representativeness of the concourse (Brown, 1970). To accomplish this, IMPP (Caffarella & Daffron, 2013) was used as a way to theoretically structure the sampling of the concourse using the six critical components defined by Caffarella and Daffron (2013): (1) discerning the context, (2) identifying program needs and ideas (3) developing program goals and objectives (4), developing instructional plans, (5) developing transfer of learning plans, and (6) formulating evaluation plans. Using a 6X6 Fisherian structure (Brown, 1993), sample statements were chosen based on perceived fit from each of the six critical components (Caffarella & Daffron, 2013).

Three forms of data were collected from 20 p-set members for the study: (1) Q sorts, (2) post-sort demographic data and oral reflections on their sorts, and (3) semi-structured interviews with highest pure loaders. The Q sort was facilitated using the web-based software Q-sortware (Pruneddu, 2011). To ensure high-quality sorts in an online setting, I scheduled individual Q-sorts with participants via Zoom video conferencing software. Participants performed the Q-sort synchronously on the web during the Zoom conference so that I was available to clarify the sorting process. At the onset of sorting, participants were presented with the condition of
When I’m designing my online course, I… which served as the reference from which participants sorted the statements. Participants performed an initial sort which was further refined and sorted on a forced distribution from -4 to +4, with -4 as extremely unimportant to the design process and +4 as extremely important to the design process (de Graaf & Van Exel, 2005). A demographic questionnaire was administered after participants completed their Q-sort and oral responses to post-sort interview questions were recorded and transcribed for analysis.

After participants completed their sorts, data were downloaded from Q-sortware in an Excel file and then uploaded to PQMethod version 2.35 (Schmolck, 2014) for analysis. Using PQMethod, I conducted three major statistical tests: (a) correlation, (b) factor analysis using principal component analysis and varimax rotation (McKeown & Thomas, 1988; 2013), and (c) a summated computation of factor scores. To emerge personas, participants’ Q-sorts were correlated and factor analyzed to reduce the data to a simple structure (Brown, 1980). To interpret the structure, I analyzed how statements loaded on each resulting factor (Schmolck, 2014). Thereafter, follow-up interviews were conducted with high and pure loaders from each factor, which were individuals who loaded significantly on one factor, but did not load significantly on any other factors. Finally, I employed Mauldin’s (2012) procedures by which I compared and contrasted factor arrays, distinguishing and consensus statements, eigenvalues, factor loadings, demographic data, and qualitative responses to emerge the design-thinking personas of faculty who design and teach online.

Summary of Findings

Three distinct factors were extracted from the final factor solution, which accounted for 50% of the total variance. A low correlation between factors was determined for Factors 1 and 2, \( r = 0.233 \), and Factors 2 and 3, \( r = 0.258 \). However, a moderate correlation, \( r = 0.4665 \), was
found between Factors 1 and 3 and suggested that the factors shared a moderate level of variance. Of the 20 Q-sorts collected in the study, 15 Q-sorts loaded significantly on one of the three factors and five Q-sorts were considered non-significant or confounded and thus were not included in the factor interpretations. After comparing and contrasting the three factor arrays, distinguishing and consensus statements, eigenvalues, factor loadings, demographic data and interview responses, three faculty design-thinking personas emerged which were interpreted as the Pragmatic Designers, the Critical Academic Designers, and the Emergent Designers. The Pragmatic Designers accounted for 18% of the variance and represented six faculty participants. The Critical Academic Designers accounted for 14% of the variance and represented four faculty participants. The Emergent Designers accounted for 18% of the variance and represented five faculty participants. Of the personal and professional characteristics reported, only tenure status, and online teaching experience appear to distinguish views. However, no single characteristic represented a view entirely.

The Pragmatic Designers represented diverse faculty professional characteristics. This view represented the faculty ranks of instructor, assistant professor, associate professor, and full professor from four academic colleges. Unique to this view was the participants’ online teaching experience, which was predominantly reported as only one to two years of experience. The Pragmatic Designers relied heavily on past experiences and often made sense of the online design process by making comparisons to experiences in the traditional classroom. This view preferred a structured step-by-step design process that seemed to align with the nature of the course material. The Pragmatic Designers primarily made design decisions based on utility. To this end, the Pragmatic Designers were willing to experiment with technology, brainstorm with others, and make iterations to the course design, if found to be a useful exercise for successful
course implementation or improving the student’s experience. As such, this persona avoided using visual design practices that seemed trivial to student learning or experimenting with model evaluation frameworks or course layouts. Considering students as the end user in the course, the Pragmatic Designers valued student feedback and sought to iterate the design based on student feedback. However, this view did not actively seek out student input to inform design decisions in the course or felt that providing students with opportunities to be more active in the course design was a benefit to their learning. A distinguishing view of the Pragmatic Designers was the rejection of using departmental course evaluations to help inform course design. The negative view of departmental evaluation mechanisms was telling considering student course evaluations is a required activity for the faculty represented in this view. Several participants indicated in post-sort reflections that they found the departmental course evaluation to be useless and not particularly meaningful. This view further reinforced the Pragmatic Designers’ desire to design courses focused on students’ learning needs and successful acquisition of knowledge, rather than to appease seemingly trivial administrative expectations.

The Critical Academic Designers predominantly represented tenured faculty with six to ten years of online teaching experience. This view represented participants from three academic colleges. The Critical Academic Designers represented the inverse view when operationalizing the online course design process compared to the other two personas. This view valued the unstructured and emergent approach to course design which enabled greater creativity and confidence in their online course design. To this end, the Critical Academic Designers viewed aesthetics and experimenting with design layout as an important design practice. This view also emphasized a judicious curation of information when considering what needs of the course design. Specifically, the Critical Academic Designers preferred to draw on personal reflections
of past experiences, consultations with personal connections or other sources of knowledge to intuitively shape the course design. Understanding that the end goal was for students to be successful beyond graduation, the Critical Academic Designers reflected the position that online course design should be created with emphasis on more practical experiences for students.

