RETENTION AND ATTRITION PATTERNS OF STUDENTS PURSUING A DEGREE IN NUTRITIONAL SCIENCES: A CRITICAL FEMINIST PERSPECTIVE

by

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As members of the Master’s Committee, we certify that we have read the thesis prepared by Austin Derma, titled Retention and Attrition Patterns of Students Pursuing a Degree in Nutritional Sciences: A Critical Feminist Perspective and recommend that it be accepted as fulfilling the thesis requirement for the Master’s Degree.

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Final approval and acceptance of this thesis is contingent upon the candidate’s submission of the final copies of the thesis to the Graduate College.

I hereby certify that I have read this thesis prepared under my direction and recommend that it be accepted as fulfilling the Master’s requirement.

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Abstract

Women’s college enrollment rates have increased dramatically in the last century, with more recent gains in the applied agricultural sciences. While statistical enrollment information exists, there have been few qualitative studies to explore this phenomenon. Using Acker’s (2012) theory of gendered organizations as the framework, the central research question that guided this study was: what experiences influence the retention and attrition of men and women students pursuing a degree in Nutritional Sciences within the College of Agricultural and Life Sciences at the University of Arizona? This research was conducted using one-on-one semi-structured interviews with a total of seventeen participants. Eleven participants were currently majoring in the Nutritional Science degree program, while six of the participants had transferred from the NSC program to another major. Four major themes emerged from the data: gendered identities and power dynamics; the connection between NSC major and body image; positive relationships with advisors and professors and the desire for representative role models; and the culture of the student environment- competition, togetherness, and feminine energy. These themes support future research into gendered organizations and gender inequality in a woman dominated major.

Keywords: Women Enrollment Rates, Gendered Organizations, Nutritional Sciences, Retention and Attrition
Introduction

Pursuing a degree at an accredited university has been a dream for millions of young individuals for decades. However, since the late 19th century, attending college in the United States has been a primarily male dominated pathway. It wasn’t until the late 1960’s and early 1970’s that women college enrollment rates began to soar in the United States (Goldin, Katz, & Kuziemko, 2006). By 1980, gender ratio rates for undergraduates had almost equalized between men and women (Goldin et al., 2006). More recently, women’s college enrollment rates have even begun to surpass those of men. According to the United States Department of Education (2005), there were 1.3 female for every male undergraduate enrolled in a four-year college in 2003, compared to 2.3 males for every female undergraduate in 1947.

As of 2007, Education Next (2010) reported that 58% of students earning a bachelor degree and 62% of students earning an associate degree were female. With the influx of women entering college, researchers have also noted a change in relation to pursuing specific academic majors. The increase in the proportion of women majoring in the life sciences and related fields accounts for much of this change (Ma, 2011). Nationwide, numbers increased from 23% of total science majors in 1970 to 42% by 1983, specifically for women (National Science Foundation, 1986). In 2010, there were approximately 11% of freshmen that had intended to major in a biological/agricultural science, social/behavioral science, or in an engineering degree for both genders (National Science Foundation, 2012), all majors which can be classified as applied sciences. Applied sciences focus on the implementation of scientific techniques and applying knowledge to practical problems. With this increase in enrollment rates of women, patterns can now be explored in more specific fields including the applied sciences, expanding the focus to the experiences of individuals which cannot be captured with current statistical information.
One primary component of applied life sciences is the field of agriculture. Women have historically been involved in agriculture, from the days of hunting and gathering, to supplementing the work force during World War II (Hanson, 2017). Women’s involvement in agriculture was primarily behind the scenes, but after the war had ended women were no longer seen as a temporary hiring solution and their contributions became more recognized (Carpenter, 2000). In more recent years, we have continued to see a rise of women in the field of agriculture (Carpenter, 2000). These agricultural occupations include traditional fields (e.g., farming) and emergent fields such as data analysis, marketing, and information technology (Hanson, 2017).

Recent cultural and technological improvements, such as shifting societal gender norms and new mechanical advancements, have not only allowed for the continued involvement of women in various agricultural career paths, but have also increased university attendance related to these fields of inquiry. Specifically, at the University of Arizona (UA), similar shifts have created colleges heavily populated with women. As of 2017, there were 72% of women compared to 28% of men enrolled in the College of Agriculture and Life Sciences (CALS) at the UA. While these descriptive patterns and trends demonstrate a promising turn for gender equality at the university level, they may not be capturing the full story. Women pursuing and entering agricultural fields of study may seem progressive, but statistics alone have the potential to distract us from underlying issues relating to inequity amongst experiences based on gender. Therefore, it is necessary to understand the individual experience and not simply enrollment and participation within a specific university, college, or major of study.

There is currently little research specifically exploring the experiences of men and women in college agricultural majors (Mars & Hart, 2017). These experiences are essential to determining the contributing factors to the widening gender gap where women are becoming the
leading gender in various degree programs within agricultural applied sciences. Applied sciences that focus on applying scientific knowledge to practical problems in the agricultural sector. It is crucial to know what is causing the retention and attrition of men and women in these fields of study, focusing on the differences between genders. Exploration into individual experiences through a critical feminist lens is needed to critique the current system and to allow for differences in experiences between students based on gender to emerge.

