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Author:
Dr. Gregory E. Benson

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ATMAE
275 N. YORK ST Ste 401
ELMHURST, IL 60126

www.atmae.org





Dr. Greg Benson is an Assistant Professor of Industrial Technology at the University of Nebraska at Kearney (UNK). He earned his Ed.D. at the University of

Nebraska-Lincoln. Dr. Benson spent nearly 30 years in the materials and supply chain management industry, primarily in the automotive sector, before joining the UNK faculty in 2009. He teaches courses in industrial management, purchasing and negotiations, career decisions, and a senior seminar in the Industrial Distribution program. Dr. Benson can be reached at bensong@unk.edu.

Why Do So Few Female Students Select Industrial Distribution As Their Academic Major?

Dr. Greg Benson

ABSTRACT

Industrial distribution is a multi-billion dollar, business-to-business industry that moves products from the businesses who manufacture goods to the commercial and industrial businesses who use the goods. Industrial distribution is made up of trained professionals who serve an essential role in assisting manufacturers in the distribution of their products and value-added services to customers through the use of technical sales, product knowledge and expertise, and product promotion.

An issue within the industrial distribution program at the University of Nebraska at Kearney has been the small number of female students selecting industrial distribution as their major. The male-female student ratio of declared industrial distribution majors was 90% male and 10% female in 2011-12, compared to the ratio of 59% male and 41% female in other majors within the College of Business and Technology.

The purpose of this study was to understand why so few female students picked industrial distribution as their major. Twelve female students from the College of Business and Technology were selected to be interviewed for this qualitative study. Six were industrial distribution majors and six were pursuing other majors.

Analysis of the research data generated by the interviews resulted in four emerging themes:

1. **Planning for College:** While in high school, Academic planning for college was not an orderly, systematic process for most female students interviewed.
2. **Understanding Industrial Distribution:** Understanding that industrial distribution is a discipline with many opportunities for females as well as for males would encourage more female students to choose Industrial Distribution as a major.
3. **Selecting a Major:** Selecting an undergraduate major was influenced by personal decision-making factors that were unique to each female student interviewed.

4. **Recruiting More Female Students:** Recruiting more female students to the Industrial Distribution major would depend on promoting those features and opportunities that are associated with the major and appeal to female students.

INTRODUCTION

Within the College of Business and Technology (CBT) at a University of Nebraska at Kearney (UNK), students can earn a Bachelor of Science degree in Industrial Distribution (ID). The ID program's promotional material noted that individuals who are successful in the ID career field have skills in problem solving, relationship building, interpersonal communications, and working in a team environment. While these skills are applicable to female and male students alike, the 2011-2012 male-female student ratio for the 174 University students who declared ID as their academic major was 90% male and 10% female, compared to the overall CBT student population of 1130 students with a male-female ratio of 59% male and 41% female, excluding ID majors (University of Nebraska at Kearney Department of Institutional Research, personal communication, 2012).

PURPOSE OF THE STUDY

The purpose of this study was to understand why so few female students at UNK selected Industrial Distribution as their academic major. Using qualitative data collection techniques, the following research questions were used to guide the course of this study:

- How did the current majors of undergraduate female students at the University compare to their original high school plans about their majors in college?
- What factors did undergraduate female students at the University consider important when selecting their college majors?
- Prior to selecting their current majors, what did undergraduate female students at the University know about the discipline of industrial distribution and the comprehensive major in industrial distribution?
- (For non-industrial distribution majors only.) What factors discouraged undergraduate female students at the University from

- selecting industrial distribution as their major? (*For industrial distribution majors only.*) What factors encouraged undergraduate female students at the University to select industrial distribution as their major?

SIGNIFICANCE OF STUDY

The National Association of Wholesalers-Distributors reported that \$5.2 trillion (38%) of the 2009 U.S. Gross Domestic Product (GDP) was sold through the country's wholesale distribution industry, which is made up of over 250,000 companies employing 5.2 million people. Nearly one-half of GDP products (in dollars) in the U.S. sold through wholesale distribution fall into the category of "durable goods" (NAW, 2011). The U.S. Census Bureau's "2010 Annual Wholesale Trade Report" classified durable goods into eight primary sectors: motor vehicle parts and supplies, construction materials, commercial equipment, metals and minerals, electrical goods, hardware, plumbing, and machinery. Interestingly, each of these durable goods sectors represented "male-dominated" occupations as defined by U.S. Department of Labor, which means that 25% or less of each category's employed workforce was made up of female employees (U.S. Department of Labor, Women's Bureau, 2010).