The Emergent Designers predominantly represented non-tenured faculty (tenure-track and non-tenure-track) and represented participants with mostly larger course loads and class sizes, but had fewer than five years of experience teaching online. This view represented participants from four academic colleges. Desirability and clear expectations distinguished this faculty persona. Emergent Designers gathered as much information as they could to better inform the design process. This view represented a maturing perspective in which they navigated the design process the best that they could. This persona also emphasized a desire to follow a step-by-step process and felt it was important to consult with key knowledgeable people to better understand the design context. In many ways, the Emergent Designers tended to want to be told what to do. However, this view wanted to focus first on what was viewed as critical elements of the course with the intention of improving the course design over time. As such, this view was willing to collaborate with others but did not feel comfortable experimenting with design layouts or unfamiliar technologies. Lastly, this view also did not particularly find departmental course evaluations useful but ranked them higher anyway, due to the explicit expectations of performance related to this activity.

Conclusions, Discussion, and Implications

Conclusion 1

I conclude that three distinct design-thinking personas for online course design and development existed among the faculty participants. The three personas were interpreted as the
Pragmatic Designers, the Critical Academic Designers, and the Emergent Designers. Caffarella and Daffron (2013) stated that the primary outcome variable of the Interactive Model for Program Planning (IMPP) is to facilitate a positive change in learners. Although distinct, all three faculty design-thinking personas held consensus views that student learning and the resulting changes of that learning was an important guide in their course design process (Statement No.8). This reveals that each of the faculty personas viewed student learning as a primary outcome of their course design, but viewed the process of achieving that outcome in different ways. These personas were based on the faculty perceived importance of design-thinking tools and processes relative to the online course design process (i.e., Q-sort data factor loads) and the post-sort interview responses (i.e., qualitative data). I also conclude that the three faculty personas demonstrate the distinct patterns of what design thinking tasks are prioritized or rejected. Specifically, the statements in the array position of +4 are viewed as those design thinking tasks that are extremely important to the online course design process while statements in the inverse array position of -4 are viewed as rejecting those design thinking tasks as part of the online course design process. Further, insights drawn from post-sort explanatory responses related to sorting extremes, and the impacts of professional responsibilities and university experiences on individual sorting process as well as frequencies of the selected personal and professional characteristics were all used to distinguish each design-thinking persona.

Brown (2008) described the mindset of the design thinker as someone one who shows empathy, integrative thinking, optimism, experimentalism, and willingness to collaborate. Through the development and investigation of faculty design-thinking personas, the results of this study indicated that although the faculty exhibit these characteristics throughout the online course design process, there are distinct views from which online course design decisions are
framed. Thus, I also conclude that the differences in how faculty operationalized these mindset characteristics because particular design practices were prioritized over others. For example, rather than approaching each design decision using one particular mindset or an amalgamation consistently, faculty groups revealed a macro persona that, on a micro level, demonstrated the extent to which empathy, integrative thinking, experimentalism, or a willingness to collaborate were employed when making design decisions.

Conclusion 2

I also conclude that faculty design-thinking personas revealed differences in how faculty operationalized the development of online courses. For example, the three personas preferred either a step-by-step process or an unstructured or emerging process. Badia et al. (2017) identified teaching role as predictive factor for adopting particular approaches to teaching online. Some similarities can be seen between teaching roles and associated approaches to online teaching and dimensions of the three faculty design-thinking personas observed in this study. The collaborative learning approach to teaching online, which, according to Badia et al. (2017), aligned with roles focused primarily on social activities that facilitated the sharing of knowledge, is similar to the Critical Academic Designers regarding an emphasis on the careful curation of knowledge from diverse sources and social connections in the online course design process. The design thinking observed in the Pragmatic Designers also demonstrated close similarities to the knowledge-building approach to online teaching, which Badia et al. (2017) determined was associated with roles that emphasized course structure and sequencing as integral to the construction of knowledge. Lastly, Badia et al. (2017) described roles focused on the virtual environment and technology as a focus of the content acquisition approach to online teaching, which along this same dimension, the Emergent Designers rejected as being important to the
online course design and development process. A possible lack of experience and skill regarding use of technology and experimentation within the online course environment also appeared to influence participants’ views in this persona. However, unlike the Badia et al. (2017) study, academic background did not seem to influence the three design-thinking personas.

Kleinsmann et al. (2017) indicated that perceived context and design challenge play a critical role in how practitioners’ design-thinking activities are formed. Since faculty participants sorted Q-statements that were action-oriented and situated in specific design tasks, each persona provided insight to how faculty perceived the challenge of designing effective learning experiences relative to the perceived importance of design-thinking activities throughout the design cycle. Therefore, for faculty who design and develop online courses, the importance of employing certain design-thinking approaches are not viewed the same way. Further, whether faculty choose to employ them in their design process appears to be context-driven which aligns with Kleinsmann et al. (2017).

This conclusion has implications for how instructional design and development teams develop the design processes and protocols used when collaborating with faculty to develop online courses. Coburn (2003) indicated that attempts to scale processes often fail if the context is not sufficiently accounted for during implementation. As this investigation determined that there were three distinct design-thinking approaches to online course design and development, instructional design teams would need to scale services and support that consider the context of at least three distinct design approaches. The Critical Academic Designers preferred an unstructured course design process while the Pragmatic and Emergent Designers preferred a step-by-step process. How, then, might instructional design teams implement a scalable process that accounts for each persona since these approaches seem to contradict each other? Further,
how might instructional design teams develop a scalable process that also manages the strategic deliverable timelines for course launch, by which the necessary sequential steps are provided to the Pragmatic and Emergent Designers but do not also stifle the design of the Critical Academic Designers?

