INVESTIGATING FACULT ROLE MODELS IN ACADEMIA: WHAT ROLE MODELS DO ACADEMIC FACULTY HAVE?

by

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ABSTRACT

A role model may play an important role in an individual's career, such as in the case of faculty of higher education. However, not much is known about how one perceives these role models inan academic setting. There is limited research into the unique attributes that distinguish between types of role models. Hence, this study attempts to better understand faculty role models and shed light onto those attributes which set them apart.

The purpose of the study can be realized through two research questions, (1) What are some of the role models that academic faculty follow? and (2) What attributes do those role models possess? This study has iteratively developed surveys designed to elicit answers to these questions, and the survey responses will be used to promote a meaningful conversation about faculty role models. The results will contribute towards improving career development programs to create a positive impact on faculty effectiveness and success.

CHAPTER 1. PURPOSE AND PROBLEM

Background

Evidence indicates the remarkable impact that role models can have – especially in academic performance (Lockwood & Kunda, 1997; Marx & Roman, 2002; Marx & Goff, 2005). The importance of role models in career advancement (Bucher, 1998), especially for women (Quimby& DeSantis, 2006) and minority groups (Riegle-Crumb, Moore, & Ramos-Wada, 2011) is well-documented. Stereotype threat is a phenomenon where the idea of conforming to a stereotype canhave a negative effect on one's performance (Steele & Aronson, 1995). Steele (2010) explores the negative effects of stereotypes on academic performance by examining both male and female students who watched various television commercials. Half of the participants watched a select few commercials depicting women in gender stereotypical ways,while the other participants watched commercials without any gender content. When all participants were subsequently assisted with performing math problems, those female students who viewed the commercials with stereotypical content performed relatively more poorly on the problems and reported less interest in math-related careers and higher studies.

There is also evidence that stereotype threat is prevalent even without the presence of gender-based content in commercials(Stone, Lynch, Sjomeling, & Darley, 1999; Osborne, & Walker, 2006; Roberson & Kulik, 2007). Further, there is much research that has been done on finding ways to mitigate it (McGlone, & Aronson, 2007; Roberson & Kulik, 2007; Alter, Aronson, Darley, Rodriguez, & Ruble, 2010). The literature supports the theory that greater availability of role models early on in life is an effective way to lessening stereotype threat. But what is a role model?

According to Merton (1936), a role model is someone whom an individual compares themselves to and holds a position that the individual themselves desire to be in. Many studies in the area show the degree to which a role model can be an effective way to reduce stereotype threat (Mclyntre etal., 2003; Mclyntre et al., 2005). In one study (Mclyntre et al., 2005), participants read anywhere between 0-4 biographies of successful women and the participants in the study were randomly assigned the number of biographies to read, selection bias is eliminated in the study. Following that, they were asked to take a math test. The female participants who read none of the

biographies performed poorly when compared to the male participants. Further, it was observed that the more biographies that female participants read, the better they performed. It was also observed that female participants who read all four biographies performed at the same level as male participants. Similarly, role models have shown to mitigate race-related stereotype threat as well (Marx et al., 2009; Cheryan et al., 2012). The existence of stereotype threat, combined with the imbalance in opportunities for women and population of color, leads to many obstacles, especially in the career of a faculty member.

Motivation

There is a dearth of information on how a role model is chosen by an individual. The research on a similar construct, mentorship is flourishing (Eby, 1997; Fagenson, 1994; Kram, 1985; Ragins & Cotton, 1999), while role models seem to be an equally popular construct that is not well researched. Gibson (2004) concluded that "while extensive research has examined traditional mentoring relationships, little research has examined the processes by which individuals perceive, create and sustain development through identification with role models."

Bosma et al (2012) also support Gibson's assertion, noting that very few empirical studiesthat analyze the functions of a role model with respect to an individual's career. There is little work focusing on the attributes of these role models that are appealing to those individuals who perceive them as role models. Javidan and others (1995) argue that, "empirical research on role models is scant, and little is known of what contributes to an individual being perceived and accepted as a successful role model". Jung (1986) states that the concept of a role model is well-known, but this has somehow diminished its significance "as a construct with descriptive and explanatory power". Specifically, there is a need for more role models within women and minority groups. Steele et al (2013) state that "although the majority of female junior faculty perceived that there were more female role models currently compared to previously, they did indicate that there appeared to be a paucity of mid-career female researcher role models."

The problem of understanding faculty role models is a consequential one, not only is the extant literature revealing a lack of streamlined research into role models in particular (Gibson, 2004), there has also been a noticeable imbalance of studies on the impact of role models on women andminority groups among faculty of higher education (Menges & Exum, 1983; Aguirre

Jr, 2000). This implies there is true value to be created in raising awareness about the impact of role models of faculty in higher education, particularly on how they could influence underrepresented groups among higher education faculty.

Purpose

The purpose of this study is to assist administrators world-wide in developing a framework to help offset stereotype threat by better understanding the influence of current faculty role models and identifying those properties of faculty role models that make them more effective. Faculty training and development programs play a vital role in providing a motivation and renewed enthusiasm in the community (Steinert, 2000). Good education practices can be shared among faculty members through role modelling, which in turn helps boostskills essential to the advancement of a faculty's career (Bandura, 1986). There remains an overarching need for faculty support in academia. This study will catalyze the conversation regarding equitable measures that can lessen the obstacles facing faculty in higher education. Understandingthe current role model landscape will help this faculty lay the groundwork for boosting the academic performance of their students.

Research Questions

The two main research questions answered through this study are,

RQ1: What are some of the role models that academic faculty follow?

RQ2: What attributes do those role models possess?

The findings will ultimately be utilized to further the development of faculty leadership, capacity-building, support, and avenues to inclusion for faculty members, with a special focus on women and individuals of color.

Definitions

The following operational definitions and concepts are adapted to fit the requirements of the study.

Stereotype Threat - A theory that the mere idea of conforming to a stereotype can be an impediment to one's performance. (Spencer et al., 1995).

Role Model - Merton (1936) coined this term, hypothesizing that an individual compares themselves to references (other people) that occupy a desirable standing to which the individual aspires.

Role Aspirant - An individual who makes active but not necessarily conscious or deliberate choices about who to follow based on their own values and goals (Morgenroth et al., 2015)

Identification - A process where an individual models their thoughts and actions after another individual who is considered to be a model (Bandura, 1969).

Digital Narrative/Digital Storytelling – The process of incorporating media and software to communicate stories in a compelling way (McLellan, 2007).

Self-Concept – "The concept an individual has of themselves as a physical, social, and spiritual or moral being." (Gecas, 1982)

Assumptions

The study includes surveys administered through an online survey tool. Some assumptions are madewith regards to the survey. The first assumption is that the participants of the survey will give honestand candid answers. To maintain consistency in the responses received, all the participants taking the survey are faculty members. This implies that the similarity factor amongst the participants will be their profession. Finally, it is assumed that the data used to build the final digital narrative is accurate.

Delimitations

The predicted delimiters for the study are as follows,

- The study's scope is limited to determining the positive attributes that role models possessthat influence the faculty role aspirants desire to choose them.
- The participant pool is strictly limited to faculty members from universities.

- Regional and cultural differences are not included in the scope of the study but will beconsidered as future work.

Limitations

Limitations for this study are typically instances that the researcher has no control over. The following limitations could be delineated. While participant honesty is assumed, there might be certain sensitive questions that could compromise participant honesty. The sample obtained for this study is imbalanced in terms of race with the participants being predominantly white. The sample is more balanced when gender is the considered, however, there is nearly no representation for the LGBTQ faculty in the sample. Although, there is no significant research into this aspect either hence providing ample scope for future research. The faculty survey does not delve into the inner perception of the participants regarding their own role models as expected since there were very few open-ended questions and follow ups to elaborate.

CHAPTER 2. REVIEW OF LITERATURE

This section will examine literature on: (1) Role Models (2) Minority Role Models and Stereotype Threat, (3) Faculty Development, (4) Identity Development, and (5) Role Models in Game Context.

Role Models

By observation, we can deduce that the phrase "role model" combines the theory of "roles" which can be defined as the behavior or actions linked to individuals in higher status or a position of superiority (Slater, 1961; Bell, 1970; Katz & Kahn, 1978) and the theory of "modeling", the observation of specific skills or qualities between a target and an observer (Bandura 1986). Role models are often defined on the basis of two psychological concepts, the social learning theory, which explains how a role aspirant might be drawn to individuals who might help them grow in terms of their skillset or attitude (Bandura 1977, Bandura 1986) and the identification theory, on the other hand, suggests that an individual might be able to connect more with role models who they consider to be similar (Erikson 1985, Kagan, 1958; Kohlberg 1963, Slater 1961). Both theories seem to suggest a similar path to choosing a role model that is comparison. If we delve deeper into the theory of comparisons, people are likely to seek out others who are similar in a number of ways (Goethals & Darley, 1977; Wood, 1989). When someone outperforms an individual, there is an increased chance of defensive thoughts and actions if the former is similar to the latter on dimensions such as age, race, or gender (Tesser, 1986; Tesser & Campbell, 1983). Attractive individuals tend to influence perception of one's own attractiveness if they belong to the same sex (Brown et al., 1992). Similarly, the circumstances of one's success (or failure) are relevant in the context of comparison as it is more plausible to downplay the similarities if the circumstances under which a certain action was taken are different (Gilbert, Giesler, & Morris, 1995). These findings indicates that if similarity in features or circumstances between two individuals is insignificant then there is very little room for social comparison, which in turn reduces the impact on one's self view (Lockwood & Kunda, 1997). Although, domain relevance is a concept often discussed during comparisons, it is not a requirement (Lockwood & Kunda, 1997). For example, there is a much higher chance for a

university professor to be influenced by someone from the academic field rather than a movie actor or an athlete, but if there are enough similarities in demographics or circumstances then domain relevance could take a back seat (Tesser, 1986; Tesser & Campbell, 1983). All these insights can be boiled down to obtain three major factors that affect comparison, (1) relevance to the role aspirant's goals (Gibson, 2004), and (2) the perception of the role model's position as desirable and attainable (Lockwood and Kunda, 1997, Gibson, 2004), and (3) gender, age, race and other attributes that could influence the comparison process (Kulik and Ambrose 1992; Lockwood, 2006; Marx & Roman, 2002; Marx & Goff, 2005).

The definition of a role model from the perspective of the identification process was first put forward by Merton (1936), who explained that a role model is someone to whom aspirants compare themselves to. Along the same lines, Bandura (1969) brought forward a more nuanced definition for the identification process where he states that "identification refers to a process in which a person patterns his thoughts, feelings, or actions after another person who serves as a model". However, there was not much extensive research into the identification process itself after this initial seed. Douvan (1976) argued that role models might be vital for the professional development of an individual, however, this argument was predominantly based on faith, according to Douvan (1976), as the identification process and modeling in general were not studied to a great extent except in a pre-school setting. Almost 20 years later, Javidan, Bemmels, Stratton-Devine, and Dastmalchian (1995) still argued that ''empirical research on role models is scant, and little is known of what contributes to an individual being perceived and accepted as a successful role model''. Another obstacle to the concentrated role model research is the fact that over the years, the terms "mentor" and "role model" became interchangeable. There has been a remarkable effort to understand the mentor-mentee relationship over the (Kram, 1985; Fagenson, 1994; Eby, 1997; Ragins & Cotton, 1999), while role models research has become somewhat stagnant (Jung, 1986, Javidan et al, 1995, Bosma et al, 2012). Gibson (2003) examined the role model relationship further and concluded that although there is a definite overlap in functionalities of role models and mentors, there are significant differences in the development phenomenon of these two constructs. The defining quality in a mentor is taking "an active interest in and action to advance the proteges' career by providing developmental assistance" (Higgins & Kram, 2001) while role models are fundamentally based on identification and social comparison. In simpler terms, mentors require a tangible connection and constant interaction with an

individual while a role model does not require such direct connection, although it may occur sometimes. Despite this, learning still occurs in the role model-role aspirant relationship primarily through the emulation of the former by the latter (Gibson, 2004). Further, research indicates that traditional mentor relationships are focused on one or two primary mentors, although recent studies suggest that an individual tends to have a number of other developmental relationships with peers and colleagues (Kram, 1985, 1996; Eby, 1997; Higgins & Thomas, 2001). An investigation into the potential number of role models from the context of the classic identification theory suggests that an individual will often identify with a few "dominant role models" (Freud, 1933) over their lifetime, while other empirical studies emphasize that there could be multiple role models (Bucher & Stelling, 1977). A variety of role models can offer wide spectrum of styles, skills and attitudes that a role aspirant can adapt to their evolving professional style (Ibarra, 1999). Finally, the attributes that an individual seeks in role models and mentors are distinct. In a mentor, one seeks out attributes related to career and psychosocial functions (Kram, 1985; Noe, 1988; Olian, Carroll, Giannantonio, & Feren, 1988). On the other hand, attributes sought in a role model can be broadly categorized in two types: role expectations and definitions of self-concept (Gibson, 2003). Role expectations are generally notions about what an individual should do as part of an important role in an organization (Katz & Kahn, 1978). Apart from conveying the standards, skills and norms of a position, role models also represent a certain idea of what an individual wants to "be", this is a method in which role models define the self-concept of an individual (Erikson, 1968; Kelman, 1961). The theory of self-concept will be discussed briefly in a later section of the literature review. Although, role models and mentors are constructs that have overlapping functionalities, there are subtle nuances, as mentioned above, that illustrate that they are quite different when it comes to identification, attributes, and interaction.