In her book, *Men and Women of the Corporation*, Kanter (1977) wrote, "Sex segregation of occupations is a fact of the American work world" (p. 16). Kanter's *Men and Women of the Corporation* is recognized as seminal work that introduced the ideas and resulting theories associated with tokenism and homosocial reproduction to explain workplace of women and minorities (Volpone, 2013; Lewis & Simpson, 2012). Since that time, numerous studies (including those cited in this paper) related to the issue of females in male-dominated occupations and degree majors have concluded that traditional male STEM majors (mathematics, science, technology, engineering, and mathematics) and traditional female nurturing majors (teaching, social work, and nursing) are reinforced as gender-appropriate behavior by the workplace and postsecondary institutions.

Regarding the underrepresentation of women in STEM related occupations, Beede, Julian, Langdon, McKittrick, Khan, and Doms (2011) reported that while women make up close to 50% of both the U.S. workforce and the college-educated workforce:

- Men are much more likely than women to have a STEM job regardless of educational attainment. Women hold less than 25 percent of STEM jobs. (p. 3)
- Women hold a disproportionately low share of STEM undergraduate degrees. In 2009, there were 2.5 million college-educated working women with STEM degrees out of a total of

21.4 million employed women with bachelor's degrees compared with 6.7 million college-educated working men with STEM degrees men out of a total of 22.2 million employed men with bachelor's degrees. (p. 5)

- Women with a STEM degree are less likely than their male counterparts to work in a STEM occupation. About 40 percent (2.7 million) of men with STEM college degrees work in STEM jobs, whereas only 26 percent (0.6 million) of women with STEM degrees work in STEM jobs. (p. 6)

Based on the her research concerning the lack of females in male-dominated STEM academic disciplines, Markert (1999) pointed out, "educators at all levels (both male and female) must be mindful of a wide assortment of behaviors they may unknowingly display that create a chilly classroom or null academic environment for their female students" (p. 28).

In his research regarding the underrepresentation of females in STEM academics, Blickenstaff (2005) noted,

The continuing message appears to be that boys' ideas and participation in class are more important than girls'. It seems likely then, that girls would eventually get the message and leave, heading for an environment that recognizes and values their contributions (p. 379). The 'chilly climate' for girls and women that seems to exist in many science classrooms is largely comprised of the sexist course materials and poor pedagogy. At the same time, the possibility (some would say probability) of harassing behavior toward women by male colleagues and professors cannot be ignored, and has to be addressed by society at large. (p. 381)

If Kanter, Beede et al., Markert, Blickenstaff, and others are correct that gender segregation is part of America's work culture that is reinforced by the country's postsecondary educational experience, one could reasonably conclude that the gender segregation experienced within both business and education was a logical explanation for the male-female enrollment disparity experienced within the University of Nebraska at Kearney's ID program. But what if this conclusion was incorrect?

It was concluded there was a need for a study to understand why so few female students selected Industrial Distribution for their degree program at UNK, not only to develop future strategies to address this issue within the University's ID program, but to also provide information that could assist other schools that were dealing with low female enrollment within their ID programs and possibly other male-dominated academic majors. Initially, the literature review for this study was focused

specifically on the lack of females within the ID discipline, but very little was found in the way of research publications addressing the male-dominant issue within the ID academic discipline. As a result, the literature review was expanded to include research related to male-dominated STEM academic disciplines, as well as career development theory, in an effort to gain understanding on what might be taking place within the University of Nebraska at Kearney's Industrial Distribution major.

DESIGN

Purposeful sampling using convenience sampling strategies coupled with a cross-case analysis approach were used in this study to gain an understanding about the key factors discouraging the selection of the ID major by female undergraduate students attending the University of Nebraska at Kearney (UNK). The purposeful sampling strategy was selected for this study by the researcher, because he was interested in gaining an understanding of why so few female students selected ID as their major. Merriam (2009) explained that the selection of purposeful sampling was appropriate, because "purposeful sampling is based on the assumption that the investigator wants to discover, understand, and gain insight and therefore must select a sample from which the most can be learned" (p. 77).