**Literature Review and Theoretical Framework**

**Critical Feminist Theory**

Critical theory is a body of theories oriented towards critiquing and radically transforming or completely replacing organizations and society as a whole (Bohman, 2005). Critical feminist theory, which stems from critical theory, provides a wide range of perspectives and multiple lenses to understand the structure and practices of various institutions that have historically led to gender inequalities. These lenses include men and women’s roles in society, experiences, family, interests, and politics in a variety of cultural contexts. At the university level, there are women with a variety of backgrounds and identities, including those involved in Science, Technology, Engineering, and Math (STEM) majors and other applied sciences and agriculturally related fields. These individual experiences shape their unique realities. One key overarching purpose of critical feminist theory is to challenge and critique gendered systems (Lather, 1984), which includes systems of higher education.

While critical feminist theory has existed since the beginning of feminist movements, it has gone through a variety of iterations over time (Rhode, 1990). Specifically, critical feminist theory has significantly evolved and expanded to include two new criteria important for research and critical discourse. The first is there is a wider universe of women recognized today, which
includes women of color, women of border-cultures, women of various socio-economic classes, and women of various sexual orientations (Cacoullos, 2001). This creates a more complex understanding of the experiences of women than previous research may have explored. The second is that feminist theory has changed in terms of exploring and forming phenomena (Cacoullos, 2001). Feminist theory is now reopening questions about what it means to perceive, infer, and speak in this theory. “A favorite concept of feminism, namely ‘gender’ has been vigorously critiqued; the concept of ‘woman’ has never been more elusive than it is now” (Cacoullos, 2001, p. 73). Therefore, the world view of gender norms are being challenged unlike ever before (Cacoullos, 2001). In more recent years, critical feminist theory has begun to include race and politics (Hawkesworth, 2010). With this emerging theory, institutions such as the UA must carefully examine these concepts and embrace new modes of exploration to truly capture the experiences of women in higher education through a critical feminist lens.

**Gendered Organizations**

Within specific organizations, gender can be analyzed as a way of defining patterns and discovering answers (Acker, 2012). Various structures and norms can perpetuate inequalities in an unconscious manner by being embedded into the fabric of the organization and are often not challenged or even recognized. Emanating from feminist theory, gendered organizations and their substructures are now an avenue for examining gender within any organization (Acker, 2012). Gendered organizations include any organization that privileges and sustains power structures in favor of men, including institutions of higher education (Acker, 2012). Acker’s (2012) theory of gendered organizations contains four main substructures that anchor the theory including: *organizing processes, organization culture, interactions on the job, and gendered identities*, all of which favor men and masculinity over women and femininity.
Gendered substructures create *organizing processes* where gender inequalities are institutionalized into job design, wage gaps, discrimination, managerial power, dispersal of decision-making power, design of the work environment, and behavior at work (Acker, 2012). This process has created a special kind of classification system difficult to understand. For example, an industry related organization versus an education organization would operate under different organizational purposes, making it important to examine each within their specific context.

*Organization culture* within a gendered organization favors one gender over another and results in inequality (Acker, 2012). This is when the cultural norms, beliefs, and values are based on practices that are most reflective of the male experience, perspective, and worldview. This shapes a majority of practices in a given organization or just a specific few. For example, the culture of an organization can be reflective of the culture of the outside society in which it lies (Acker, 2012). Therefore, these cultures of gendered organizations influence the day-to-day life of members in ways that advantage men and marginalize women (Acker, 2012).

Gendered substructures are also observed through *interactions on the job*. These interactions are measured between co-workers and people with various levels of power (Acker, 2012). Interactions occur in a multitude of situations such as formal, informal, group, one-on-one, etc., and support gender inequality. In gendered substructures this means overpowering women in the form of exclusion or belittlement within a group dominated by men (Acker, 2012). Sexism within the work environment also contributes to gender equality within gendered organizations. Sexism arises in the form of jokes, harassment, oppositions of new ideas favored by women, or criticism of women’s abilities based on their gender (Acker, 2012).
**Gendered identities** involve the perception of how a man or woman should act in the workplace. These individual identities are formed and changed through experience. Individual gender identities promote the notion of an ideal worker that reflects and rewards the common life pattern of men and overlooks and suppresses that of women. These identities also bring about a pressure amongst genders in which men and women feel like they must act a certain way in specific environments or positions (Acker, 2012).

Overall, these components of gendered organizations consist of processes and practices that are continually reproduced in society, creating and sustaining gender inequality (Acker, 2012). These processes and practices can include examples of accepting masculine behavior, excluding women’s opinions, or defining positions based off gender. Throughout time women, by necessity, have been tuned into men’s activities, attitudes, and behaviors in addition to their own. However, men, as members of the dominant gender, are not always tuned into or interested in women’s activities and behaviors. Instead, men’s perception of reality is more likely to be rooted exclusively in their own prior and future experiences (Brooks, 2007).

**Higher Education/Colleges and Universities as a Gendered Organization**

These gendered substructures can pertain to any organization. One specific organization that has been gendered throughout history is higher education. Despite efforts to create an inclusive atmosphere, there are still many issues that persist within higher education systems related to gender inequity (Kahle, 1988). Research specifically within college and university setting highlights issues related to gender. It has been observed that women entering college may initially choose to study in a science or math related field, but will later switch to a non-science focused major (Kahle, 1988). “Personal and social factors, not academic ones, predicted the entrance of women into college science majors” (Kahle, 1988, p. 382). For example, even though
women typically have higher GPA’s than men, it was personal factors that had caused young women to drop out of science degrees (Kahle, 1988). These factors included future employment concerns and current campus and classroom climates (Kahle, 1988). The climates specifically pertained to the lack of role models within their fields of study, lack of other female peers in a science focused major, and the overall masculine orientation of the campus and classroom (Kahle, 1988).

