

University Staff, Creativity and Innovation in Higher Education

by

Chad William Morgan

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Graduate Supervisory Committee:

Eugene Judson, Chair  
Jeongeun Kim  
Derrick Anderson

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## ABSTRACT

This action research project was a concurrent mixed method case study design. The purpose of this action research study was to begin to understand how an institution of higher education can best support creativity and innovation of university staff members. More specifically this study looked at the influence of a design thinking workshop on university staff perceived creative and innovative ability. Additionally, this study looked at the influence of individual attributes on staff creativity, and the influence of organizational attributes on staff innovation. Amabile and Pratt's Dynamic Component Model of Creativity and Innovation in Organizations informed this study. Participants for this study were recruited from the Educational Outreach and Student Services division of Arizona State University at the Downtown Phoenix campus. Qualitative and quantitative data were collected using a Creativity and Innovation Survey (CIS) and individual interviews. The Creativity and Innovation Survey was distributed to staff before and after they participated in a two module design thinking workshop. Interviews with staff occurred after the conclusion of the workshops. In responses to the CIS and in interview staff had a strong belief in their ability to be creative and innovative in the workplace. A correlational analysis of CIS data indicated that a positive and significant relationship existed between creativity and individual attributes, as well as between, innovation and organizational attributes. Staff also expressed these relationships during interviews. The themes of collaboration, supervision, and resources each emerged from the interview data as important influencers of staff creativity and innovation. Although staff expressed there was a value in the design thinking workshops during interviews, a significant difference

was not found in staffs' perceived creativity and innovation after participating in the design thinking workshop. Implications for practice and for future research are discussed.

## DEDICATION

This work is dedicated to friends and family near and far who helped get me to the finish line.

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## CHAPTER 1

### INTRODUCTION AND LARGER AND LOCAL CONTEXT

Colleges and universities' primary goals are to usher students from enrollment to graduation and to prepare them for meaningful and productive lives post-graduation (Stevens, 2015). Unfortunately, the proportion of students who graduate in six years, from four-year colleges and universities, remains low at only 59.1% (United States Department of Education, 2019). Research on the factors influencing persistence to graduation has long been a focus of study at institutions of higher education. Literature has shown students leave the university at high rates during the transition from first to second year of university study (Tinto, 2007). Nationally, 25% of students who enroll in four-year institutions do not continue to their second year of academic study at their original institutions (United States Department of Education, 2019). Not only has the deficiencies in graduation rates and first-to-second year retention drawn the attention of researchers and administrators at institutions of higher education, but also the interests of those in federal and state legislative bodies who often are responsible, at least in part, for funding these institutions (Swail, 2004).

Author and president emeritus of the University of Michigan, Jon McGee suggested in his 2015 book, *Breakpoint: The Changing Marketplace for Higher Education*, that universities and colleges in the United States are facing extreme environmental factors including demographic changes, economic changes, and changing cultural expectations that necessitate dramatic changes in the way these institutions do business. In terms of demographic changes, some authors point to a decline in high school graduates, that won't reach 2010 levels again until 2023, resulting in fewer

applications from high school seniors (Grawe, 2018; McGee, 2015). Others suggest that American universities need to adapt due to shifting student body demographics, that will be dramatically different in coming years (Crow & Dabars, 2015; Deil-Amen, 2015; Grawe, 2018; McGee, 2015;). New learners from different sectors of our population will require American universities and colleges to provide new and different services focused on meeting the more heterogeneous population of learners at the developmentally appropriate place. For example, students returning to the university thirty-five years after graduating from college and not digital natives may need additional technology support services related to the use of digitally infused pedagogies.

Economically, shifts in public funding to universities, increasing cost of attendance and the inability for some students to fund their education, all influence what and how universities are providing services to the students they enroll. (Crow & Dabars, 2015; McGee, 2015). Daniels (2016) indicated state funding of public universities has decreased 25% since 2000. Decreases in state funding leads to increases in the direct cost of enrollment to students (Deneen & Dretler, 2012) and difficulties exist for families in understanding the true cost of a college education (Archibald & Feldman, 2012). Consequently, more applicants and students are unable financially to enroll or who are stressed financially to afford the cost of higher education. Both the individual economics and present state funding models challenge how institutions approach the work of educating students. Detracting from the focusing on student learning, colleges and universities spend a great deal of time, energy and resources focused on how to keep a student's education economically viable. As an example of response to economic

pressures, institutions have moved to online formats of instruction partly because they can be delivered at a considerably lower cost (Byrd & Mixon, 2012).

Culturally, attitudes towards the purpose and importance of a college education are also in flux. Skeptics assert that college today is simply not worth the growing cost (Caplan, 2018; Hacker & Dreifus, 2010; Kaufman, 2015, Kristof, 2014). This sentiment is becoming more commonplace in popular media. Even university faculty are making this declaration with growing regularity (Crow & Dabars, 2015). The purpose of a college education has also shifted towards being a direct route to employment after graduation, rather than a learning-rich developmental experience (Doyle, 2007; Ikenberry & Hartle, 2000; Immerwahr, 1998). Students view institutions of higher education as a stepping-stone towards their professional aspirations, rather than an opportunity to learn, develop and shape the lens through which they see the world (Crow & Dabars, 2015; Doyle, 2007; Ikenberry & Hartle, 2000; Immerwhar, 1998; McGee, 2015; Scott, 2015). Fundamentally, the publics' opinions regarding colleges and universities have shifted, and external environmental pressures are causing institutions to consider how to go about their daily operations.

The landscape of higher education in contemporary society is complex and dynamic, and the challenges of getting students to the graduation stage are significant. Keohane (2013) states, with threats coming from every direction, higher education leaders face increasingly complex challenges and opportunities. Institutions of higher education often are slow to respond to changes in their environments yet, in order to confront these circumstances, universities and colleges will need to come up with complex and novel solutions. The ultimate benefit is a better ability to meet students'

educational needs and the risk in not adapting is greater numbers of students not reaching the graduation stage (Dunderstadt, 2000). In some circumstances, the inability to adapt and present innovative solutions may result in catastrophic failures of educational organizations (Crow & Dabbers, 2015). Complex and novel solutions require creative individuals and innovative organizations. To perform in dynamic and quickly changing environments, organizations often rely on the creativity of individual employees and the ability of said employees to turn their creative ideas into innovative actions (Anderson, Potocnik, & Zhou, 2014; Nisula, 2013). In fact, creativity and innovation in organizations have become central to understanding organizational performance (Anderson et al., 2014).

For the purposes of this study, the following operational definitions are applied. *Innovation* and *creativity* are often used interchangeably; however, here they are defined in accordance with Amabile (1988) as distinct constructs. “Creativity is the production of novel and useful ideas by an individual or small group of individuals working together” (Amabile, 1988, p.126); whereas, innovation “is the successful implementation of creative ideas within an organization” (Amabile, p.126). Therefore, the distinction is emphasized that within organizations, *creativity* represents the process of generating ideas and *innovation* represents the execution of said ideas.

#### Local Context

My current position is at Arizona State University (ASU), a large public research university in the American Southwest. During Fall 2017, over 103,350 students enrolled in our academic programs, across 17 colleges in more than 350 undergraduate and 450

graduate degree programs. Students receive instruction at five campus locations across the Phoenix metropolitan area and through various online education programs (ASU Facts, n.d.). The Carnegie Foundation classifies ASU Tempe as a doctoral level institution with very high research activity (r1), the highest classification of which only 130 other universities in the United States have received. ASU Downtown is classified as a doctoral level institution with high research activity (r2), the second highest classification. ASU West and Polytechnic are both classified as master level universities, with medium (m2) and larger (m1) programs, respectively (Carnegie Classification of Institutions of Higher Education, n.d.).

The downtown campus of ASU is located in the heart of the central Phoenix business district and is just miles away from the Arizona state capital. The campus was opened in 2006, is already the second largest campus in the ASU portfolio (ASU Facts, n.d.), and is positioned to continue growing. Even in its inception, the downtown campus was focused on an innovative relationship with the City of Phoenix and her residents. In its development, both the city of Phoenix and ASU were purposeful in realizing the opportunity to reshape synergistically the downtown Phoenix landscape (Friedman, 2009). Students choosing to attend the downtown campus represent the multiple aspects of diversity found in the larger region and state. Many of the students who chose the downtown campus of ASU are first generation college student or come from historically underrepresented populations. The academic colleges on the downtown campus are diverse and seek to provide innovative solutions in health care, public service, and journalism both through research and educational approach (ASU Facts, n.d.). The campus and its multiple colleges are central to the economic and cultural sustainability of

the city center. ASU's presence in downtown Phoenix continues to aid in providing critical mass to other educational and cultural institutions located downtown (Friedman, 2009). This setting provides an interesting opportunity to understand how university staff are presently able to provide innovative solutions in an environment particularly attentive to innovation action for the students and community that it serves.

### **Role of Researcher**

In my 17 years of experience as a student affairs professional at three different universities, I have seen many students come and go from the university, many with completed degrees, and many never reaching graduation. The reasons for their departures are varied, and some students ultimately complete their studies at other institutions. Seeing many creative and intelligent students leave the university without a diploma has ignited my professional interest in how we can better equip students to persevere to graduation. More specifically, given my professional position as the Associate Dean in the Dean of Students office, I have a particular interest in the well-being of university students, their academic success, and ultimately, their success after graduation. It is through these lens that I view the higher education landscape, and from which I have developed my proposed problem of practice.

For the purpose of this proposed research project, I will serve as the facilitator of professional development, the data analyst, and the one drawing conclusions from the analyzed data. Subsequently, I will also continue to serve as an insider to the population of interest in my role as Associate Dean of Students. This positionality grants me access to, and prior knowledge of, the case I am interested in understanding and an establish level of trust with the staff I will be studying. With this advance knowledge and access, I

already come to the problem of practice understanding many of the cultural norms of the staff and organization. At the same time, it is understood that my situation introduces a potential for researcher bias. Bias in the sense of how honest will staff be with me knowing that I have a leadership role within the organization and introducing a potential that staff will either more or less critical regarding their personal experiences with the subject matter. Also, potential bias, because I come to the problem with some preconceived ideas about what is happening in the environment. This potential bias will require careful attention when analyzing the data from the study.

### **Problem of Practice**

My problem of practice originated from a focus group that I participated in as a university staff member during the summer of 2018. The topic of discussion was how staff at my university are innovative in the work they do. I was surprised to hear that the eight staff members in the room believed the institution, and specifically the faculty, were highly engaged in creative thinking and innovative work. However, their roles as staff did not encompass being creative and innovative. This served as a lightbulb moment in regards to my area of interests. The paradox struck me regarding those who are most directly tasked with providing the support and resources students need to be successful, did not believe creativity and innovation was particularly relevant to their work. From this experience, my problem of practice emerged. University staff members work in a dynamic environment with students who experience unique challenges, and university staff members need to meet those challenges with creativity and innovation to support students' success. Yet, university staff members do not necessarily believe themselves or their jobs are involved in creativity or innovation. Thus, my guiding question is *how can*



*a university organization best support and enhance creative ideation and innovative action among staff members?*

This problem of practice is significant for several reasons. First, the division of Educational Outreach and Student Services has two principal goals; 1) to provide timely and responsive service to students, and 2) to affirm each student as an individual. Both of these goals require staff to respond quickly and individually to a variety of circumstances faced by students. There are no cookie cutter responses to these circumstances as each situation is unique and thus, it is critical that staff are able to respond to each unique situation with creativity and innovation to accomplish the organizational objectives. Secondly, and on a larger scale, institutions of higher education are being held to higher standards for students persisting to graduation by multiple stakeholders. Government agencies, students, and their families all hold a reasonable and intensifying expectation that students leave higher education with a degree. With the multitude of new challenges that students are arriving to institutions of higher education with, great creativity and innovation on part of university staff will be required to meet these expectations.

It is the researcher's hope that the results of this study will benefit student stakeholders through greater levels of creative problem solving from university staff members, advancing greater number of students towards graduation. Study results will also benefit university administrators who supervise staff by providing a greater understand of how they might influence staff to be more creative and innovative in working with students. The research aims to provide designers of institutions of higher education greater insight into how to design organizations that leverage individual and

organization attributes to encourage staff creativity and innovations towards the greatest levels of student success possible.

The theoretical framework undergirding this study, the Dynamic Component Model of Creativity and Innovation in Organizations (Amabile & Pratt, 2016), suggests that both individual attributes and organizational attributes influence individual creativity and innovation in organizations. This framework will be discussed in detail in Chapter Two. However, the model generally asserts that the individual attributes of intrinsic and extrinsic motivation, task domain skills, creativity relevant processes, work orientation, meaningful work, and attitude, all influence individual creativity. Additionally, the model suggest that the organizational attributes of motivation to innovate, task domain resources, and skills in innovation management, influence organizational innovation. Creativity and innovation are interrelated concepts in the model, with each influencing the other, which is one of the principle reasons this framework was selected. Both individual attributes and organizational attributes will be examined to determine their relationship to creativity and innovation.

### **Research Questions**

- RQ1. How do individual attributes influence university staff members' ability to be creative in the work place?
- RQ2. What is the relationship between university staff members' individual attributes and their creativity in their work?
- RQ3. How do organizational attributes influence university staff members' ability to apply innovative solutions in the work place?

- RQ4. What is the relationship between university staff members' perception of organizational attributes and innovative actions in the workplace?
- RQ5. How does a design-thinking workshop influence the perceived ability of university staff members to be creative in their work?
- RQ6. To what extent does a design-thinking workshop influence the perceived ability of university staff members to be creative in their work?
- RQ7. How does a design-thinking workshop influence the perceived ability of university staff members to be innovative in their work?
- RQ8. To what extent does a design-thinking workshop influence the perceived ability of university staff members to be innovative in their work?

## CHAPTER 2

### THEORETICAL PERSPECTIVES AND GUIDING RESEARCH

#### **Changes Facing Higher Education**

As long as six decades ago, Enarson (1960) discussed innovation in the context of four areas within higher education institutions (HEIs) that were ready for deep exploration and radical new ways of doing: number of courses, course content and methods, class size, and the use of faculty time. Fast forward to 2018, and still today, talk of innovation within the hallways of colleges and universities is plentiful (Buller, 2015). Innovation and the desire or need to change are interrelated interests, and change has been present in HEIs since first established (Altbach, Gumport & Berdahl, 2011; Christensen & Eyring, 2011; Immerwahr, Johnson, and Gasbarra, 2008). One possible reason for the constant quest for innovation in higher education is the changing external environment. Though some of the specific factors influencing the desire or need to change in the 1960s might have been different, many of the same factors are influencing changes within HEIs today (Altbach, et al., 2011; Christensen & Eyring, 2011; Immerwahr et al., 2008; Kirst & Stevens, 2015). College and universities were described by Immerwahr et al. (2008) as “being in the crosshairs of competing social needs and economic realities” (p. 2), thus identifying social need and economic realities as factors influencing what is happening inside HEIs today. In the context of HEIs, competing social need is explained as the growing numbers of low-income, minority and foreign-born students aspiring for the opportunities higher education unlocks. The economic realities are largely pressured in the United States by its massive economy that needs a large cohort of highly qualified and well prepared employees.

## **Demographic, Economic, and Cultural Disruptions**

McGee (2015) described the external factors forcing changes to HEIs in the United States as *demographic disruptions*, *economic disruptions*, and *cultural disruptions*. The demographic disruption he described predicts changes expected to both the number of students graduating from high school and the makeup of high school graduates. These predictions are supported by forecasts from a Western Interstate Commission for Higher Education (2016) study. The study reports a relatively stable number of high school graduates through 2025, with a subsequent projected decrease of 250,000 students graduating from high schools by 2031. Demographic changes also include shifts in the racial and ethnic composition of those graduates. By 2031, Hispanic high school graduates are expected to grow by over 500,000, Asian and Black graduates are expected to grow by over 100,000 students each, while White high school graduates are projected to decrease by over 193,000 students in the same period. Overall, researchers predict that the number of high schoolers entering universities directly after graduation will decrease. This does not mean that enrollment in universities will decrease but rather, scholars predict enrollment will remain steady with the age composition of those entering shifting to include more students who are not coming directly out of high school (Diel-Amen, 2015; Settersten, 2015). McGee (2015) also suggests that the geographic location of our population is continuing to shift westward and to the south, affecting those institutions regionally serving the Northeast and Midwestern United States. The demographic disruption will prompt changes to the way that universities and colleges function and more specifically the way they serve students.