For purposes of this study the researcher only included female students who had a declared major in the College of Business and Technology (CBT). The researcher chose to limit the study to this specific population of female students, because through their decision of selecting a CBT major this population of female students had demonstrated an initial interest in some type of business related discipline. Industrial Distribution was one of the business related academic options that this population of female students could have chosen within the University's College of Business and Technology.

With the assistance of other CBT faculty members, the researcher used a purposeful sampling approach to recruit the female student volunteers for this study. Merriam (2009) pointed out that "the criteria you establish for purposeful sampling directly reflect the purpose of the study and guide the identification of information-rich cases" (pp. 77-78).

For this study, twelve student interviewees were selected who met the following criteria:

- Female
- Undergraduate student
- 19 years old or older;
- Declared CBT major that leads to a Bachelor's Degree
- Awareness of the University of Nebraska at Kearney's ID major prior to their selection of a major; and

Six of the twelve interviewees were required to have a declared major in the ID program, and six interviewees were required to have a declared ma-

ior in any other major within the UNK's College of Business and Technology.

Steps followed to recruit female non-Industrial Distribution majors for this study included addressing students enrolled in the fall semester's Macro-Economic and Micro-Economic classes (required courses for all UNK Business majors) to request volunteers for the study and requesting all students in each class to complete a Participant Qualification Questionnaire (PQQ) form. Male students were informed that the reason they were asked to complete the PQQ form was to compare the female (as a group) awareness percentage of the ID major to male (as a group) awareness percentage of the ID major, and that male students were not being recruited to be interview participants for the study.

All forms completed by the female non-ID majors were placed into one of four categories:

- (a) female students not aware of the ID major;
- (b) female students who were aware of the ID major but did not consider it for their major;
- (c) female students who were aware of the ID major and considered it for their major before selecting another major; or
- (d) female students who selected ID as their major.

Instructions given to male students before completing their PQQ form explained that the only reason they were asked to complete the PQQ form was to compare the female awareness (as a group) percentage of the ID major to male awareness (as a group) percentage of the ID major. Male students were informed that they were not being recruited to be interview participants for the research study. All forms completed by male students were placed into a separate "Male Student Response" category.

Female students who responded that they were aware of the ID major and either did not consider it for their major or did consider it but decided on a different major, and stated they were interested in participating in the study were included in the "potential volunteer" listing. The names of female students who were included in the potential volunteer listing and met the selection criteria for the study were placed in a container and names were drawn to determine who was selected for participation in the study. The names of the selected female students were written down in the order they are selected until twelve names were drawn for the study. Once the drawing was completed, female students were contacted in the order their names were drawn until six female non-ID majors agreed to be interviewed for the study and two female non-ID majors agreed to be alternates for the study. (Alternates were selected to replace female students who agreed to be interviewed and were unable to participate for any reason.)

Selection of female ID students was completed by the researcher following a similar selection pro-

cess. All twenty names of current female ID majors who met the selection criteria for the study were placed in a container for a drawing. The names of female students were drawn and written down in the order they are selected until all names were drawn. Once the drawing was completed, female students were contacted in the order their names were drawn until six female ID majors agreed to be interviewed for the study and two female ID majors agreed to be alternates for the study. (Alternates were selected to replace female students who agreed to be interviewed and were unable to participate for any reason.)

The interview protocol used for this research project was designed to be flexible in order to adapt to needed changes in interview questions, interview sites, and interview situations (Creswell, 2013). The interview process for all female student interviewees was the same, beginning with an initial set of scripted, open-ended interview questions. Development of the scripted, open-ended questions was the result of consultation with members of the University's ID faculty, faculty members at another university familiar with the issue, and experience of the researcher. Follow-up probing questions were used on an as-needed basis to clarify responses to the scripted questions. Interviews were semi-structured, face-to-face discussions between the female student interviewees and the researcher. All interviews were recorded and then transcribed following the interview session. All of the female student interviewees were required to sign an "Adult Informed Consent Form" prior to the beginning of the interview.

DATA ANALYSIS STRATEGY

Data analysis began as raw data was collected by the researcher. During the interviews with all of the female student interviewees, the researcher made decisions related to the type of data that would be collected. At times this required modification of interview questions, narrowing or expanding the scope of the study, writing memos during the interview, and trying out new ideas with female student interviewees. The data collection and analysis process was a fluid, on-going process in which the researcher adapted and adjusted his data collection activity based on what was occurring during each interview (Merriam, 2009).