Factors of masculine orientation involved extensive use of masculine examples in the classroom environment (Kahle, 1988). Additionally, instructors in the classrooms allowed for called out answers and verbal interruptions, perpetuating a competitive structure (Kahle, 1988). This climate can then lead to differences in interactions between men and women from the same instructor. This climate can be described by the use of micro-inequalities, which involve the consistent differences in interactions between the instructor and men and women students (Kahle, 1988).

As previously mentioned, the field of agriculture has been predominately associated with men in the past, but in the last century, women’s roles have become more recognized. Despite this progress, aspects of a gendered organization may still be present within the system. CALS houses numerous majors related to agriculture and life sciences, but for the purpose of this study, I will be focusing on the Nutritional Sciences (NSC) major due to its sustained high number of female enrollments.

Retention and Attrition in Nutritional Sciences (NSC)

NSC is currently experiencing phenomena where women are outnumbering men in both major enrollment and degree attainment, which contrasts greatly with many other degree programs within CALS and at the UA. According to UA Statistics, in the fall of 2017 there were
23 female students and 7 male students who had entered the NSC major and completed all degree requirements to achieve graduation. These students declared this degree when they began their educational journey at the UA and remained in the program until completion. Analyzing the attrition rates within CALS at the UA (2017-2018), students migrating out of the NSC major totaled 87 students, including both men and women. During the same year, retention rates in CALS totaled 148 students migrating into the NSC major, again including both men and women.

Examinations of statistics from the UA have revealed a steady rise in women enrolling in various agricultural degrees within the past eighteen years, specifically in the areas of: animal science, NSC, environmental science, family studies, and veterinary science. As for men, we see a drastic comparison in ratio; they have continually been outnumbered in these fields of study over the past couple of decades (James Hunt, personal communication, September 17, 2018). Despite men’s overall enrollment at the UA remaining virtually unchanged, we continue to see a wide gender gap in various majors within CALS at the UA, with NSC being a notable area to explore.

**Purpose of the Study and Central Research Question**

The gender gap in NSC, a major not previously studied, requires exploration into the nuances present in this phenomenon of an unbalanced ratio between genders. The statistics do show a difference, but that is only in terms of gender ratio, which does not necessarily tell the complete story. Since NSC has successfully recruited and retained so many women, what makes it different from other degree programs within CALS? This study will focus on the NSC major within CALS at the UA to explore patterns and trends associated with gender. What makes it more likely that women will pursue and complete degrees in this field of study? Specifically, I will explore the norms, values, and beliefs espoused in NSC, both overtly and covertly. If critical
feminist theory allows for consideration and the factors and experiences of men and women are analyzed, patterns of attrition and retention can be explored. Therefore, this qualitative study will answer the following research question: What experiences influence the retention and attrition of men and women students pursuing a degree in Nutritional Sciences within the College of Agricultural and Life Sciences at the University of Arizona?

**Methods**

The design for this multi-case study was grounded in critical feminist theory using Acker’s (2012) theory of gendered organizations to understand the experiences that led participants to either leave or remain within the NSC major. NSC is a 4-year undergraduate degree program at the UA within CALS. Between 2017-2018 there were 148 students, male and female who had entered the NSC degree. Nutritional Science is the study of nutrition and foods along with health and disease across the lifespan. This degree has two sub-options of dietetics or nutrition-flex and can even be added to a student’s plan as a minor degree program. This major requires multiple courses of science such as chemistry, biology, and food safety (Nutritional Sciences, 2018).

**Positionality**

As a former CALS student, I have noticed a gender gap among various majors offered within the college at the UA. I am a former undergraduate student where I majored in Animal Sciences: Industry Emphasis within the Animal and Comparative Biomedical Sciences Department. I first began noticing a gender gap among my peers as I passed through my upper division courses. As a cisgender male graduate student, I questioned why there was a wide gender gap in much of my previous coursework. Because I was a student in CALS, I interacted with individuals in various majors including NSC during my undergraduate career.
Participants

Participants included members of the NSC degree-seeking program within CALS at UA. Both men and women of various ages were recruited to participate. All participants must have completed at least one semester of their degree program to ensure viable data in the interview process. Unintentionally, all the students in the NSC program that agreed to participate in the study were in their senior year (see table 1). Participants were recruited through NSC professors and through other NSC peers. Eleven total students who were currently in the NSC major agreed to participate, with six of those students self-identifying as women and five of those students self-identifying as men. Ten of the participants majoring in NSC had enrolled in the dietetics emphasis and one participant enrolled in the flex-option emphasis (see table 1).

Table 1.