When considering the typologies of scale proposed by Morel et al. (2019), the adaptation type, which allows for modifications to be made to suit the needs of local reformers and users for online learning aligns with the findings of this investigation. Using this conceptualization, instructional design teams or other support staff take care to understand faculty context and intentionally use this knowledge to adapt implementation strategies effectively. Morel et al. (2019) stated that, in these situations, adapters should maintain a “core set of principles that bound local modifications” (p. 3). Designing and developing online courses using a principle framework may work best for the Critical Academic Designers as this persona demonstrated the importance of an unstructured and intuitive design process that also emphasized the importance of aesthetics, real-world examples, and experience in online course design. The design principles would then operate more like a guide for the Critical Academic Designers to refer to when designing and developing an online course. Further, the autonomy demonstrated by the Critical Academic Designers align with Coburn (2003) shift in reform ownership, such that the design process is self-generated by this persona. This might be expected given the Critical Academic Designers’ years of experience in online and higher education.

Conclusion 3

Through my analysis of the study’s data, I also conclude that previous online experience may influence design-thinking personas of faculty engaged in online course design and development. Although differences in academic college or discipline did not appear to influence
each faculty design-thinking persona, years of experience teaching online seemed to contribute to each faculty persona. This conclusion was based on the selected personal and professional characteristics reported by faculty. Specifically, the Pragmatic Designers represented an average one to two years of experience teaching online, while 75% of the Critical Academic Designers had at least six years or more of experience teaching online. Lastly, the Emergent Designers majority of faculty have under six years of experience teaching online. This finding conflicts with literature regarding online teaching approach. For example, Badia et al. (2017) reported that academic background contributes to online course teaching approach and that online teaching experience does not play a role in online teaching approach.

Conclusion 4

Tenure status also appeared to influence the design-thinking persona for faculty engaged in online course design and development. In particular, tenure status seemed to distinguish certain design-thinking personas, specifically the Critical Academic Designers and the Emergent Designers. This conclusion was based on the tenure status reported by faculty representing each persona. The Critical Academic Designers were predominantly tenured faculty with the exception of one non-tenure track faculty participant who had over 30 years of experience in higher education. However, none of the faculty participants who represented the Emergent Designers were tenured. Therefore, it appears that the context associated with being a tenured, tenure-track, or non-tenure track faculty member, such as professional responsibilities and associated workload, may influence how each design-thinking persona perceived the importance of certain design practices and tools at various stages of the design cycle. This is consistent with the findings of Gregory and Lodge (2015), as faculty reported that incentive structures and workload influenced technology implementation in courses. This may help to explain the
differences in the Emergent Designers as 40% of faculty participants from this group are tenure-track professors with high expectations for research publication.

As faculty rank and tenure status include unique roles and responsibilities that impact the daily work of each faculty member, incentives for designing and developing online courses may not be perceived the same way. This is important because in practice, institutions may take a one-size fits all approach to compensating faculty for designing online courses. As an example, all faculty regardless of tenure status or other characteristic, might be paid a one-time sum additional compensation as the payment model for developing an online course. This implies that the work and associated time that faculty members put into designing and developing online courses is expected to be completed in addition to the day to day responsibilities and workload of the faculty member. As such, for the Emergent Designers, who represented tenure-track and non-tenure track faculty, compensation in the form of course release may be more incentivizing than strictly monetary compensation. A more manageable course design and development schedule may provide the Emergent Designers with the time needed to more thoughtfully plan course design which may lead to better online learning experiences.

Conclusion 5

Through my analysis of the emergent findings, I also conclude that each faculty design-thinking persona emphasized importance of all critical components of the Interactive Model for Program Planning (Caffarella & Daffron, 2013), but prioritized each differently. This study found that each persona perceived at least one design practice from each of the six critical IMPP components as important to the online course design process. These critical components are: discerning the context, identifying needs and ideas, developing clear goals and objectives, designing instructional plans, devising transfer-of-learning plans, and formulating evaluation
plans (Caffarella & Daffron, 2013). This conclusion is based on statements aligned to the theoretical categories in the +1 through +4 factor array positions and the frequencies in which these statements were prioritized positively. As such, this finding aligns with Caffarella’s and Daffron’s (2013) position on usage of the model in practice, which posits that in planning and implementing any educational program (or course) planners must consider each of the six components but can be considered in any order and in varying degrees. The Pragmatic Designers most frequently prioritized design tasks related to learning transfer, goals and objectives, and development of instructional plans. Meanwhile, the Critical Academic Designers most frequently prioritized design tasks related to identifying needs and ideas and learning transfer. Finally, the Emergent Designers most frequently prioritized design tasks related to discerning the context and identifying needs and ideas. Further, Caffarella and Daffron (2013) reported that the formulation of evaluation plans are frequently neglected by program planners. This aligns with the conclusions in this study. None of the design-thinking personas demonstrated the importance of formulating well thought-out evaluation plans. The implication of this conclusion is that over time, course design are less likely to see significant change in course design regardless of student performance. Smaller iterations based on experience and feedback appeared to be the primary evaluation mechanism valued by each persona.

Conclusion 6

In this study, design-thinking personas did not appear to emphasize the importance of evaluation and assessment activities; however, each persona offered a different explanation for this view. For instance, each persona appeared to deprioritize a number of narrower design practices in regard to informal data collection methods or different models of evaluating course data while consistently prioritizing the more general evaluation approach of adjusting criteria.
based on insights from student feedback or performance. Further, certain personas held
distinguishing viewpoints about the importance of relying on the current course evaluation
mechanisms implemented by the department. For example, the Pragmatic Designers rejected
this design practice as an important part of the design process because it was not viewed as a
useful practice that would yield any meaningful results. This finding aligns with research by Ray
et al. (2012) from which the study showed that faculty perceived assessment activities as useful
for program assessment, but not particularly useful at the course level. The Emergent Designers
held similar explanatory views in terms of the usefulness toward improving student learning, but
prioritized departmental mechanisms for evaluation over other seemingly more meaningful
evaluation practices such as integrating qualitative and quantitative measures for holistic
interpretation. As the Emergent Designers represented faculty that were tenure-track and non-
tenure track, it is not surprising that there may be other motivating factors that inform design
decisions regarding evaluation of course design and performance. This conflicting view is
supported by the literature (Gregory & Lodge, 2015; Ray et al., 2012), which suggests that
faculty workload and incentive structures can impact how faculty view the importance of
evaluation and assessment activities.