Management of the data was the second step of the data analysis strategy. This step allowed the researcher to organize and retrieve data quickly and easily. While a data management system is often unique to the thought process of the researcher, it must allow data to be labeled and inventoried in a manner that is consistent for all sources of data so that information could be retrieved easily and in a timely manner (Merriam, 2009). The transcribed interviews from this study were manually coded

using an open coding approach. The researcher assigned initial responses, or codes, to pieces of data that related to the purpose of this study. Once all transcripts were initially coded, he reviewed and evaluated the codes and began grouping similar codes together. A list of the initial code groupings was developed for use during the third step of the data analysis strategy.

Step three of the data analysis strategy involved "consolidating, reducing, and interpreting what people have said and what the researcher has seen and read" (Merriam, 2009, p. 176). During this step, data categories were developed from which research themes eventually emerged. During this activity, code groupings were evaluated from the previous step to determine tentative categories that "capture some recurring pattern that cuts across [my] data" (Merriam, 2009, p. 181).

Once a tentative category listing was developed, folders were created for each tentative category. Each piece of data that was connected to a code associated with a tentative category was placed into the tentative category folder. After all the data had been placed into one of the tentative category folders, the data in the folders were once again evaluated to determine which tentative category folders could be combined to form the final, mutually exclusive group of categories, or themes. Each of the final categories was assigned a name that summarized the contents within the category in a manner that was understandable to someone not involved with the study. The resulting final categories answered the research questions of this study and were used to write the research narrative report (Merriam, 2009).

"Did the researcher get it right?" This was the fundamental question that the researcher wanted to be able to answer "Yes!" once the study was completed. To do so, it was essential that a validation process was in place that "assesses the accuracy of the findings, as best described by the researcher and the participants" (Creswell, 2013, pp. 249). Creswell (2013) recommended that "qualitative researchers engage in at least two [validation strategies] in any given study" (p. 253). To this end, the following validation strategies were incorporated into this research project:

- *Member Checks.* Each female student interviewee was emailed a copy of her interview transcription and asked to review the information to make certain it accurately captured her intended response. A response deadline was established for the female student interviewees to return any transcript corrections to the researcher's attention so their revisions could be included in the analysis of the interview data. Following the initial interpretation of the transcribed data, a copy

of the interpretation was emailed to each female student interviewee for their review and confirmation that the interpretation was correct. Each female student interviewee was sent only the portion of the interpreted information that was associated with her interview. A response deadline was established for the female student interviewees' interpretation response.

- *Auditor.* "If the findings of a study are consistent with the data [collected], the study can be considered dependable" (Merriam, 2009, p. 222). To make certain the findings reported in this study were consistent with the data collected from the interviews, the researcher incorporated the services of a third-party auditor. The responsibility of the auditor was to review the interview transcripts and to compare the categories presented in this study to the data collected from the transcripts to make certain there was consistency and alignment between the two.
- *Rich, thick descriptions.* One of the goals of this study was to understand and report results that might be of value to other ID programs and related occupations dealing with male-dominant issues. It was the intent of the researcher to include enough description in the narrative report so that readers of the report could determine if their situation was similar enough to this study that the discussion and recommendations might be useful to their setting (Merriam, 2009).

Based on the responses of 107 male and 68 female students who completed the PQQ, 32.71% of male students compared to 29.41% of female students responding to the PQQ replied that they were not aware of the University of Nebraska at Kearney's Industrial Distribution program. The results from the PQQ responses reinforced the researcher of the need for this study.

DELIMITATIONS AND LIMITATIONS

There are delimitation and limitation factors associated with this study that must be acknowledged. First, the research was conducted by a male faculty member within the University's ID program. In an effort to avoid male interpretative bias on collected data, a non-UNK female auditor was utilized to validate the findings of this study. Second, participants selected for this study were limited to female students within the University's College of Business and Technology. Conclusions resulting from female students enrolled in other UNK colleges, or a similar study at another postsecondary institution that offered an Industrial Distribution academic major may differ from the findings of this study. A third factor was the location of the University of Nebraska at Kearney. The University's enrollment

is less than 8,000 students with the majority of the students coming from small to mid-size communities. The ability to generalize the results of this study might only be possible to a specific type of college environment and academic discipline; therefore, interpretations from this study should be considered with care. Future research is needed in this area to assess and address additional issues related to attracting and recruiting female students into the academic programs and career opportunities associated with industrial distribution.