McGee's (2015) economic disruptions include the abilities of families to afford college, decreases in government financial support of higher education, and stagnant family income growth. In 2018, 85% of parents surveyed stated they expected their child to attend a college or university, while only 40% had a plan as to how they were going to pay for it (Sallie Mae, 2018). Thirty-one percent of parents stated that they were very concerned about the rising cost of higher education, and 22% said that they were concerned that financial aid would be less available in the future than it is today (Sallie Mae, 2018). State and federal funding to support public universities has decreased in almost every state in the country since the recession of 2008, forcing higher costs of attending as universities strive to remain fiscally viable (Crow & Dabars, 2015; Duderstadt, 2000; Johnson, 2011; McGee, 2015). Household median income in 2016 was \$59,039, less than 1% above its 2000 level (Semega, Fontenot & Kollar, 2017), while cost of living increased 40.3% in the same time period, leaving families with far less real income to dedicate towards higher education costs (Bureau of Labor Statistics, n.d.).

The two aspects that McGee (2015) describes as cultural disruptions include the commodification of higher education and the proliferation of "technology aided mass-marketed higher education" (p. 64). In reference to the commodification of higher education, the public perception is shifting towards universities as places that produce the credentials one needs to gain success in our society (Berdahl et al., 2011; Crow & Dabars, 2015; Kirst & Stevens, 2015; McGee, 2015). With the rising cost of attendance, students and families are viewing university degrees through economic lenses that consider how much acquiring specific degrees increase income after graduation. McGee

(2015) describes this cultural shift as moving from transformational learning experiences to a transactional one. Transactional in this sense is defined as engaging in a college experience in order to enter a desired career field rather than a transformational experience that shapes how a student makes sense of the world around them.

From interviews with university presidents, Immerwahr et al. (2008) described their view of the context of HEIs through the imagery of an iron-triangle, with the sides being cost, quality, and access. The presidents suggested that these three factors are connected in an “unbreakable reciprocal relationship” (p. 4) in that changes to any one of these three factors will influence the others. The largest challenges identified, by the presidents, that are facing HEIs included a large influx of new students, increased cost of attendance coupled with stagnant family incomes, intense competition from other countries, and greater demands for accountability from government and the public. For example, the presidents thought that efforts to increase quality or access would result in higher costs for students. They also believed that continued decreases in state funding ultimately would lead to either lower quality, higher tuition cost or reduced access to HEIs. One thing all the presidents believed was that quality and access are inversely related; that is, if access is increased, quality will decrease and vice versa. As an important contextual component, President of ASU Michael Crow, explains in the next evolution of higher education, and in the university he is striving to build needs to do exact what these presidents stated was not possible by expanding access, lowering cost and maintaining quality of the educational experience (Crow & Dabars, 2015). Further indicating in my specific context, why staff innovation and creativity is vitally important. Crow and Dabbers (2020) further extends this belief and expands it to higher education

rite large moving in this direction, in order to be able to meet the needs of our country and the world.

Interestingly, the National Center for Public Policy and Higher Education and Public Agenda found that the public differed greatly on what they believed regarding the relationship between cost, quality and access facing our universities (Immerwahr & Folen, 2000). Over 50% of those surveyed from the public believed that colleges could spend less and maintain quality, and that universities could increase enrollment without affecting quality. The public also regarded colleges and universities as businesses, producing a commodity, with a focus on their financial bottom-line (Immerwahr & Folen, 2000). Government and business leaders possess feelings similar to the general public about HEIs, with 60% believing higher education is too bureaucratic and resistant to change and needing to become more lean and efficient to meet the nation's needs (Immerwahr, 2004). Economic realities of the day, along with changing demographics of the college going population, coupled with changing cultural perspectives on IEHs create new, dynamic and very real challenges that higher education has not seen before. New problems require novel solutions, and having staff that can not only develop these creative solutions and also have the ability to implement innovative action is critical to future successes on HEIs.

### **Technological Influences on Higher Education**

Conversely, with shrinking state and federal support, HEIs are looking for the most scalable and efficient ways to support students earning credentials, often through technology-aided pedagogy. With this shift, the delivery of some academic programs are moving from transformational to transactional. The infusion of online and virtual



classrooms has required universities to change dramatically over the last 10 years. The use of technology removes the barrier of time and space from those who otherwise might not have access to the brick and mortar campuses (Christensen & Eyring, 2011; Willinsky, Fischman & Metcalfe, 2011). With greater access, provided by online platforms, to a larger geographic market of degree seeking students, and the need to produce academic programs that generate higher revenue margins and lower expenditures per pupil, colleges and universities are mass marketing online programs in the way that many businesses promote their products.

In an effort to capture more individuals from more diverse locations, through online coursework, the marketing of higher education has taken on a new importance in the academy (Frost, 2010; Hemsley-Brown, 2012; Silber, 2012). With the demographic disruptions described earlier for many colleges and universities, the competition for students is fiercer today than ever (Pucciarelli & Kaplan, 2016). Technology has allowed even small regional colleges to reach students around the world, increasing competition; but, without aggressive promotion, these products can become more costly than profitable (Deming, Goldin, Katz, & Yuchtman, 2015). This shift alone has created seismic shift in the way student services are able to support the academic and personal success of students, and fostered an even greater need for staff to be creative and innovative in responding to students needs.

### **HEIs Response to Change**

Some institutions are trying to shift but many are doubling down on the historical ways universities have done business since they were established (Buller, 2015; Christensen & Eyring, 2011). Slow movement away from traditional approaches to

curriculum delivery, focused and narrow institutional missions, delivery of student support services, and even financial aid models can lead to the ultimate collapse of HEIs. For example Green Mountain College, a small private tuition-dependent college in Vermont, closed its doors recently because the operation was no longer fiscally feasible. Even after years of struggle with decreased enrollment, mounting debt, and the stark realization of its financial difficulties, Green Mountain College never changed course but rather continued business as usual, finally closing at the end of the Spring 2019 semester (Carlson, 2019). Green Mountain College long ago positioned itself as an environmental liberal arts college. For a while, this niche approach sustained the college, but in a region with a population that was shrinking, this strategy effectively reduced an already small number of interested individuals in the area to even fewer applicants (Jaschik, 2019). At an institution with a small endowment, where tuition dollars funded a large majority of the annual operating budget, the shrinking enrollment due to a flawed strategy ultimately resulted in the institution's closure (Seltzer, 2019). Regardless of the market indicators, Green Mountain College never changed course. Changes in movement away from the geographic area, the narrow institutional mission minimizing viable news students, the economic environment, and changes in cultural perspectives on what HEIs are supposed to be were all ignored. Though this is just one extreme example, many universities face the same inertia or resistance to change (Buller, 2015). With shifts in demographics and the economy, more globally competitive markets, and an increasingly pessimistic view of HEIs, colleges and universities have to find novel ways to meet the educational needs of our country (Buller, 2015; Christensen & Eyring, 2011; Crow & Dabars, 2015). These dynamic external factors, along with what is happening within our HEIs, require faculty

and staff to continue to reimagine how they provide instruction, services, and support for students (Buller, 2015).

With external forces bearing down on HEIs, higher education faculty and staff will continue to face new, complex, and dynamic challenges and opportunities at both the macro and micro level. It is with this national landscape in mind that the remainder of this chapter provides a review of literature regarding creativity, innovation, and design thinking that will undergird the intervention proposed in this study. As a reminder, in my study, creativity is defined as “the production of novel and useful ideas by an individual or small group of individuals working together” (Amabile, 1988, p.126), whereas, innovation “is the successful implementation of creative ideas within an organization” (Amabile, 1988, p.126). Therefore, the distinction is emphasized that within organizations, *creativity* represents the process of generating ideas and *innovation* represents the execution of said ideas. Creativity and innovation in HEIs may be central to meeting the new demands facing HEIs as we progress into an economy driven by knowledge generation (Buller, 2015).

## **Creativity**

### **Models for Understanding Creativity**

Sheridan-Rabideau (2010) described creativity as “the cultural capital of the twenty-first century” (p. 54). Creativity initially was a topic of interests in psychology and other cognitive disciplines (Egan, Maguire, Christophers, & Rooney, 2017) but more recently has found its way into multiple arenas, such as business, technology and higher education. This influx of scholarship around the construct of creativity is often credited to an address given by J.P. Guilford to the American Psychological Association in 1950

(Lubart, 2000), and his subsequent work in which he called into question the then popular four-stage model of the creative process (Guilford, 1967; Guilford, 1979). This four-stage model of the creative process is believed to have evolved from thoughts of Herman von Helmholtz, a physicist and physiologist, in the late 19<sup>th</sup> century when he noted that after investigating a problem in detail, ideas came without effort (Wallas, 1926). Wallas (1926) conceptualized this process into the original four-stage model of the creative process, which he articulated as the stages of *preparation*, *incubation*, *illumination*, and *verification*. Lubart (2000), in discussing the four-stage model, described *preparation* as involving the preliminary analysis of the problem at hand; *incubation* as the unconscious work that the mind engages in as it forms trains of association, which, when successful, arrives at a promising idea; *illumination* occurs when the promising idea comes to conscious thought as a potential solution to the problem earlier analyzed; and *verification* that involves the evaluation, refinement and development of the idea.

Even after Guildford's criticism of it, the four-stage model or some variant of it continues to serve many researchers' basic understanding of the creative process (Amabile, 1996; Runco & Dow, 1999; Sadler-Smith, 2015). Following the tradition of the four-stage model, Amabile (1996) incorporated a version of the model into her component model of creativity and innovative organizations. She described the creative process as a slight variant of the original four-stage model to include problem identification, preparation, response generation, response validation and decision-making about additional work. Application of the four-stage model has been found in several empirical studies. Moriarty and Vandenberg (1984), as an example, conducted a survey of employees in an advertising agency who were responsible for creative tasks and found

the creative process to resemble the four-stage model in employees' descriptions of their creative processes. The employees' articulations of the stages included *immersion*, *incubation*, *illumination* and *evaluation*. Though the articulation by these employees was slightly different from the earlier model proposed by Wallas (1926), the stages are fundamentally the same, with immersion mirroring preparation and evaluation paralleling verification.

Other scholars attempted to extend the four-stage model by separating out sub-processes of the four main stages. One example of this line of inquiry is the investigation of problem formation as a sub-process of the preparation stage (Getzels & Csikszentmihalyi, 1976; Isaksen & Treffinger, 1985; Jay & Perkins, 1997; Osborn, 1953; Runco, 1994; Smilansky, 1984). For example, Isaksen and Treffinger (1985) identified "mess finding" during the preparation stage in which the problem to be addressed is more fully defined. Another expansion of the four-stage model is the inclusion of a sub-process of *frustration*, at the end of the preparation phase, where the individual reaches their intellectual limit with the problem at hand. These authors proposed that this moment of frustration may lead into the incubation stage or an end to the creative process (Golemann, Kaufman, & Ray, 1992; Sapp, 1992). This model of creativity has grown into a large collection of adaptations that extend and vary in slight dimensions from Wallas' original four-stage model (Wallas, 1926).

The four-stage models are not the only conceptualization of the creative process. Eindhoven and Vinacke (1952) criticized the four-stage model and found no evidence of the distinct stages. They instead described the creative process as dynamic and co-occurring processes that were recursive in nature rather than linear stages. Similarly,

Doyle (1998) found support of a more integrated recursive model of creativity when observing the creative process of writing fictional stories. Ghislen (1985) also rejected the distinct stages identified in the four-stage model and presented a more integrated process of creativity. Other scholars have also found evidence of the simultaneity of processes in studies that looked at creativity in artists' and architects' processes (Cawelti, Rappaport & Wood, 1992; Getzel & Csikszentmihalyi, 1976; Goldschmidt, 1991).

Mumford, Mobley, Uhlman, Reiter-Palmon and Doares (1991) extended this research by identifying core processes for creativity and organizing them into categorical structures. In the model presented by Mumford et al. (1991), creativity occurs in a loosely structured sequence and includes problem construction, information encoding, category search, identifying best fitting categories, combination and reorganization of category information, and idea evaluation. Mumford et al. (1991) suggested that the process is fluid and individuals move between different processes as the situation dictates.

Treffinger (1995) also developed a more dynamic model of creativity in which three sets of coinciding processes underlie creativity rather than distinct stages. This model depicts the creative process as understanding the problem, generating ideas, and planning for action, which can happen in a variety of orders and with overlapping occurrence. The Geneplore Model developed by Finke, Ward, and Smith (1992) suggests that creativity involves *generative* and *exploratory* processes. The *generative* process involves the construction of ideas into *preinventive structures*. The *preinventive* process includes knowledge retrieval, idea association, synthesis, transformation, and analogical transfer. Exploratory process includes hypothesis testing and searching for limitations of the

preinventive structures. These two processes are explained to combine in cyclical sequences that end with creative products.

### **Other Creativity Research**

Other threads of research regarding creativity have focused intensely on the sub-processes involved in creativity (Lubart, 1994; Ochse, 1990; Sternberg, 1999; Sternberg & Lubart, 1995). Divergent thinking, or the sub-process of generating many different ideas, has been a popular topic in creativity research (Guilford, 1967; Khandwalla, 1993; Runco, 1991). Divergent thinking is described as the kind of thinking that occurs when one is asked to consider all the different ways an object might be used that are alternatives to its primary function, as opposed to convergent thinking which seeks to find a singular best use for the item (Han et al., 2018). Another area of inquiry has centered on the combination of information (Lubart, 2000). Some researchers have looked specifically at the combination of information through a process of reorganizing it (Baughman & Mumford, 1995; Mayer, 1995), while others have looked at the process of forming combinations of ideas by chance-based processes (Campbell, 1960; Simonton, 1988). As another way of thinking about creativity, rather than thinking about creativity as a set of stages or sub-processes, Amabile's (1996) Component Model of Creativity explains differences in creative production through individual differences in task motivation, domain-relevant skills, and creativity-relevant processes. This model conceptualizes inputs or external factors that result in or inhibit creative idea generation.

### **Creativity in Organizations**

As indicated by Amabile's (1996) model, creativity in organizations is complex and a multitude of organizational factors influence creative productivity at both the small

group and individual levels. Amabile (1996) and others identified that social factors widely influence creativity (Drazin, Glynn & Kazanjian 1999; Hargadon & Bechky, 2006; Staw, 1990; Woodman, Sawyer & Griffin, 1993). Amabile and Pratt (2016) further defined the social environment that influences creativity to include leadership approach, management strategy, and co-workers' attitudes and behaviors. Shalley, Zhou and Oldham (2004) found that organizational factors that encourage or stifle creativity were job complexity, relationships with supervisors, relationships with co-workers, rewards, evaluations, deadlines, goals, and special configurations of the work setting. Kupferberg (2006) also suggested that individual creativity is a social activity dictated by the organization or industry, and is moderated within organizations by two primary forces, innovation norms and struggles for legitimacy. Innovation norms are those characteristics, structures and norms that determine if a given idea is recognized and rewarded or not within a specific setting. Struggles for legitimacy are the organizational characteristics that determines the life span of ideas and whether or not they will change paradigms, create industries or spark new domains of knowledge. Kern (2006) looked at the impact of rules on creativity, and found that organizational rules, both explicit and implicit, are not antagonistic to creativity, as one might expect, but rather can be vectors for collective creative activity. He explains that rules in organizations serve as artifacts, such as genres in the theater, and individual actors who choose either to follow the rules outlined by that genre strictly or to modify them within the producer's direction toward ultimately producing a work of art. Amabile (1996) and numerous others have found evidence that creativity significantly contributes to innovation within organizations (Cernel, Jaklic & Skerlavaj, 2013; Isaken & Akkermans, 2011; Shalley et al., 2004).