On the basis of the traditional modeling theory and recent research of role model constructs, Gibson (2003) put forward certain cognitive and structural dimensions that could help identify the type of role models chosen by an individual and the attributes associated with them. Cognitive dimensions include (1) positive (referring to the chosen role model having attributes that are admired and desired), (2) negative (referring to the chosen role model having attributes that are undesirable or attributes that an individual does *not* wish to emulate), (3) global (referring to the role model having a wide range of attributes desirable to the role aspirant), and (4) specific (referring to the role model having just one or a small set of attributes that are desirable to the

role aspirant. Structural dimensions include (1) close (refers to the role model being someone the role aspirant is in frequent contact with), (2) distant (refers to the role model being someone outside the role aspirant's circle with whom the contact is infrequent or non-existent), (3) up (refers to the role model being a superior of the role aspirant), and (4) across/down (refers to the role model being a colleague or someone the role aspirant has a familial relation with). These dimensions provide a way to broadly categorize the type of role models, type of attributes, and the level of familiarity/interaction between a role aspirant and a role model.

A general assumption is that role models are essential during early life or career. Research in the area of role models has also been primarily concerning children or adolescents (Maccoby & Jacklin, 1974; Speizer, 1981; Bandura, 1986). Organizational research on role models has been focused on people very early in their career (Bucher & Stelling 1977; Ibarra, 1999; Kram, 1985; Ostroff & Kozlowski 1992). An interesting study by Gibson (2004) concludes that individuals employ a selection process based on the available individuals in an organization along with certain preconceived interpretation of certain attributes while choosing a role model (Bandura 1977, 1986; Bucher and Stelling 1977; Ibarra 1999). As an extension to an earlier study (Gibson, 2003), the aim was to understand the role models over the early, middle and late stages of career and to map these role models to the cognitive and structural dimensions. For the study, the author interviews participants from two service organizations with experience ranging from 6 months to 30 years, and age ranging from 26 to 61 years. The results consolidated by Gibson (2004) show that during early career stages individuals are drawn to positive and global attributes in role models whose perceived availability to the role aspirant is high. As for mid-career stages, individuals are drawn to positive and specific attributes in a role model. While perceived availability was low during this stage, the role aspirants also tend to be more careful while choosing a role model, they assess the requirements and skills much more closely before adopting a role model. Finally, in the late career stage, there was still a necessity for role models with specific attributes but there was also an increase in the awareness of negative attributes, role aspirants were more vocal about what they *do not* want in a role model. In this stage, the hierarchy from which role models are chosen (usually supervisors or people at a higher position in the organization) is eschewed, respondents can perceive peers and subordinates as role models as well. The findings of this study support the theory that role models are active constructs, created

by role aspirants, who embody the professional or personal goals and needs of the role aspirants that develop over time (Bucher & Stelling, 1977; Cross & Markus, 1991; Markus & Nurius, 1986).

Earlier research provides a path to understanding what factors influence the selection of role models and the different dimensions involved in the attributes sought after in role models. For the sake of the study, these constructs will be examined in the case of role model of faculty in academia and an effort to understand what contributes to a role aspirant choosing a role model will be an essential part of the study. Further, the development of role models of faculty members over time is another aspect that the study will examine.

Minority Role Models and Stereotype Threat

The importance of role models amongst women and minority groups is of primary concern. When examining the challenges faced by minority groups in the academic field, an interesting phenomenon observed is the stereotype threat. Stereotype threat is a phenomenon faced by minority groups is prevalent within the many academic fields. This theory was first put forward by Steele and Aronson (1995), who conducted a study to better understand the negative effect that stereotype threat has on Black American students in college. This was then extended to understand the underperformance of women in math related tasks (Spencer, Steele, & Quinn,1999; Nguyen & Ryan, 2008) Studies on stereotype threat show that this additional pressure often undermines the performance of the targeted group, hindering their rate of success when compared to a nonstereotyped individual in a similar position (Steele 1997, Steele et al. 2002, Walton & Spencer 2009). An interesting notion about stereotype threat is that it does not affect performance on all tasks, it was observed that it is most common in tasks that tend to push the limit of an individual's ability (Ben-Zeev et al. 2005; O'Brien & Crandall 2003).

Many such studies conclude that role models are an effective way to mitigate stereotype threat (Steele & Aronson, 1995; Drury et al. 2011; McIntyre et al. 2003, 2005; Shaffer et al. 2013). Many other studies followed suit to establish that role models play a vital role in not only academic performance but also career advancement in almost all sections of the society (Bucher, 1998; Kray et al. 2002, Carr & Steele 2010), but even more so in the career paths of women (McIntyre et al. 2005; Quimby & DeSantis, 2006) and various other under-represented groups (Zirkel, 2002; Rivera, Blumberg, Chen, Ponterotto, & Flores, 2007; Riegle-Crumb, Moore &

Ramos-Wada, 2011). There is often a reference to in-group individuals, who may act as role models, who play an important role in allaying the negative consequences of stereotype threats and promoting a sense of belonging among people who experience stereotype threat (Dasgupta, 2011). This phenomenon has been observed in various studies that saw an improvement in female student performance and engagement in courses taught by female instructors (Stout, Dasgupta, Hunsinger, & McManus, 2011; Young, Rudman, Buettner, & McLean, 2013). Furthermore, there is a predilection to choose role models who tend to be successful (Lockwood & Kunda, 1997; Marx & Roman, 2002; Marx, Stapel, & Muller, 2005; McIntyre, Lord, Gresky, Ten Eyck, Frye, & Bond, 2005; McIntyre, R. et al, 2011). Lockwood and Kunda (1999) conducted a subsequent study that showed that role models can have a positive or negative effect depending on how the role aspirants perceived them to be competent or not. Competency can be defined as a role model having advanced in their career as a result of their own abilities, these role models would have a better chance at mitigating stereotype threat as opposed to role models who are perceived to have some situational advantages that could have caused their advancement (McIntyre, R. et al, 2011). Finally, role models are considered to be an effective intervention for stereotype threats if they are recognized as individuals who themselves overcame stereotypes to achieve success, thereby establishing that stereotypes are not true (Marx et al., 2005; McIntyre et al., 2003; Shapiro, J. R., Williams, A. M., & Hambarchyan, M., 2013).

In conclusion, there are three primary factors that increase the effectiveness of a role model for reducing stereotype threat: 1) the perception of the role model as competent (Marx, Stapel, & Muller, 2005), 2) shared common attributes such as gender and race—since they are then seen as an in-group member that has overcome stereotypes (Lockwood, 2006; Marx & Roman, 2002; Marx & Goff, 2005; Cheryan et al., 2011; Stout, Dasgupta, Hunsinger, & McManus, 2011; Young, Rudman, Buettner, & McLean, 2013), and 3) the role model having achieved success (Buunk et al., 2007; Marx, Ko, & Friedman, 2009).

Faculty Career Development

The earliest faculty development programs had a sole purpose of preparing faculty for teaching, but with the evolution of roles of faculty as a researcher and an administrator led to the expansion of faculty development programs across institutions (Hitchcock et al. 1993; Wilkerson & Irby 1998; Steinert 2000, 2005; Steinert et al. 2003; Harris et al. 2007). An accurate definition of faculty development programs was put forward by Sheets and Schwenk (1990), they defined it as "any planned activity to improve an individual's knowledge and skills in areas considered essential to the performance of faculty member in a department or a residency program (e.g., teaching skills, administrative skills, research skills, clinical skills)".

Faculty development has been an essential part of higher education for decades. However, a number of factors have changed the outlook of higher education in the twenty first century, creating a need for faculty members to constantly improve their skills to address these transitions. Gappa, Austin, and Trice (2007) consolidated a list of five such factors and the implications they could have on faculty, (1) Fiscal constraints (there is an increased expectation from faculty to acquire funding through grants and revenue producing programs as institutions deal with increasing expenses), (2) Increased student diversity (as higher education is more accessible to students from diverse groups, there is a need for faculty members to cater to the diverse learning needs), (3) Technology challenges (the increase in accessibility through technology paves a way for online and hybrid learning programs that demand more time from the faculty's side blurring the distinction between professional and personal time), (4) Interdisciplinary research (due to rise in demand for interdisciplinary programs in higher education institutions, faculty members have to work on collaborating with peers from different programs to develop curriculum and conduct research), and (5) Change in faculty characteristics (the influx of new age faculty members tends to bring a new perspective within an institution that existing faculty members have to adapt to). As a result of these factors, faculty members have new roles and responsibilities to prepare for. One way to aid faculty members in navigating through these new challenges is by promoting effective faculty development programs.

Steinert (2000) explains how faculty training and development has a critical importance in promoting innovation within the academic community but the concept of role modelling, which can be a powerful tool in this context, has been undervalued in the discussions of faculty

development. Bandura (1969) posits that as modelling is an essential aspect of human behavior, hence, skills among faculty could be boosted by observing what is perceived to be good educational practices. Simpson et al. (2006) studied 'risk-taking role models', whose personality and behavior could advance faculty development through sharing of success stories and challenges in their educational career and found that faculty motivation was enhanced through such role models.

The faculty development programs employed currently could use a revamp by using novel technology along with the inclusion of the context of role models. This combination would provide a way for faculty members to have a framework that provides them with personal experiences of peers who navigated through some of the same obstacles as they do by a novel means. This paves the way for the creation of a digital narrative tool that will catalyze the conversation regarding the process of identifying role models by providing an adequate variety of role models with a range of characteristics that were isolated in the existing role aspirants. Such research will have the potential to develop useful interventions for academic faculty, such as finding ways for those faculty to learn about inspirational role models and their stories to help them overcome their own challenges and barriers.

Identity Development

Erikson (1950, 1968) theory of identity has been a powerful tool in understanding the personality development from adolescence to adulthood. He defines identity as "the wholeness to be achieved" at a stage in life. One experiences this wholeness when there is a continuous progress from life during childhood to the culmination at a future anticipated stature. This is a process of how someone conceives themselves to be and how they perceive others to see them. Erikson (1968) defines identity as a "sum of all successive identifications of those earlier years when the child wanted to be". Marcia (1966) operationalized Erikson's (1950) theory of identity into four identity statuses, (1) identity achievement (commitments achieved after going through a crisis), (2) moratorium (in a state of crisis, commitments still vague), (3) foreclosure (never experienced crisis but has strong commitments or goals), and (4) identity diffusion (no commitments or goals, might have gone through a crisis). These identity statuses are based on two primary factors – crisis and commitment. Commitments form a send of identity for an

individual, they are nothing but goals that an individual wants to achieve. They are often linked to social significance and inherently increase the sense of identity in an individual (Bosma, 1995). A common term used often in interpersonal theory (Benjamin, 1974; Henry et al., 1990) in relation to identity development is 'self-concept'. There have been a number of definitions put forward for self-concept, self-concept was viewed as a "hierarchical organization" of an individual's identities by some (Stryker, 1968; McCall & Simmons, 1978; Heiss, 1968), Rosenberg (1979) defined it as "the totality of an individual's thoughts and feelings having reference to himself as an object". Turner (1968) provides a more specific definition, he states that "Typically my self-conception is a vague but vitally felt idea of what I am like in my best moments, of what I am striving toward and have some encouragement to believe I can achieve, or of what I can do when the situation supplies incentives for unqualified effort". The simplest definition for the term was put forward by Gevcas (1982) who suggests that self-concept is the concept an individual has of themself.

There is research drawing a link between identity development and existence of role models. Erikson (1950) claimed that it is important for young people to shed their childhood notions and open themselves to new idols and ideals who might portray aspects that could lead to a more stable self-concept. Similarly, there has been other significant research showing the concept of role models holding an important place in the development of self-concept (Super, 1957; Kagan, 1958; Kohlberg, 1963). Recent empirical research deals with the explicit process of identification of role models in organizations and their relation to self-concept and identity development. One groundbreaking empirical study by Bucher and Stelling (1977) in a medical school showed that while student's perception of their role models was essential to their academic performance and socialization, many students did not see their role models as "complete", there was a selection and rejection of attributes to emulate. Bucher and Stelling's (1977) approach emphasized the vision to create an "ideal self" which embodied the selected attributes from the incomplete role models. Other studies on organizations role models (Nicholson, 1984; Hill, 1992; Ibarra, 1999) discovered that role model strategies were essential to making a transition to managerial roles. Ibarra (1999) claimed that aspiring managers identified and adapted role model's whose skills, traits, and style match their own ways of operating, in doing so, they created "possible selves". Possible selves are part of the self-concept that show "what we could become, what we would like to become, and what we are afraid of

becoming" (Markus & Nurius, 1986; Cross & Markus, 1991). Ibarra (1999) concludes the study by indicating the importance of role models to the formation of possible selves, which in turn plays an important role in career development and personal growth (Gibson, 2004).