This conclusion implies that potential recommendations to revise course design that are
based solely on departmental course evaluations are not likely to be taken seriously by the
Pragmatic Designers or the Critical Academic Designers. However, due to faculty promotion
and tenure criteria often being tied to teaching and course evaluations, the Emergent Designers
may adhere more closely to design practices that deliver positive student evaluation outcomes.
This can be problematic in that student feedback from course evaluations is not always indicative
of student learning. Since faculty participants in the Emergent Designer view echoed the lack of
useful or meaningful data from departmental evaluations, an ethical paradox may develop, whereby faculty up for promotion or tenure may have to choose between retaining effective course design strategies or instructional interventions as evidenced in student academic performance and eliminating these course elements in response to negative reviews. Further, as none of the design-thinking personas viewed holistic evaluation methods or approaches that draw on other sources of course data for assessment and evaluation as important to the design process, it appears that the current incentive structure may not reward faculty to further investigate discrepancies between student performance, evaluations, and variables of the course design. This highlights a lack of depth regarding implementation and scale described by Coburn (2003). On the surface design elements may appear to have been implemented but the underlying mechanism facilitated by those faculty may not be reinforced sufficiently. This could present a potential conflict between instructional designers and faculty when collaborating on online course design and development activities which aligns with Caffarella and Daffron (2013) regarding power struggles that exist among planners and stakeholders.

**Conclusion 7**

Finally, I conclude that each design-thinking persona perceived the importance of working with instructional designers differently. None of the design-thinking personas valued working with instructional designers during the design process (Statement No. 35; Array Position [Factor 1]: 0, [Factor 2]: -2, [Factor 3]: 0; Z-score [Factor 1]: -0.125, [Factor 2]: -0.674, [Factor 3]: 0.181). Therefore, I conclude the *Pragmatic Designers* and *Emergent Designers* demonstrated a lack of strong feelings either way, while the *Critical Academic Designers* perceived this activity to be unimportant. This is not completely unexpected, especially for the *Critical Academic Designers* who may have developed online courses for a number of years on
their own without the help of an instructional designer. Similarly, as the *Pragmatic Designers* and *Emergent Designers* may have little experience designing and teaching online, so they may not have enough experience working with an instructional designer to judge either way.

Although faculty participants reflected that working with instructional designers was a positive experience, it is also possible that they are not viewed as integral to the design process. Rather, faculty may perceive the responsibility of teaching students effectively to be solely personal. This view is supported by the literature, particularly in regard to relationship building and navigating power dynamics (Caffarella & Daffron, 2013; McCurry & Mullinix, 2017). McCurry and Mullinix (2017) such that instructional designers must learn to navigate the complexity of course development while honoring institutional roles and being mindful of ego, beliefs and values, aspects of self-efficacy, teaching philosophies, and behaviors of stakeholders they work with.

**Recommendations for Practice**

Although the findings of this Q-methodological study alone are not sufficient to ground the adoption and implementation of instructional design support practices for faculty at scale, the conclusions of this study are based on the subjective viewpoint of faculty involved in the online course design and development process and thus present deeper insights as to how faculty might approach the planning and implementation of online learning experiences in practice. As such, several recommendations for practice are identified that may have more broad-reaching impacts for instructional designers and the faculty they support.

1. Instructional designers should implement more individualized design and development protocols and design cycles. The *Pragmatic* and *Emergent Designers* preferred a step-by-step process while the *Critical Academic Designers* preferred an unstructured approach.
These are two very different design processes in practice, and most design teams will often create a prescribed one-size fits all approach to control for the project management of design cycles. Although this prescribed approach may work for the *Emergent Designers*, it would conflict with approaches preferred by the *Critical Academic Designers* and may also conflict with *Pragmatic Designers* if the process prescribed is found to be trivial. As such, instructional design teams should create course design project plans based on major development milestones that can support either an unstructured or a step-by-step process.

2. To mitigate differences in preferred design processes, I recommend that instructional design teams focus efforts on creating universal development tools, such as templates that are aligned to activities and instruction and the associated LMS usage. The purpose of such tools should provide a consistent space to organize course materials and prompt faculty to consider including design elements that lead to quality course design.

3. When collaborating with faculty on online course design, I recommend that instructional designers clearly state the purpose of any design-related task and deliberate on possible efficiencies based on context.

4. In this study, the faculty design-thinking personas did not appear to emphasize the importance of evaluation and assessment activities as part of the online course design process and for seemingly different reasons. Based on this conclusion, I recommend that instructional designers spend adequate time gathering information about faculty needs and design context to better understand the barriers to adopting assessment and evaluation activities for online course design and development. I also recommend that instructional designers consult faculty and the administration to better understand how
the departmental course evaluations are used and what aspect of the course are evaluated. Further, I recommend that instructional designers develop professional development opportunities for faculty regarding data sources for continuous quality improvement from a design perspective. Specifically, each persona prioritized insights from student feedback to inform small changes to the course design over design practices that introduced novel evaluation models or sought to gather rich interaction data and focused feedback to evaluate course design.

5. To connect the Critical Academic Designers with the Emergent Designers, I recommend that instructional design teams collaborate with academic colleges and programs to identify senior tenured faculty with at least five years of experience teaching online to serve as potential mentors to non-tenured faculty. Further, I recommend that instructional design teams seek out opportunities to host roundtables or panel discussions with the identified senior faculty.

6. I recommend that instructional design teams collaborate with and consult faculty early on during initial departmental discussion to develop an online program. As various faculty ranks and tenure status will work to build out the online courses, instructional design teams should state and explain clearly the processes, protocols, estimated time and effort to develop the online courses so that faculty assignments are better informed as to how the process will impact their current responsibilities and workloads.