The literature regarding creativity in HEIs largely focuses on developing the creative capacity of students and creativity in the context of curriculum delivery and faculty research (Cavagnaro & Fusihuddin, 2016; Egan et al., 2017; Kandiko, 2012; Nonaka, 1991; Zacher & Johnson, 2015). One example of such studies (Ahmad, Zafar, & Shahzad, 2015) focused on creativity of faculty in their delivery of curriculum and research. The focus was on what influence the leadership style of supervisory staff members has on faculty members in these activities. Ahmad et al. (2015) found that in Pakistan when those supervising faculty demonstrated an Authentic Leadership Style, faculty members demonstrated greater creativity in their teaching and research, as well as increased motivation and a more positive mood. Authentic Leadership Style was operationalized in this study as leadership behavior that encourages positive psychology, self-development, and a positive ethical climate. Lee (2018) found that intensity of knowledge-sharing in HEIs among Korean students was positively correlated to individual creative outputs. Chen and Chen (2012) reviewed strategies to boost creativity with university systems in Taiwan. Their findings suggest that the construct they termed *creative intelligence*, which was operationalized to include university climate and faculty/student interactions, had the greatest influence on creative output by university faculty members. In my review of the literature, no studies were found that applied different models of creativity to specifically staff in university settings or that examined creative capacity of non-academic university staff members.

### **Innovation**

While creativity is the development of novel ideas and solutions, innovation is the actual implementation of those ideas (Amabile & Pratt, 2016). Innovation in

organizations, more specifically in HEIs, is seen as vital in the quickly changing context and communities that they serve. Much of the business and organizational behavior literature positions innovation as one of the most important characteristics that organizations can demonstrate in today's highly competitive environment (Ahmad et al., 2015; Amabile & Pratt, 2016; Anderson, et al., 2014; Buller, 2015; Christensen & Eyring, 2011). In order to leverage the competitive advantage of turning creative ideas into actual action, organizations must leverage employees' abilities, skills and knowledge (Anderson, De Dreu & Nijstad, 2004; West, 2002; Zhou & Shalley, 2003). Consider Google, a company who has experienced monumental success and prides itself on finding novel solutions, as an example of how innovation fuels organizational success in the contemporary economy (Savoia & Copeland, 2011). Over the last forty years, innovation has been examined at multiple levels: the individual, the work team, and the organization. Innovation as a process, however, is dynamic and is influenced by many factors, often making it difficult to capture as a construct and potentially even more difficult to execute as an organization (Anderson et al., 2014). The remainder of this section provides a review of relevant innovation literature, starting with prominent theoretical frameworks for innovation, and then presenting a review of literature specific to studies written about innovation in HEIs.

### **Models for Understanding Innovation**

The first prominent theory of innovation is the Interactionist Perspective of Organizational Creativity. Woodman et al. (1993) described in this framework that creativity is an interaction between the individual agent and their work environment. At the individual level, creativity is based on biological characteristics, cognitive ability,

social influences, and contextual influences. Small team creativity is a result of creativity at the individual level, interactions between group members, group characteristics, team processes, and influences resulting from the context. Interactions between group members includes the collective inputs of individual group members and group composition. Group characteristics include norms, size, and degree of cohesiveness. Team processes consist of approaches to problem solving and inclusion. Contextual influences refer to organizational culture, rewards systems, resource constraints, and the larger environment outside the organization. At the organizational level, innovation is a function of individual and group creativity.

The next model is the Model of Individual Creative Action (Ford, 1996). Ford (1996) suggested in this framework that individuals within organizations have to choose between two competing options. The options are to undertake regular and routine tasks or to be creative. Multiple intertwined group/sub-unit, organizational, professional specialty, and consumer/market domains moderate this decision (Ford, 1996).

Ultimately, if in any of these domains' routine action is more attractive than innovative action, the individual will choose to continue with the status quo. The model has received some empirical support through application in research studies (Janssen, 2005; Unsworth & Clegg, 2010). Janssen (2005) used this model to evaluate the influence of supervisors' supportiveness, on employees' decisions to be innovative or routine when approaching work tasks. The study provided support for the model in that those employees who perceived that their supervisors were supportive of their innovativeness were more likely to be innovative in their work. Unsworth and Clegg (2010) similarly found support for the model. In their study of engineers, they found that motivation,

resources, support for creativity, and autonomy were all signals from the organizational and professional specialty domains that provide cues that individuals use to choose routine or innovation.

West (1990) proposed the Four-Factor Theory of Team Climate for Innovation. In this framework, West suggested four team climate conditions facilitate the level of innovation in an organization: *vision*, *participation safety*, *task orientation*, and *support for innovation*. Preferably, organizational *vision* is easily understandable, valued and accepted by individuals. *Participation safety* refers to team members feeling as if they can propose new ideas that will be considered without being overly criticized. *Task orientation* denotes the degree to which an organization is situated towards healthy debate and discussion of all possible alternatives. *Support for innovation* refers to team members' perceptions that innovation within the organization will be supported. Within this framework, it is proposed that innovation is enhanced when the organization's vision is understandable and accepted, individuals feel they can present new ideas safely, there is constructive discussion regarding different alternative options, and individuals feel the organization supports innovation. This theory has been applied most often in team innovation research (Hulsheger, Anderson & Salgado, 2009). Hulsheger et al. (2009) conducted an analysis of existing literature that found that the processes of support for innovation, vision, and task orientation displayed the strongest relationships with creativity and innovation, providing support for the validity of this model.

The Ambidexterity Theory explains innovation through the lens of managing conflicting demands at multiple levels throughout the organization (Bledow, Frese, Anderson, Erez, & Farr, 2009a; Bledow, Frese, Anderson, Erez & Farr, 2009b). Bledow

et al. (2009a) defines ambidexterity as “the ability of a complex and adaptive system to manage and meet conflicting demands by engaging in fundamentally different activities” (p. 320). These fundamentally different activities in innovation processes are described as exploration and utilization. Exploration means the creation of new ideas. While; utilization refers to putting those ideas into action. This model additionally states that innovation processes are dynamic and non-linear, requiring cycles of exploration and utilization. Rosing, Frese and Bausch (2011) found usefulness of this framework when examining the relationship between leadership in organizations and the impact that it has on innovative outputs. Through a meta-analysis of literature regarding leadership and innovation, these authors found that the exploratory nature of innovation was encouraged early in the process through transformational leadership, i.e., leadership that is inspirational and intellectually stimulating. Later, when ideas needed to be utilized, the study found that initiating structures most strongly correlated with innovative action. Initiating structures, which parallels utilization, refers to leaders structuring tasks, defining goals and identifying controls for goal achievement.

The final theory of innovation discussed, and the one providing the theoretical basis for this action research project, is the Dynamic Componential Model of Creativity and Innovation in Organizations (Amabile & Pratt, 2016). Amabile (1988) first drafted this framework to integrate creativity and innovation into a singular framework that recognized that individual creativity and organizational innovation are interwoven constructs. The model explains that attributes of both the individual and the organization influence creative capacity of individuals and that creativity at this level ultimately influences organizational innovative action. The original framework indicates that

individual attributes of expertise, creative-thinking skills, and intrinsic motivation, all influence creativity. Likewise, the model posits that creativity at the individual or small group level ultimately influence innovation in organizations (Amabile, 1997). The organizational attributes that influence creativity are organizational motivation to innovate, resources, and managerial style (Amabile & Conti, 1999). Amabile and Pratt (2016) provided an updated version of this model that added sense of progress, meaningfulness of work, affect, and synergistic extrinsic motivation, as additional factors that influence individual creativity and, ultimately, organizational innovation. This model was selected over others because the framework considered the interaction between creativity and innovation, and identified specific attributes that were determined to influence individual creativity and organizational innovation in a way that the other models did not.

### **Innovation in HEIs**

Often considered rigid and bureaucratic organizations, universities and colleges are often believed to be slow to change and stuck in outdated processes and policies (Buller, 2015; Crow & Dabars, 2015). As HEIs are facing growing pressures, both internal to their organizations and from outside, innovative actions are seen as the best way to meet the rising and dynamic demands (Buller, 2015; Christensen & Eyring, 2011; Crow & Dabars, 2015). As with creativity, though a fair amount of commentary exists, not a great deal of empirical study has been conducted related to innovation of administrative staff members at HEIs (Buller, 2015; Christensen & Eyring, 2011; Crow & Dabars, 2015; Mcgee, 2015). Studies focused on higher education and innovation have examined various domains of the academic enterprise including curriculum,

teaching, learning and technology (Hannan & Silver, 2000; Hoffman & Spangehl, 2011; Schneckenberger, 2009; Zhu & Engels, 2014). Hannan and Silver (2000) explored higher education institutions in the United Kingdom and described the rapid changes in curriculum delivery that the system experienced. Their study looked specifically at innovations in the classroom by teaching faculty, and the university structures that both encouraged and inhibited teaching innovations. Schneckenberger (2009) looked at the barriers teaching faculty experience that prevents their use of technology in curriculum delivery and found that structural organization, motivation of faculty, and cultural values of institutions, all hinder the adoption of technology-enhanced innovations in European universities. Zhu and Engel's (2014) study of Chinese universities found features of universities' organizational culture influenced students and faculty members' beliefs relating to the need for innovations, as well as their responses to innovations of instruction. The study found that goal orientation, innovation orientation, structured leadership, supportive leadership, and collaborative relationships (organizational culture features) were positively correlated with the implementation of technology-enhanced curriculum delivery. Additionally, it was found that other organizational culture, including participatory decision-making and shared vision, were also positively correlated to the perceived need and responsiveness to this type of instructional innovation. Cai (2017) suggested that many of the components that create an environment of innovation have been studied in higher education context, but his comments were aimed more broadly at the larger institution. No scholarly articles were found for this literature review that specifically related to innovation amongst university staff members.

## **Design Thinking**

Crow and Dabars (2015) stated “the design of knowledge enterprises is neither arbitrary nor adventitious to the advancement of knowledge” (p.177). Given the challenges discussed facing HEIs and their students, creativity and innovation by those employed at HEIs is paramount to obtaining the highest level of student success (Buller, 2015) and meeting current economic and knowledge challenges (Christensen & Eyring, 2011). Yet, many individuals see creativity and innovation as daunting and intimidating tasks requiring an advanced skill set (Williams, 2002). In fact, many are hesitant to identify themselves as creative and are unwilling to face the open-endedness that creative problem solving requires (Weisberg, 1986). Because of these challenges, individuals often need some type of flexible, yet structured, model to guide creative thought and innovative action (Watson, 2015). Design thinking has been positioned as a possible guide to greater individual innovative and creative capacity (Razzouk & Shute, 2012).

Lindberg, Meinel and Wagner (2011) stated that design thinking assists in formulating novel solutions to “wicked problems.” Wicked problems are ambiguous, complex, and when solved often reveal deeper layers of additional problems (Rittel, 1972). This situates design as an approach for both creative problem solving and innovative action (Henriksen, Richardson & Mehta, 2017). Rauth, Koppen, Jobst, and Menel (2010) demonstrated that different levels of creative skills and mindsets could be developed through design thinking education. Ultimately, these creative skills and mindsets can culminate into the development of creative confidence. Creative confidence in their study was defined as the willingness to take risks in problem solving and the ability to ideate creative solutions to complex problems. This finding and others make



design thinking a suitable intervention to increase the perception that individuals can be more creative and innovative in their work.

Watson (2015) highlighted there are many different models of design thinking and Rauth et al. (2010) outlined the following principles found in the majority of design thinking models: *human-centered, mindful of process, empathy, culture of prototyping, visualization, radical collaboration, and bias towards action*. Design thinking as a *human-centered* process proposes people are the focus and the source of inspiration and direction for problem solving. Individuals involved in design thinking are *mindful* and aware of the process. *Empathy* is required in the process, and, designers must uncover peoples' implicit and explicit needs. Design thinking is also highly experimental. Within it, individuals build models to think and engage with artifacts, and the *culture of prototyping* directs designers not to just think but to try out their solutions. In other words, design thinkers tell you to show, not tell. *Visualization* includes sketchbooks, modeling, anything that purposefully shows other collaborators what solutions have been created. Design thinking is principled upon the idea that *radical collaboration* among diverse multidisciplinary teams will come up with the greatest, most radical innovations. Finally, all design thinking is *biased towards action*, action through which all modalities of learning, thought and creativity can be engaged.

Henriksen et al. (2017) found evidence that K-12 educators who participated in design thinking professional development viewed their work as more creative after the training. In a study of Thai business enterprises, Wattanasupachoke (2012) found a positive correlation between design thinking use in firms and innovative actions at those firms. Seidel and Fixson (2013) found both advantages and limits to the power of design

thinking when they studied 14 cases of novice multidisciplinary student teams completing a semester long project. First, they found that design methods were useful, during both concept ideation mode and the concept selection mode. They also found that brainstorming was valuable when multiple techniques were used to a point, but beyond that point, additional brainstorming or using only one method to brainstorm actually generated fewer ideas. Lastly, their findings indicated that higher levels of team debate and more iterations of concepts led to more success during concept generation but less success during concept selection.

The Stanford Design School Model is a dynamic and easily accessible framework to structure attempts to address the complex and dynamic challenges educators face (Rauth et al., 2010). The Stanford Design Thinking Model will be the focus of this action research project because of its ease to understand and implement, as well as its applicability to educational contexts (Plattner, Leifer, & Meinel, 2014). The model also takes individuals through the creative ideation and ultimately arrives at some innovative action which aligns with the theoretical framework used in this study. Additionally, this is a commonly used model for introducing innovation and creativity to students, faculty and staff at universities (Costa, 2017). Scholars have described the Stanford Design Thinking Model as a theoretical lens for educational innovation (Kirschner, 2015; Norton & Hathway, 2015). The Stanford Design Thinking Model presents the following modes of the design process: *empathize, define, ideate, prototype, and test* (Henriksen et al., 2017). As with all design thinking models, the process is iterative with each cycle building from the last. Each of the modes are dynamic and, at times, overlapping or fall out of linear order (Carroll, et al., 2010). Henriksen et al (2017) described each of the

modes as follows. *Empathize* – observe and interact with users, gain an understanding of how they experience it. *Define* – articulation of a detailed problem statement based on what they learned during the empathize mode. *Ideate* – exploring and generating as many possible solutions as one or a small group of individuals can, without judgement on any of the ideas. *Prototype* – generating a real visual representation of the solutions that were generated in earlier modes, which could be a model or picture.

## CHAPTER 3

### METHODS

This action research project was a concurrent mixed method case study design (Plano-Clark & Creswell, 2015). Concurrent mixed method refers to quantitative and qualitative data both being collected and analyzed simultaneously (Plano-clark & Creswell, 2015). Aligned to this method, for my purposes, both qualitative and quantitative data were collected at or around the same time and will be given the same weight in the data analysis portion of this study. Finally, case study designs are those focused on a specific case, or tightly bound system, that is expounded upon in great descriptive detail (Plano-Clark & Creswell, 2015). In my study, the case being individuals employed in a specific unit at ASU.

#### **Setting**

ASU is a large comprehensive research institution. Over 103,530 students were enrolled in academic undergraduate and graduate degree programs and attended classes at five campus locations across metropolitan Phoenix and through various online education programs during Fall 2017 (ASU Facts, n.d). During the 2016–2017 academic school year, the university awarded 23,334 degrees to students in bachelors, masters, and doctoral degree programs (ASU Facts, n.d). The university employees include 3,439 faculty members and 15,342 non-teaching staff members (ASU Facts, n.d).

My specific research context was the Downtown Phoenix campus of ASU. The campus is home to just under 11,500 students taking classes in multiple academic colleges (ASU Facts, n.d). These colleges include the Walter Cronkite School of Journalism, College of Health Solutions, College of Nursing and Health Innovation,

Thunderbird School of Global Management, Sandra Day O’Conner College of Law, and the Watts College of Public Service and Community Solutions. The downtown campus awarded 3,255 degrees during the 2016 – 2017 academic school year in bachelors, masters, and doctoral degree programs (ASU Facts, n.d). The downtown campus houses 644 faculty members and 1,866 non-teaching staff members (ASU Facts, n.d.).