Role Models in Game Context

Contemporary studies examining the effect of role models on academic performance were conducted in the context of educational games (Kao & Harrell, 2018; Kao & Harrell, 2015a; Kao & Harrell, 2015b; Kao & Harrell, 2016). One study explored the various impacts of choosing scientist role models, athlete role models and plain geometric shapes as their player character. The results demonstrate the hierarchy of avatars in different subjective measures, where the scientist avatars were perceived as better than the athlete avatars, while the plain shapes placed third (Kao & Harrel, 2015a). The main takeaway from this study is that presenting role models as avatars might improve the game experience when compared to existing characters. Another study examined the interactions of participants with role model avatars within a game called *Mazzy* to better understand the impacts on performance and engagement (Kao & Harrell, 2016a). Mazzy was developed for a previous study by the same authors to understand the impact of educational games on computational literacy (Kao & Harrell, 2015c). The results conclude that the female participants showed enhanced engagement when they choose scientist avatars of the same gender. These results corroborate earlier studies that posit that role models increase the level of engagement in the STEM field (Marx & Roman, 2002) but take it a step further to prove that the enhanced engagement not only limited to the physical world but also in the virtual domain (Kao & Harrell, 2016).

Summary

Generalizing the review of literature so far, the study proposed is significant and valid. In the next section, the aim is to put earlier research into the context of faculty role models and apply some of the findings regarding the role model dimensions and comparison factors to provide an overview of role models for faculty in academia.

CHAPTER 3. METHODOLOGY

Qualitative research provides avenues for studying phenomena observed in the sociocultural world (Laake & Benestad, 2015). A 'good' qualitative research study hence utilizes rigorous and systematic methods to answer questions concerning an individual's experience (Seers, 2012). The intent of any qualitative research study is to explore a specific phenomenon in depth to develop further knowledge (Thomas & Magilvy, 2011). Green and Thorogood (2004) suggest that qualitative research can "reach the parts that other methods cannot", especially in the case of studies that try to find a connection between processes and outcomes (Shaw, 2003). Braun and Clarke (2013) suggest the qualitative research "records the messiness of real life, puts an organizing framework around it and interprets it". This goes on to show that when a study aims to go beyond just the numbers and explore the deeper meanings of some aspect of life, then qualitative research is a suitable approach. The intention of a qualitative research study is to provide a "close-up view, a deeper and richer understanding within a specific context" (Thomas & Magilvy, 2011). Qualitative research tends to generate an extensive amount of non-standard data, like text or images making data analysis a daunting task (Thorne, 2000; Seers, 2012). The researcher has the responsibility to interpret the data obtained and try to glean themes, theories, or any other information that could be vital to the overall analysis (Sandelowski, 1995). In recent times, the work of categorizing the data has been easier thanks to novel software that can be used to attach appropriate labels to text and to organize these code segments (Tesch, 2013). However, the onus lies on the researcher to understand what the data *means*. The most common steps involved in any research study are data collection, data preparation, analysis, and interpretation. These steps occur sequentially in traditional quantitative research studies but can occur concurrently or even overlap within a qualitative study (Sandelowski, 1995). The selection of a fitting strategy for data collection, preparation, and analysis is essential to build a sound analytical structure that can be used to frame the interpretation.

Qualitative research is often categorized into five groups, (1) Grounded theory (an iterative method to develop theory grounded in data), (2) Phenomenology (a study of feelings and experiences of participants), (3) Ethnography (a study of cultural or social groups through observation over an extended period of time), (4) Narrative Analysis (deriving a narrative by

analyzing communications), and (5) Case Study Analysis (analysis of data gathered through observations and interviews where a sample is obtained through purposive sampling) (Chapman, Hadfield, & Chapman, 2015).

Grounded Theory

Grounded theory has become popular due its focus on issues that participants face and how they tackle them, along with the structured process for data analysis. Hence, grounded theory is a strategy that can be adapted to a qualitative research study and to form a sturdy fundamental structure for interpretation of the results. Grounded theory is a "comparative, iterative, and interactive method" (Smith, 2003) which can be used to achieve a different perspective of the empirical process. Turner (1983) states that grounded theory "offers a way of attending to qualitative material to develop systematic theories about the phenomenon being observed". This theory was first put forward by Glaser and Strauss (1967) while referring to an approach that led them to "discover theory from data" rather than adopting traditional quantitative testing. Grounded theory soon gained traction after the initial introduction among qualitative as well as quantitative studies over the years (Trimble et al., 1972; Reeves & Turner, 1972; Riley & Sermsri, 1974; Conrad, 1978; Turner, 1978; Ogier, 1979; Johnson, 1981; Crooks, 2001). The uniqueness of grounded theory does not lie in the mode of investigation but only in the methods used to analyze the data. Turner (1983) posits that grounded theory works towards tackling certain cognitive issues concerning qualitative data analysis. A number of researchers, including Glaser and Strauss themselves (Glaser, 1978, 1992; Strauss, 1987; Strauss & Corbin, 1994, 1998), tried to evolve the process of grounded theory research. Some researchers claim that grounded theory research needs to follow all practices detailed in the methodology (Stern, 1994; Wilson & Hutchinson, 1996) while others argue that grounded theory will evolve over time (Glaser, 1999; Strauss & Corbin, 1994). There are some researchers who maintain that different components of grounded theory can be selectively implemented in qualitative research (Chamberlain, 1999). It is clear from the aforementioned claims that there are a number of different implementations and adaptations of grounded theory in the qualitative research process. One popular account on a simplistic grounded theory approach was provided by Turner (1983), he explains how the 'grounded' concepts that emerge from the data are then used to study the theoretical understandings of the area. Although it is not necessary to subject these concepts to

statistical testing, quantitative methods could be employed to explain the range of variation in a field. Turner also mentions certain cases where grounded theory research might not be effective, large scale features such as industrial trends or demographic features of organizations cannot be analyzed based on grounded theory, but grounded theory can be suitable for analysis in the case of participant observation, semi-structured interviews etc. Grounded theorists believe that this method has the capability to combine the depth of qualitative interpretation with the logical reasoning of the quantitative methods (Glaser & Strauss, 1967; Robrecht, 1995; Keddy, Sims, & Stern, 1996; Dey, 1999; Charmaz, 2000). Since the method is "grounded" in data, this procedure often develops a deeper engagement with the inner meanings of the data not just a straightforward descriptive account (Chamberlain, Camic, & Yardley, 2003). Although there are a multitude of mutations of grounded theory research, the fundamental steps involved for the generation of theory remain the same. Pidgeon and Henwood (2004) put forward a set of steps involved from the initial coding to the generation of theory,

1. Open coding of data to develop schemes to gather details and variations of the observations.
2. Theoretical sampling
3. Comparing data instances constantly (method of constant comparison)
4. Documenting the findings to further understand the emerging concepts and connections to existing theory.
5. Reaching a point of 'saturation' after which no new coding schemes emerge.
6. Selection of core categories for deeper analysis.
7. Taking the descriptive categories and molding them into a conceptual model.

Some of the steps are common to other qualitative research methods as well, for example, content or narrative analysis also requires the classification of written or oral data into distinct categories based on their meaning (Moretti et al., 2011). However, there is a distinction in some of the other steps involved in the process. Walker and Myrick (2006) explain how grounded theory can be differentiated from other existing qualitative research methods by its requirement to generate theory along with the method. Delving deeper, at the crux of grounded theory is the distinct data analysis process. Glaser and Strauss (1967) developed grounded theory to include two different data analysis methods. In the first method, the researcher codes the data and analyzes the codes obtained to support a given proposition. In the second method, the researcher

simply examines the data for categories and keeps track of the theories that are developed. Glaser and Strauss (1967) combined both these methods to bring a hybrid approach where the coding of data from the first method is conducted along with the theory development involved in the second. The initial coding process is based on "in vivo" coding, as termed by Glaser and Strauss (1967). In vivo codes are codes that are used by the respondents themselves in relation to a real-life phenomenon. Throughout the data collection process there are two ways in which the coding process can develop, first, being the repetition of similar issues by the respondents and second, the emergence of new codes and different issues. This forces the researcher to actively examine the existing set of codes to see if there is support for new codes or if the incoming data could be coded under an existing category, it is important to further analyze the obtained codes as the initial codes are mere summaries of the respondent's point of view. (Chamberlain, Camic, & Yardley, 2003). This leads to a perpetual comparison during the coding process which is called the *constant comparison method* (Glaser,1965). He further broke down the constant comparison method into four stages, (1) comparing incidents relevant to each category (new incidents are compared to other incidents within a category), (2) integration of categories and properties (new incidents are compared to properties of a category rather than other incidents), (3) delimitation of theory (delimitations of text and terminology to put a possible end to the comparison process), and (4) Generating a theory (express the content behind the categories).

Thematic Analysis

Thematic analysis is a strategy that can be applied to analyze qualitative data which involves the examination of data to identify, analyze, and document the recurring themes or patterns (Braun & Clarke, 2006). A characteristic feature of thematic analysis is its wide range of applicability within a number of qualitative frameworks. Some researchers attribute thematic analysis to be suitable for phenomenology research (Joffe & Yardley, 2003) while others conclude that thematic analysis is suitable for the realm of ethnography (Aronson, 1995). However, Braun and Clarke (2006) maintain that thematic analysis should be viewed as a stand-alone method which is a foundational method within a qualitative framework than a separate methodology by itself. Therefore, it has been acceptable to use thematic analysis within the realms of grounded theory (Watling & Lingard, 2012) and narrative analysis (Taylor et al., 2012). There was a time when thematic analysis was considered as an extension of content

analysis (Smith, 2003). Content analysis generally involves generating categories and determining the frequency of the occurrence of a certain theme within the data (Joffe, Yardley, & Marks, 2004). They argue that while thematic analysis does have some overlapping features with content analysis, the former is a more interpretive technique that aims to understand the underlying meaning of themes rather than just the frequency. Further, they explain how the concept of 'themes' is different in both these approaches. In thematic analysis, the categories for the themes are established with inductive coding or deductive coding. A deductive coding approach is based on existing theoretical ideas that a researcher can reaffirm, extend, or refute (Boyatzis, 1998). While a researcher uses raw data to conduct inductive coding which leads to new insights within a field of research (Joffe, Yardley, & Marks, 2004).

As in the case of many qualitative methods and strategies, there have been different approaches to conducting thematic analysis (Aronson, 1995; Boyatzis, 1998; Attride-Stirling, 2001; Joffe & Yardley, 2003). By far, the most popular one within qualitative analysis is the method proposed by Braun and Clarke (2006). In this version, the authors explain how the process of thematic analysis is recursive rather than linear, that is, the researcher has to revisit earlier steps every time there is new data or novel themes (Braun & Clarke, 2006). The steps outlined are as follow, (1) Familiarizing with the data (repeated reading of data and searching for patterns), (2) Generation of initial codes (this step involves generation of initial codes based on the patterns obtained from the previous step), (3) Searching for themes (compiling the extensive list of codes into broader themes), (4) Reviewing themes (going through the themes and evaluating which themes can be combined or segregated or even removed based on supporting data), (5) Defining the themes (refining specific themes to generate a narrative or story from the analysis), and (6) Generating a report (adding compelling examples and extracts to support the final analysis and generating a scholarly report).

Thematic analysis can be a relatively uncomplicated method to apply for qualitative analysis as there is a significant amount of literature describing and steps involved (King, 2004; Braun & Clarke, 2006; Nowell et al., 2017). It is a dynamic method that aids researchers to "summarize, highlight key features of, and interpret a wide range of data sets" (Kiger & Varpio, 2020). Further, it is a flexible method with respect to: (a) the research questions it can answer, (b) the different types of data obtained, (c) the amount of data to be analyzed, (d) the choice of

the qualitative framework, and (e) the possibility of analyzing data through inductive or deductive means (Clarke and Braun, 2013).

Research Approach

Figure 1 is a flow chart depicting the research approach adopted for the study. The literature review is followed by the development of faculty survey. The literature review and the faculty survey were used to frame the faculty role model questionnaire. Following the data collection and analysis a detailed report of the findings is generated.

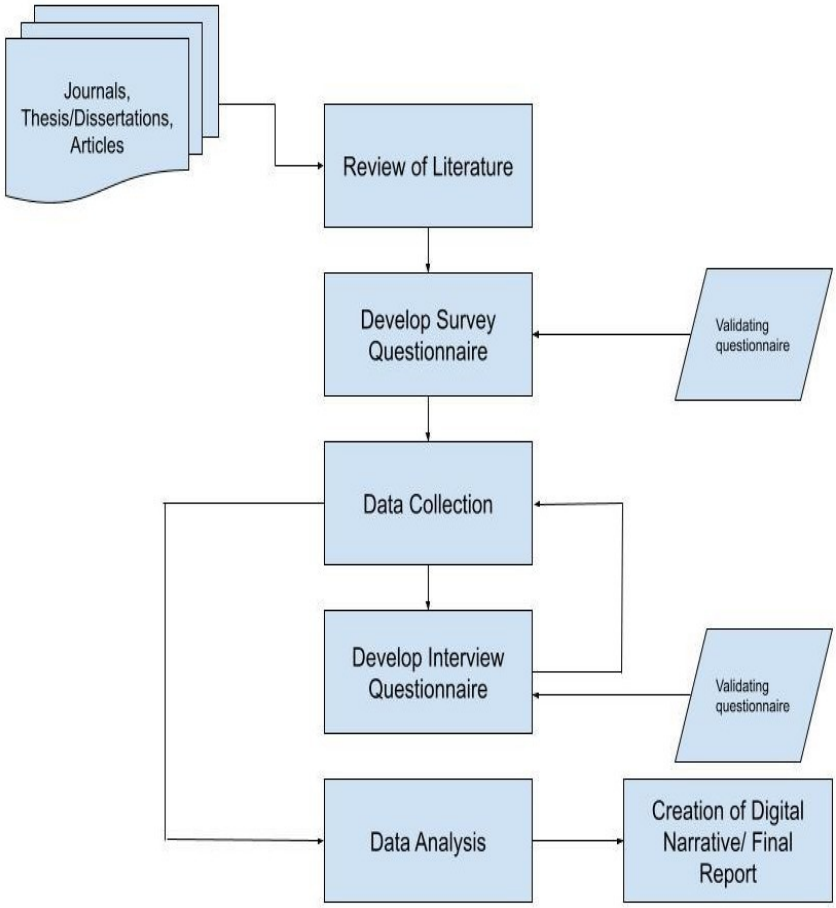

Figure 1: Research Approach Flow Chart

Population, Sample, and Sampling

The scope of the study is to determine the positive attributes that role models possess that influencethe faculty role aspirants who choose them. The population for this study contains

faculty at universities or other institutions of higher education. There are no restrictions on their areas of interest or other factors related to the courses that, they teach so the common trait among the participants is their profession.