7. I recommend that the faculty and the administration work collectively to evaluate current criteria for promotion and tenure as it related to the time and effort to develop online courses and available incentive structures that would promote or inhibit these efforts. Further, I recommend that instructional design teams become aware of the criteria and
understand the nuances to avoid any unintended consequences or conflicts during the design process.

**Recommendations for Research**

Although this study provided conclusions to the research question, these conclusions lead to additional questions and opportunities that could be addressed in future research. For example, since previous online experience and tenure status appeared to influence certain design-thinking personas that existed among the faculty participants, what additional insight can faculty provide through in-depth interviews of their experiences? A qualitative narrative analysis of faculty experiences is recommended to further clarify design-thinking personas. Further, as context contributes to perception of design-thinking activities, does the context of designing and teaching online courses during the COVID-19 pandemic produce differences in the faculty design-thinking personas? A replicated Q-study using the same P-set is recommended to investigate differences. Another question, what relationships might exist between what faculty perceived as important in the design process and resulting design implementation? To investigate relationships, I recommend that a qualitative content analysis of online courses developed by the faculty participants be performed.

Given the significant increase in online course development nationwide, do similar design-thinking personas emerge for faculty engaged in online course design and development at other doctoral universities (RU/VH)? To investigate the prevalence of similar thought patterns in faculty groups across institutions, I recommend that a replication of the Q-study be performed at another doctoral university (RU/VH).

The conclusions discussed provided several implications for practice for instructional designers that support faculty in designing and developing online courses. As such, I recommend
that a Q study be performed that investigates the design-thinking personas of instructional
designers (P-set) from the same institutional context as the current study. Further, I recommend
that these findings be compared and contrasted with the findings of the current study to explore
relationships between these collaborative groups and the course design process.

Closing Remarks

With the current COVID-19 pandemic, the need to provide adequate high-quality
education to diverse populations regardless of geo-location, has become even more urgent. Data
was collected for this study in early January, 2020—only two months before the COVID-19
pandemic spurred the most rapid adoption of distance learning United States higher education
has seen to date. Schools across the country and beyond closed campuses in an effort to maintain
social distancing requirements and keep students and faculty safe. To maintain instructional
continuity in the spring of 2020, thousands of faculty and students, with little time to prepare,
were forced to quickly transition to remote forms of teaching and learning. The ability to
effectively scale online learning quickly has now turned to a matter of resiliency for the
institution. Being able to support faculty effectively and efficiently is now a critical need in
maintaining this resiliency. Further, the instructional designers, once on the periphery of support,
have taken a more central role in supporting the institution’s mission. The findings of this study
provide much needed insight to how faculty perceive the importance of design-thinking
processes and tools when designing and developing online courses. These findings could help
inform instructional design teams in the planning of professional development opportunities for
faculty to better align with the perceived needs and relevant context demonstrated by each
persona, or during consultation provide personalized design recommendations that may result in
improved adoption and long term implementation.
APPENDIX A. INSTITUTIONAL REVIEW BOARD APPROVAL

ACTION ON EXEMPTION APPROVAL REQUEST

TO:  Jennifer Morissette
     AEFE

FROM:  Dennis Landin
        Chair, Institutional Review Board

DATE:  January 16, 2020

RE:  IRB# E12064

TITLE:  Developing Faculty Design Thinking Personas for the Design and Development of Online Courses: A Human-Centered Approach


Review Date:  1/14/2020

Approved  X  Disapproved

Approval Date:  1/14/2020  Approval Expiration Date:  1/13/2023

Exemption Category/Paragraph:  2b,c

Signed Consent Waived?:  Yes

Re-review frequency:  Three years

LSU Proposal Number (if applicable):

By:  Dennis Landin, Chairman

PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING – Continuing approval is CONDITIONAL on:

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU’s Assurance of Compliance with DHHS regulations for the protection of human subjects*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
8. SPECIAL NOTE: When emailing more than one recipient, make sure you use bcc. Approvals will automatically be closed by the IRB on the expiration date unless the PI requests a continuation.

* All investigators and support staff have access to copies of the Belmont Report, LSU’s Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at http://www.lsu.edu/irb
APPENDIX B. RECRUITMENT EMAIL FOR PARTICIPATION IN THE STUDY

Subject: How Do You Design Your Online Course? Request to Participate in Doctoral Study

Dear [faculty member],

I hope you are doing well and your semester is off to a great start! I recently received official IRB approval to conduct my doctoral study and I wanted to reach out to see if you are interested in participating.

The purpose of the study is to explore the perspectives of faculty engaged in online teaching and online course development regarding their preferred design thinking approaches for planning and implementing effective online learning experiences.

As a participant, you would be asked to complete a web-based Q-sort, which involves reading several statements and sorting them into categories based on the extent to which the statements reflect your opinions. You would then be asked to complete a short personal and professional demographic questionnaire. The session should last about 30 minutes and can be done remotely by scheduling a Zoom session with me at your convenience. Once data is analyzed, you may also be asked to participate in 10-minute follow-up interview to expand on your thoughts and perspectives. Please see the attached document [Project Description] for more information about the study.

Because of your experience designing and teaching online courses within [Academic College or School] at LSU, your perspective would be an important contribution to the study.

If you would like to participate, please respond to this email and we can schedule a time to complete the Q-sort and questionnaire.

Thank you for your consideration!