<table>
<thead>
<tr>
<th>Undergraduate Student Participants in the NSC Major</th>
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<tbody>
<tr>
<td>Pseudonym</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>Kaitlyn</td>
</tr>
<tr>
<td>Ramon</td>
</tr>
<tr>
<td>Kenzie</td>
</tr>
<tr>
<td>Lauren</td>
</tr>
<tr>
<td>Megan</td>
</tr>
<tr>
<td>Kathryn</td>
</tr>
<tr>
<td>John</td>
</tr>
<tr>
<td>Audrey</td>
</tr>
<tr>
<td>Rob</td>
</tr>
<tr>
<td>William</td>
</tr>
<tr>
<td>Connor</td>
</tr>
</tbody>
</table>
Participants also included students outside of the NSC degree-seeking program at UA. Participants were enrolled in other majors within the UA but could still be within CALS. Both men and women of various ages and class levels were recruited to participate (see table 2). Participants must have left the NSC major after completing at least one semester in the degree program and already be active in their new degree program to ensure viable data during the interview process. Participants were recruited through NSC advisors and faculty as well as past NSC peers. Despite rigorous and sustained recruitment efforts, only women who had left the NSC major agreed to participate. Six total students who had left the NSC major agreed to participate in this study, with all six of those students self-identifying as women.

Table 2.

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Gender</th>
<th>Year in School</th>
<th>Major</th>
<th>Sub-emphasis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lindsey</td>
<td>Female</td>
<td>Senior</td>
<td>Studio-Arts</td>
<td>NA</td>
</tr>
<tr>
<td>Hannah</td>
<td>Female</td>
<td>Sophomore</td>
<td>Family Studies &amp; Human Development</td>
<td>NA</td>
</tr>
<tr>
<td>Chelsea</td>
<td>Female</td>
<td>Sophomore</td>
<td>Education</td>
<td>NA</td>
</tr>
<tr>
<td>Jen</td>
<td>Female</td>
<td>Junior</td>
<td>Microbiology</td>
<td>NA</td>
</tr>
<tr>
<td>Ashley</td>
<td>Female</td>
<td>Junior</td>
<td>Information Science, Technology, and Arts</td>
<td>NA</td>
</tr>
<tr>
<td>Brianna</td>
<td>Female</td>
<td>Sophomore</td>
<td>Public Health</td>
<td>NA</td>
</tr>
</tbody>
</table>

Both genders were recruited to participate to more thoroughly explore the role of gender in a student’s decision to remain within or to leave the NSC major. Seventeen total students agreed to participate in this study. All participants were purposefully selected giving more preference to experienced students such as juniors and seniors among those willing to be
interviewed. Due to the limited pool of men who were eligible to participate in this study, all men students who responded to the recruitment call were interviewed.

Data Sources and Collection

Before beginning the interviews, I created and conducted a pilot study on one student currently in the NSC degree program. This pilot study allowed me to reflect on the interview questions I planned to ask my participants. The pilot influenced my interview protocol through enhancement and clarification of questions. The revised protocol was used for all subsequent data collection.

I conducted one-on-one semi-structured interviews with each participant lasting between 20-60 minutes. In total, 17 interviews were conducted over the course of the spring semester of 2019. Interviews were chosen to capture the essence of the participants’ experiences and dive deeper into the nuances of the phenomena being explored. Data was audio-recorded, transcribed verbatim, and later coded for analysis. An example of an interview question for students (both men and women) currently in the NSC program included, “What experiences in this major have made you continue pursuing this degree?” An example of an interview question for students who left the NSC program included, “What experiences have made you reflect on the choices of leaving this degree?” See Appendix A for a complete interview protocol for both in major and outside of major participants.

Data Analysis

The goal of critical theory is to critique and radically transform the current system, more specifically CALS at the UA focusing on the NSC degree program. Data was analyzed using Acker’s (2012) theory of gendered organizations as a guide. I analyzed my data using both deductive and inductive coding techniques. Deductive analysis looked at substructures and codes
from categories and trends based on the theory (Gelo, Braakmann, Benetka, 2008), in my case
the four underlying substructures of gendered organizations (Acker, 2012). These substructures
included: organizing processes, organization culture, interactions on the job, and gendered
identities (Acker, 2012). Inductive analysis was also conducted to discover what emerged from
the data that lay beyond the theory (Gelo et al., 2008). Transcriptions were examined for patterns
and themes that pertained to the original research question. Additionally, I reflected on Glesne’s
(2015) researcher questions throughout data analysis:

1) What surprises you? (helps track assumptions)
2) What intrigues you? (helps track personal interests and positions)
3) What disturbs you? (helps track tensions and possibly stereotypes and prejudices)

**Trustworthiness**

I followed Tracy’s (2010) criteria for a quality qualitative study including: worthy topic,
rich rigor, sincerity, credibility, significant contribution, ethical, and meaningful coherence
(Tracy, 2010). I utilized memoing to reflect on raw data throughout the research process. These
memos and emergent findings were also shared with participants to establish focus and to
identify the meaning behind the responses to interview questions. I utilized triangulation of data
by including participants within three distinct subgroups: women in the major, women out of the
major, and men in the major. Rigor was achieved through the conduction of 17 total participant
interviews. Rich, thick description was obtained through the use of quotes from the participant
interviews throughout the findings. Worthy topic was addressed through the research question
since there is currently little research conducted on this topic to date and more specifically at the
UA in this major. Additionally, I acknowledge my bias as a cisgender male student and disclosed
my positionality as it pertained to this study. Lastly, I utilized member checking of the findings
and interpretations. To establish complete member checking I talked to the participants to confirm their answers and stories were interpreted correctly.