The sample sizes used for qualitative research are often not justified (Marshall et al, 2013), despite researchers looking for ways to justify the sample sizes chosen (Dworkin, 2012). Thereason for this ambiguity could be that sample size is entirely dependent on the scientific paradigmunder which the research is being conducted (Boddy, 2016). Marshall and colleagues (2013) state that, for grounded theory, a sample size of 20 is considered small while a sample size of 40 is considered large. They recommend a sample size of 15-30 for interviews or surveys. Since there are two surveys within the study, and the participants of the second survey are dependent on the participantsof the first survey, a sample size of 40-50 is appropriate to accommodate expected participant attrition between surveys.

As there are specific requirements during the selection of participants, the type of sampling employed is purposeful or selective sampling. The requirements criterion being: (a) must be 18 years or older and (b) must be a faculty member at a university or institution of higher education. The participants will be assessed before they are sent the survey link to ensure their credentials are valid.

Survey Instrument

Creation of Faculty Survey

The faculty survey has 26 questions aimed at understanding some factors about the role model-role aspirant relationship pertaining to faculty members. The first question (see Appendix A: Question 1) in the survey is to gain insights into the role models of faculty members during different stages of their life informed by the findings of Gibson (2004). The split of the age was based on the age group classification by the World Health Organization where ‘Child’ is categorized as some between 0-9 years, ‘Adolescent’ between 10-18, ‘Young Adult’ between 19-26, ‘Adult’ between 27-49, ‘Middle Aged’ between 50-64, and ‘Senior Citizen’ is categorized as 65+ years. There was an additional column ‘Entire Lifespan’ for role models that have existed throughout their life. Question 2 (see Appendix A: Question 2) asked participants to list

important character traits that a role model should possess. This free response question was developed by the researcher to understand the personality traits or any other skills that were sought after in a role model informed by the findings of Gibson (2003) and Katz & Kahn (1978) regarding attributes in a role model related to role expectations and development of self-concept. The third question (see Appendix A: Question 3) in the survey asked the respondents to describe their current occupation. This question was adapted from a research study by Zeldin and Pajares (2000) which was validated by experts in that specific field of research. They believed that asking a question regarding the occupation of the participants would establish a foundation to ground the subsequent responses that are specific to that career. Question 4 (see Appendix A: Question 4) was another free response question about the perceived influence of a role model on the participant's career choice developed by the researcher. It has been well documented in earlier research that role models have an effect on academic performance (Lockwood & Kunda, 1997; Marx & Roman, 2002; Marx & Goff, 2005) and career development (Bucher, 1998; Quimby& DeSantis, 2006; Riegle-Crumb, Moore, & Ramos-Wada, 2011), the participants were asked this question to assess the same concept but by making it a free response question the aim was to press the participants to express their take on this more elaborately.

Question 5 (see Appendix A: Question 5) and 6 (see Appendix A: Question 6) were designed to be LIKERT questions where two statements were made with respect to the influence role models have on the society and the influence that role models had on their personal lives. The respondents rated the statements on a seven-point scale ranging from strongly disagree (1) to strongly agree (7). These questions were developed by the researcher to explore if the participant actually viewed the constructs of role models to be a positive influence. The role model relationship is heavily influenced by the perception of the role model as competent and successful by the role aspirant (Lockwood & Kunda, 1997; Marx & Roman, 2002; Marx, Stapel, & Muller, 2005; McIntyre, Lord, Gresky, Ten Eyck, Frye, & Bond, 2005; McIntyre, R. et al, 2011), the responses from this question would help support the perception of a role model as a significant positive influence in a role aspirant's life or to the society.

Question 7 (see Appendix A: Question 7) was developed by the researcher based on the study by Gilbert (1985) regarding same-gender role model relationships between students and faculty which was used to rate the importance of the role-model relationship. For the current study, this question is used to measure the importance of role models as perceived by faculty.

Question 8 (see Appendix A: Question 8) asks the participant to list out one role model who was most influential to their career. This question was developed by the researcher to generate a list of role models that can be contacted for participation in the consequent survey on faculty role models (see Appendix B). Question 9 (see Appendix A: Question 9) is based on the Ten-Item Personality Inventory (TIPI) (Gosling, Rentfrow, & Swann, 2003), which is used to assess what the faculty perceive as similar traits among their role models and themselves. The creators of the scale performed three studies to test the convergent and discriminant validity, test-retest reliability and to examine the patterns of external correlates with 1813 undergraduate students. Within this study, this scale is used in the self-assessment of a personality trait with respect to its similarity with an individual's role model based on some earlier research stating role aspirants are drawn to individuals who possess traits and attributes that they think are important for personal and professional growth (Bandura 1977; Gilbert, 1985; Bandura 1986).

The researcher developed question 10 (see Appendix A: Question 10) to assess the similarity factors pertaining to gender, race, or age between the respondent and their role models. The participant is free to choose more than one options as there could be an overlap of these factors all of which could have influenced the decision to choose someone as a role model. Study on the comparison theory in the case of role models has provided ample evidence regarding the prominence of gender, race, and age in the identification process (Goethals & Darley, 1977; Wood, 1989; Lockwood, 2006; Marx & Roman, 2002; Marx & Goff, 2005; Cheryan et al., 2011; Stout, Dasgupta, Hunsinger, & McManus, 2011; Young, Rudman, Buettner, & McLean, 2013). The inclusion of this question was to assess these factors more closely within the realm of faculty role models. In question 11 (see Appendix A: Question 11), the participant was required to state their position on having role models while growing up. The question was developed by the researcher and framed as a LIKERT question with responses ranging from strongly disagree (1) to strongly agree (7). This question is based on the conclusion that there is a tangible link between the existences of role models and the development of self-concept (Super, 1957; Kagan, 1958; Kohlberg, 1963) especially during childhood (Erikson, 1950). This question was included as a precursor to question 12 (see Appendix A: Question 12), created by the researcher to assess the participants' opinion on the change in role models over time. Question 12 was also framed to be a LIKERT question with responses based on a seven-point scale. These questions were framed in relation to the findings of Gibson (2004) about the different requirements from role

models in different stages of an individual's life. Question 13 (see Appendix A: Question 13) was created by the researcher to assess the influence a role model had on the respondent's career based on the findings of Bucher (1998), Quimby& DeSantis (2006), and Riegle-Crumb, Moore, & Ramos-Wada (2011) regarding the effect of role models on career development. The participants were asked to choose from a seven-point scale ranging from strongly disagree (1) to strongly agree (7). Although, question 3 (see Appendix A: Question 3) deals with a similar content, this question deals with not just the role model influence but also the emulation of a role model by a role aspirant.

In question 14 (see Appendix A: Question 14), participants were given a list of choices with options 'Mother', 'Father', 'Peers/Friends', 'Other family members', 'Teachers/Coaches', 'Famous actor/musician', 'Famous leader', 'Successful professional in my field' and asked to choose all pertaining entities that served as role models to them in their childhood. Nauta and Kokaly (2001) performed a study regarding the most influential role models in a student's academic and vocational decisions. The study had 116 students and the participants themselves listed certain people in their life as most influential to their career. This question was developed by the researcher to include the types of role models outlined in the study by Nauta and Kokaly (2001). This question offers an understanding of the different types of role models available to the participants in their childhood.

Question 15 (see Appendix A: Question 15) asked the participant their job title, this question was directly taken from a survey conducted by Zeldin & Pajares (2000) and was validated by experts in the field, question 16 (see Appendix A: Question 16) asked them the academic department they work in, while question 17 (see Appendix A: Question 17) was regarding the number of years of experience in that particular position. The aforementioned questions were all developed by the researcher. These questions were essentially to gather data regarding the stage of the career the participant is currently in, informed by the findings of Gibson (2004) regarding the changing role models in early, mid, and late stages of the career. The next 3 questions deal with obtaining demographic data of the participant. The participants are asked questions regarding their gender (see Appendix A: Question 18), age (see Appendix A: Question 19), and ethnicity (see Appendix A: Question 20) based on the three factors of similarity between role aspirants and role models as suggested by Kulik and Ambrose (1992), Lockwood (2006), Marx & Roman (2002), and Marx & Goff (2005).

The final six questions were all created by the researcher to gain information regarding the socio-economic status of the participants childhood. Question 21 (see Appendix A: Question 21) and 22 (see Appendix A: Question 22) deal with the highest education level and primary occupation of the Father of the participant while question 23 (see Appendix A: Question 23) and 24 (see Appendix A: Question 24) deal with the highest education level and primary occupation of the Mother of the participant. Following this are 2 questions (see Appendix A: Question 25, Question 26) regarding the socio-economic standing of the participant during their childhood within the US and within their own community. There is often stigma attached to poor socio-economic status of an individual at any point of their life. It was necessary to frame the question avoiding negative connotations. Hence, the question utilized a ladder to convey the socio-economic status with rungs of the ladder representing levels in increasing order from 1 (low) to 10 (high). Both questions were adapted directly from the MacArthur Scale of Subjective Social Status created by Nancy Adler and others (2000) to assess an individual's perceived ranking relative to others in the prescribed group. The wording of the question was modified to measure the socio-economic status during the adolescent period (10-18 years). A study conducted by Operario, Adler, and Williams (2004) with 191 participants demonstrated an acceptable test-retest reliability score for the MacArthur SSS Scale (Spearman's rank order correlation = .62, $p<.01$). Studies show that there is a tangible link between the occupation of an individual and the economic standing within a community in their childhood (Hauser, 1994; Williams, Leppel, & Waldauer, 2001). This question was included to assess if socio-economic status has any influence on the number of potential role models an individual had in their childhood.

This study aims to represent how faculty members perceived their role models and how they recognized the influence on their career development as well as personal life. The faculty survey included a number of questions based on the findings from earlier literature which were pertinent to the area that was being researched. Additionally, 3 experts in the area of education and role models reviewed the survey and provided valuable feedback that helped improve the quality of the survey. The survey was reviewed two times by one of the experts and once by the other 2 experts before it was disseminated to the participants.

Creation of Faculty Role Model Survey

The questionnaire consists of 16 free-response questions that would provide a look into how their experiences culminated into them being perceived as role models.

Question 1 (see Appendix B: Question 1) was posed to comprehend what the participant considers "success" in their life as the perceived success of an individual is vital in the identification process of a role model (Lockwood and Kunda, 1997, Gibson, 2004), additionally, sharing anecdotes regarding the success could be enhance faculty motivation (Simpson et al, 2006). Question 2 (see Appendix B: Question 2) was included in the survey to understand how a role model categorizes challenges and what steps were taken, according to them, to overcome the challenge. A number of studies conclude that role aspirants often try to emulate the role model and sharing success stories and challenges could be a boost for career development (Simpson et al., 2006). Question 3 (see Appendix B: Question 3) deals with the motivation behind the role model's career and shed some light on their own role models and influences, this question is also based on the statements made by Simpson et al., (2006) regarding "risk-taking role models" and how they could promote faculty development. Question 4 (see Appendix B: Question 4) was developed to realize a link between the geographic region they grew up in and their career choice as noted in a previous study (Lafuente, Vaillant, & Rialp, 2007). In question 5 (see Appendix B: Question 5) the participant was asked about their thoughts on the link between the generation they grew up in and their career choice. This was another phenomenon studied in earlier research regarding the influence of generation on the career choice of an individual (Bush, Martin, & Bush, 2004; Bandura & McClelland, 1977). Question 6 (see Appendix B: Question 6) explores the participant's opinion on the influence of role models on a changing society, to get a different point of view regarding a role model's effect on society informed by the findings of Lockwood and Kunda, (1997) and Gibson (2004). With question 7 (see Appendix B: Question 7) the participant is asked to elaborate of how a role model could be changing the way society thinks, this question was developed based on the findings of Marx et al., (2005), McIntyre et al. (2003), Shapiro, J. R., Williams, A. M., & Hambarchyan, M. (2013), and Dasgupta (2011) about the effect of role models in allaying the negative connotations associated with stereotype threat. While question 8 (see Appendix B: Question 8) asks the participant to express their thoughts on how role models could influence women's career, informed by the findings of McIntyre et al. (2005) and Quimby & DeSantis (2006) who discuss the prevalence of stereotype threat among

women. Question 9 (see Appendix B: Question 9) was included in the survey to understand the participants perspective on the elements of identity, such as gender, age, race, etc., that could be important while choosing a role model informed by the findings of informed by the findings of Goethals & Darley (1977), Wood, (1989), Lockwood (2006), Marx & Roman (2002), Marx & Goff (2005), Cheryan et al. (2011), Stout, Dasgupta, Hunsinger, & McManus (2011), and Young, Rudman, Buettner, & McLean (2013). Question 10 (see Appendix B: Question 10) was added in the survey to understand if the participants change any aspects of their personality while catering to role aspirants from a different culture. Studies show that role models are an effective way to mitigate stereotype threat (Steele & Aronson, 1995; Drury et al. 2011; McIntyre et al. 2003, 2005; Shaffer et al. 2013), this question was developed by the researcher to gain an insight into the perspective of the role model when dealing with role aspirants from minority groups.