All the best,
Jennifer Morrisette
## APPENDIX C. Q STATEMENTS

<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
<th>Theoretical Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>follow a step-by-step outline of a course design process</td>
<td>Discerning the Context</td>
</tr>
<tr>
<td>29</td>
<td>consult with key knowledgeable people to accelerate understanding about course design and use university provided sources of data</td>
<td>Discerning the Context</td>
</tr>
<tr>
<td>14</td>
<td>administer a pre-course survey that gathers information on students’ background, interest in the course, concerns, etc.</td>
<td>Discerning the Context</td>
</tr>
<tr>
<td>34</td>
<td>rely heavily on my past experiences and from those connections with people currently working in the field</td>
<td>Discerning the Context</td>
</tr>
<tr>
<td>7</td>
<td>spend time reviewing example online courses to get an idea of design expectations</td>
<td>Discerning the Context</td>
</tr>
<tr>
<td>3</td>
<td>prefer to follow an unstructured and emergent course design process</td>
<td>Discerning the Context</td>
</tr>
<tr>
<td>5</td>
<td>gather as much information as I can so that I can make decisions based on what is desirable</td>
<td>Identifying Program Needs &amp; Ideas</td>
</tr>
<tr>
<td>31</td>
<td>connect with people currently working in the field to identify needs I should address in my course</td>
<td>Identifying Program Needs &amp; Ideas</td>
</tr>
<tr>
<td>19</td>
<td>gather as much information as I can so that I can make decisions based on what is feasible</td>
<td>Identifying Program Needs &amp; Ideas</td>
</tr>
<tr>
<td>16</td>
<td>get ideas from books, research, professional organizations and conferences</td>
<td>Identifying Program Needs &amp; Ideas</td>
</tr>
<tr>
<td>24</td>
<td>gather as much information as I can so that I can make decisions based on what is viable</td>
<td>Identifying Program Needs &amp; Ideas</td>
</tr>
<tr>
<td>9</td>
<td>find inspiration in the complexity of balancing my professional and personal needs with those of my students and program</td>
<td>Identifying Program Needs &amp; Ideas</td>
</tr>
<tr>
<td>8</td>
<td>consider what students will learn and the resulting changes from that learning as my guide throughout the process</td>
<td>Developing Program Goals &amp; Objectives</td>
</tr>
<tr>
<td>25</td>
<td>will revise initial objectives based on iterations of the course design</td>
<td>Developing Program Goals &amp; Objectives</td>
</tr>
<tr>
<td>32</td>
<td>adapt my course to align with recommendations and policies set by university governance and our curriculum committee</td>
<td>Developing Program Goals &amp; Objectives</td>
</tr>
</tbody>
</table>

(table cont’d.)
<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
<th>Theoretical Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>closely integrate degree program outcomes with my course-level and module-level outcomes</td>
<td>Developing Program Goals &amp; Objectives</td>
</tr>
<tr>
<td>22</td>
<td>seek out student input to inform objectives</td>
<td>Developing Program Goals &amp; Objectives</td>
</tr>
<tr>
<td>11</td>
<td>visually map my course outcomes to the program's outcomes</td>
<td>Developing Program Goals &amp; Objectives</td>
</tr>
<tr>
<td>2</td>
<td>brainstorm with others to collaborate on instructional and assessment strategies</td>
<td>Developing Instructional Plans</td>
</tr>
<tr>
<td>6</td>
<td>use storytelling to improve student understanding of key principles and concepts</td>
<td>Developing Instructional Plans</td>
</tr>
<tr>
<td>12</td>
<td>use the course shell to experiment with different Moodle activities or course layout</td>
<td>Developing Instructional Plans</td>
</tr>
<tr>
<td>18</td>
<td>leverage technology to enhance collaboration</td>
<td>Developing Instructional Plans</td>
</tr>
<tr>
<td>28</td>
<td>consult latest research on adult learning</td>
<td>Developing Instructional Plans</td>
</tr>
<tr>
<td>23</td>
<td>pay special attention to aesthetics, which constitute an important and integral part of my course design</td>
<td>Developing Instructional Plans</td>
</tr>
<tr>
<td>13</td>
<td>change course content and assessments to help students overcome barriers to the successful application of their learning</td>
<td>Determining Transfer-of-Learning Plans</td>
</tr>
<tr>
<td>17</td>
<td>provide students with multiple examples of application in practice and criteria for how to assess</td>
<td>Determining Transfer-of-Learning Plans</td>
</tr>
<tr>
<td>1</td>
<td>let students choose how they can best demonstrate a skill based on parameters I provide</td>
<td>Determining Transfer-of-Learning Plans</td>
</tr>
<tr>
<td>33</td>
<td>consider other courses in my program when determining what students need to be able to apply outside of my course</td>
<td>Determining Transfer-of-Learning Plans</td>
</tr>
<tr>
<td>26</td>
<td>use various career paths of graduates to help devise practical plans for applying what students have learned</td>
<td>Determining Transfer-of-Learning Plans</td>
</tr>
<tr>
<td>36</td>
<td>experiment with various technologies to facilitate more active learning strategies in my course</td>
<td>Determining Transfer-of-Learning Plans</td>
</tr>
<tr>
<td>15</td>
<td>adjust criteria based on insights from student feedback and course data tracked over time</td>
<td>Formulating Evaluation Plans</td>
</tr>
<tr>
<td>35</td>
<td>collaborate with instructional designers and other support staff to identify and collect various types of course data to evaluate</td>
<td>Formulating Evaluation Plans</td>
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<td>No.</td>
<td>Statement</td>
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<td>---------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>10</td>
<td>rely on current evaluation mechanisms used in my department</td>
<td>Formulating Evaluation Plans</td>
</tr>
<tr>
<td>27</td>
<td>integrate quantitative and qualitative data points to create a holistic interpretation for evaluation</td>
<td>Formulating Evaluation Plans</td>
</tr>
<tr>
<td>21</td>
<td>look for model frameworks to collect evaluation data</td>
<td>Formulating Evaluation Plans</td>
</tr>
<tr>
<td>30</td>
<td>leverage technology to collect useful data for evaluation</td>
<td>Formulating Evaluation Plans</td>
</tr>
</tbody>
</table>
Hi (participant name),

Thank you for agreeing to participate in this study. I will be sending you via email a direct link to the Q-sort. You will see an email from Q-sortware. Please open the email and click on the URL to open the Q-sortware website application. I’m going to ask that you please share your screen so that I can provide instructions for the sorting procedure. You can find the green share button at the bottom of your screen. I’m going to provide a brief overview of the entire procedure. As we go through, you are welcome to ask questions if you are uncertain about the process.