Limitations of the Study

It is important that I acknowledge the limitations of this study. This research study did not capture every aspect of potential inequality within the NSC program. For instance, this study did not focus on race, ethnicity, socioeconomic status, etc., but only gender. I also recognize that gender isn’t dichotomous, therefore the participants are recognized based on how they identify themselves. I acknowledge that there are no male participants captured within the participants interviewed who had the left the NSC major. As indicated on my IRB protocol, I intended to recruit a total of 24 participants, 6 male and 6 female students currently in the NSC major and 6 male and 6 female students who left the NSC major. Despite sustained recruitment efforts, male students who had left the major were not able to be interviewed. A final limitation of the data stems from the sensitive subject matter of my research question. While I attempted to create an open atmosphere during the interview process it is possible that participants may not have revealed various aspects of their experiences due to the sensitive nature of my questions and their current involvement with the UA.

Findings

There were 4 major themes that emerged from the data. These themes included: gendered identities and power dynamics; the connection between NSC major and body image; positive relationships with advisors and professors and the desire for representative role models; and the culture of the student environment- competition, togetherness, and feminine energy. It is important to note that because I employed a critical feminist framework some underlying themes
were not overtly expressed by participants during the interview process but were apparent during data analysis.

**Gendered Identities and Power Dynamics**

One of the most prominent themes that emerged during analysis began with the realization from participants that there are more women in the NSC major compared to men. While the enrollment numbers based on gender make this seem like an obvious observation, in many cases this gender discrepancy did not seem apparent to participants until explicitly addressed by the researcher. During the interview I asked both genders the following question, “What does it mean to be a man (woman) in Nutritional Sciences?” This question elicited responses from participants that often revealed issues of gender identity and underlying power dynamics as it related to the major and higher education as a whole. For example, Jen, a participant who had left the NSC major, responded:

I think of more women in the science field, like that's great, but when you said male that didn't come to mind. You know, it just kind of seemed normal I guess. So that’s interesting. But, I think being a female in this major is good and it's a step in the right direction. I think of progress.

Jen’s statement is powerful because it contains her recognition that women have not been historically recognized in the science community and are now becoming a prominent force within her former major. She also describes men in the major as “normal” further highlighting the role of men within higher education as common and women’s involvement as a step towards “progress”. The expectation of men being in higher education and women still working towards a place in higher education despite the enrollment data, was echoed by another participant Kaitlyn, currently enrolled in the NSC program. She further elaborated on the common life
pattern of men that has often suppressed women in the past. She stated, “… I think historically women were not able to be engineers. And now they're able to and so it’s the trickle up to where it will eventually become balanced, just because, we [women] weren't allowed to do that.”

Kaitlyn expressed that despite the increasing number of women in science related fields, women in power positions are an additional hurdle that have not yet been overcome. She recognizes that change has occurred to allow more opportunities for women, but still acknowledges that the system remains unbalanced for women, with an underlying hope that it will “eventually become balanced.”

Additional examples were provided by participants based off what they observed in their day-to-day lives. Kathryn, a participant currently enrolled in NSC, said, “I feel like men would typically shoot more for the doctoral title. So, I have an appreciation and respect for the males in my degree who are pursuing something that is women, female populated…” Kathryn’s response was delivered in a matter of fact manner and explained without apparent recognition of the implications toward gendered identities. Expressing that men would typically pursue a Ph.D., a position of power, reveals an embedded social norm that men should advance in their degree attainment. She also indicates respect for men being in a female dominated major and did not mention women’s struggles in similar situations and organizations that are male dominated. This could be because this is a normal occurrence for her gender.

John, a male participant in the NSC major, provided the perspective of men. He mentions that if his career as a dietician does not meet his expectations, he will have opportunities to pursue a career in academia. He commented:

We aren’t the only dudes, there are guys who have made it and are teaching in academia. So, if being a dietitian doesn't work out, I guess I can go be a
nutritional teacher. There's not a requirement to be a female to be a nutrition professor somewhere.

John’s comment is of no intentional rudeness, but rather an understanding of this career path being obtainable due to his inherent male privilege and power. John also sees a career in academia as a viable alternative option to a dietician, which mirrors Kathryn’s previous statement regarding men’s roles within NSC and potential career opportunities that often reflect positions of power for males.

**The Connection between NSC Major and Body Image**

As the interviews progressed, one of the more interesting concepts that emerged from participants, both currently in and those who had left the NSC major, was the unspoken expectation for students in the major related to body image. This potentially stems from the nature of the content within the major being focused primarily on nutrition and wellness. There are current societal norms for both men and women related to body image, nutrition, health and wellness, and these were overtly present in the NSC major. William described his experiences:

…people, will you say oh you’re getting a nutritional science degree and if they're not, quote unquote, a healthy person they automatically sometimes start feeling judged or feel like you're looking at them differently because they stay home. And you're super nutritious, you're super healthy, so I think that people kind of look at that degree and say okay these people think they're on a pedestal because they're all healthy and stuff…”

William is acknowledging both the expectation and the potential judgement related to body image and health that is embedded within the identity and norms created in NSC.
Lauren, a participant currently in the NCS major, echoes William’s experiences and further describes the norm with the word “pressure”:

But I guess it’s the pressure, the general pressure, because we all go to the gym, and we all try to eat healthy, and we all try to display that on social media. And it's not even really like towards my peers. But I think it’s the society that we think we're in, we all kind of just want to portray ourselves as healthy. So sometimes, I see my other classmates and they're so fit and sweaty from the gym. And I'm like, I definitely ate three bags of chips before I got here. I don't dislike it, but it's I think that pressure I applied to myself from being around other nutrition majors.