Cruess, Cruess, & Steinert (2008) found that a role model who knows that he/she is indeed a role model can impact how effective they can be. Question 11 (see Appendix B: Question 11) asks the participants if they were aware of the fact that they were role models, this question was designed to understand how the knowledge that one is a role model affects their behavior or personality. Question 12 (see Appendix B: Question 12) offers the participant a chance to briefly elaborate on why they believe others consider them a role model, informed by Cruess, Cruess, & Steinert (2008) regarding the awareness of being a role model. Question 13 (see Appendix B: Question 13) acts as a follow up to the previous question to find out if there are any specific attributes that they feel are important in the identification process, this question was developed by the researcher informed by the findings of Gibson (2003) and Katz & Kahn (1978). Question 14 (see Appendix B: Question 14) asks the participant to contemplate on how a career in academia, a profession that is most associated with role models, has influenced their position as a role model to others. This question was developed based on the findings of Tesser (1986) and Tesser & Campbell (1983) who suggest that domain relevance could be a factor that could influence the role model identification. Question 15 (see Appendix B: Question 15) presses the participant to expand on an experience that might have pushed them towards working on becoming a role model, this question was developed by the researcher informed by the findings of Simpson et al. (2006) regarding 'risk-taking role models' and how sharing of personal experiences can boost faculty motivation. Question 16 (see Appendix B: Question 16) was developed

by the researcher informed by the findings of Lockwood and Kunda (1997) and Gibson (2004) where the participant is asked to elaborate on who their own role models were and how they shaped their life.

These survey questions were developed following the guidelines provided by Morse et al. (2002). The process of verification through methodological coherence was employed to ensure that every question was grounded in prior research. Additionally, all the questions were developed by the researcher and reviewed by 3 experts in the field of role models and education. The survey was review one time before it was disseminated to the participants. After the feedback from the experts, certain double-barreled questions and negatively worded statements were avoided.

Survey Participants

Faculty Survey

Participant recruitment was initiated by searching for mailing lists of conferences. Two popular listspertaining to the HCI and Digital Games were chosen. Special Interest Group on Computer Human Interaction (SigCHI) is a community for research and education in the domain of human technologyand human-computer interaction, while Digital Games Research Association (DiGRA) is an international forum for games research. The general announcement mailing list of SigCHI (chi-Announcements@acm.org) and the discussion list of DiGRA (gamesnetwork@lists.tuni.fi), were used to disseminate the initial faculty survey. Due to low volume of participant responses otheravenues of recruitment were adopted.

A mailing list consisting of 500 university faculty was obtained and an email was sent out for recruiting willing participants who met the following criteria,

- Must be 18 or older.
- Must be a faculty member (tenure or non-tenure track) at a university.

There were 52 respondents for the survey who met the inclusion criteria. Following the successful completion of the survey, the participants were given a $10 Amazon gift cards after the survey response was recorded.

Faculty Role Model Survey

The participants for the second survey were the subset of role models that were identified from the initial faculty survey. A total of 16 role models were identified and an email was sent out asking them to participate in the survey. The survey produced eight respondents, and the participants were each given a $50 Amazon gift card following the completion of the questionnaire.

Data Storage

The data collection is observational data that is primarily obtained through surveys and interviews conducted online. It is imperative that the data be backed up and stored carefully as observational data is nearly impossible to recreate. The data from the surveys is backed up on a personal drive of the researcher in addition to being backed up on the Qualtrics database.

Data Analysis

The current study requires a deeper look into perceptions and feelings of the participants rather than just a descriptive approach, hence, the primary analysis will be qualitative. However, some aspects of the survey will be analyzed quantitatively to provide further support for the qualitative findings.

Turner (1983) argued that while grounded theory might not be effective for analysis of large-scale features, studies that deal with participant observation or interviews. In this study, there is no preconceived hypothesis to be tested rather there is a search for new perspectives that could provide a better insight into faculty role models. In this area of research, where open- ended qualitative data is analyzed, grounded theory is a suitable approach (Glaser & Strauss, 1967). Therefore, for this study, grounded theory was chosen as the methodology to obtain a conceptual overview on faculty role models and develop a theory based on the survey data. Seasoned researchers in grounded theory believe that it is equipped with the capabilities to combine the depth of qualitative research with the logical reasoning of quantitative methods (Glaser & Strauss, 1967; Robrecht, 1995; Keddy, Sims, & Stern, 1996; Dey, 1999; Charmaz, 2000).

While grounded theory is appropriate for generating codes and developing overall themes from the codes, thematic analysis can be used to further breakdown interview questions and free responses questions (Braun & Clarke, 2006; Pope & Mays, 1995). The method of thematic analysis is used as an extension to the grounded theory framework. Braun and Clark (2006) argue that as thematic analysis should be viewed as a stand-alone method that can be used within other qualitative frameworks. Furthermore, there has been significant literature on combining the method of thematic analysis with grounded theory to strengthen the quality of the data analysis (Ryan & Bernard, 2000; Watling & Lingard, 2012, Chapman, Hadfield & Chapman, 2015). Therefore, to enhance the quality of the results, grounded theory along with thematic analysis was used for the qualitative data analysis.

In this study, NVivo (QSR International Pty Ltd, 2008) was used to support the data analysis process. Research shows that using tools like QDA, Ethnograph, NVivo etc. can enhance the rigor of a qualitative research study (Leech & Onwuegbuzie, 2007) while saving time in the transcription process (Zamawe, 2015).

Coding

Coding through NVivo was done by two separate coders independently. Patton (1999) suggest the method of analyst triangulation would reduce potential bias from the data analysis process and provide means to check the validity and reliability of data. He concludes that "having two or more researchers independently analyze the same qualitative data set and then compare their findings provides an important check on selective perception and blind interpretive bias" (Patton,1999).

The following section explains how each of the six steps of thematic analysis, as described by Braun & Clark (2006), were adapted to the current study using the NVivo software.

- Familiarizing with the data: Once the data collection phase is complete, the next step isthe analysis. The first step in the thematic analysis process is getting to know the data. The responses and transcripts from both surveys were read by both the coders two times individually, so that perceptions are not swayed by each other's point of view.

- Generating codes: This step includes the creation of a codebook with all the initial codesusing the NVivo software. The data was split into different codes by both coders separately on their respective computers. The method of open coding (Goulding, 1999) was used to generate initial themes. The raw data from the questionnaires was broken down into broad themes without consideration of similar words or synonyms. Every new keyword that was found in the raw data was coded as a new node and was performed by both coders independently.
- Detecting themes: Using the initial codes, the data was grouped into broad clusters and categorized to identify a theme. This step included grouping the raw initial codes to reduce the number of codes based on synonyms and words that are closely related. This step was performed by both coders together. The codebooks created in step 2 were matched to assess the similarities (and differences) in the initial codes. Then both coders combined their codebooks, in case of similarities the codes were added directly to the codebook and in the case of differences, every code was included in the codebook only after both coders were fully convinced with the reasoning behind the addition. A discussion between both coders took place where both presented their viewpoints.
- Review of the themes: This step ensured that none of the data was missing from the resulting themes and the generated themes were both coherent and distinct. Both coders went through the data together to review the themes generated.
- Defining the themes: This step was essential to form a logical understanding of the themes and what they meant in the context of faculty role models.
- Generating a report: The final write-up is provided in the following section.

CHAPTER 4. RESULTS

In this chapter, results are presented based on the research questions that guided the study. The themes that emerged from the study are organized under individual research questions.

Research Question One

RQ1 was framed to provide a look into the type of role models that faculty members follow. Table 1 provides an overview of the type of role models participants mention in the survey. There are 6 main themes observed from the responses (1) Accomplished individuals from a different field as role models, (2) Supervisors as role models, (3) Peers as role models, (4) Parents or family as role models, (5) Religious figures as role models, and (6) Teachers or Coaches as role models.

Table 1: NVivo Codebook for Role Model Categories

Theme	Description
Role Models (RQ1)	
Accomplishedpeople from a different field as Role models	References to role models who are Celebrities, Athletes, Poets, Writers orother well-renowned people.
Boss or Manageras Role models	References to role models who are supervisors at the workplace.
Friends or Peers asRole models	References to role models who are Friends, Colleagues, Co-workers fromsame or different career tracks.
Parents or Familyas Role models	References to role models who are Parents, Siblings, Relatives or Significant others.
Religion or God asRole models	References to role models who arepresent in mythology or religious literature.
Teachers or Coaches as Rolemodels	References to role models who are Professors, Advisors, Program Directors,Mentors.

Accomplished Individuals as Role Models

It is known that an individual can be influenced by *distant* role models (Gibson, 2004) who do not have a direct relationship with the individual but still manage to have an impact on some aspects of their life. In this study, it was observed that participants mentioned celebrities or renowned members of the society as role models. In fact, there were several participants who listed a wide array of role models ranging from fictional characters (like Batman, Robin Hood, Counselor Troi from Star Trek), celebrities and sports personalities (like David Justice from Atlanta Braves, members of the band Korn, Madonna, Jon Bon Jovi), activists (like John Lewis, Angela Davis, Ruth Bader Ginsburg, Martin Luther king Jr.), and other accomplished individuals (like Bill Gates, Barak Obama). These distant role models were observed primarily during the earlier stages on the participants lives (Child, Adolescent). However, when asked about influential role models, around 7% (4 out of 52) mentioned distant individuals.

Supervisors as Role Models

The identification of superiors as role models is quite a common phenomenon within all sections of society which was observed in the current study as well. The theme of supervisors being role models was mentioned by many participants. There were instances where participants expressed how their 'first boss' or 'first supervisor' were essential in helping them pursue a certain goal or develop their career performance. This theme was mentioned by 11% (6 out of 52) of the participants when questioned about influential role models. One participant said,

> "My supervisor who retired was very supportive of my education by helping me to adjust my schedule so that I could attend classes during the day." (P45)

Here the participant mentions how their supervisor played a role in helping them pursue their education by offering a flexible schedule. Similarly, another participant shared how their boss instilled confidence in them and encouraged them to explore different avenues.

> "My first boss who helped me understand that I have great instincts and should follow those instincts." (P18)

Friends or Peers as Role Models

It was a design choice to combine friends and peers/colleagues under the same theme as informed by the dimension of role model *across/down* as observed by Gibson (2004) where an

individual chooses role models who are at the same level or below. Friends or peers as role models not that common among the participants in the study. There were very few references to particular influential individuals who were at the same level or lower in a similar career track, only 4% of the sample (2 out of 52) mentioned this category of role models. One participant who did mention a colleague as an influential role model voiced how they were a little further ahead in terms of career. They said,

> "My colleague at work who is slightly ahead of me in the tenure process." (P25)

Parents or Family as Role Models

The next theme addressed identification of parents, family members, and partners as role models. Parents as role models is the most common subtheme observed in this category when compared to partners and other family members. The identification of parents as role models was observed primarily during the early stages of an individual's life. About 17% of the participants (9 out of 52) acknowledged that parents and/or other family members were influential role models in their life. Another observation from the survey was that when sharing their perspective of parents as role models it is usually referring to influence over development during early stages of life providing a direction for education or personality development rather than career development. Some participants' quotes are examples of this phenomenon,

> "My parents encouraged me to continue in higher education." (P01)

> "My parents did teach me to have a sensibility to the discipline that I ultimately chose." (P09)

There were several other participants who mentioned other family members like brothers, sisters, uncles and other adult family members as role models. There was another interesting concept of partners serving as role models. A few participants mention how their partners were very influential in their respective lives. One participant said,

> "I wake up every day wanting to live up to the example that my partner sets for me. He is the embodiment of love and care. As for his influence on my career - as female faculty with a child, it would be difficult for me to have a successful and happy live without him taking point on the home front." (P15)

Here the participant mentions how their partner acted as a role model in their personal life which in turn helped them in their professional life. Another participant mentions how their partner is someone they wish to emulate,

> "Personally, at this point I'd say my wife. She models and lives out the values that I aspire to." (P31)

Religious Figures or God as Role Models

The current theme was very rare amongst the participants. Only 1 participant mentioned a religious figure as an influential role model. They said,

> "Oyá-Iansã is the iorubá goddess of winds and storms. She is considered a symbol of non-acceptance of toxic and harmful status quo and battles for change. That's what I aim at my work." (P05)

Emulating a mythological figure could be more along the lines of personal development rather than career development.