This study focused on Educational Outreach and Student Services (EOSS) at ASU. Organizationally, the Educational Outreach arm of EOSS is primarily on the Tempe campus and focuses on creating a pipeline of college-going students in K-12 environments. The Student Services portion of EOSS is present at each ASU locations and focuses on the students currently enrolled at ASU. Student Services provides comprehensive student services and engagement opportunities to all current ASU students. Student Service staff are focused on helping students achieve both their personal and academic goals (Educational Outreach and Student Services, n.d). The Dean of Students Office at the Downtown campus is one department within the division, and it provides leadership to all the EOSS staff on the downtown campus. The primary role of the Dean of Students Office is to provide advocacy and support for current students. Other departments in EOSS include Sun Devil Fitness, Disability Resource Center, Counseling Services, Health Services, TRIO Student Success Program, Residential Life, and Career Services.

This case was specifically chosen because the demographic, economic and cultural pressures being felt by HEIs are readily noticeable in this setting. The downtown campus of ASU and the earlier discussed characteristic of this campus, coupled with an institutional focus on innovation and creativity make this context fertile ground for this

problem of practice. ASU's desire to do higher education differently requires staff to be active participants in thinking about how student services can be delivered differently and at the scale of a large institution.

### **Participants**

Participants for my study were university staff members holding non-teaching positions in EOSS at ASU Downtown. Participants in my study included staff members employed at all levels of the division, all who work under the direction of the Dean of Students office at the downtown campus. Staff members in the division have obtained varying levels of academic training and work experiences, represent diverse cultural backgrounds, and are all in positions that provide a variety of services to students. There are 53 staff members in the division, all of whom were invited to participate in my study. The staff members were solicited to participate and informed that their participation would be voluntary. Only individuals over the age of 18 were allowed to participate in the research project. For the Design Thinking workshop, all members of the EOSS team at ASU Downtown were invited to participate regardless of their participation in the first phase of the research project. Because I was interested in the entire staff and because of ethical issues associated with not inviting some members of the team to the workshop, I believed it was an important consideration to include everyone in the training opportunity regardless of their prior participation in the larger research study.

### **Intervention**

The intervention in this research project was centered on design thinking (Henriksen, et al., 2017) as a mechanism for increasing individual creativity and organizational innovation in a higher education setting. Primarily, the Stanford Design

Thinking Model (Henriksen, et al., 2017) was used to undergird the intervention phase of my study. As described in Chapter Two, design thinking is intended to provide a framework by which individuals can ponder wicked problems and craft novel solutions. The goal of using this as the framework for my intervention was to provide staff members with both the confidence and capacity to be more creative and innovative in their work. Having discussed design thinking in Chapter Two, I focus my attention here on the logistical application of a design thinking professional development series for university staff members. The innovation was originally intended to be provided in three 75-minute modules. However, because turn-out for the first module of the workshop was very limited, the workshop was adjusted to cover the same material in two workshop modules. The workshops was delivered once a week for two consecutive weeks.

**Module One.** The first 25 minutes of Module One was to orient participants to the concepts of design thinking per the Stanford Design Thinking Model. Participants were introduced to the five modes of the model: empathy, define, ideate, prototype, and test (Henriksen, et al., 2017). The next 25-minute section included a hands-on activity to reaffirm these concepts in which participants experimented with their own individual process for empathizing, worked on defining a problem, and engaged in an initial ideation exercise. After these exercises, a presentation of what prototyping was occurred and examples of what this might look were shown. The final section of Module One included a debrief of the session and concluded with the presentation of additional tangible strategies the participants may use in their practice relating to the first four modes of the model (i.e., empathize, define, ideate, and prototype). At the end of Module One, participants were asked to spend time in the week between the first and second

modules repeating this practice with a real problem from their work environment.

Additionally, they were asked to bring one sketched example of the process to Module Two.

**Module Two.** Module Two began with a brief review of the Stanford Design Thinking Model in its entirety. Once the model had been discussed, participants were put into groups of four and asked to present their sketch to others in their groups, and to specifically focus on their process for moving from one mode to the next and how they worked through each of the modes. This first section of Module Two required approximately 30 minutes. Once all individuals in the smaller groups had the opportunity to present, the groups of four were asked to choose one sketch they would like to work on further. The group was then provided a brief review of the final two modes of the model (prototype and test) and were asked to experiment with applying prototyping and testing to their chosen idea. To end Module Two, each group was asked to present how they would prototype their idea and how they would test it. The modes of prototyping and testing were discussed, as in how would you, but were not actually practiced by the participants. Finally, the participants were asked to identify a real problem or opportunity in their work environment and to work through the issue using a design thinking approach finalized by proto-typing a solution and testing it in their actual environment after the session concluded. A debrief of the experience, the frameworks usefulness, and testing of their models occurred during interviews which will be described later in this chapter.

## **Instruments**



**Creativity and Innovation Survey (CIS).** The principal purpose of the survey was to measure perceived creative and innovative capacity and how individual and organizational attributes influenced them (RQ2, RQ4). Results from the survey were used to assess what, if any, influence the design thinking workshop has on perceived abilities (RQ6, RQ8). This CIS was additionally used to try to understand what relationship existed between creativity and innovation and the individual and organizational attributes identified in the theoretical framework (RQ2, RQ4). The CIS prompted respondents to indicate the degree to which they believe attributes of their organization promoted creativity and innovation, the extent to which they see themselves as willing and able to be creative and innovative, and perceptions of themselves as creative and innovative.

As discussed in Chapter Two, organizational attributes include skills in innovation management, resource availability, and organizational orientation toward innovation. Individual attributes that affect creativity and innovation include motivation, knowledge and expertise relating to the area of interest, and creativity relevant processes (skills in the processes needed to create, combine and organize new information and ideas). On the CIS, groups of five items were aimed at understanding the influence of individual attributes on creativity, organizational attributes' influence on innovation, perceived individual creativity, and perceived ability to execute innovative action (RQ2, RQ4). In addition to the questions aimed at these constructs, five additional demographic and work history questions were included. The only variation in the pre and post intervention version of the CIS was the inclusion of one additional item on the post-survey to identify which and how many of the intervention sessions the individual

attended (RQ6, RQ8). The pre-CIS is found in Appendix A and the post-CIS in Appendix B. The CIS was reviewed by student affairs leaders to establish face validity. Those who reviewed and tested the survey reported that it indeed measured what it was intended to, as well as the usability of the instrument (Creswell, 2015).

Individuals not completing the pre-CIS when it was first distributed via email received two email reminder requests regarding completion of the CIS three days after the previous communication. Each staff member who participated in the design thinking workshop was requested to complete the post-intervention CIS via email. Those not completing the post-CIS when first requested received two additional email requests regarding the CIS three days after the previous outreach and, ultimately, all who participated in the workshop completed the post-CIS. CIS data was used to understand staff dispositions, the relationship between creativity and innovation and the attributes identified in the theoretical framework, and what influence the intervention has on the staff (RQ2, RQ4, RQ6, RQ8). The pre- and post- CIS was distributed roughly four weeks apart, immediately preceding and immediately following the intervention.

**Interview Protocol.** The second instrument was an interview protocol guiding six qualitative interviews. The participants in interview were selected purposively. I selected to interview this number to provide multiple individuals perspectives from those who supervise staff, as well as those who do not supervise staff. Individuals from both groups of employees (i.e., supervisors and non-supervisors) were included to provide differing lenses within the organization, as to how individuals are encouraged or discouraged from being creative and innovative in their work. With the survey instruments being completely anonymously, it was not possible to know if interview

participants also completed the survey portion of the study, however all individual who were interviewed were also invited to participate in the survey and the intervention. The interviews fill gaps left in the quantitative data and add depth to the understanding of the problem of practice (Creswell, 2015). The interviews happened after the design thinking modules were completed. Participants were selected purposively to include a range of people, including those newer to the organization, more seasoned members of the staff, and those representing varying responsibilities within the division. This sampling procedure was based on the Model of Creativity and Innovation in Organization's assertion that supervisory style in organizations can influence how creative and innovative individuals in the organization may ultimately be (Amabile & Pratt, 2016). I believed it would be important to collect data from both supervisor and non-supervisor staff members. One supervisory and one non-supervisory staff member were invited to participate who represented each of the following categories of experience: been at the university for less than 3 years, 4 to 7 years, and longer than 8 years. Ultimately, in order to keep the same number of interviews, only the first two categories were able to be filled, but six individual interviews did occur. Three supervisor staff were interviewed, and three non-supervisor staff were interviewed. Four of the interviews were with individuals who feel in the less than 3 years category and the other two feel in the 4 to 7 years category. Initial questions established staff members' familiarity with their institution and their position within the division. The next second set of questions focused on perceptions of abilities to be creative and innovative in their workplace. The third set of questions prompted interviewees to consider how their individual attributes shape their perceptions of their abilities to be creative in their workplace (RQ1).

Individual attributes of interest include meaningful work, skills in the tasks domain (knowledge and expertise in the area of interest), motivation, and creativity, which were identified from the Dynamic Componential Model of Creativity and Innovation in the Workplace (Amabile & Pratt, 2016). The final set of questions referenced how organizational attributes influence perceptions of ability to be innovative in their workplace (RQ3). Organizational attributes of interest included leadership and supervisory style, resource availability, outcome assessment, and idea generation, which were identified from the Dynamic Componential model of Creativity and Innovation in the Workplace (Amabile & Pratt, 2016). The interview protocol concluded with questions regarding the effectiveness of the design thinking workshops (RQ5, RQ7). The interview protocol can be found in Appendix C.

**Response Charts.** The final instrument proposed as a part of this study were quantitative response charts. However, when delivering the workshop it was found that this strategy for data collection was not resulting in useful information in a quantity that it could be incorporated into the results. Some attendees to the workshop did not complete the response charts regarding sketching out the design process as they experimented with it in between sessions. Others who actually did it, did not record their ideation phase as requested, so the responses could not be put into a chart. The one staff member who followed the instructions and recorded their ideation only included two possible solutions to the problem they were interested in exploring. Thus, the charts were not collected or analyzed as a part of this research project, but were used to inform the modification of the second module of the design thinking workshop. This modification included more time with the staff members conversing about problems specific to their work environment

and the small groups running those problems through the design thinking process to ensure that staff got more hands-on time with the process.

### **Data Analysis**

CIS Likert scale responses were transformed to numeric values for entry into and analysis in SPSS. Means and frequency of distribution of responses were calculated for the Likert-scale survey items. Items representing each construct were aggregated to calculate mean per item scores for each construct (RQ2, RQ4). Correlational analysis between individual attributes and creativity and organizational attributes and innovation was also be conducted to understand if and what type of relationship exists between the constructs (RQ2, RQ4). A related-samples Wilcoxon signed rank test was applied to determine if significant differences exist from the pre-intervention CIS to the post-intervention CIS (RQ6, RQ8). CIS data was explored to assess relationships among CIS constructs and influence of demographic variables (e.g., role, years of experience, gender).

Interviews were transcribed using an online transcription service. The transcribed interviews were entered in the HyperResearch software package. All transcriptions were reviewed and compared to the session recordings to make sure that the documents were accurate before they were analyzed. Once the data was determined to be accurate, I completed a first read of the data to determine what, if any, initial themes emerged. Next, a second review was conducted on the interview data and emergent coding was applied to transcript chunks (RQ1, RQ3, RQ5 and RQ7). A priori coding was then used to examine the qualitative data using the study's guiding framework to determine how the data supported or opposed the model and themes were adjusted accordingly. After both data

were analyzed, a comparison of the findings was conducted to determine if a triangulation of the data existed. Results of that analysis and the convergence and divergence of the data are found in the later Results and Discussion chapters.

**Procedure**

In summary, my planned procedure for this study included several phases. My first phase was to administer the pre-intervention CIS. Next, the two modules of the intervention were carried out. Next, four weeks after the first survey distribution I distributed the post-CIS. During the time the post-CIS was being delivered, I also conducted interviews with staff members. The project’s timeline is provided in Table 1.

Table 1

*Research Study Timeline*

| August 2019          | September 2019 | October 2019          |
|----------------------|----------------|-----------------------|
| Pre-Intervention CIS | Intervention   | Post Intervention CIS |
|                      |                | Interviews            |

## CHAPTER 4

### RESULTS

Leading into a discussion of the results for this research project, it seems prudent to remind the reader of the guiding question and the more specific research questions that guided this study. The guiding question for this study was *how can a university organization best support and enhance creative ideation and innovative action among staff members?* With the projects more specific research questions, as follows:

- RQ1. How do individual attributes influence university staff members' ability to be creative in the work place?
- RQ2. What is the relationship between university staff members' individual attributes and their creativity in their work?
- RQ3. How do organizational attributes influence university staff members' ability to apply innovative solutions in the work place?
- RQ4. What is the relationship between university staff members' perception of organizational attributes and innovative actions in the workplace?
- RQ5. How does a design-thinking workshop influence the perceived ability of university staff members to be creative in their work?
- RQ6. To what extent does a design-thinking workshop influence the perceived ability of university staff members to be creative in their work?
- RQ7. How does a design-thinking workshop influence the perceived ability of university staff members to be innovative in their work?
- RQ8. To what extent does a design-thinking workshop influence the perceived ability of university staff members to be innovative in their work?

Data from this study are reported in three sections. The first section provides general reactions to the design thinking workshop. The second section includes quantitative survey data analysis. This second section focuses on data from pre-intervention and post-intervention Creativity and Innovation Surveys (CIS). The pre and post intervention surveys were conducted to understand university staff members' perceived creativity and innovation ability, perceived impact of individual attributes on creativity, perceived impact of their organization on innovation, and to measure change occurring after the completion of a design thinking workshop, i.e., the intervention. The review of quantitative data includes general participant data, descriptive statistics, correlation analysis of perceived creativity and innovation and the individual attribute items and organizational attribute items respectively, and a comparison of pre and post workshop means for the constructs evaluated.

Qualitative data are addressed in the second section. Qualitative data were collected from six interviews. Three interviews were conducted with university staff members who supervise other professional staff members and three with university staff members who do not supervise other professional staff members. The interview data were first analyzed exploratively to identify themes. During this first exploration, emergent themes were identified via open coding. The interview data were then analyzed using components found in the study's theoretical framework, the Dynamic Component Model of Creativity and Innovation in Organizations (Amabile & Pratt, 2016) to determine if those components were apparent in the interview data. Specifically, a priori coding was applied in a second coding round. Finally, resulting codes from the two rounds were analyzed to assess if larger themes emerged.



## **Design Thinking Workshop**

Generally speaking, the individuals who were able to participate in the design thinking workshops, spoke highly of the experience. The biggest challenge of the workshops was getting people to attend. As noted earlier, because of such low turnout for the first section the workshop series had to be modified and condensed to two workshops instead of three. In total, only seven individuals were able to participate. In speaking with staff regarding why they weren't participating, staff commented that either they had been exposed to design thinking previously or more frequently, that they didn't have time to participate. Once the workshops began and I had people in the room, the conversation and engagement was very robust. Staff expressed they enjoyed coming together with members of the team they didn't get to work with often. Staff connected to the design thinking process and followed along closely with the material that was presented. Staff also expressed that they really like the idea of design thinking and saw it as a very useful framework to guide creative thinking and innovative action. Specifically, staff stated they liked the time and space to ponder challenges that collectively we face in the student services area of the university. Some also said it just gave language to a process that they were already doing. I felt keeping the teaching to a minimum and allowing the staff to experience the process and practice the different modes of design was the right approach for delivery. For design to work it has to be action oriented and I believe the workshop model that for the staff. I do believe that those who participated in the workshops walked away additional skills and confidence in being creative and innovative. One challenge staff expressed during the workshop with the design process was the amount of time their perceived it would take to follow.

## Quantitative Data Analysis

The data collected through the pre-intervention and post-intervention surveys were first examined to understand how university staff members perceived their creative and innovative abilities in the workplace. The proportion of responses and correlational analysis for the items related to individual attributes and organizational attributes were also examined to see if individual attributes and organizational attributes influence believed creativity and innovation of staff members (RQ2, RQ4). Survey respondents for the pre-CIS were on average 34 years of age, with a minimum age of 22 and a maximum age of 63. Study participants on average had worked at just slightly over two universities ( $\mu = 2.11$ ). Study participants had worked in higher education for an average of 2.3 years, with a minimum of one year of work experience and a maximum of six years working in higher education. The average amount of time working at ASU was 1.8 years, ranging from one to six years. Twenty-nine individuals completed the pre-CIS, and seven completed the post-CIS. Seven of those who completed the pre-CIS also participated in at least one of the design thinking workshops and completed the post-CIS. Descriptive statistics of those who completed the post-CIS did not differ greatly from those that completed the pre-CIS with average age equaling just over 34, average number of universities worked at equaling just under 2, total number of years working at universities equaling 2.71, and average number of years working at ASU equaling 2.29.