Here Lauren addresses the root of this expectation from her perspective, stating that much of the “pressure” she is describing is not directly from her peers but instead internal and likely influenced by media and society.

Kaitlyn, a participant currently in NSC, echoed this expectation, but expressed it through a lens of self-improvement. She said, “…Um, this is kind of something, being a nutritional professional encourages you as an individual to stay healthy. If I'm doing this as a career, I have more motivation to like be healthy myself.” Kenzie also viewed the expectations as a positive thing for her personally and regarded her peers in the major as a support system. Kenzie stated:

I remember I was going to the gym quite a bit. And it really inspired me to look at my life and think about the choices that I was making, whether they were healthy or not. And I realized that I wanted to be more a part of a group of individuals that were helping others, and I felt like nutrition and dietetics was going to help me achieve that goal.
Connor, a participant currently in NSC, dove a little deeper into this concept of body image by highlighting gender differences, “…women are more pressured to be healthy and look a certain way while men aren't so much, so maybe that's why women are more interested in nutrition than men are.” Connor’s response reveals that this pressure may be more focused on women and could be the impetus for their attraction to the major in the first place. In today’s society, women are often heavily judged on their appearance, and therefore expected to be more conscious of their looks and lifestyles. This societal norm that has been adopted by the culture of the major can impact what it means to be female in a major. This component is crucial both to pursuing the major and remaining within the major, especially in a heavily female dominated community.

**Positive Relationships with Advisors and Professors and the Desire for Representative Role Models**

A large portion of my interview protocol involved questions pertaining to the relationships formed within the major and how the key players interact on a daily basis. The relationships explored involved those with professors and advisors within the major, in addition to peer relationships. A majority of the participants from both genders described their relationships with advisors within the major as “positive”. It is important to note that participants interviewed explained that all the advisors in the NSC program were female with the exception of one male advisor who recently joined the advising team. When I asked Rob, a participant in NSC, what his interactions with his advisors were like, he responded “…Because they were in that situation before, when you ask them, they can sometimes, even though they cannot give you some suggestion, they will help to guide you, or maybe they will refer you to another person....” Another participant, Audrey, also currently in the NSC program, had a very similar response
about her interactions with her advisors. She claimed, “She's able to empathize with the people that she's talking to, because she knows where they are, because she's done it before.”

Gender did not appear to be a factor when participants described their relationships with advisors. Most reflected on their various interactions as positive, with the occasional bad day described by a few participants. When the questions transitioned to relationships with professors in the major, there was still a generally positive response. For example, Megan, a participant in the NSC major said, “I think I've had a lot of good relationships with instructors where I can ask can I preceptor for a class or can you write me a reference? So those interactions have been really good.”

Most participants, both male and female, gave examples of interactions with various professors, whom happened to be predominately female. This was not unexpected considering most of the professors in the NSC program at UA are female. However, one male participant in the major, John, highlighted an interaction with a male professor. While still adhering to the positive relationship theme supported by other participants, John focused on the importance to him personally in having a male professor. He said:

I finally have a male professor in my nutrition program, so that was really good. And anytime I've asked questions after class or through email they're always super prompt and willing to help really with anything that's going on, and stuff that's not related to the classwork. Yeah, so just overall, I think all the professors really care about what they're doing here and care about their students.

Although John addresses positive relationships with multiple professors within his interview, the mention of “finally” having a male professor indicates the importance of this occurrence to him as a student. No other students mentioned this male professor, as all other
examples given by participants, male or female, involved female professors. Underlying John’s comments could be desire to see himself as a male reflected in the workplace. Research has documented the impact of like role models, particularly in reference to underrepresented groups (e.g. race, ethnicity, gender, sexual orientation, etc.). Perhaps in this case John felt more confidence in his previous statement regarding a potential career in academia within NSC after seeing himself represented by a male professor.

In contrast, Jen, a participant who left the NSC, describes her lack of experience with male professors in NSC:

Yeah, I didn't have a single male professor for nutritional science. Whereas for micro [microbiology major], I currently have male professor. I really haven't noticed any discrepancies between the way I feel in the courses. Even though there were more females [in nutritional science] I don't feel like it's really made a difference.

Jen discussed that she did not feel like the gender of the professor “made a difference” even after switching to a major that had an increased number of male professors. This could be because male professors are the norm in higher education and Jen, who identifies as female, is used to navigating a system with professors who are opposite her gender.

The Culture of Student Environment- Togetherness, Competition, and Feminine Energy

Additional questions in my interview protocol dove deeper into the climate, diversity, and values of the NSC program. Participants consistently referenced the lack of male students in the major, but added additional descriptions of togetherness, competition, and feminine energy as it related to the classroom environment. For example, Ramon, a participant in the NSC major, described the subtheme of togetherness:
so, it's kind of like we're all just in the same boat right now, we're just kind of trying to graduate and I don't really think there's anything that I don't like about them. I see a lot of diversity, not so much with gender. I feel like there's a lot of female students, maybe four male students. Yeah, I would say maybe like four male students in my classes, everybody else is, you know, not a lot in between gender, but a lot of maybe cultural differences.

The common expression “being in the same boat” was repeated frequently throughout the individual interviews by participants of both genders.