Teachers or Coaches as Role Models

This theme was the most frequently mentioned one among the participants in this study. 50% of the participants (26 out of 52) refer to a faculty member that they worked with as an influential role model in their life. Participants credit their current career or the motivation to pursue their current career to their college professors, advisors, or teachers in their life. One participant shared how their teacher motivated them to choose their career at a really early age. They said,

> "My early music teachers made it easy to want to step into a career in music." (P51)

> Another participant shared how their advisors had a vital role in their career choice,

> "My undergraduate advisor and teacher installed in me the passion of my current profession." (P42)

One participant even explained how they changed majors after identifying role models in their college,

> "My undergraduate thesis director definitely had an impact in my decision to pursue a career in Literature. When I was accepted at the university, I was originally going to study Psychology. After a couple of classes with my undergraduate thesis director, I switched majors." (P39)

Some participants mentioned how their role models influenced their career in research and academia. One said,

> "My undergraduate faculty advisor definitely had an impact on my career choice. I only decided to do a PhD after sitting in his graduate level course and learning about his research area." (P34)

Another said,

> "IMMENSE! I would not be where I am right now. They shaped me to go to medical school, to pursue research, to become an educator, and to be a mentor to others." (P32)

The concept of role models being important for career development is well documented, but it was observed that role models of faculty members have a great influence on motivating them to pursue a career in academia in the first place, sometimes even in the same field as their role models.

Research Question Two

RQ2 was framed to provide a look into the attributes that faculty members look for in their role models. Table 2 provides an overview of the common themes of attributes observed in the responses to the survey. The themes observed are (1) Attributes referring to Integrity, (2) Attributes referring to Compassion, (3) Attributes referring to Intelligence, (4) Attributes referring to Communication Skills, and (5) Attributes referring to Motivation.

The word cloud illustrated in Figure 6 below is a depiction of the most important themes, which have surfaced from the analysis of the surveys. The world cloud highlights the most commonly occurring keywords from the survey questions that were specific to finding attributes or traits that role aspirators might look for in role models and qualities that the role models themselves think they possess. Each word's size and closeness to the center in the cloud denotes its relative prominence for the theme. Word clouds are a powerful way to initially set up the important concepts within qualitative data obtained from qualitative assessments (DePaolo & Wilkinson, 2014). As one of the study's objectives was to understand attributes of role models as perceived by role aspirators and role models themselves, the resulting word cloud helped when comparing and illustrating the commonly recurring themes.

Figure 2: Attribute Word Cloud for Faculty Survey

Table 2: NVivo Codebook for Role Model Attributes

Theme	Description
Role Models Attributes (RQ2)	
Attributes referring to Integrity	Reference to attributes that relate to righteousness of character
Attributes referring to Compassion	Reference to attributes of compassion or kindness
Attributes referring to Intelligence	Reference to attributes that relate to knowledge or wisdom
Attributes referring to Communication Skills	Reference to attributes regarding social skills
Attributes referring to Motivation	References to attributes regarding motivation or inspiration

Integrity

The theme of integrity was quite frequently mentioned by the participants. There were several other synonyms like ‘honesty’, ‘rectitude’, ‘loyalty’, ‘fortitude’, ‘transparency’ that were mentioned by many of the respondents. Along with themes of integrity, the attributes related to a healthy work ethic were also considered to be a part of this theme as there is a lot of overlap

between the attributes for a positive character and a good work ethic. 60% of the respondents (32 out of 52) mentioned integrity or a related synonym while sharing their thoughts on attributes of role models. This could mean that an upright character is often important in a role model. One participant said,

> "[A role model should have] Strength of character to do the right thing even if it is not the popular thing to do" (P34)

The participant mentions how strength of character is something that is sought after in a role model. Another participant mentions how they perceive honesty in a role model, they said,

> "[They should] not just tell me what I want to hear, but what I need to hear" (P19)

While another participant elaborated on integrity as follows,

> "Strength of character (not breaking under pressure)" (P14)

Compassion

Compassion was another commonly observed theme while participants discussed attributes sought after in role model. Participants used synonyms like 'empathy', 'generosity', 'caring', 'kind-hearted', 'kindness' that are associated with the general theme of compassion. 40% of the participants (21 out of 52) mentioned compassion or a synonym of it in the survey. While professional traits are desired in a role model, the frequency of this theme supports the fact that certain behavioral traits that might not be directly influence career development are also important to a role aspirant. A participant explained how they perceive compassion from the point of view of the role aspirant, they said,

> "[They should be] committed to helping others grow" (P25)

Intelligence

Intelligence is the next theme frequently mentioned in the responses from the faculty members. Perceiving a role model as competent was necessary in identifying a role model (Marx, Stapel, & Muller, 2005). Other synonyms used in relation to intelligence were 'wisdom', 'knowledge', 'talent', 'skilled'. Around 38% (20 out of 52) of the participants mentioned intelligence or related synonyms as attributes sought after in role models. Intellectual prowess was desired in a role model, this could be because of the impression that an accomplished role model is competent.

Communication Skills

The theme of communication skills was mentioned by 21% (11 out of 52) of the participant pool. This theme could be further split into two subthemes based on the direction of the communication. There was an emphasis on how the role model needs to be a good listener and also someone who provides good guidance. One participant mentions how "a desire to learn about others" (P08) is an essential quality they look for in a role model while another mentions "approachability" (P25) as an important attribute in a role model. Along with being competent in their respective field, a role aspirant expects a role model to provide effective guidance.

Motivation

This theme was discussed by 13% (7 out of 52) of the respondents in the study. Role model relationships are primarily based on being inspired by someone enough to emulate them. While some aspirants could be inspired by just the accomplishments of the role model, there are some specific elements that the participants feel motivated by in their role models. Some words and phrases used under this theme were 'inspiring', 'supporting advancement of others', 'drive to support others', 'putting others first'. This theme also encompasses the theory of role model awareness, 2 participants mentioned how "willingness to guide" (P51) and "awareness of influence on others" (P04) would inspire them to choose someone as their role model. Overall, this theme deals with how an individual recognizes that a role model is willing to put in the effort in guiding others and that in turn creates a positive outlook for the role aspirant to identify them as a role model.

Participant Demographics

As mentioned earlier, there were 52 participants in the faculty survey, out of which 29 identified as male (55.77%), 21 identified as female (40.38%) and 2 identified as other (3.85%). The mean age of the participants is 47.06, with a standard deviation of 10.60. The survey had 45 (86.54%) participants who identified as 'White', three (5.77%) who identified as 'African American', two (3.85%) who identified as 'Chinese' and two (3.85%) who identified as 'Other'.

Similarities between Role Aspirators and Role Models

Role models are often chosen based on some select factors that they might have in common with therole aspirators as these role models are then seen as in group members (Lockwood, 2006; Marx & Roman, 2002). Table 3 shows the frequencies of the three similarity factors, 'gender', 'ethnicity', and 'age'. It was observed that about 76.9% (40 out of 52) of the participants said that race or ethnicity was a factor they had that was similar to their role model while 65.4% (34 out of 52) of the participants shared that gender was a similarity factor they had with their role model. Age was not very common similarity factor among role aspirants and role models in this study, as only 17.3% (9 out of 52) of the respondents mentioned that age was a factor of similarity between them and their role model. Table 4 shows the results from the cross tabulation of similarity factors with the sex of the respondent. It was observed that more female faculty members chose 'Ethnicity' to be a common factor with their role model rather than 'Gender'. While it is at a similar level for the male faculty members.

Table 3: Similarity Factors Frequencies

		Responses		
		N	Percent	Percent of Cases
Similarity Factors[a]	Gender	34	41.0%	65.4%
	Ethnicity	40	48.2%	76.9%
	Age	9	10.8%	17.3%
Total		83	100.0%	159.6%

a. Selected choice among Similarity Factors valued at 1

Table 4: Cross Tabulation of Sex and Similarity Factors

			Similarity Factor[a]			
			Gender	Ethnicity	Age	Total
Sex	Male		22 (75.8%)	21(72.4%)	4 (13.8%)	29
	Female		11 (52.3%)	17 (80.9%)	4 (19%)	21
	Other		1 (50%)	2 (100%)	1 (50%)	2
Total		Count	34	40	9	52

Percentages and totals are based on respondents.
a. Selected choice among Similarity Factors valued at 1

Some responses from the surveys show that a few participants have taken an identical stance on the matter of similarity factors between them and their role models. One participant from the faculty role model survey (see Appendix B) expressed the reason why they believe factors like gender and race could be influential in role model identification. They said,

"I think that gender, race, culture, and diversity are all influential. I'm not as convinced that age is. At a very simple level, we desperately need to increase the diversity (including gender, race, culture) of people entering the research venue. The reason for this is not only for inclusion of a wider community, but because diverse ideas will expand the content and increase the quality of our science." (P06)

Another participant shared how race could be vital factor in role models for faculty from diverse backgrounds, they said,

"I also think that people from traditionally marginalized communities can benefit more from looking up to role models as their path is often more difficult." (P01)

Role Model Influence

The vital influence of role models on an individual's personal and professional life has been reiterated through multiple studies in the literature (Gibson, 2003a; Javidan et al., 1995; Bucher, 1998; Quimby& DeSantis, 2006; Riegle-Crumb, Moore, & Ramos-Wada, 2011). The idea of modeling one's life after an individual is the essence of the role model selection process. Table 5 contains the descriptive statistics for the LIKERT questions.

Table 5: Descriptive Statistics for Questions 5, 6, and 13 from Faculty Survey (Appendix A)

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Role model influence on society	52	2	7	6.19	.951	.903
Role model influence on personal life	52	2	7	5.77	1.022	1.044
Role model influence on career	52	1	7	5.58	1.391	1.935

Influence on Career and Professional Development

While the mentoring process requires a direct relationship between the mentor and the mentee, this isnot the case for the role model relationship (Gibson, 2004). This often creates an issue when trying tospecify the connection between role models and role aspirants in terms of professional development.The aim of the faculty survey questionnaire was to gauge the level of influence faculty feel that their role models had on the participant in terms of professional development. The survey poses an unambiguous question to the respondents about their thoughts regarding the influence that their own role models had on their career (see Appendix A Question 13). The statement posed was "My career has been directly influenced by or modeled after a role model" and the option provided was based on a 7-point LIKERT scale from 'Strongly disagree' to 'Strongly agree'. Figure 9 shows a histogram of the frequency of the responses for each of the options in the LIKERT scale for the aforementioned question. Table 5 shows the mean for the responses of this statement (mean = 5.58) which mean most of the participants agree that their role models did influence their career path.

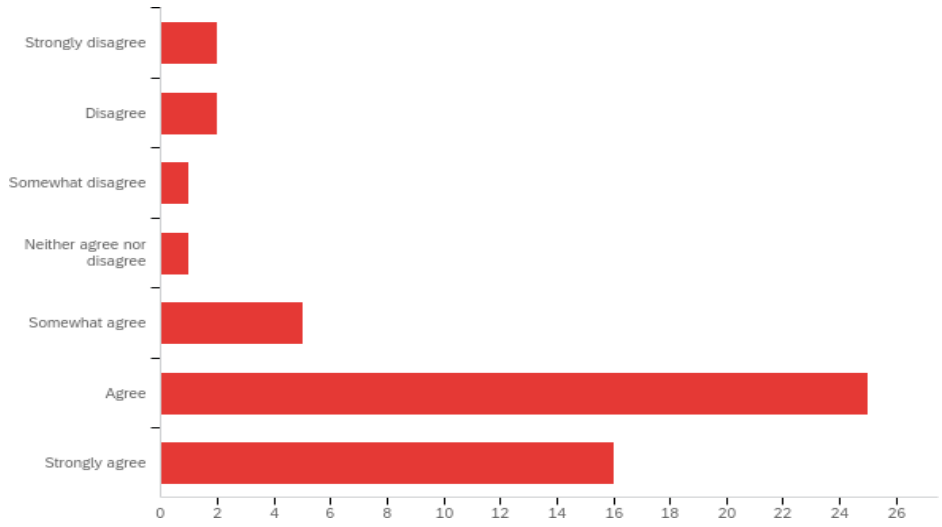

Figure 3: Role Model Influence on Career

Influence on Personal Life

Role models are often considered vital during career development, yet the direct correlation between personal life and career development has been overwhelmingly stated in the literature (Super, 1992; Kuijpers & Scheerens, 2006; Whiston & Keller, 2004). It is evident that

factors from personal life like, values, support from family, attachment etc. have all had an influence on career constructs. With this study, the aim is to go one step further and see if role models have an influence on a role aspirant's personal life, which in turn could be related to professional development.

The statement posed from this perspective is "Role Models influence the way I personally live mylife" and the option provided was based on a 7-point LIKERT scale from 'Strongly disagree' to 'Strongly agree'. Figure 10 depicts a graph showing the frequency of responses for each of the LIKERT options for the question. Table 5 shows the mean for the responses of this statement (mean = 5.77) which mean most of the participants agree that their role models did influence aspects of their personal life.