### Creativity

Perceived creative ability of the university staff members was measured by five six-point Likert-scale CIS items (from 1 = *strongly disagree* to 6 = *strongly agree*). The per item mean for creativity on the pre-CIS was 4.92 ( $n = 27$ ). This mean aligns with the

*slightly agree* and *agree* answer choices. The post-CIS per item mean for creativity was 5.26 ( $n = 7$ ). This mean aligns roughly between the *agree* and *strongly agree* choices. For the staff who completed both the pre and post-CIS, the means respectively were 4.91 and 5.26. The responses from the staff who completed both pre and post-CIS were analyzed to try to answer research question 6, which asked about the impact of a design thinking workshop on staff creativity. Using a related-samples Wilcoxon signed rank test, perceived creativity was found not to be significantly higher after the design thinking workshop ( $p = 0.41$ ). It was originally proposed that this would be a paired sample t-test, but due to the small quantity of post-CIS data, this statistical evaluation was used instead. Table 2 shows proportion of responses for the creativity items. These proportions indicate over half of the responses on each of the creativity items for both the pre and post-CIS were either *agree* or *strongly agree* indicating that staff member believe they have the ability to be creative in the workplace. The percentage of responses in the post-CIS moved even more strongly to the *agree/strongly agree* response option indicating that the design thinking workshop may have influenced perceived creativity, even if not a statistically significant difference (RQ6).

Table 2

*Creativity Item Responses Pre/Post-CIS Table*

| Item (truncated)   | % SD & D |      | % SID & SIA |      | % A & SA |      | P-value |
|--|----------|------|-------------|------|----------|------|---------|
|  | Pre      | Post | Pre         | Post | Pre      | Post |         |
| I am creative as an employee.                                      | 0.0      | 0.0  | 28.5        | 14.3 | 71.4     | 85.7 | 1.0     |
| I am able to create new original solutions.                        | 0.0      | 0.0  | 14.2        | 28.6 | 85.7     | 71.4 | 1.0     |
| I have the ability to be creative in my daily work.                | 0.0      | 0.0  | 14.3        | 14.3 | 85.7     | 85.7 | 0.25    |
| People I work with see me as being creative in the work that I do. | 0.0      | 0.0  | 42.9        | 14.3 | 57.1     | 85.7 | 0.63    |
| I have developed original ideas relating to my work.               | 0.0      | 0.0  | 14.3        | 0.0  | 85.7     | 100  | 0.13    |

Note: SD = *strongly disagree*, D = *disagree*, SID = *slightly disagree*, SIA = *slightly agree*, A = *agree*, SA = *strongly agree*

### **Innovation**

Perceived innovative ability of the university staff members was measured by five six-point Likert-scale CIS items. The per item mean for innovation on the pre-CIS survey was 4.81 ( $n = 27$ ). This mean generally aligns with the *slightly agree* and *agree* choices. The post per item mean for the innovation items was 4.86 ( $n = 7$ ). This mean generally aligns with the *slightly agree* and *agree* choices. For those completing both the pre and post-CIS the respective means were 4.51 and 4.86. The innovation item responses from the staff who completed both pre and post-CIS were analyzed to try to understand if the design thinking workshop had any influence on perceived innovative ability (RQ8). Using a related-samples Wilcoxon signed rank test, perceived innovation was not found

to be significantly higher after the design thinking workshop ( $p = 0.38$ ). It was originally proposed that this would be a paired sample t-test, but due to the small quantity of post-CIS data, this statistical evaluation was used instead. Table 3 shows the proportion of the responses on the pre and post-CIS innovation items. These data indicate over half of the responses on each innovation item was either *agree* or *strongly agree*, indicating staff members generally believe they have the ability to be innovative at work. The response proportions did not dramatically change after participation in the design thinking workshop, and none of the differences were found to be statistically significant. Two differences from the pre-CIS and post-CIS were the response to the statement “I have the ability needed to be an innovative employee” and “I have executed innovative solutions in my workplace.” Responses to both of these innovation items on the post-CIS moved toward the *agree* and *strongly agree* response options when compared to the pre-CIS, however pre and post-CIS responses were not found to be significantly different.

Table 3

*Innovation Item Responses Pre/Post-CIS Table*

| Item (truncated)                      | % SD & D |      | % SID & SIA |      | % A & SA |      | P-value |
|---------------------------------------|----------|------|-------------|------|----------|------|---------|
|                                       | Pre      | Post | Pre         | Post | Pre      | Post |         |
| I have the skills to be innovative.   | 0.0      | 0.0  | 42.8        | 42.9 | 57.1     | 57.1 | 1.0     |
| I have the ability to be innovative.  | 0.0      | 0.0  | 42.8        | 14.3 | 57.1     | 85.7 | 0.50    |
| I am an innovative employee.          | 0.0      | 0.0  | 42.8        | 42.9 | 57.1     | 57.1 | 1.0     |
| I have executed innovative solutions. | 0.0      | 0.0  | 42.8        | 28.6 | 57.1     | 71.4 | 0.50    |
| My peers view me as innovative.       | 0.0      | 0.0  | 57.1        | 42.9 | 42.9     | 57.1 | 0.25    |

Note: SD = *strongly disagree*, D = *disagree*, SID = *slightly disagree*, SIA = *slightly agree*, A = *agree*, SA = *strongly agree*

### **Individual Attributes and Creativity**

The influence of individual attributes on creativity was measured by nine six-point Likert-scale CIS items (RQ2). Individual attributes are identified by the Dynamic Component Model of Creativity and Innovation in Organizations as motivation, meaningfulness of work, technical skills, skills in creativity, perceived ability to make progress on ideas, and risk-taking propensity (Amabile & Pratt, 2016). The per item mean for individual attributes on the pre-CIS survey was 5.06. This mean generally aligns with the *agree* choice. This can be understood, as, staff members believed that the individual attributes identified by the theoretical model were available to them or possessed by them in the workplace. The post-CIS per item mean for this construct was 5.25. This mean lies between the *agree* and *strongly agree* choices. Table 4 shows the

proportion of the responses on the pre and post-CIS individual attributes sub-scale. The table shows that the responses on each of the individual attribute items fell largely in the *agree* and *strongly agree* responses options for both the pre-CIS and post-CIS. For those who responded to both pre and post-CIS surveys, the means respectively were 5.0 and 5.25. The responses from the staff who completed both pre and post-CIS were analyzed using a related-samples Wilcoxon signed rank test and individual attribute responses were not found to be significantly different after the design thinking workshop,  $p = 0.41$ . This may indicate that the design thinking workshop did not have an impact on staff members' perspectives on the factors believed to be influencing creativity (RQ 6). In addition to looking at the proportion of responses to each individual attribute item, a correlation analysis was run to see if a relationship existed between the responses on the individual attribute items and the perceived creativity items (RQ2). The creativity items were found to have a significant positive relationship with individual attribute items,  $p = 0.01$ , suggesting that individual attributes do have a positive relationship with staff perceived creativity (RQ2).

Table 4

*Individual Attribute Pre and Post-CIS Responses Table*

| Item (truncated)   | % SD & Da |      | % SID & SIA |      | % A & SA |       | P-Value |
|--|-----------|------|-------------|------|----------|-------|---------|
|  | Pre       | Post | Pre         | Post | Pre      | Post  |         |
| I motivate myself to be creative.                                  | 0.0       | 0.0  | 14.2        | 0.0  | 85.7     | 100.0 | 0.08    |
| My workplace provides rewards for creativity.                      | 14.2      | 0.0  | 14.2        | 42.9 | 71.4     | 57.1  | 0.85    |
| I have the skills needed to be creative.                           | 0.0       | 0.0  | 28.5        | 0.0  | 71.4     | 100.0 | 0.15    |
| Work is meaningful.  | 0.0       | 0.0  | 0.0         | 0.0  | 100.0    | 100.0 | 0.32    |
| I am able to make meaningful progress.                             | 0.0       | 0.0  | 28.5        | 0.0  | 71.4     | 100.0 | 0.08    |
| I have the ability to look at problems from multiple perspectives. | 0.0       | 0.0  | 0.0         | 0.0  | 100.0    | 100.0 | 0.16    |
| I am willing to take risks.  | 0.0       | 0.0  | 0.0         | 28.6 | 100.0    | 71.4  | 0.56    |
| I take several actions to arrive at the best solutions.            | 0.0       | 0.0  | 0.0         | 0.0  | 100.0    | 100.0 | 0.16    |
| I generate diverse solutions.                                      | 0.0       | 0.0  | 0.0         | 28.6 | 100.0    | 71.4  | 0.66    |

Note: SD = *strongly disagree*, D = *disagree*, SID = *slightly disagree*, SIA = *slightly agree*, A = *agree*, SA = *strongly agree*



## Organizational Attributes and Innovation

The influence of organizational attributes on innovation of the university staff was measured on an eleven-item subscale. Organizational attributes were defined by the theoretical frame work as supervisor's style, supervisory orientation to innovation, organizational orientation to innovation, resources to innovate, and skills in innovation management. The group mean for organizational attributes on the pre-intervention survey was 4.58. This mean aligns with the *slightly agree* and *agree* answer choices. The post-CIS mean on the subscale was 4.81. This mean also aligns with the *slightly agree* and *agree* answer choices. Table 5 shows the proportion of the responses on the pre-CIS and post-CIS organizational attributes sub-scale. The proportions shows that the responses on each of the organizational attributes items fell largely in between the *agree* and *strongly agree* responses but were much less consistent than the responses for individual attributes. This would indicate that staff members believe the attributes needed for innovative work to occur were present in their environment. The statements with the least amount of agreement from staff were; "I have access to the resources I need to innovate," "risk taking is encouraged by my supervisor," "teams are organized intentionally to make sure the expertise needed to innovate is available," and "the structure of my organization encourages me to be innovative." Almost half of the responses to these statements were either *slightly agree* or *slightly disagree*. For those who responded to both pre and post-CIS surveys, the means respectively were 4.70 and 4.82. The responses from the staff who completed both pre and post-CIS were analyzed using a related-samples Wilcoxon signed rank test and individual attribute responses were not found to be significantly different after the design thinking workshop,  $p = 0.75$ .

This indicates that the design thinking workshop did not influence how strongly staff members felt about how organization attributes influenced their innovative action in the work place (RQ8). The one item that was found to be significantly different on the pre and post-CIS, was the statement “I have received training that helps me address the challenges my students face,”  $p = 0.03$ . This could be explained because the staff who responded to both the pre and post-CIS were those who completed the design thinking workshop. This may also be an indicator, related to research question eight, which explored the impact of design thinking workshops on innovative action that the design thinking workshop was perceived by staff as training related to innovation. A correlational analysis was also conducted to understand what type of relationship, if any, existed between organizational attributes and perceived innovative ability. The correlation analysis showed that there was a positive and significant relationship between the organizational attribute items and the innovation items on the CIS. This would suggest that the organizational attributes do have a relationship with perceived innovation of university staff members, which was the subject of research question four.

Table 5

*Organizational Attribute Pre and Post-CIS Response Table*

| Item (truncated)  | % SD & Da |      | % SID & SIA |      | % A & SA |       | P-Value |
|---|-----------|------|-------------|------|----------|-------|---------|
|   | Pre       | Post | Pre         | Post | Pre      | Post  |         |
| My peers and I work well together on solving problems.        | 0.0       | 0.0  | 14.3        | 0.0  | 85.7     | 100.0 | 1.00    |
| The mission of my organization supports innovative solutions. | 0.0       | 0.0  | 28.6        | 14.3 | 71.4     | 85.7  | 0.32    |
| My supervisor supports me taking innovative action.           | 0.0       | 0.0  | 0.0         | 14.3 | 100.0    | 85.7  | 0.16    |
| I have access to the resources needed to be innovative.       | 0.0       | 0.0  | 57.1        | 57.1 | 42.8     | 42.8  | 1.00    |
| New ideas are accepted.                                       | 0.0       | 0.0  | 14.3        | 14.3 | 85.7     | 85.7  | 1.00    |
| My organization motivates me to be innovative.                | 0.0       | 0.0  | 28.5        | 28.5 | 71.4     | 71.4  | 1.00    |
| Risk taking is encouraged.                                    | 0.0       | 0.0  | 71.4        | 57.1 | 28.5     | 42.9  | 0.32    |
| Clear goals are established that guide my innovation.         | 0.0       | 0.0  | 14.3        | 42.8 | 85.7     | 57.1  | 0.26    |

| Item (truncated)   | % SD & Da |      | % SID & SIA |      | % A & SA |      | P-Value |
|--|-----------|------|-------------|------|----------|------|---------|
|  | Pre       | Post | Pre         | Post | Pre      | Post |         |
| I have received training that helps me innovate.               | 0.0       | 0.0  | 71.4        | 28.5 | 28.5     | 71.4 | 0.03    |
| Team are organized to make sure expertise needed is available. | 14.2      | 14.2 | 42.8        | 42.8 | 42.8     | 42.8 | 0.59    |
| The structure of my organization encourages innovative action. | 0.0       | 0.0  | 57.1        | 42.9 | 42.8     | 57.1 | 0.58    |

Note: SD = *strongly disagree*, D = *disagree*, SID = *slightly disagree*, SIA = *slightly agree*, A = *agree*, SA = *strongly agree*

### Qualitative Data Analysis (RQ1, RQ3, RQ5, RQ7)

The qualitative data analysis began by reviewing all audio recordings of the interviews and the interview transcripts. Once the data were organized and reviewed for accuracy, a first round of open coding was conducted. After concluding the first round of open coding, data were again examined by assessing with the pre-established codes of the Dynamic Component Model of Creativity and Innovation in Organizations. The codes and themes were then analyzed and condensed into the higher level themes found in Table 6.

In the analysis of the interview data, 102 chunks of data were identified and coded. When considering the two list of codes, four themes emerged: (a) *collaboration*, (b) *supervision*, (c) *resources*, and (d) *organizational elements*. A fifth theme of *design thinking* also emerged from the data but because that theme is particular to the study's

intervention it is discussed separately. Table 6 displays the themes and theme-related components.

Table 6

*Themes, Theme-Related Components*

| Theme         | Theme-Related Component   |
|---------------|---|
| Collaboration | <p><b>Diverse perspectives.</b> Diverse perspectives add to both the creation of novel solutions and aids in the execution of innovative action.</p> <p><b>Challenge one another.</b> Creating a space where employees can challenge one another's ideas adds to the power of collaboration.</p> <p><b>Curating groups.</b> Intentionally curating groups around shared areas of curiosity and with individuals who have a stake in the outcome is an important ingredient to successful collaboration.</p> |
| Supervision   | <p><b>Autonomy.</b> Supervisors allowing staff to be autonomous aids in staff creativity and innovation.</p> <p><b>Verbal encouragement and Positive Attitude.</b> Supervisors vocally encouraging staff to think differently and demonstrating a positive attitude towards thinking and doing differently is important towards fostering creativity and innovation.</p>  |
| Resources     | <p><b>Resources required.</b> Without the necessary resources to play with ideas and prototype new solutions creativity and innovation will flounder.</p> <p><b>Resource of time.</b> The resource of time to think about ideas and test innovative actions is critical to staff.</p> <p><b>Right sizing staff.</b> The resource of time is inextricable linked to the right sizing of staff available to share the workload.</p>   |

| Theme                   | Theme-Related Component  |
|-------------------------|--|
| Organizational elements | <p><b>Locus of control.</b> Staff can feel supported in their department to be creative and innovative and not feel support in the larger university environment.</p> <p><b>Positionality.</b> Positionality within the organization influences staff's belief in their ability to be creative and innovative in their work.</p> <p><b>Decision making level.</b> The more levels of the organization that an idea or innovation has to go through for approval; the less likely staff are to believe it will be executed.</p> |
| Design Thinking         | <p><b>Useful framework.</b> Design thinking provides a useful framework to think through the process of being creative and then innovating.</p> <p><b>Barrier of time.</b> While useful, design thinking done correctly takes a great deal of time and staff don't believe they have that time to engage in the process.</p>   |

## Collaboration

**Diverse perspectives.** Staff who were interviewed were clear that the opportunity to collaborate with their peers inside the institution and their peers outside the institution added much needed fuel to their innovation and creativity in the workplace. This section speaks to research question three, how do organizational attributes influence innovation. A specific concept underpinning this theme was that increasing diversity of perspectives in a conversation leads to more creative and innovative solutions. Reflecting on an experience, one staff member said the following in reference to this type of collaborative creative problem solving:

I think it involves people that normally weren't involved in those things. I think it wasn't solely a housing issue or it wasn't solely a student affairs issue. It was a

community effort. So we had different people from different areas that I would work with. For me, professionally, that was what I really need to do.