Male participants typically responded positively about the NSC culture and environment, highlighting aspects of comradery and friendly competition. John described it by saying, “I think it's really made a good atmosphere for our senior class that were able to discuss debatable topics in the field of nutrition,” However, the female participants were more likely to surface the competitive aspects of the major. Perhaps this stems from a historical need by women to compete for jobs and positions, specifically within a science-based career field. For example, Megan, a participant in NSC, referred to this togetherness as a challenge by saying:

I think that we all challenge each other because everybody is very invested from what I can tell, and this is a major where you kind of have to be because we're all looking forward to dietetic internships. So, you have to be invested in it, so I think because everyone else is into it, it makes you work harder.

Since almost all the participants were in the dietetics emphasis of the NSC program, they would often inform me that they have been in the same classes with the same people for most of their college career.
An additional subtheme beyond togetherness and competition was the culture of the classroom environment itself, described as a “feminine energy”, that likely emerged due to the heavy female population. Kaitlyn described a particular instance in one of her courses, where a male student disrupted the current norms espoused by students in the major through his interactions with other students. She said:

…a funny example from last week, we were having a class discussion and it's usually just very respectful. And then there was a dude who's in our course that kind of got upset and interrupted [the class]. I was like, eww, we don't usually have to deal with this. Yeah, I would say there's a feminine energy. It's pretty respectful, you raise your hand and you talk when you it's your turn.

In this case, Kaitlyn had become fully familiar with the norms of the major she had entered years ago and has now expressed discomfort when confronted with an individual who does not appear to adhere to those norms. For some women, the “feminine energy” present within the NSC major could be viewed as an escape from gendered institutions, seeking a place where there are fewer male power dynamics.

Despite this “feminine energy” described by Kaitlyn, the male students expressed that they were comfortable in the major, even when they were in the minority. However, it is important to note, that no male students who left the major were able to be interviewed. William, a participant currently in NSC, described his comfort level within the degree program. “I guess I could see how, someone as far as a male could feel outnumbered, because there’s a lot of females in there. But I don’t know, I feel comfortable, so it's kind of all I can go on.” Even though William was a minority in terms of his gender, he expressed a great deal of confidence and comfortability being in the NSC program. It is also important to note that William was a
little older than the traditional undergraduate student and expressed great confidence in his choice of major that may not be present with his younger peers.

**Discussion**

In this study, I explored the experiences of men and women students who remained within and those who left the NSC major using a critical feminist lens. The interviews with participants revealed various aspects of gendered organizations that potentially contributed to the high female enrollment within the degree program. More specifically, the following themes emerged from the data: gendered identities and power dynamics; the connection between NSC major and body image; positive relationships with advisors and professors and the desire for representative role models; and the culture of the student environment- competition, togetherness, and feminine energy. Each of themes contributed to the overall narrative of what it means to be a student within NSC, highlighting various aspects of gendered organizations.

The first emergent theme, gendered identities and power dynamics, tied directly back to Acker’s (2012) theory, focusing on men and women’s roles within the major and future workplace. These gendered identities promote the notion of an ideal worker that reflects and rewards the common life patterns of men and often overlooks and suppresses those of women (Acker, 2012). This phenomenon was reflected in many participant interviews throughout the study, with attention to the involvement of women in science related fields throughout history, the description of progress in relation to women’s enrollment within higher education, and the remaining issue of women still not attaining positions of power in fields previously dominated by men. Particularly in the field of science, women’s involvement is still a relatively new phenomenon. In the last 30 years, major headway has been made in improving women’s opportunities and involvement in science, which has positively impacted many science related
fields (Harding, 1998). Participants of both genders viewed men’s involvement in science related majors as “normal” and women’s involvement to be “another step towards progress”, despite the current high number of female students in NSC. Just because the participants may view the progress as a step towards gender balance, this does not ensure equality.

While women in the workforce constitutes one of the greatest social transformations in history, many political and social institutions have not kept up with this change (DeLauro, 2010). For example, in the medical field, women are still not seen increasing in senior leadership roles (Rimmer, 2014). Having more women enter the NSC field does align with the increase in the proportion of women majoring in the life sciences (Ma, 2011), but the question of what happens after the women graduate remains. Participants discussed that positions of power, such as a professor in academia, were still roles more accessible to, and more expected of, males. As women continue to graduate from applied sciences degrees like NSC and enter the workforce, it becomes increasingly important that attention is given to the specific roles they obtain and their experiences within these roles, which cannot be measured using quantitative strategies alone.

Participants of both genders revealed that body image played a major role within their identities as NSC majors. Body image can be defined as the picture of one’s body formed in that individuals mind, describing perceptions of the self that are centered on the individual’s sense of their own existence (Schilder, 1935). Body image and its potential impact on the work environment can be associated with Acker’s (2012) theory of gendered identities where she reveals there is a double-blind pressure amongst genders to act or look a certain way within the work environment. Participants addressed that they felt pressured to keep a healthy lifestyle because of their identity as a student within NSC. This pressure was exacerbated for the women in the major due to social media influences and historic and current expectations of women.
related to their appearance. Appearance and attractiveness are likely to be two crucial factors of social feedback (Rosenblum & Lewis, 1999). Society has created a feedback hungry audience where young adolescents crave attention and perpetuate unrealistic expectations of appearance, body image, and health. In higher education fields with a direct connection to nutrition and health science, the expectations of body image can potentially lead to individuals being attracted to or deterred from certain majors of study.