The Q-Sort is divided into four steps. The first step involves becoming familiar with each of the 36 statements that you will be asked to sort in later steps. The second step involves performing an initial sort into three categories which you can later revise if necessary. The third step is the actual Q-sorting procedure where you will be able to sort statements from each of the three categories into more discrete categories. For this step, you will only be allowed to drag and drop a certain amount of statements into each category. The researcher will provide additional instructions if necessary. After sorting is complete, you will be asked several questions that relate to your sorting experience. For this, I will record the portion of this session so that your responses can be transcribed verbatim and used in analysis. After being transcribed, the recording will be deleted. For the last step, you will be asked to complete a short demographic questionnaire that asks questions about your personal and professional characteristics.

Please feel free to ask the researcher questions if you are confused about the sorting procedure.

When you are ready, please click on “Q Sort Instrument” at the top left of your screen.

Please read the instructions that appear on your screen. When you are ready, click “Ok” to continue.

[Appears on Screen to Participant]

Take a few moments to become familiar with the statements that you will be asked to sort according to how important it is to your process for designing your online course. During the sorting procedure, each of the statements below will appear one at a time during the initial sorting stage. You will have the opportunity to rearrange your statements as you sort.

Please read through each of the 36 items in the table below by completing the statement,

“When designing my online course, I…”

<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
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<td>1</td>
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</tr>
<tr>
<td></td>
<td>identify and collect various types of course data to evaluate</td>
<td>35</td>
</tr>
</tbody>
</table>

[Ok]

Please read the instructions on the screen and click “Ok” when you are ready.

[Appears on Screen to Participant]

**Sorting Procedure**

Now that you are familiar with the statements, the next step is to begin the sorting process. Sorting is facilitated by dragging and dropping statements into categories. You will first be asked to sort statements into three initial categories. Once this step is complete, you will be asked to further sort statements into more discrete categories. Note that you will only be allowed to place a certain number of statements into each category during this step. This number is indicated by (#) next to the title of each category. You will be asked to sort by working your way from the outermost categories to the center category in a series of steps. The researcher will provide additional instructions for the order that you should sort statements. Once you have placed all the statements in the categories, you will have the opportunity to rearrange the statements until the arrangement best represents your opinions. Please feel free to ask the researcher questions if you are confused during the sorting process.

[Ok]

You are now in the initial sort stage. As a statement appears on the screen, please drag and drop the statement into one of the three (3) categories you see below the statement. The category on your left are those statements that are **most unimportant** to your process and the category on your right are those statements that are **most important** to your process. Put any statements that you don’t have strong feelings about in a middle category.

Once all 36 statements are sorted, you will have the opportunity to reevaluate and move statements into other categories if needed before moving to the next stage of the sorting procedure. Please click “continue” when you are ready to move to the next sorting stage.

[Continue]

Now that you have your statements sorted into three categories, you will now further refine and sort the statements you have previously sorted into more discrete categories. Please review the nine (9) categories at the bottom of the screen. From left to right, these read: Extremely Unimportant, Highly Unimportant, Unimportant, Somewhat Unimportant, Neutral, Somewhat Important, Important, Highly Important, and Extremely Important. Please note also the number
in parentheses next to the title of each category. This number reflects the number of statements you can place into the category. The vertical order of the statements within each category does not matter. There are icons at the bottom of each category that update and reflect the number of spots left available in each category.

You will need to sort each of the statements in a particular order that I will provide. When you are ready to begin, please reply “ready to begin.”

1. Start with the pre-sorted category to your right, the “most important” to your process category and select the two (2) statements from this category that are extremely important when designing your online course and place them in the column at the far right of the screen in column, labeled “Extremely Important”.

2. Next, from the category to your left, the “most unimportant” category, select the two (2) statements that are extremely unimportant when designing your online course and place them in the column at the far left of the screen in column labeled “Extremely Unimportant.”

3. Now, go back to the “most important” category on your right and select the four (4) statements from those remaining in your most important category and place them into the column labeled “Highly Important.”

4. Now, go back to the “most unimportant” category on your left and select the four (4) statements from those remaining in your most unimportant category and place them into the column labeled “Highly Unimportant.”

5. Repeat step 3 for the next four statements that are most important and place in column labeled “Important.”

6. Repeat step 4 for the next four statements that are most unimportant and place in column labeled “Unimportant.”

7. Working back and forth, continue placing statements into the columns until all of the statements have been placed into all of the columns.

Once you have placed all the statements in the columns, feel free to rearrange the statements until the arrangement best represents your opinions. When you have finalized the arrangement of the statements, please let me know.

Now that your statements are sorted, I have several questions I would like you to respond to verbally. For this I will need to record your responses. As a reminder, the recording will be transcribed verbatim and analyzed. Any personal identifiers will be removed before summarizing the data. When you are ready to begin, please reply “ready to begin.”

1. What are some thoughts you had when you sorted the statements?
2. For the two statements you chose as being “Extremely Important” to your online course design and development process, can you please explain why you chose those two statements.

3. For the two statements you chose as being “Extremely Unimportant” to your online course design and development process, can you please explain why you chose those two statements.

4. In what ways do other professional responsibilities that you have impact the way that you sorted the statements?

5. In what ways does your experience at the university impact the way that you sorted the statements?

Thank you for your responses. Please click the “continue” button and then select “save data” to complete the sort.

The last step is to complete the online demographic questionnaire. Please follow the URL to complete the short questionnaire in Qualtrics.

You may receive an email from me requesting a 10-minute follow-up interview. We will use Zoom for the interview and the session will be recorded, transcribed verbatim, and then deleted.