Another staff member, when asked what they could do to be more creative in the workplace, stated, "I think the best way to be creative is to get other people's creativity involved." In reference to innovation, and what the organization could do to help them be more innovative, another staff member said, "It's kind of a long way to say, but if I had people that had different strengths than me, I could be more innovative." Another staff member, when asked how they go about responding to new challenges in their work environment stated, "A peer network from other places doing similar work, connecting with them and sharing ideas, challenges and opportunities helps me feel creative and I think when we are together we then feed off one another." This indicates an organization attribute of a collaborative culture is important to creativity and innovation in organizations (RQ 3).

**Challenge one another.** Another component of the collaboration theme was the ability to constructively challenge each other's ideas and assertions. This partially responds to research questions one and three, which ask how to do individual and organization attributes influence creativity and innovation respectively (RQ1, RQ3). As an example of this sentiment, one staff member stated the following:

For me, it falls back to having conversations with individuals that are different than you, that think differently and really challenge you to think creatively by challenge [sic] your ideas and making you thinking of things that you haven't thought of before.

To demonstrate how important to innovation and creativity the process of challenging each other's ideas was, one of the staff members who supervised other full time staff, stated:

I just challenged them to think differently. They all sometimes think it's coming from me wanting to be difficult. But I, I really try to think differently than others and think by challenging my staff to do so also we can come up with better solutions.

To further make their point about creating an environment where staff were free to challenge each other's ideas, the same staff member stated;

I've always been someone who likes to play devil's advocate because I like surrounding myself in situations where you get a challenge from others. And I think that's when creativity comes up when you really think differently and are able to think of something in a different perspective so within my team I encourage them to disagree.

The process of testing and challenging each other's ideas is what Amabile and Pratt (2016) refer to as creativity relevant processes, an individual attribute, and speaks the importance of having these available to individuals within organizations to enable creativity (RQ1). This also speaks to research question three and the organizational attribute referred to in theoretical model as skills in innovation management. Having the skills to challenge and test each other's ideas is critical to getting those ideas to the market place or said differently to innovate (RQ3).

**Curating groups.** Several staff members expressed the importance of having the right expertise available, with individuals who had a shared interests in the topic and



stake in the outcome of the conversation. When talking about the premise of having the right people with a shared interest and a stake in the outcome one staff member stated:

For example, we have a student that has Turner's syndrome and autism that is in our nursing program right now. She is in her clinical setting and she is having a really hard time with interpreting personal interactions and bedside manner. Her professors reached out because they know she can do the technical work, but that more subjective side is really difficult for her. And I have never had that before. So we had a meeting with the student, her faculty and our staff to figure out what might be possible for this student. Without all those perspectives at the table, I'm not sure we would have figured out a solution.

She demonstrated in this statement her belief in the importance of having not only those who had different perspectives, but also those who had a stake in the student's success. Another staff member talked about work they do in the community to advance the arts and they underscored the importance of a shared interests and a stake in the outcome when they said:

We have a group that involves musicians, digital artists, painters and all kinds of other artists, but we are all artists and want to see the art scene in Phoenix grow. We have a shared interests but also a stake in the ultimate outcome. Being all in and having a shared language makes it easier to come up with creative ideas and work together towards innovative action.

Another staff member, whose small group came up with a really innovative solution said:

We had all the right people at the table, and it was very intentional who was included in the conversation. My boss was so insightful to not only have

members of our team, but also others who had a stake and interests in the outcome. At the end of the meeting, we came up with a solution I would never have thought of and in the end; it was exactly what needed to happen to solve the problem we had been trying to figure out internally for months.

This staff person was indicating that not just having people at the table, but having the right people with a shared stake in a successful outcome, influence the production of novel ideas and innovative solutions. Referring to research question one, the creativity and innovation framework would suggest that this is the individual attribute of skills in the task domain having (Amabile & Pratt, 2016) an influence on creativity (RQ1),

### **Supervision**

**Autonomy.** In many of the interviews, staff members said that in order for them to be creative and innovative in the workplace their supervisor had to allow them some level of autonomy. As an artifact pointing partially to the answer to research question number three, related to organization attributes and innovation, one staff person said it this way, “Autonomy is often inextricably linked to creativity. Having a supervisor who gives you space often allows you to be more creative and innovative.” In another interview, where the staff member was expressing the importance of supervisors allowing staff autonomy, the staff member told me, “creativity is linked to having the autonomy to figure out how to get a particular task done.” Another staff member, demonstrating how important to creativity and innovation autonomy was, said the following:

I think that if I had a supervisor that was really hands-on and constantly telling me to do things to the point where they would tell me to do something else and I want you to do this in this way and that's it. I think that'd be really hard for me to be

creative or innovative because there wouldn't be any room to do that. I would just be regurgitating what somebody else says.

One staff member reflected on how two different supervisors, who provided different levels of autonomy, affected how creative and innovative he felt:

The supervisor I started with in my department. I didn't feel that I had as much freedom to be creative and make decisions and implement ideas, but then a new director came downtown and she really empowered me to make changes and to make decisions and implement ideas. Be creative to think differently. I felt like I could be more creative when given a little more room to operate.

A different staff member said this about their supervisor allowing them to have autonomy and how it impacted their ability to be innovative at work:

I think, for the most part, leadership directly influencing me is quite hands off for the most part and so I think, me knowing that innovation needs to happen around certain things and you wanting to make that happen, I can because there isn't a lot of tight-knit control over the way things are done. There's the flexibility there from multiple leaders I think.

Amabile and Pratt (2016) identify leaders' statements and actions as an organizational attribute that influences innovation in organizations. This data could add credence to that assertion, and help to answer research question three, which questions how organizational attributes influence staff innovation.

**Verbal encouragement and positive attitude.** Another component of this theme was the value of supervisors' verbal encouragement to and attitude about creative and innovative. The research framework discusses leaders' statements and actions about

innovation as organizational attributes that influence innovation, which is also related to research question three. One staff person who was talking about the important role of a supervisor's attitude and communication regarding innovation and creativity said:

Unless my supervisor is really intentional with those conversations and really does challenge. One who says hey, let's try to do things a little differently. How can we be better and is always pushing that idea of change and creativity. I don't think it's, it's something that is necessarily in fully ingrained in a work culture yet.

In reference to remaining innovative in the work place and the role that a supervisor's communication plays, one staff member stated, "I think my direct leadership constantly talks about it and so it's always just on the mind type of a thing and so I think that helps in keeping it present for me." Another staff member, who was discussing the importance a supervisor's attitude towards innovation and creativity stated:

Leadership, whoever is the one setting the goals and inspiring me to be creative. I think even at a place like ASU that tries its best to not be super top down is just going to happen when there is some type of hierarchy. So if the person above you doesn't have a positive attitude about creativity or wanting to change things, it's going to stifle it in the end, I think.

Staff members also said in their interviews that if they brought new creative ideas to their supervisor and the supervisor did not show a positive attitude towards the ideas, they would be less likely to try and generate new ideas or innovate again. One staff member said it this way:

If you don't feel like it's going to move anywhere or it's not going to have any traction. I feel like you're not going to speak up, but I think that would fall back to

leadership. Whoever is supervising you, if you have that trust that they're really going to let you run with a program or an idea, I think, I think you're going to be more willing to speak up and try to make new things happen.

In another interview, when a staff member was discussing the importance of having a supervisor who supported, encouraged, and allowed staff to try new ideas, the staff member said the following:

I'm not feeling the ability to be as creative with certain leaders, I think your supervisor is going to highly influence how creative or innovative you are because if you have a supervisor who is going to say, "Yeah, that's a great idea but we're not going to do it," I think it's going to highly discourage you from going again with another idea.

The attitudes towards and communication about innovation and creativity by supervisors, was clearly indicated in the interview data that staff members were either encouraged or suppressed in their innovation and creativity by the organizational attribute of supervision.

## **Resources**

**Resources required.** Resources availability to be creative and innovative was one of the most talked about themes to emerge from the interview data. This theme speaks to research question three, which ask about the influence of organization attributes on innovation, in this case, the organizational attribute of resources to innovate. All the staff that were interviewed stated that without the resources necessary, little to no creativity or innovation would happen. In one of the interviews a staff member stated, "Having financial resources just gives you more opportunity to try things, without

financial resources sometimes you can't take the risk of trying something new." Another staff member, commenting on the importance of having resources to innovate said, "I think that the more resources that you're able to get, the easier it would be for you to be creative and innovative." In a third interview, when asked about the importance of resources to innovate the staff member said "if you don't have resources to be able to innovate things that you want, then it will limit what you're, the impact you're actually able to make."

**Resource of time.** The biggest resource barrier to creativity and innovation reported in the interview data was the resource of time. When asked what was the largest barrier to being creative and innovative in their work, one staff member said:

I would say the time thing too is probably the biggest one, if, if you have an idea in your mind that, you know, like I just don't have the time to do this and where does it go if you just put it on the back burner. It gets placed on a whiteboard somewhere where it sits for a couple months.

Another staff member who also talked about time as a barrier to creativity and innovation stated:

I think carving out the time to be creative is a big part of why I'm not sometimes. It's very difficult to find a quiet space to think and be deep in thought and really work through things that need to be solved or work through a new way of doing something. We don't always have the time to sit for a minute and do that and I've heard that from countless colleagues across ASU as well.

Even though the staff indicating that time was a valuable resource for creativity and innovation, to demonstrate that staff felt they did not have the time to be creative one

staff member said, "If there were more time that could be set aside where the dreaming, the planning could occur. It's not really feasible to block that kind of time out here."

Another who was also suggesting that time was a barrier to their level of creativity said, "For me, I think I think creatively best when I have the time and space and the energy to just devote to that, to brainstorm and ideate and I don't feel like there is time for that."

Finally, one staff person talked about a presentation she had recently attended, in which the presenter encouraged individuals to mark time on their calendars for ideation and reflection to increase creativity. She stated that she really agreed with the idea and then the staff member laughed and stated, "but when is their time for that."

**Right sizing of staff.** Connected to the idea of time as a critical resource for creativity and innovation to occur, staff who were interviewed tied the lack of time to the level of staff resources. One staff member, when talking about the impact on creativity and innovation of staff levels in her department underscored the idea in this way:

I think just the human capital, the resources that we have, I think when I try and think of logistically how I would go about making more time in my schedule or things like that it becomes very cumbersome to think about that because there's just no one else to push work off to or to create more time for myself to do some of those bigger things and so I think that's a hindrance of why sometimes we can't move as fast as we want to on things or think so critically about things because there's just not the time to do it.

Another, when asked what the organization could do to help her be more innovated stated, "I feel like additional human resources would be a very helpful, as long as they are used correctly, I think they would be a very valuable addition." In another interview, a

staff member who supervised other staff, commenting on the right sizing of staff and not having the ability to innovate stated:

I think the people, say I have a great idea, but I know it's going to take a handful of people to do it. And who's going to help me. If you don't have those other people you may not be able to get your idea off the floor.

When talking about her workload because of level of staffing in their department and the influence it had on her ability to be more innovative another staff member said:

Time money people, like when I talk with others at other universities and colleges, they say 500 students (case load) is ridiculous. Case loads are usually 200. I mean we do it, but I don't think we are always the most effective. I think the volume without the right staff level sometimes pulls us away from having that space and time to be reflective and strategic which leads to greater creativity and innovative approaches to things. It even impacts having the energy to be creative and innovative in the work that we do.

From the data collected by interviewing university staff members it became clear that the organizational and individual attribute of resources to innovate (RQ1, RQ3) availability and specifically the resource of time and staff, influenced innovation and creativity negatively.

### **Organizational Elements**

**Locus of control.** Organizational elements also came out of the interview data as a theme. This data is related to research question three, organizational attributes and innovation. The first component related to organization elements was that staff members could feel supported in being creative and innovative within their department but not in



the larger organization. One staff member who believed she could innovate in their department but not at the division scale stated:

I think my supervisors are very open to and supportive of ideas and getting things done. So I think if those things were to be brought to them they would be very supportive of them. I don't always feel that way about EOSS leadership, but I do of my direct supervisors.

Another staff member, said of her work experience and the feeling of being able to be creative within her department but not within the larger organization:

I think it's easier to be creative in my specific space, in my department there's multiple avenues you can take. Whereas, when you get to the upper EOSS level, there can be a lot of red tape that holds whatever ideas you may have up.

Similarly, in another interview when talking about the different levels in the organization, and her feeling of support for innovation, the staff member stated, "There are, I think, a lot [sic] of room to bring things to fruition on our individual level. And then on EOSS level, there is a certain level of things being accepted and innovated but just not as much as."

**Positionality.** Many of the staff that I interviewed felt that positionality within the organization influenced their ability to be creative and innovative in the workplace. One staff member when asked if they could be innovative at work, in reference to the front line role she held at the university said, "I don't think as much because again like the execution of things and the scale of things, I don't know if I am necessarily in a role where I can do that." Another staff member who was in an entry-level position within

their department, reflecting on the level of influence different positions had on innovation and creativity said:

I think that was a challenge when it came to being creative and innovative because there was that perception that from at least the younger staff in the program coordinators positions was that oh, we can't do this because you needed to make sure that everyone was on board from higher up leadership with an idea before it was implemented.

In another interview, a staff member described their role as one that did not have the influence to innovation within the organization said:

I think one thing that sometimes makes creativity harder within the setting of ASU is that the masses that we're trying to serve is sometimes a challenge to think through problems at such a massive scale, and I don't think my role can influence that.

It was evidence in the data collected through the interviews that staff at the lower levels of the organization felt because where their position in the organization feel they had less ability to be creative and innovative outside their specific position within the organization.

**Decision-making levels.** Staff also saw the complexity of the organization as having an influence on their ability to be creative and innovative. One staff member who talked about the influence of working in a complex organization and how it influenced their desire to be innovative said, “there's the complexity of the department and how many, how many different avenues, you had to go through to get approval. At times it made me not want to even try.” Another staff member referencing the influence of the

complexity of the organization had on their creativity and innovation said, “when it comes to working with my students I can be innovative, but if it’s a larger more innovative idea that would have get approval beyond my direct supervisor, sometimes I don’t even try because it’s so complicated out there.” In a different interview, another staff member who felt the complexity of the organization influenced getting ideas accepted said, “when decisions go outside my department I rarely believe I am going to see anything come of it, there is just too much red tape for anything like that to happen.” Another staff member, identifying the influence of the organizations complexity on innovation and creativity said it this way, “The more people a decision has to go through for approval, the less likely the idea is to be implemented regardless of how innovative it might be.” A final staff member when talking about the size and complexity of the organization and how it influenced their ability to innovate at scale stated:

The university is so large and seeks to serve so many students, I don’t think I really know or understand the big picture, I can influence what’s in my office but being creative at the scale of ASU, yeah that’s not really something I think I could do.

Organizational complexity and feelings of clear hierarchies within the organization seemed to have a chilling influence on staff desire and willingness to be creative and innovative within the organization.