Even though discussion regarding body image was not something I anticipated before the study, participants’ revealed aspects of body image expectations in response to a variety of interview questions. The NSC major contains within it an embedded cultural norm that students enrolled must adhere to a certain body image to ward off any misconceptions about the major itself and to confirm that they belong in a health-conscious degree field. Because women are more often expected to conform to society’s expectations of the ideal body image, this expectation within the major could be one explanation for the high female enrollment in NSC. Many women in the study described this body image expectation in a positive light with the lens of self-improvement for their own health. Perpetuating this expectation could lead to unrealistic and unobtainable expectations among students in the major, that could potentially carry over into the workforce.

Relationships with advisors and professors and the desire for representative role models were discussed by various participants. Participants overwhelming described their interactions with these individuals as positive, regardless of the gender of either party. These connections with individuals could have implications for the sustained number of female enrollments with NSC, as most of the advisors and professors identified as female. This echoes the work of Kahle (1988), who found that personal and social factors, not academic ones, typically led to young
women entering and remaining within science majors. Seeing the same gender in a position of power could allow for female students to develop increased confidence in their major of choice, contributing to high female enrollment. Gender differences in educational programs seem to emerge when factors other than cognitive learner characteristics are present (Severiens & Ten Dam, 2012). These factors include the numerical representation of men and women in certain programs. In contrast, the lack of male professors and advisors could have a reverse effect on male enrollment in the major. One male participant expressed that he “finally” had a male professor, emphasizing the importance he placed on someone of his gender in this position of power.

The culture of student environment within the NSC degree program was described by participants in a variety of ways including togetherness, competition, and feminine energy. The expression “being in the same boat” was repeated quite frequently by participants of both genders in this study. It was relevant to note that participants did not notice gender differences even though they considered themselves in the same boat. In addition to themes of togetherness, competition was also associated with the NSC culture. Competition was expressed using a more aggressive tone by the women in the study as opposed to the men. This could stem from various aspects of a gendered society that have historically led to women being suppressed in the work place. According to Acker (2012), a gendered culture in an organization can favor one gender over the another and result in inequality without intent. In this case, even though women are the primary gender, they may still feel the need to compete with the few men in the major and with other women. This competition may stem from years of women being repressed within various organizations and the resulting lack of acknowledgement for their achievements.
One unique aspect of the student environment was the description of “feminine energy” within the classroom. The sizeable percentage of female students has appeared to result in a culture that subscribes to, as opposed to operates in contrast from, women and femininity. This unique aspect was further elaborated upon by one female participant when describing a situation where a male student in class shouted an answer instead of raising their hand. The females in class were bothered by this act as it occurred in opposition to the current norms and culture of the major, that could be described as feminine in nature. Acker (2012) refers to this as an organizing process where gender inequalities are institutionalized into job design, discrimination, power, and design of the work environment. In this case we see a reversal in what would normally happen in another organization that is primarily male dominated. This is an unusual case considering men have historically been the ones in power in a variety of organizations, including higher education. Usually men’s perception of reality is more likely to be rooted exclusively in their own prior and future experiences (Brooks, 2007), making it more difficult for them to conform with a culture that is different from their typical reality. This can then create uncomfortable situations for men in a major dominated by women, which could lead to male attrition from the NSC program and lower enrollment.

**Recommendations for Research and Practice**

Recommendations include expanding this line of inquiry to address limitations present in this study. Interviewing students in various stages of the major (freshmen, sophomore, junior, senior) could shed further light on retention and attrition patterns, as all participants in the NSC major in this study were in their senior year. Opportunities for expansion also extend to emphasis options within the major. This study contained almost all dietetics option participants, which does not completely capture the other emphasis areas within NSC. Additionally, participants who
left the NSC major can include students with a variety of new majors, ages, and gender. One of the biggest limitations in this study was the lack of male participants who had left the major. Future efforts to interview this group of individuals could reveal other aspects of gendered organizations. It is currently unknown why males left the NSC as they declined to be interviewed for this study.

Future research can also expand the individuals interviewed to include professors and advisors within NSC. These individuals play an important role in students’ decisions to enter or leave the major. The current findings only reveal perceptions from student participants, which is only one piece of the puzzle. Additionally, there are other majors with CALS that have a recent history of high female enrollment. Future studies should examine animal science or family studies, to see if there are similar patterns or other emergent phenomena present when compared with NSC. Future research can include comparative studies between distinct departments or fields of study. Finally, exploration into male and female students once they complete their NSC degree and enter the workforce could reveal important information related the role of gender in science related fields.

The findings from this study can be used to by advisors and college recruiters to explore decisions made by students when choosing to leave or remain within the NSC major. This includes recruitment efforts for underrepresented individuals and areas of concern that may not have been acknowledged prior to this study. Faculty and advisors are encouraged to consider these findings in relation to messages they may be sending or perpetuating about the major. Concepts of body image, male and female occupational outcomes, and the overall student environment should all be considered. It is important to understand that gender inequality still exists in many forms and is not always overtly present in an organization, including higher
education. Administrators, faculty, and staff must carefully examine the overt and covert messages present within each major and consider the implications this can have on students of both genders.
References


J. Hunt (personal communication, September 17, 2018)