Thank you for your time! Have a great day!
APPENDIX E. DEMOGRAPHIC QUESTIONNAIRE

1. What is your age?
   - 18-30 years old
   - 31-40 years old
   - 41-50 years old
   - 51-60 years old
   - More than 60 years of age

2. Which of the following best describes you? You may select more than one.
   - American Indian or Alaska Native. For example, Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Nome Eskimo Community, etc.
   - Native Hawaiian or Other Pacific Islander. For example Native Hawaiian, Samoan, Guamanian, Chamorro, etc.
   - Black or African American. For example, African American, Jamaican, Haitian, Nigerian, Ethiopian, Somali, etc.
   - Hispanic, Latino/a, or Spanish origin. For example, Cuban, Mexican, Puerto Rican, Salvadoran, Dominican, Columbian, Guatemalan, Spaniard, Ecuadorian, etc.
   - White. For example, German, Irish, English, Italian, Polish, French, etc.
   - Middle Eastern or North African. For example, Lebanese, Iranian, Egyptian, Syrian, Moroccan, etc.
   - Asian. For example, Chinese, Filipino, Asian Indian, Vietnamese, Korean, Japanese, etc.
   - Prefer to self-describe __________________________

3. How many years of experience do you have working in higher education?
   - 5 years or less
   - 6-10 years
   - 11-15 years
   - 16-20 years
   - 21-30 years
   - More than 30 years

4. How many total credit hours do you typically teach per semester? This includes both online and face-to-face courses.
   - 1-3 hours
   - 4-6 hours
   - 7-9 hours
   - 10-12 hours
   - Other (please specify) _______________  

5. What is your average class size (number of students)
• 15 students or less
• 16-30 students
• 31-50 students
• 51-100 students
• Over 100 students

6. How much experience do you have teaching fully-online courses? (i.e., 100% web-based courses)
   • No experience teaching online
   • 1-2 years
   • 3-5 years
   • 6-10 years
   • More than 10 years of experience

7. For any online courses taught or developed for LSU, please choose all that apply.
   • I have taught 100% web-based courses for LSU campus (not LSU Online)
   • I have taught LSU Online courses for fully-online degree programs
   • I have developed or am in the process of developing an online course to be taught as 100% web-based on campus (I haven't taught the course yet)
   • I have developed or am in the process of developing an online course as part of a fully-online degree program for LSU Online (I haven't taught the course yet)
   • Other (please specify) ____________

8. What is your appointment with the university?
   • Full-time
   • Part-time
   • Term contracted
   • Other (please specify) ______________

9. What is your faculty rank at LSU?
   • Professor
   • Associate Professor
   • Assistant Professor
   • Instructor
   • Non-faculty Academic / Adjunct
   • Other (please specify) ______________

10. Are you tenured, tenure-track, or non-tenure track?
    • Tenured
    • Tenure-track
    • Non-tenure track
11. Please describe any additional professional responsibilities you currently hold with your department or the university (e.g. undergraduate coordinator, college or departmental committee member, student extracurricular club advisor, etc.)
**Please sign and submit this document with your IRB application**

**Security of Data**

**Number: PS06.20**

**SECURITY OF DATA**

**PURPOSE**

I certify that I have read and will follow LSU's policy on security of data – PS06.20 (http://sites01.lsu.edu/vrp/policies-procedures/policies-procedures/6-20/) and will follow best practices for security of confidential data (http://www.lsu.edu/it_services/its_security/best-practices/sensitive-data.php).

This Policy Statement outlines the responsibilities of all users in supporting and upholding the security of data at Louisiana State University regardless of user’s affiliation or relation with the University, and irrespective of where the data is located, utilized, or accessed. All members of the University community have a responsibility to protect the confidentiality, integrity, and availability of data from unauthorized generation, access, modification, disclosure, transmission, or destruction. Specifically, this Policy Statement establishes important guidelines and restrictions regarding any and all use of data at, for, or through Louisiana State University. This policy is not exhaustive of all user responsibilities, but is intended to outline certain specific responsibilities that each user acknowledges, accepts, and agrees to follow when using data provided at, for, by and/or through the University. Violations of this policy may lead to disciplinary action up to and including dismissal, expulsion, and/or legal action. It is recommended that all personnel on your project be familiar with these policies and requirements for security of your data.

In addition, it is recommended that PIs review any grant, nondisclosure/confidentiality agreement, or restricted data agreements before publishing articles using the data.

I certify that I have read and understand these policies.

Name: [Signature]

Date: 1/6/2020
### APPENDIX G. FACTOR ARRAY FOR FACTOR 1

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**Legend:**
- **Extremely Unimportant**
- **Extremely Important**
APPENDIX H. FACTOR ARRAY FOR FACTOR 2

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 11  4  6 12  5 19 24
 22 30 10 27 18 23 31
 28  1 35 26 33 13 17 15  3
 21 20  7 14 29 36  8 25 34
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APPENDIX I. FACTOR ARRAY FOR FACTOR 3

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REFERENCES


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Louisiana Board of Regents. (2019). Louisiana prospers: Driving out talent imperative (Rep.). https://lsu.app.box.com/s/87zf21dj3byqqg5o6oq0i3kcshspm33


Jennifer Morrisette, born in Halifax, Nova Scotia, Canada, worked as an instructional designer and online course developer in higher education after receiving her master’s degree from Louisiana State University. She began working with the LSU School of Plant, Environmental, and Soil Sciences, to help design and deliver online horticulture courses as part of a USDA Higher Education Challenge grant awarded to the university. Soon after, she joined Louisiana State University’s Online & Continuing Education division to work as an instructional designer and online course developer and later decided to pursue her doctorate in the Department of Agricultural and Extension Education and Evaluation, focusing studies on distance learning, program evaluation, instructional design, and teaching in higher education. As Jennifer continued working for LSU Online & Continuing Education, she became Manager of Learning Experience Design Resources and later Assistant Director of Learning Experience Design Resources and Effectiveness, which provided experience in managing the production timelines of online courses, and the evaluation and procurement of development tools utilized by designers for designing and developing online courses. Upon completion of her doctorate, Jennifer will continue her role as Assistant Director with LSU Online & Continuing Education where she will focus on infrastructure improvement strategies for providing scalable services and support to faculty and instructional designers at the university.