### **Design thinking**

**Useful framework.** The final theme from the interview data was design thinking. All of the data related to design thinking is provided in answering research questions six and eight, how does design thinking influence creativity and innovation respectively. A

staff member who participated in the design thinking workshop reflected on the experience saying, “I remember sitting there and thinking I do this on a daily basis. And it was helpful to think about my work in that context.” Another staff member who found the design thinking framework helpful to framing her work in a more creative light said:

I think for me there is a framework shift in my head, to be able to think differently about my daily work and to think differently, be more excited, curious about the work that we do. Because of that creativity aspect, it’s not just the roue stuff. There is a lot more happening that I wasn’t even thinking about but the design thinking framework has allowed me to think differently.

In a different interview, when reflecting on the value of design thinking training on being creative and innovative, the staff member stated, “I think the design thinking workshops that I’ve been to have probably been the best formalized training on being innovative or thinking creatively.” In another interview the staff person who felt design thinking helped them better understand creativity and innovation in their work said, “I really appreciate frameworks and like to understand work that I am doing through those frameworks because it helps me understand processes and how others interact and engage with different ideas.” Therefore, in responding to research questions six and eight, it does appear that design thinking is a useful tool in assisting university staff members to be more creative and innovative.

**Barrier of time.** Overall, staff seemed to think the design thinking framework was useful, however some spoke of time as a barrier to being actually able to use the process. One staff person, who had already talked about the resource of time as a barrier

to creativity and innovation, also thought the barrier of time would lessen the likelihood of using the design thinking process and said:

The barrier to using design thinking? Time probably. Yeah because I don't think, I mean we've had conversations even within our department about enjoying the process. It is a time-consuming process and we already feel like we don't have enough time.

Another staff person who had used design thinking in her work commented on how much time the process takes and generally the feeling of not having that time available said:

We did a design thinking, full scale exercise, but the amount of time that that took was pretty significant. It was very beneficial but it just, it took a lot of time and we usually don't have that much time to find solutions.

When asked about the iterative process and defining the problem, and reflecting on their experience with the design thinking workshop, another staff stated:

When we learned that once we identify the problem, it opens up more problems and you could spend days, weeks, months trying to identify or even just choose one problem to focus on, and that part can get a little bit cyclical and no one has time for that.

For research questions six and eight, related to design thinking's influence on creativity and innovation, staff members seem to agree that the process could increase and encourage more creative thinking and innovative action, however they also indicated that because of the resource of time being so scarce they would be less likely to try the process in their daily work.

## CHAPTER 5

### DISCUSSION

#### **Convergence and Divergence of the Data**

The purpose of my research project was to understand in my context how staff perceived their ability to be creative and innovative in the workplace and what factors, if any influenced their beliefs. The influence of these factors, individual and organizational attributes, were measured through quantitative survey instruments and qualitatively through interviews. The CIS was used to try and answer, *to what extent*, research questions two, four, six and eight. The interviews were used to try and answer, *how*, research questions one, three, five and seven. The confluence of these two data sets provide the clearest picture of what is occurring in my context in relationship to staff creativity and innovation.

**Individual attributes and creativity (RQ1, RQ2).** Research question one and two, respectively, ask how and to what extent do individual attributes influence creativity. The data indicates that university staff believe they have the ability to be creative in their work environment. The mean score for the creativity construct on the pre-intervention survey was 4.92 indicating that most respondents either slightly agreed or agreed they had the ability to be creative ( $n = 27$ ). The survey data also indicates that there is a positive and significant relationship between the two constructs. This suggest that the higher that the staff perceive the individual attributes to be present in their environment, the more creative they perceive they can be in the workplace. Interview data also supports this relationship. One example of this was the staff's belief that being able to challenge each other's ideas was an incubator for creative ideation. This idea

represents creativity relevant processes from the theoretical framework, an individual attribute described by Amabile and Pratt (2016). Another idea from the interview data was curating groups or having individuals with the right expertise or knowledge available when creativity was required. This is representative of the individual attribute, skills in the task domain, from the theoretical framework. Both the qualitative and quantitative data point to individual attributes in fact, having an influence on staffs' perceived creative ability in the workplace.

**Organizational attributes and innovation (RQ3, RQ4).** The response to the influence of organization attributes on innovation may have been the strongest findings from this study (RQ3, RQ4). Survey data indicated that staff felt they had the ability to be innovative in the workplace. The innovation construct pre-CIS mean was 4.81, generally indicating that respondents slightly agreed or agreed they had the capacity to be innovative ( $n = 27$ ). A significant and positive relationship existed between organizational attributes and perceived innovative ability, suggesting that the more staff members agreed that organizational attributes that encourage innovation were present the more innovative they felt they could be at work. This was also supported with the data collected by interviewing university staff members. Staff members talked about how the level of autonomy a supervisor provided and how a leader spoke and responded to innovation either encouraged or discouraged them to be innovative. Staff described the positive impact that leaders who allowed for more autonomy had on innovation. They also spoke about supervisor who did not allow autonomy and the negative impact this had on creativity. Staff also spoke during interviews about a supervisor's attitude and communication regarding innovation. The more positive and verbally encouraging a

supervisor was toward innovation, the more staff members believed they could be innovative. In reviewing the frequency chart for organizational attributes, the least amount of agreement was found with the statement, “my supervisor encourages me to take risk at work,” with 51.8% of respondents slightly agreeing or slightly disagreeing with the statement. Interestingly, on another survey item, “I am willing to take risk in the work that I do,” 64.5% of respondents stated they agreed or strongly agreed with the statement. This is an interesting finding given that during interviews, staff reported they believed their direct supervisors were supportive of them being innovative. In interviews, staff reported that they felt support by their direct supervisor to innovate and take risk, but did not necessarily feel the same about other leaders in the organization outside of their departments. These sentiments reflect the organizational attribute coined as *organizational leaders’ action and statements about innovation* in the theoretical framework used to guide this research (Amabile & Pratt, 2016).

It was also present in the interview data that some staff members felt confined in their ability to innovate by other organizational attributes. Most often cited were the resource of time and staff as organizational attributes that restricted individuals’ perceived ability to be innovative within the organization. These represent the organizational attributes *resources in the task domain*. A reoccurring theme from the interviews was that staff wanted to be more innovative in the workplace, but did not feel they had the resources, specifically time or staffing, needed to be able to innovate as fully as possible. The responses on the survey instrument were less clear when asked about having access to the resources needed to be able to innovate, 51.6% of respondents agreed or strongly agreed to having the resources needed to be innovative on the pre-CIS.



Thirty-five percent of respondents, slightly disagreed or slightly agreed with having the resources needed to be innovative in the workplace.

Other survey items relating to organizational attributes with almost half of the respondents stating they slightly agree or slightly disagree with the statement were related to receiving training on creativity or innovation (41.9%), the intentional organization of work teams to innovate (48.4%), and the structure of the organization encouraging innovation (48.4%). In interviews, staff spoke often about the importance of having the needed expertise and diverse perspectives for innovation to occur perhaps further explaining their responses to the statement regarding the intentional organization of work teams. Additionally, in interviews staff referenced feeling less able to innovate outside their specific department, which could relate to staff not feeling strongly that the structure of the organizations encouraged innovation. In the interview data, several of the participants stated that they believe the organizational culture encouraged innovation, but several also stated they did not feel they were in roles that would allow them to innovate outside the scope of their departments or direct work. Many related these responses to the size and complexity of the larger organization, and the feeling that if decisions were to be made outside their direct area they were less confident they would see innovative action occur because of the multiple levels of approval that would be needed.

**Design thinking (RQ5, RQ6, RQ7, RQ8).** Research questions five, six, seven and eight all related to how and to what extent design thinking workshops have an impact on staff creativity and innovation. The survey data, in this regard, did not show a significant change in the level of perceived creative or innovative ability after staff members participated in design thinking workshops. However, during interviews, staff

members stated that design thinking was a beneficial framework to help them be more creative and innovative. Several staff members who were interviewed, said they actually already used the process to address challenges they encountered, and the training just gave them language to be able to articulate what they were doing. The drawback noted by staff during the interviews to its actual use was time, and their belief that they did not have time to actually use it at a large scale. One other interesting insight to come from the interview data, not previously discussed, was that several staff members stated that they view the work they do now differently. During the interviews, several staff members stated that after participating in the design thinking workshops, they saw their work as being creative and innovative when previously they thought it was more routine and routine. So, in reference to the impact of design thinking workshops on staff creativity and innovation, even without statistical significance differences for the pre to post-CIS, the interview data lends credence to the workshop having an influence on the staff's perception.

### **Discussion of Results in Relation to Existing Literature**

This research project was framed using Amabile and Pratt's (2016) Dynamic Component Model of Creativity and Innovation in Organizations. Staff working in student service areas of the university, work directly with individual students each who each have very different situations and circumstances. This requires staff to come up with novel solutions to address the challenges these student face on a daily basis. However, early in the action research cycles of this project, I participated in a focus group with other university staff who were almost unanimous to state they did not believe they were creative or innovative in their work. They stated they simply did the work that

landed on their desk in a given day and that creativity and innovation was the work that faculty members did. Through my survey and interviews, I found that staff did perceive they had the ability to be creative and innovative in their work contrary to what they expressed in the earlier focus group. They also expressed that there were features of the organization that encouraged and hindered their ability to be creative and innovative in their work. In many ways, their responses to the survey and interviews aligned with items identified in the theoretical framework guiding this research. Staff reference the influence of organizational attributes had on innovation; specifically to include leadership, the resources to innovate, and skills in the task domain on innovation.

Staff identified the organizational attributes of resources to innovate, training, supervisor support to take risks, and organizational support for innovation as attributes that influenced their creativity and innovation negatively in the workplace. A key find was that staff almost unanimously stated that they wanted to be more creative and innovative in the workplace, and they believe the environment was supportive of them doing so, at least at the departmental level, as long as they were getting the other parts of their jobs done. Staff in survey responses did not feel strongly supported by their supervisors to take risks; however, they also expressed that they were confident in taking risk at work on another survey item. During interviews staff members stated they did feel support from their direct supervisor to be creative and innovative. However, staff felt less supported by the leaders further above them in the organization. As pointed out in the theoretical model and from the interviews, it was clear that a leader's statements and actions about innovation and creativity had an influence on how staff perceived their creative and innovative ability in the workplace.

Another thing staff stated diminished their desire or ability to be more innovative and creative was time and staffing levels to share the workload (resources to innovate). Many said they did not feel like they had the time available to think creatively because staffing within their units was so lean. Without time to think and develop novel ideas, staff had difficulty seeing how they could get to innovative action even if the organization was supportive of them doing so. Participation in the design thinking workshop even indicated staffs' perceived lack of time, as many staff didn't participate because they stated they didn't have the time to do so.

Staff members also spoke to the individual attributes referenced in the theoretical framework. The individual attributes identified in the framework include motivation, meaningfulness of work, skill in the task domain, and creativity relative processes (Amabile & Pratt, 2016). Staff reported similar beliefs about the individual attributes and creativity on the CIS and in interviews. Staff members felt intrinsically motivated to be creative and they also believed they had the expertise and ability needed to innovate. Staff believed the work that they did was meaningful and generally expressed liking the work that they did. Staff believed they could be creative and innovative within their work units and that they were encouraged by their direct supervisor, but most stated they did not feel they had the ability to be creative outside of their specific areas even though staff generally believed the organization to be encouraging of innovation. Positionality within the organization also seemed to influence how creative staff members felt they could be. During interviews several staff stated they just did not feel like their position or role within the organization really had the ability to be creative or to innovative. Each of these items are also identified in the theoretical framework as individual attributes that

influence creativity in organization, lending support to the accuracy of the model. Staff who supervised other staff seemed to have a stronger belief in their ability to be creative in their roles with the organization.

### **Implications for Practice**

As in previous sections of this chapter, this section will be organized loosely around the research questions. Implications of findings for research questions one and two, influence of individual attributes on creativity, are discussed under the section title implications for creativity. Implications of findings for research question three and four, influence of organizational attributes on innovation, are discussed under the sections implications for practice of leaders, implications for resources to innovate, implications for curating an innovation environment, and implications for organizational design. Finally, implications of findings for research questions five, six, seven and eight are discussed under the section titled implications for using design thinking.

### **Implications for Creativity**

Staff members reported in interviews and through their CIS responses that they felt they had the ability to be creative in the workplace. There also was a positive significant relationship between the responses to individual attribute items and creativity items on the pre-CIS. In this regard, the organization seemed to be doing what it needed to make sure the individual attributes were present and supported for university staff members, and they feel they have the ability to be creative. However, in repeating they felt they had the ability to be creative they also stated that the lack of time to practice creativity was a barrier to develop novel solutions. The implication here is that staff need time, time to ideate and time to think critically about the problems they face in the work

place in order to be as creative as possible. Whether this is accomplished by staff organizing and managing their time differently or supervisors facilitating specific times and spaces for staff to be creative, making time for creativity is critical. If the organization's goal is to be as innovative as possible, leaders have to help staff find time to be creative first.

### **Implications for the Practice of Leaders**

As referenced in earlier sections, the actions and statements about innovation from individuals in leadership positions has a strong influence on how staff in those units will feel about being creative and innovative. Staff reported they believed they had the ability to be creative and innovative at work, and clearly stated that the behavior of those in leadership either fostered this idea or suppressed it. Those in leadership positions must be verbally supportive and through action demonstrate support of new ideas that are suggested by staff. Leaders within the organization need to give staff enough autonomy to design creative solutions and empower them to turn novel solutions into innovative action. Leaders must also advocate for new ideas beyond their departments to help encourage staff to have big ideas that go beyond the scope of their direct responsibilities, and those at the upper levels of the organization must acknowledge great ideas can come from staff of all levels within the organization. Leaders must also recognize how critical their actions and words are to reassuring staff members belief in their ability to be creative and innovative in the workplace.

### **Implications for Resources to Innovate**

Staff members were clear that having resources available to turn creative ideas into innovative actions were critical. Staff believed that the organization had the tangible

resource of funding to innovate. However, one of the implications for future action is to consider right sizing of staff within departments. This was already mentioned in implications for creativity, but also fits here under the organizational attribute of resources to innovate (Amabile & Pratt, 2016). Staff suggested have healthier staffing levels would allow for additional time for staff to feel that they can be as creative and innovative as possible. This may also be an implication for those in leadership to have the critical conversations about making space and time available for staff to think. Another critical conversation for those in leadership within the organization should be where innovation and creativity is most critical and if additional staff in those areas may allow for greater creativity and innovation capacity. Without time to think, creative ideas are difficult to develop and without creative ideas there is no innovative action.

### **Implications for Curating an Innovation Environment**

In interview data staff stated the importance of having diverse perspectives with individuals with the right kind of knowledge available to make innovative action possible. Survey responses confirmed the importance of curating groups intentionally, however suggested that the organization was not overtly successful in doing so. Leaders within the organization should be intentional when creating work groups to make sure that not only individual staff with the right expertise are a part of the creative ideation, but also those that have a share interests in the outcome of trying a new solution are present. In addition to having the right individuals present, staff also commented on the importance of having an environment where staff members could challenge each other's ideas, suggesting that this environmental component resulted in the most creative solutions and innovative action. Staff in leadership positions and those who are

organizing groups to work on complex challenges our students face should pay careful attention to how those groups are organized and who is invited to participate in the discussion.

### **Implications for Organizational Design**

Staff member commented on organization design indirectly by stating in interviews that they felt more comfortable providing innovative action in their departments than they did in the larger university context. They also spoke to the lack of faith that creative ideas would be executed when the decision-making authority was outside of their departments. This sentiment was expressed when several staff members stated that if their direct supervisor did not have the authority to approve an idea, they would rarely try to present the new ideas. Their belief was that the levels of organizational approval needed and organizational complexity made it unlikely that the idea would move forward. The feeling of approval to innovate in departmental decisions was clear. However, those staff holding entry level position did not feel they had the authority or positional power to advance innovations beyond the scope of their specific positions. Though this assertion has been advanced previously, it is important to note in this section related to organizational attributes that leadership within the organization must actively work to acknowledge and assert that big and great ideas can come from anywhere within the organization. The flatter an organization can be perceived to be by the staff working within it, the more likely it appears that creativity and innovation can flourish.