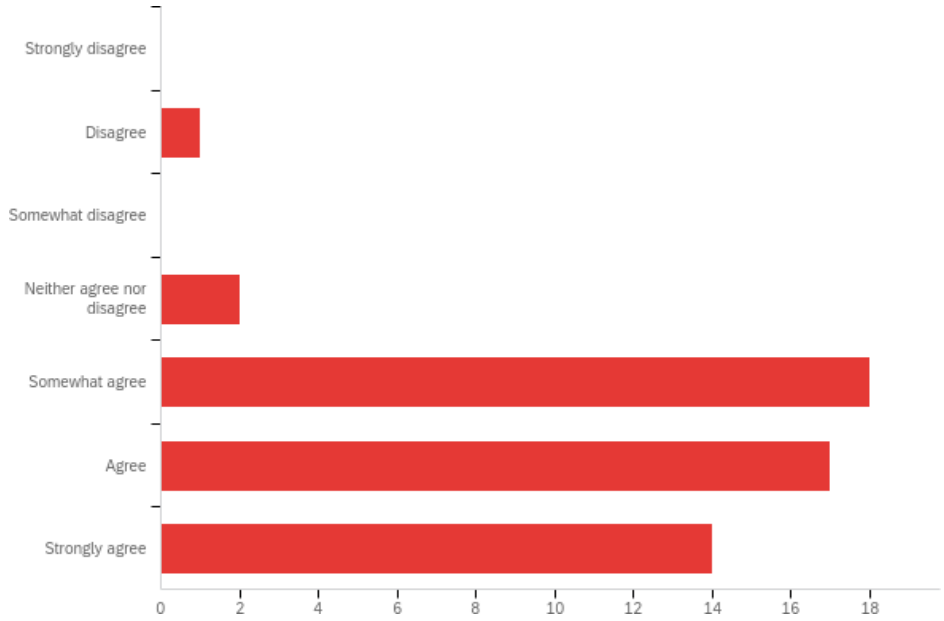

Figure 4: Role Model Influence on Personal Life

The Game: Role Model Conference

In the study, in addition to gaining an insight into faculty role models, there was an effort to develop an immersive VR experience where a player can interact with role model avatars identified in the faculty role model survey (Appendix B). The avatars were developed to appear similar (in terms of external demographic characteristics such as gender) to the actual participants while maintaining anonymity through the abstract art style. The dialogs were created based on

their responses with some modifications to ensure proper tense and grammar were maintained as the dialogs are in active speech. The game was set in a faculty conference environment where the player could move around and interact with the avatars. The game development team consisted of 1 student researcher who helped to facilitate the development process, 1 faculty member who directed the development process, and 1 external developer that provided development support. The external developer was compensated $2500 USD. In the development timeframe, there were 2 major iterations based on the feedback from the faculty member, researcher and 3 PhD students who tested the game.

The game was developed on the Unity engine. The game has a 3D art style called 'Low Poly', wherein all 3D objects have fewer polygons than corresponding photorealistic objects while still maintaining an accurate representation of real-life objects. The game requires a VR Headset (like Oculus) and a desktop computer to play. The full gameplay video is available at https://youtu.be/e8SYPbWxgO4.

The game starts off with a scene right outside a building where a faculty conference is taking place, the player is then prompted to read the dialog box with instructions on the setting and gameplay. The player is then directed inside the building where they can interact with the role model avatars. The game contains 8 main avatars that the player can interact with, there are other NPCs (Non-Player Character) in the game to simulate a conference environment. The player is free to explore the environment and the characters that are available for interaction are highlighted (see Figure 6). Once the player approaches the role model avatar, they are given 3 choices, *'Motivation', 'Achievement',* and *'Challenges'* (see Figure 7), each choice is accompanied with a personal experience regarding the role model's motivation, their greatest achievements and a big challenge they overcame (see Figure 8). The player is also given a virtual clipboard to keep track of the role models they have interacted with. The dialogs for each role model were created using an online text-to-speech converter. The use of this specific service was motivated by research demonstrating the importance of avatar/character audio in games (Kao et al., 2022). The purpose of the game was to support faculty development in the context of role models. The motivation to make an interactive game was informed by the findings of Simpson and others (2006). They conclude that sharing personal stories of success or challenges faced by role models enhances faculty development.

Figure 5: Role Model Avatar

Figure 6: Dialog Choices

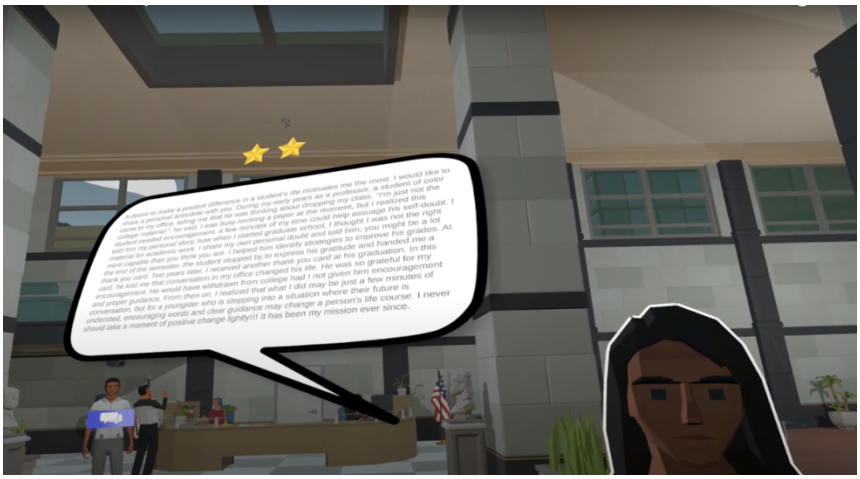

Figure 7: Interaction with an avatar.

CHAPTER 5. DISCUSSION

Interpretation of Results

This study was focused on understanding faculty role models, specifically RQ1 was created to investigate the type of role models that faculty in academia have. The findings from the survey depict the overwhelming reference to teachers (including but not limited to professors, thesis/dissertation advisors, or academic mentors) as the most prominent choice for role models. These findings are similar to claims in previous literature stating that role modelling is an important tool for career development among faculty members (Crosby, 2000; Steinhart, 2000). The next prominent category of choice for role models was family (parents, siblings, relatives, or significant others). This is a common phenomenon observed throughout the literature on role models and is supported by Nauta and Kokaly (2001). Another theme that emerged that was frequently mentioned in earlier literature is the choice of accomplished individuals as role models in the early stages of life. These role models are prevalent during childhood, but they are more essential in defining the idea of 'self' at that stage rather than full-fledged career development (Erikson, 1950). Supervisors as role models was mentioned by a number of participants, however, most of the responses do not talk about the supervisor's position being desirable or attainable but rather talk about how their superiors helped them reach their current position through moral support or by instilling confidence to pursue something they are passionate about. The theme of peers as role models was relatively less common among faculty role models. This was an expected phenomenon as it was an observed phenomenon that role aspirants generally want role models who are at a position that the role aspirants themselves wish to achieve. The perception of a role models' position as desirable was an important factor in the identification of a role model (Lockwood and Kunda, 1997, Gibson, 2004), hence it is not surprising that peers or subordinates are not popular choices for role models for faculty members. Religious figures as role models was a theme that was not popular either, the reason behind this could be the fact that certain circumstances or even traits attributed to religious figures are not easy to emulate.

However, after observing the change in role models throughout the respondent's life, it is safe to state that although parents or family are role models at an early stage of a faculty member

(Martino, 2008; Lumpkin, 2008) they tend to drift to educators and academic faculty in the later part of their careers. This does not imply that faculty role models at a young age do not exist, as there is ample evidence suggesting the role of teachers in the career choice of students right from elementary school (Habashi,Graziano, Evangelou & Ngambeki, 2009a; Schunk, Pintrich, & Meece, 2008) to higher education (Ngambeki, 2012). The responses directly align with the claim by Gibson (2003b) that role models selected, and the lessons learned from them, change over the lifetime of the role aspirant.

The second research question focused on distinguishing attributes that faculty role models possess. Five main themes of attributes were isolated during the analysis process. The first theme was attributes referring to integrity. All the attributes that were related to righteousness or honesty were grouped under this theme. The high frequency of this theme in the survey is a marker of how sought after these attributes are for a role aspirant. A role aspirant expects the role model to have a strong character and not give up their morals for anything. This was an interesting theme as it does not fall under an attribute that affects competency of a role model rather it is a personal trait that reflects the strength of character. However, the emergence of this theme is consistent with earlier literature, as role aspirants identify role models based on both professional skills as well as personal traits that they wish to possess. The second theme was attributes related to compassion. Role aspirants wanted their role model to be kind and empathetic to others. Similar to the previous theme, these attributes are also more of a behavioral trait that does not directly influence the career of an individual. Therefore, it can be observed that traits that have no direct impact on professional lives are also desirable in role models among faculty. In fact, sometimes they might deem behavioral traits to be more important than professional skills. The next theme is attributes referring to intelligence. The presence of this theme in the analysis is understandable as an individual will be drawn to other individuals who they perceive to be competent in their career. One of the main motivations for the identification of a role model is their desirable position in a field that the role aspirant wants to excel in (Lockwood and Kunda, 1997, Gibson, 2004). The next theme is attributes referring to communication skills. Apart from behavioral traits and professional skills, role aspirants seem to place a great importance on how a role model can communicate. Even more specifically, they are drawn to role models who can communicate with them effectively. Listening skills and approachability are some of the traits mentioned in the survey. This could directly be linked to

the capability of a role model to guidance to the role aspirants. The final theme was attributes referring to motivation. Role models who tend to inspire others and provide support for their advancement and growth were considered desirable. The themes of communication skills and motivation can be directly related to the claim that role models who are aware they are role models would have a greater impact on the role aspirators career (Cruess, Cruess, & Steinert, 2008).

There has been significant research into the motivation for the identification of role models. Factors like gender, race, and age have been consistently proven to be important for individuals (Lockwood, 2006; Marx & Roman, 2002). The observations made through the survey are mostly consistent with earlier literature. In the study, majority of respondents chose 'Ethnicity' to be a common factor with their role models, while 'Gender' is a close second choice while 'Age' was the least chosen factor. However, one interesting find is the fact that female faculty members chose 'Ethnicity' as a similarity factor at a higher rate than 'Gender'. There are two ways to interpret this finding, either it can be claimed that there are not enough mid-career female faculty role models or female faculty members are giving prominence to role models belonging to the same race instead of same gender role models.

Similarly, there has been significant research into the positive influence a role model has on a role aspirant's career and personal development (Lockwood & Kunda, 1997; Marx & Roman, 2002; Marx, Stapel, & Muller, 2005; McIntyre, Lord, Gresky, Ten Eyck, Frye, & Bond, 2005; McIntyre, R. et al, 2011). This results from this study confirm that these findings are applicable to the context of faculty role models with participants strongly agreeing that role model have a significant influence on their professional and personal development, especially in choosing a career path. An interesting observation was that participants strongly believed that role models have a great impact on the society we live in. Although, there has been earlier researcher on indirect influence of role models on society (Lafuente, Vaillant, & Rialp, 2007), there has not been previous literature examining the positive influence that role models have on society. However, in this study, the participants expressed a strong belief that role models have an influence on society as well. There could be two reasons for this belief, firstly, the faculty members who are inspired by their role model in both personal and professional aspects could assume that their role models are influential enough to bring about a change in the society they belong to. Another reason could be that the faculty members who deem their role models as

influential to society could have chosen role models who are prominent figures in the society to being with. A focused study on why faculty members believe role models have an influence on society would shed light on the rationale behind it.

Theoretical Implications

This exploratory study focused on faculty role models and distinguishing attributes they possess. Thus, through the survey administered, faculty members were given a chance to share their experiences and elaborate on how they perceive faculty role models and their influence. Several findings surfaced that are consistent with earlier research and hence, could be applied to the subset of faculty role models. Apart from the findings, the study also contributes to literature on faculty role models which is a field that has not been explored in depth. Faculty members are at a unique position where they could be role models for their students but at the same time require role models of their own who could promote professional and personal growth. A study into faculty role models could enhance their development and greatly benefit the organization they are a part of.

Considering how a majority of the participants highly ranked role model influence on the society, personal life, and career development, venturing into faculty development programs with an emphasis of role models would be a great direction for future faculty development programs.

The VR game built for this study helps present existing role models to the faculty members in the form of avatars where they are provided with an opportunity to interact with them and find out more about personal life experiences through anecdotes. The faculty members could benefit from interactions, albeit virtually, with other faculty role models which could broaden the scope of the role models they are exposed to. It could also provide a direction for new faculty members on what to consider while looking for role models.

Limitations

The respondents from the survey are predominantly from North America, revealing an evident limitation of the study in that it was not possible to ascertain the potential effect of cultural differences across the role aspirants when choosing their role models. Further, responses from the faculty survey alone would not be an accurate representation of the attributes that exist across all

role models. While the faculty do mention traits that they would expect in an ideal role model, there is still no guarantee that they observed these attributes in their own chosen role models. A revised questionnaire targeting the occurrence of specific attributes in their role models would provide a better overview regarding some existing faculty role models.

Future Work

Role models are not limited to academic faculty but are common across all education careers as well. Yet, there is little extant research into the impact of different role model attributes on the process of a role aspirant's choosing of their role model, Additionally, the extant research into the impact of gender or ethnicity on the process of a role aspirant's process for identifying a role model is also an area that has not been sufficiently explored. Further, there is an opportunity for more streamlined empirical research into the similarity factors among faculty role aspirants and role models could yield more meaningful results to justify the cause for the ethnicity factor being more prominent than the gender factor. Similarly, more investigation into the influence of role models, specifically their impact on society also would be an exciting avenue to explore.