EMERGING THEMES

The interview process for this study was the same with all female students beginning with an initial set of scripted, open-ended interview questions. Follow-up probing questions were used on an as-needed basis to clarify responses to the scripted questions. All interviews were audio recorded and transcribed following the interview session. All of the female students who agreed to participate in this study were assigned aliases that have been used when referring to students' responses. Interview data was segregated and placed into data categories. The initial data categories were reviewed, analyzed, and consolidated resulting in the identification of four emerging themes.

Emerging Theme 1: Planning For College

While in high school, academic planning for college was not an orderly, systematic process for most female students interviewed.

Eleven of the twelve interviewees stated that they were planning for college while they were in high school. Of the eleven female students, three stated they had no idea when they were in high school what academic area they were going to pursue in college, three stated that their current college academic major was very similar to their high school academic plan, and five students stated that their current academic major was different from their high school academic plan. The twelfth interviewee stated she had not planned to attend college when she was in high school.

The study's interviewees identified a number of external factors during high school that influenced their college planning efforts, including: participation in high school sports, parental input, career interest tests, and high school instructors. This is consistent with findings reported by O'Brien and Fassinger (1993), "career choice of adolescent women are predicted by ability, gender role attitudes, and relationship with mother" (p. 466). Parental input and support related to college planning during their high school years was noted by more than half the female students in this study. Janet recalled her family saying that "college was a good idea." Jessica and Audrey both noted that both of their parents were the most influential

individuals during their high school years with their college planning, while Kathy pointed out that her mom helped her with college planning.

The importance of the fact that only three of the twelve interviewees stated that their current college major was the same or similar to the college major plans they made while in high school cannot be overstated. The changing of college academic plans that took place sometime after high school graduation by the study's female students demonstrated that they were willing to "open the door" after high school graduation to academic majors in college that had been previously overlooked, purposely did not considered, or they had no prior knowledge of before coming to college. This willingness to reconsider college academic plans after graduating from high school is good news for the ID program, because it demonstrates that the ID program can successfully recruit female students once they have arrived on campus, regardless of their high school planning, if the academic alternative is considered better than their previous plans.

Emerging Theme 2: Understanding Industrial Distribution

Understanding that industrial distribution is a discipline with many opportunities for females, as well as for males would encourage more female students to choose industrial distribution as a major.

When asked if they had ever heard of Industrial Distribution while in high school, all twelve interviewees responded they had not; however, within the first year of their UNK experience all responded they became aware of the ID major. The perceptions formed by all of the interviewees about Industrial Distribution before they came in contact with ID faculty or ID majors were incorrect. All of the interviewees perceived the ID major and its associated career opportunities as being male-dominated, intimidating to female students, and requiring previous educational background or work experience in fixing mechanical equipment. The interviewees explained they did not consider the Industrial Distribution major, because they thought it was a "guy major"; they believed female students would be at an immediate disadvantage compared to the male students in classroom due to their lack of understanding and experience with technical subjects and industrial equipment; and they viewed related careers to be associated with dirty, factory-like jobs that were not appropriate for females. This was consistent with Correll's (2001) research that reported,

Any attempt to counter the effects of gender beliefs on gender segregation in the labor force will require looking beyond how stereotypes are used by gatekeepers, such as teachers ... , and

focusing on how gender beliefs affect...females' perception of their own abilities at crucial decision making junctures. (p. 1726)

When asked if they had become aware of the Industrial Distribution program after their arrival on the University of Nebraska at Kearney campus, eleven of the twelve interviewees reported that they became aware of the program during their freshman year through a friend or another student on campus. The twelfth student, an ID major, became aware of the Industrial Distribution program following her graduation from a junior college, but before her enrollment at the University of Nebraska at Kearney.

Initially, the awareness and understanding of the ID program by female ID majors in this study were similar to the understanding of female non-ID majors in this study. All but one of the female ID majors knew nothing about the ID program prior to coming to the University, knew nothing about the ID program when they first arrived on campus, and only because of a chance meeting with an ID student did they learn about and become interested in pursuing the ID major. Five of the female ID majors had originally thought they would major in something other than Industrial Distribution when they arrived on campus. It was not until they gained an understanding of Industrial Distribution that they decided to select ID as their academic major.