## **Implications for Using Design Thinking**

Design thinking was widely viewed by staff members as a useful framework for doing creative and innovative work. However, the reality for staff was that design thinking appeared to be too time consuming to use as a tool in their daily functions. An implication for using this as a tool to equip university staff members to be more creative and innovative in the work they do is constructing a more efficient version to the design process. The other option would be what has been expressed earlier by creating more time for staff to think and be creative in response to the challenges that student face. A key indicator of the importance of this implication is the strongly expressed belief of staff members in interviews that in order to be creative in developing solutions to the challenges the student they work face, is having the time to think in order to be more creative in their problem solving efforts. Design thinking does appear to be a feasible solution to fostering creativity and innovation of staff members, but some modification of available time does appear to be needed to get the most out of staff's ability.

## **Study Limitations**

By this point in this paper, it should be clear that several limitations exist that influence the results and assertions of this research project. First, this project was intended to exam a specific context and that the applicability of findings should be limited to this context and other context very similar to it. The CIS data does not suggest generalizability. It should also be noted, that the researcher in this project was also a superior to the participants in the research project, which may have influenced the responses to interview questions or survey responses in relationship to the organization and the related attributes that influence innovation or creativity of staff members.

Another limitation would be that, though pre-CIS responses accounted for almost 50% of the surveyed population, post-CIS responses and participants in the design thinking workshop only accounted for roughly thirteen percent of the population of interest which may have influenced findings significantly. As a result, others should be cautious to apply its insights to other context.

### **Next Steps**

Next steps for this research project should include additional cycles of the action research process to include investigation into what specific organization attributes most influence innovative action. Addition exploration into what can leadership do to increase the reality and the perspective of staff members that they have the time to think creatively is warranted. Finally, how can leadership actions and statements serve to reinforce that they are supportive of creativity and innovation at and from all levels within the organization. With the limitations of the current study, it makes sense to gauge on a larger scale how and to what extent organization attributes influence innovational action of university staff members. It also would be prudent to explore the role that leadership plays in the execution of creative ideation and innovative action. Finally, organization structures should also be given additional attention as to how they influence staff being innovative and creative in the workplace.

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APPENDIX A

PRE CREATIVITY AND INNOVATION SURVEY

### Staff creativity and innovation in the workplace

My name is Chad Morgan and I am a doctoral student in the Mary Lou Fulton Teachers College at Arizona State University. I am currently working on a dissertation project.

This survey is being conducted to understanding university staff members' perceptions of their ability to be creative and innovative in their workplace. Your participation in completing this survey will help me better understand these concepts and associated issues. The results will also be used to create an intervention aimed at improving the creative and innovative ability of university staff members.

To participate in this research, you must be 18 and employed in a student affairs position at an institution of higher education. Your participation in this study is voluntary. If you choose not to participate or withdraw from the study at any time, there will be no penalty whatsoever. There are no foreseeable risks for participating in this questionnaire. The benefits of your participation are the opportunity to reflect on your creativity and innovation in the workplace. Your responses will be confidential. Results from this study may be used in classroom assignments and to inform future research.

There are a total of 36 questions and it is estimated that this survey will take you no more than 15 minutes to complete.

Thank you for completing this survey, answering as accurately as possible, and for giving of your time to contribute to this project.

In addition to this survey, you are also invited to voluntarily participate in a design-thinking workshop that hopes to increase your capacity to be innovative and creative in your daily work. Dates for these will be sent out via email in the near future. You may participate in the workshops even if you choose not to complete the survey.

By clicking next (below) you indicate your consent to participate in this study.



This survey is being conducted to understanding university staff members' perceptions of their ability to be creative and innovative in their workplace.

For the purposes of this survey, please use the following definitions for the terms creativity and innovation as you respond to the follow items.

Creativity: "Creativity is the production of novel and useful ideas by an individual or small group of individuals working together." (Amabile, p.126)

Innovation: "Innovation is the successful implementation of creative ideas within an organization." (Amabile, p.126)

|                |       |                |                   |          |                   |
|----------------|-------|----------------|-------------------|----------|-------------------|
| Strongly Agree | Agree | Slightly Agree | Slightly Disagree | Disagree | Strongly Disagree |
| 6              | 5     | 4              | 3                 | 2        | 1                 |

Actual survey instrument were distributed online and formatting to include the above Likert scale below of the statements (1-30), questions 31 – 34 will be open ended, 35 – 36 will have the categories listed as possible answers.

1. I am intrinsically motivated to be creative while working.
2. I feel my workplace provides extrinsic motivation to be creative.
3. I have the skills needed to be creative at work.
4. The work that I do is meaningful.
5. I believe that I am able to make meaningful progress on projects at work.
6. I have the intellectual capacity to look at problems from multiple perspectives.
7. I am willing to take risks in the work that I do.
8. I am willing to try several options in order to arrive at the best solution.
9. I am knowledgeable enough in my professional practice that I can generate diverse solutions to the problems I face at work.
10. My peers and I at work have synergy around solving problems we experience at work.
11. The mission of my organization is clear and support me executing innovative solutions to the challenge/opportunities that the students I work with face.
12. My supervisor supports me taking innovative action in my work.
13. I have access to the resources needed to be innovative in my work.
14. New ideas are accepted and encourage within my organization.
15. The structure of my organization encourages me to take innovative action.
16. Teams are organized intentionally by my organization to make sure the expertise needed is present to turn creative ideas into innovative action.
17. My organization motivates me to take innovative action.
18. Risk taking is encouraged by my supervisor.
19. Clear goals are established in my work place that guide my application of innovative solutions

20. I have received the necessary training/development to execute new ways of addressing the challenges and opportunities my students face.
21. I am creative as an employee.
22. When faced with an opportunities or challenges in my work I am able to create new original solutions.
23. I have the ability to be creative in my daily work.
24. People I work with see me as being creative.
25. I have developed original ideas and solutions relating to my work.
26. I am able to execute innovative actions.
27. I have the ability to be innovative in my workplace.
28. I am an innovative employee.
29. I have executed innovative solutions in my work place.
30. I am innovative as an employee.

*The survey will be conducted twice so providing the same survey id both times is very important so we can compare your answers for both surveys, while maintain your confidentiality in completing the assessment.*

Survey Id (first 3 letters of mother's maiden name, last 4 digits of your phone number):

31.

32. Age:

33. Number of University/Colleges You've worked at (including ASU):

34. Number of years working in higher education: 0-5 years, 6 – 10years, 11-15years, 16 – 20years, 21 plus years

35. Number of years working at Arizona State University: 0-3 years, 4-6years, 7-10 years, 11-14 years, 15-18 years, 19 or more years

Reference:

Amabile, T. (1988). A model of creativity and innovation in organizations.

*Organizational behavior, 10*, p. 123-167.

APPENDIX B

POST CREATIVITY AND INNOVATION SURVEY

### Staff creativity and innovation in the workplace

My name is Chad Morgan and I am a doctoral student in the Mary Lou Fulton Teachers College at Arizona State University. I am currently working on a dissertation project. This survey is being conducted to understanding university staff members' perceptions of their ability to be creative and innovative in their workplace. Your participation in completing this survey will help me better understand these concepts and associated issues. The results will also be used to create an intervention aimed at improving the creative and innovative ability of university staff members.

To participate in this research, you must be 18 and employed in a student affairs position at an institution of higher education. Your participation in this study is voluntary. If you choose not to participate or withdraw from the study at any time, there will be no penalty whatsoever. There are no foreseeable risks for participating in this questionnaire. The benefits of your participation are the opportunity to reflect on your creativity and innovation in the workplace. Your responses will be confidential. Results from this study may be used in classroom assignments and to inform future research.

There are a total of 36 questions and it is estimated that this survey will take you no more than 15 minutes to complete.

Thank you for completing this survey, answering as accurately as possible, and for giving of your time to contribute to this project.

In addition to this survey, you are also invited to voluntarily participate in a design-thinking workshop that hopes to increase your capacity to be innovative and creative in your daily work. Dates for these will be sent out via email in the near future. You may participate in the workshops even if you choose not to complete the survey.

By clicking next (below) you indicate your consent to participate in this study.

### Creativity and Innovation Survey

This survey is being conducted to understanding university staff members’ perceptions of their ability to be creative and innovative in their workplace.

For the purposes of this survey, please use the following definitions for the terms creativity and innovation as you respond to the follow items.

Creativity: “Creativity is the production of novel and useful ideas by an individual or small group of individuals working together.” (Amabile, p.126)

Innovation: “Innovation is the successful implementation of creative ideas within an organization.” (Amabile, p.126)

|                |       |                |                   |          |                   |
|----------------|-------|----------------|-------------------|----------|-------------------|
| Strongly Agree | Agree | Slightly Agree | Slightly Disagree | Disagree | Strongly Disagree |
| 6              | 5     | 4              | 3                 | 2        | 1                 |

Actual survey instrument were distributed online and formatting to include the above Likert scale below of the statements (1-30), questions 31 – 34 will be open ended, 35 – 36 will have the categories listed as possible answers.

11. I am intrinsically motivated to be creative while working.
12. I feel my workplace provides extrinsic motivation to be creative.
13. I have the skills needed to be creative at work.
14. The work that I do is meaningful.
15. I believe that I am able to make meaningful progress on projects at work.
16. I have the intellectual capacity to look at problems from multiple perspectives.
17. I am willing to take risks in the work that I do.
18. I am willing to try several options in order to arrive at the best solution.
19. I am knowledgeable enough in my professional practice that I can generate diverse solutions to the problems I face at work.
20. My peers and I at work have synergy around solving problems we experience at work.
11. The mission of my organization is clear and support me executing innovative solutions to the challenge/opportunities that the students I work with face.
12. My supervisor supports me taking innovative action in my work.
13. I have access to the resources needed to be innovative in my work.
14. New ideas are accepted and encourage within my organization.
15. The structure of my organization encourages me to take innovative action.
16. Teams are organized intentionally by my organization to make sure the expertise needed is present to turn creative ideas into innovative action.
17. My organization motivates me to take innovative action.
18. Risk taking is encouraged by my supervisor.

19. Clear goals are established in my work place that guide my application of innovative solutions
20. I have received the necessary training/development to execute new ways of addressing the challenges and opportunities my students face.
21. I am creative as an employee.
22. When faced with an opportunities or challenges in my work I am able to create new original solutions.
23. I have the ability to be creative in my daily work.
24. People I work with see me as being creative.
25. I have developed original ideas and solutions relating to my work.
26. I am able to execute innovative actions.
27. I have the ability to be innovative in my workplace.
28. I am an innovative employee.
29. I have executed innovative solutions in my work place.
30. I am innovative as an employee.

*The survey will be conducted twice so providing the same survey id both times is very important so we can compare your answers for both surveys, while maintain your confidentiality in completing the assessment.*

Survey Id (first 3 letters of mother's maiden name, last 4 digits of your phone number):

31.

32. Age:

33. Number of University/Colleges You've worked at (including ASU):

34. Number of years working in higher education: 0-5 years, 6 – 10years, 11-15years, 16 – 20years, 21 plus years

35. Number of years working at Arizona State University: 0-3 years, 4-6years, 7-10 years, 11-14 years, 15-18 years, 19 or more years

36. How many of the design thinking workshops did you attend: 1, 2, 3.

Reference:

Amabile, T. (1988). A model of creativity and innovation in organizations. *Organizational behavior*, 10, p. 123-167.

APPENDIX C  
INTERVIEW PROTOCOL

Interview Protocol – Staff creativity and innovation in the work place – Chad Morgan  
Introduction – Thanks for your time today to participate in this interview regarding staff creativity and innovation in higher education organizations. I may use some of the information I collect today for my research project as a part of my doctoral program. Please be as candid as you can in responding to the questions I will ask you in a few moments. I would like to audio record this interview. The interview will not be recorded without your permission. Please let me know if you do not want the interview to be recorded. I also recognize that some of these questions may feel sensitive in nature, so I want to ensure you that your identity will be kept confidential and nothing that you say will be used against you. You also can change your mind after the interview starts; just let me know if you want to stop the interview at any time. Does that sound ok?

All right then, let's get started.

I. Participants' Background:

1. How long have you been working in higher education?
2. How many universities have you worked at?
3. How long have you worked at ASU?
4. Do you supervise any other professional staff members?
  
5. When you hear the words creativity, what comes to mind and how does this resonate in your work responsibilities?
  
6. When you hear the word innovation, what comes to mind and how does this resonate in your work responsibilities?

Alright I'm going to give you some definitions to use as we go through the rest of the interview. This will help use the words in the same way as we go forward. I'm going to read them to you, but I have them printed on these pieces of paper to:

You want to ask them to define these terms for you, and in what ways do these terms resonate in their responsibilities.

Creativity: "Creativity is the production of novel and useful ideas by an individual or small group of individuals working together." (Amabile, p.126)

Innovation: "Innovation is the successful implementation of creative ideas within an organization." (Amabile, p.126)

These were written by a scholar named Teresa Amabile who does a lot of research about innovation and creativity.

II. Creativity

7. Do you consider yourself a creative person in general, and if so how do you demonstrate that in your private life and if not why not?
  
8. How do you think you are creative in the work place?
  
9. If I were to ask one of your co-workers what you do at work that is creative, what do you think they would say?
  
10. Can you tell me about a time or situation that you felt exceptional creative at work,



- a. can you remember what was happening,
  - b. who was there,
  - c. what about it made it feel that way.?
11. Do you feel that you are allowed to be creative in the work place?
- a. I am going to list several dimensions of our work and I'd like you to share if you feel you do or do not have the ability to be creative in them, feel free to add why you feel the way that you do: Administrative tasks
  - b. Program delivery
  - c. Service delivery
  - d. One on one work with students
  - e. Budget development
  - f. Supervising subordinates
  - g. Developing students
  - h. Engaging students
  - i. Collaborating with peers

### III. Innovation

12. Do you consider yourself a creative person in general, and if so how do you demonstrate that in your private life and if not why not?
13. How do you think you are innovative in the work place?
14. If I were to ask one of your co-workers what you do at work that is innovative, what do you think they would say?
15. Can you tell me about a time or situation that you felt exceptionally innovative at work,
- a. can you remember what was happening,
  - b. who was there,
  - c. what about it made it feel that way.?
16. I am going to list several dimensions of our work and I'd like you to share if you feel you do or do not have the ability to be innovative in them, feel free to add why you feel the way that you do:
- a. Administrative tasks
  - b. Program delivery
  - c. Service delivery
  - d. One on one work with students
  - e. Budget development
  - f. Supervising subordinates
  - g. Developing students
  - h. Engaging students
  - i. Collaborating with peers
17. Do you feel you are allowed to be innovative in your work place?

### III. Individual Attributes influencing Creativity and Innovation

18. Can you describe how or if any of the following individual attributes that influences your ability to be creative and innovative in your workplace?
  - a. motivation,
  - b. meaningfulness of work,
  - c. actual ability
  - d. or others
19. Can you describe any individual factors that influence your ability to be creative and innovative in the workplace?
20. What is one thing you could do to be more creative at work?
21. What is one thing you could do to you be more innovative at work?
22. What makes you think you have or don't have the ability to be creative at work?

### IV. Organizational Factors Influencing Creativity and Innovation

23. Can you describe any organizational factors that influence your ability to be creative and innovative in the workplace?
24. Can you describe how or if any organizational attributes like the following influences your ability to be creative in your workplace?
  - a. leadership and supervisory style,
  - b. resource availability,
  - c. outcome assessment (likelihood of successful implementation)
  - d. or idea generation
25. Can you describe how or if any organizational attributes like the following influences your ability to be innovative in your workplace?
  - e. leadership and supervisory style,
  - f. resource availability,
  - g. outcome assessment (likelihood of successful implementation)
  - h. or idea generation
26. What is one thing the organization could do to help you be more creative at work?
27. What is one thing the organization could do to support you being more innovative at work?

V. Intervention

28. What affect did the design thinking training have on your perceive ability to creative and innovative at work?
  
29. What did you learn from participating in the design thinking training?
  
30. Is there anything else you would like to share regarding creativity or innovation in your workplace?

Debrief – thank you for your time and insights into these important aspects of your work. I really appreciate you help with this project, are there any questions you have for more or additional information I can provide regarding my work?