Additionally, the evolving use of behavioral games in this field of research creates an intriguing opportunity for utilizing this innovative approach to further investigate the impact of role model selection in the process of faculty development. One way to incorporate role models into a game setting is to integrate them as player avatars or non-player characters. Indeed, there are many studies that discuss the increase in player engagement with the incorporation of role models in entertainment-centered applications such as games (Kao, 2019b; Kao, 2021b; Kao, 2020b). Specific applications that would benefit from the inclusion of this type of role model research include computational learning games (Kao & Harrell, 2017; Kao & Harrell, 2018; Kao & Harrell, 2016b; Kao & Harrell, 2016c, Kao & Harrell, 2016d) and game development (Kao et al. 2021a; Kao et al. 2021c; Kao, 2020a; Kao, 2019a), as well as learning in a virtual reality setting (Kao et al., 2021b; Liu et al, 2021; Kao et al., 2020).

Conclusion

The study bridges the existing gap in knowledge examining the field of faculty role models by providing insight into those attributes that faculty members look for in their own role models. The responses from both the faculty survey and the role model survey show how role models still play an important role in role aspirant career development among faculty members working in the STEM higher education fields. The study also provided a look into some of the common factors among the role model and role aspirant which could be an important precursor in identification of a role model. Finally, some important insights were gleaned from these survey results regarding the type of role models a faculty member possess and certain key attributes that a role aspirant looks for in a role model, as well as the particular personality traits that these aspirants try to emulate.

The aim of this research was to contextualize the research on role models from the perspective of faculty members and study faculty role models and their attributes in order to catalyze the conversation on role models in faculty development programs and the benefits they could provide.

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APPENDIX A: FACULTY SURVEY

1. Please list your role models below and select the period(s) of your life that the role modelwas relevant to. (Self-created, informed by Bucher & Stelling (1977), Cross & Markus, (1991), Markus & Nurius, (1986), Gibson (2004))

	Child (1-9)	Adolescent (10-18)	Young Adult (19-26)	Adult (27-49)	Middle Aged (50-64)	Senior Citizen (65+)	Entire Lifespan
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐

2. What are the most important character traits you think a role model should possess? (Self-created, informed by the findings of Gibson (2003) and Katz & Kahn (1978))

3. Please describe your current occupation. (Taken directly from Zeldin and Pajares (2000) with wording identical to the original)

4. How much of an influence have your role models had on your career choice? (Self-created, based on the findings of Bucher (1998), Quimby& DeSantis (2006), and Riegle-Crumb, Moore, & Ramos-Wada (2011))

5. Role models have an influence on our society.(Self-created, informed by the findings of Lockwood and Kunda, 1997, Gibson, 2004)

   [ ] Strongly Disagree

   [ ] Disagree

   [ ] Somewhat Disagree

   [ ] Neither Agree nor Disagree

   [ ] Somewhat Agree

   [ ] Agree

   [ ] Strongly Agree

6. Role models influence the way I personally live my life.(Self-created, informed by the findings of Lockwood and Kunda (1997) and Gibson (2004))

   [ ] Strongly Disagree

   [ ] Disagree

   [ ] Somewhat Disagree

   [ ] Neither Agree nor Disagree

   [ ] Somewhat Agree

   [ ] Agree

   [ ] Strongly Agree

7. How important do you consider a faculty role model to your professional development?(Self-created, informed by Gilbert (1985))

   [ ] Not at all important

   [ ] Slightly important

   [ ] Moderately important

   [ ] Very important

   [ ] Extremely important

8. Please write down one role model that you listed earlier that you consider most influentialto your career today (Self-created, to gather role models for the second survey for role models (see Appendix B))

9. For each of the dimensions listed below, please indicate the degree of similarity youperceive between yourself and your role model. (Adapted from Gosling, Rentfrow, & Swann (2003, originally created for personality assessment)

	Not at all similar	Slightly similar	Moderately similar	Very similar	Extremely similar
Extraverted, enthusiastic	○	○	○	○	○
Critical, quarrelsome	○	○	○	○	○
Dependable, self-disciplined	○	○	○	○	○
Anxious, easily upset	○	○	○	○	○
Open to new experiences, complex	○	○	○	○	○
Reserved, quiet	○	○	○	○	○
Sympathetic, warm	○	○	○	○	○
Disorganized, careless	○	○	○	○	○
Calm, emotionally stable	○	○	○	○	○
Conventional, uncreative	○	○	○	○	○

10. Which of the following do you and your role model have in common? Select all that apply. (Self-created, informed by the findings of Goethals & Darley (1977), Wood, (1989), Lockwood (2006), Marx & Roman (2002), Marx & Goff (2005), Cheryan et al. (2011), Stout, Dasgupta, Hunsinger, & McManus (2011), and Young, Rudman, Buettner, & McLean (2013)).

[ ] Gender

[ ] Ethnicity

[ ] Age

11. I had role models growing up. (Self-created, informed by Super (1957), Kagan (1958), Kohlberg (1963), and Erikson (1950)).

[ ] Strongly Disagree

[ ] Disagree

[ ] Somewhat Disagree

[ ] Neither Agree nor Disagree

[ ] Somewhat Agree

[ ] Agree

[ ] Strongly Agree

12. My role model changed as I grew older (Self-created, informed by Gibson (2004)).

[ ] Strongly Disagree

[ ] Disagree

[ ] Somewhat Disagree

[ ] Neither Agree nor Disagree

[ ] Somewhat Agree

[ ] Agree

[ ] Strongly Agree

13. My career has been influenced by or modeled after a role model. (Self-created, based on the findings of Bucher (1998), Quimby& DeSantis (2006), and Riegle-Crumb, Moore, & Ramos-Wada (2011)).

[ ] Strongly Disagree

[ ] Disagree

[ ] Somewhat Disagree

[ ] Neither Agree nor Disagree

[ ] Somewhat Agree

[ ] Agree

[ ] Strongly Agree

14. The following served as role models to me as a child. Select all that apply.(Adapted from a study by Nauta and Kokaly (2001), choices identically worded based on self-listed set of role models)

[ ] Mother

[ ] Father

[ ] Peers/Friends

[ ] Other Family Members

[ ] Teachers/Coaches

[ ] Famous Actor/Musician

[ ] Famous Leader

[ ] Successful Professional in my Field

15. What is your current job title? (Taken directly from Zeldin & Pajares (2000) with wording identical to the original)

16. What academic department do you work in? (Self-created, informed by the findings of Gibson (2004))

17. How many years have you worked in your current position? (Self-created, informed by the findings of Gibson (2004))

18. Which gender do you identify most with?(Self-created, based on the three factors of similarity between role aspirants and role models as suggested by Kulik and Ambrose (1992), Lockwood (2006), Marx & Roman (2002), and Marx & Goff (2005)).

    [ ] Male

    [ ] Female

    [ ] Other

19. What is your age? (Please input your age below) (Self-created, based on the three factors of similarity between role aspirants and role models as suggested by Kulik and Ambrose (1992), Lockwood (2006), Marx & Roman (2002), and Marx & Goff (2005)).

20. What is your race?(Self-created, based on the three factors of similarity between role aspirants and role models as suggested by Kulik and Ambrose (1992), Lockwood (2006), Marx & Roman (2002), and Marx & Goff (2005)).

[ ] White

[ ] Black or African American

[ ] American Indian

[ ] Asian Indian

[ ] Chinese

[ ] Filipino

[ ] Japanese

[ ] Korean

[ ] Vietnamese

[ ] Other Asian

[ ] Native Hawaiian

[ ] Guamian or Chamorro

[ ] Samoan

[ ] Other Pacific Islander

[ ] Other

21. Father's highest achieved education level (e.g., High School, BSc, MS, PhD). (Self-created, informed by Hauser (1994), Williams, Leppel, & Waldauer (2001)).

22. Father's primary occupation during life. (Self-created, informed by Hauser (1994), Williams, Leppel, & Waldauer (2001)).

23. Mother's highest achieved education level (e.g., High School, BSc, MS, PhD). (Self-created, informed by Hauser (1994), Williams, Leppel, & Waldauer (2001)).

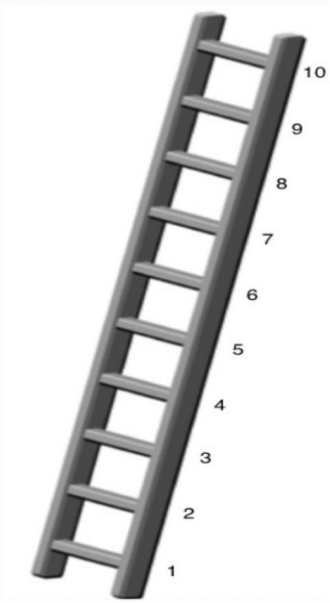
24. Mother's primary occupation during life. (Self-created, informed by Hauser (1994), Williams, Leppel, & Waldauer (2001)).

25. Think of this ladder as representing where people stand in the United States.

At the top of the ladder are the people who are best off - those who have most money, the most education and the most respected jobs. At the bottom are the people who are the worst off - who have the least money, least education, and the least respected jobs or no job. The higher up you are on this ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom.

Where would you have placed yourself on this ladder when you were an adolescent (10-18 years old)?

Each number below represents a rung on the ladder, please select the number where you think you stood when you were an adolescent (10-18 years old). (Taken directly from the MacArthur SSS Scale created by Nancy Adler and others (2000) with wording modified to cover the age of 10-18 years)



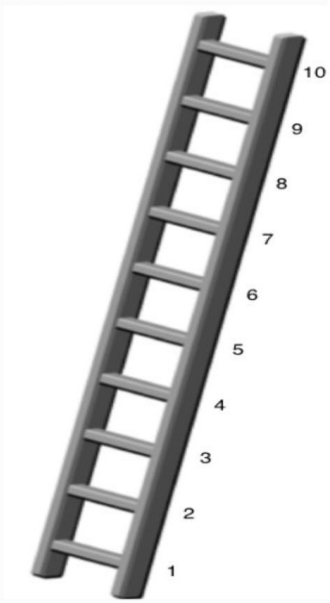
[ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ] 8 [ ] 9 [ ] 10

26. Think of this ladder as representing where people stand in their communities.

People define community in different ways, please define it in whatever way is most meaningful to you. At the top of the ladder are the people who have the highest standing in their community. At the bottom are the people who have the lowest standing in their community.

Where would you have placed yourself on this ladder when you were an adolescent (10-18 years old)?

Each number below represents a rung on the ladder, please select the number where you think you stood when you were an adolescent (10-18 years old), relative to other people in your community. (Taken directly from the MacArthur SSS Scale created by Nancy Adler and others (2000) with wording modified to cover the age of 10-18 years).



[ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] 6 [ ] 7 [ ] 8 [ ] 9 [ ] 10

APPENDIX B: FACULTY ROLE MODEL SURVEY

1. What is the achievement in your life that you are most proud of? (Self-created, informed by Lockwood and Kunda (1997), Gibson (2004), and Simpson et al. (2006)).

2. What are is the biggest challenge that you have had to overcome in your career? (Self-created, informed by Simpson et al. (2006)).

3. What motivated you to choose the career that you have today? (Self-created, informed by Simpson et al. (2006)).

4. How do you think where you grew up influenced your career choice? (Self-created, informed by Lafuente, Vaillant, & Rialp (2007)).

5. How did the generation you belong to influence your career choice? (Self-created, informed by Bush, Martin, & Bush (2004) and Bandura & McClelland (1977)).

6. Do you believe that role models have an influence on our society? (Self-created, informed by the findings of Lockwood and Kunda, 1997, Gibson, 2004)

7. In your own opinion, do you feel that role models are changing the way our societythinks? (Self-created, informed by Marx et al., (2005), McIntyre et al. (2003), Shapiro, J. R., Williams, A. M., & Hambarchyan, M. (2013), and Dasgupta (2011))

8. Do you think role models help women pursue and achieve successful careers? (Self-created, informed by McIntyre et al. (2005) and Quimby & DeSantis (2006)).

9. Do you believe any of the following aspects of identity are important to being a role model? (Self-created, informed by the findings of Goethals & Darley (1977), Wood, (1989), Lockwood (2006), Marx & Roman (2002), Marx & Goff (2005), Cheryan et al. (2011), Stout, Dasgupta, Hunsinger, & McManus (2011), and Young, Rudman, Buettner, & McLean (2013))
   - Gender
   - Age
   - Race
   - Culture
   - Diversity

   Why or why not?

10. Are there any ways in which you are different in trying to serve as a role model forpeople who are from a different culture than your own? (Self-created, informed by Steele & Aronson (1995), Drury et al. (2011), McIntyre et al. (2003, 2005), and Shaffer et al. (2013))

11. Do you consider yourself to be a role model? Why or why not? (Self-created, informed by Cruess, Cruess, & Steinert (2008)).

12. Why do you think others consider you to be their role model? (Self-created, informed by Cruess, Cruess, & Steinert (2008)).

13. What qualities do you think you possess that makes others consider you a role model? (Self-created, informed by the findings of Gibson (2003) and Katz & Kahn (1978))

14. Do you think your career had an impact on the number of people who consider you a rolemodel? (Self-created, informed by Tesser (1986) and Tesser & Campbell (1983)).

15. Describe experience(s) in your personal/professional life that influenced you to becomesomeone that others consider to be a role model/mentor. (Self-created, informed by Simpson et al. (2006)).

16. Do you have someone you consider to be a role model? Who are they, and why do youconsider them to be your role model? (Self-created, informed by the findings of Lockwood and Kunda (1997) and Gibson (2004)).