Although all of the female ID majors were able to provide a basic description of Industrial Distribution, most of the definitions were heavily dependent upon the use of examples to explain how ID functioned as a middleman between producers of goods and business end-users of goods. All but one of the female ID majors admitted they found it difficult to actually define Industrial Distribution when talking to other students. The following interview question and answer exchange with Kathy, an ID major, demonstrated the difficulty female ID majors in this study had when trying to explain Industrial Distribution.

- Q.** If you were to define Industrial Distribution, how would you explain it to another student?
A. I think ID is hard to explain it. It really is.
Q. What is hard to explain?
A. Just like everything combined, like technical sales, but there is so much more after that. I have trouble putting it all into words.
Q. Have you ever heard of anyone who defined the major in a way that is understandable?
A. Yes, but I can't regurgitate it. I understand it when someone says it to me, but then it's hard for me to explain it.
 When female non-ID majors in this study were asked to define Industrial Distribution, it was clear that their awareness of Industrial Distribution did not mean they had an accurate understanding

of the Industrial Distribution discipline. Marcia defined Industrial Distribution as a “factory putting things together. Blue collar work. Hard working conditions.” Debbie defined Industrial Distribution as “auto mechanics, woodworking, fixing stuff, mechanics, and stuff like that.” Shirley defined Industrial Distribution “like making a product that is used in industry. Big industries like railroads and airplanes. That’s the only thing I can come up with.”

To summarize, all female students in this study initially thought industrial distribution was a “guy major” leading to dirty, factory-like jobs that were not appropriate for females. This lack of understanding led all but one of the female student interviewees to initially lack the interest and confidence that was needed to consider pursuing an ID major. This was consistent with a study conducted by Hollenbeck and Hall (2004):

Our judgment of whether or not we can do something; it is the result of our thinking. It can be accurate or inaccurate, influenced by how well we make judgments, how accurate the data is on which we base the judgments, the data we choose to consider, and how we process it. Self-confidence is based on perceptions, both of our capabilities and of what the task or challenge requires, not on the underlying skills themselves or the task requirements. Anything that affects our view of our capabilities and/or perceptions of the task requirements (whether realistic or not) can result in our having more or less self-confidence. (p. 257)

This lack of confidence demonstrated by the interviewees was consistent with Bandura’s (1977) Self-Efficacy theory, (i.e., how people think, feel, and behave). Bandura (1977) noted that while a performance accomplishment is “especially influential because it is based on personal mastery experiences” (p. 195), it is not the only contributing influence to one’s self-efficacy. He noted that individuals can persuade themselves to do particular activities as the result of “seeing others performing threatening activities without adverse consequences” (p. 197) such as mentors and role models. Bandura (1977) suggested that an individual could “mobilize greater effort” to improve their personal efficacy by being “socially persuaded that they possess the capabilities to master difficult situations” especially if “they are provided with provisional aids [needed] for effective action” (p. 198).

The Hollenbeck and Hall (2004) and Bandura (1977) explanations are useful in explaining how the activity of providing accurate information by ID faculty and students about the ID major influenced six female student interviewees in this study to change their perceptions of industrial distribu-

tion and led to the selection of ID as their major.

Emerging Theme 3: Selecting a Major

Selecting an undergraduate major was influenced by personal decision-making factors unique to each female student interviewed.

Upon examination of the female students’ areas of academic interest, there was no discernible difference between the variety of academic interests that were communicated by the female ID majors and female non-ID majors in this study during their first year of college. The list of first year academic interests reported by the study’s female ID majors prior to declaring Industrial Distribution as their academic major included psychology, advertising, teaching, sales, art, pre-nursing, business, and sports. The list of first year academic interests reported by the study’s female non-ID majors prior to declaring Business Administration as their academic major included psychology, broadcasting, graphic and interior design, pre-pharmacy, biology, military, missionary work, and sport.

Janet, an ID major, explained that she came to UNK with a “declared [major] in psychology” but after her second semester she “changed to advertising.” After one semester in advertising, Janet decided that advertising was not her passion so she “decided to go into Industrial Distribution.” Mary, an ID major, said that she came to UNK with an interest in art, but “dropped art as soon as I knew that playing a sport and dedicating a lot of time to art would be difficult.” Once she dropped art, Mary considered teaching and physical sports studies before declaring Industrial Distribution as her academic major.

Audrey, a non-ID major, came to the University as a biology and pre-pharmacy major, but changed her major to Business Administration “when I found out I had to take five chemistry classes.” Minnie, a non-ID major, arrived on campus “contemplating between broadcasting and psychology.” She pointed out that after one broadcasting class she realized her interest was not in broadcasting and changed her major to psychology. After one psychology class Minnie stated that she, “really didn’t like my professor so I switched my major again.”

While there was no apparent distinct area of academic interest expressed by either group of female students (ID majors or non-ID majors) in this study when they first entered college, the summary list of academic interests from each group appeared to have similarities in more generalized areas, such as working with others (individually or in teams), using their creative abilities to help people learn and solve problems, and working in an environment that embraced an outgoing, social-type of personality. In addition to their wide array of academic inter-

ests, both groups of female students in this study described an assortment of personal preferences that influenced their selection of an academic major. There did not appear to be a clear consensus of personal preferences between the study's female students in either group, and there was not a clear difference in personal preferences between the study's female students within either group of majors.

In addition to academic interests and personal preferences, other external influences played a role in the selection of an academic major by each of the female students in this study. In the case of the ID majors, all six interviewees reported they came in contact with a student that was an ID major during their first year on campus, and that contact was their first exposure to the University's ID program and the reason why they looked further into the ID major.

Each of the female non-ID students identified external factors that influenced their selection of an academic major, but unlike the female ID students, none of the six non-ID students reported that coming in contact with a student in their selected academic major was a contributing external factor that influenced their academic major selection.

The data provided by the interviewees demonstrated that the criteria they considered to select their college academic major depended upon the individual student. There was not a single, standard process used by the interviewees to select their major. This emerging theme is consistent with other research that has been conducted on the topic of how academic majors are selected by college students. Based on the findings of their study, Walmsley, Wilson, and Morgan (2010) concluded that the selection of an academic major by college students is the result of a number of influencing factors.

As the findings of this study indicate, many students are influenced by various people and experiences in their lives as they search to find a major. Encouragement or discouragement from a trusted friend, parent, a professor, or a peer regarding a major created juxtaposition of the potential occupation and the student's view of himself/herself. These findings indicate the importance of relationships and experiences in helping the student decide upon a major. (p. 42)

Emerging Theme 4: Recruiting More Female Students

Recruiting more female students to the ID major is dependent upon promoting features and opportunities associated with the major that are of interest to females.

Responses provided from the study's interviewees to the question, "What would you do if you were

in charge of increasing female enrollment in the ID program?" identified areas that could be contributing factors to the low number of females selecting Industrial Distribution as their academic major. The three areas receiving suggestions that were similar in nature from at least three female students in both the ID and non-ID majors in this study were:

1) focusing on introduction of Industrial Distribution to female students in high schools, **2)** using female ID students to promote the Industrial Distribution program to other female students, and **3)** focusing on the concepts of relationship building when recruiting female students.

Eight of the interviewees pointed out that promotional information should be targeted specifically to the interests of female high school students, and that it should emphasize that the ID major is not just a "guy's" major; rather, it is an academic major where females are just as successful as males in the classroom. Additionally, ten of the twelve interviewees noted the importance of highlighting the near 100% job placement rate of females in ID related careers following graduation.

Seven interviewees, four of which were non-ID majors, pointed out the importance of having female ID majors recruiting female students. They thought female students would be more comfortable and receptive to hearing about the ID major if they were approached by other female students. When asked who she would prefer to talk to, Marcia replied "I would be more comfortable with girls because I can relate to them more." Jessica, a non-ID major, agreed that girls prefer to be recruited by girls because she thought girls were more genuine than guys when it came to recruiting students.

Fifty percent of the study's interviewees thought the ID faculty needed to remember that female students are more social and relational than their male student counterparts. Therefore, the recruiting approach for the ID major needed to emphasize the social opportunities and relationship building aspects of the ID program. Mary, an ID major, explained that in order to effectively attract female students to the ID degree program, tactics need to be softer and focused more on nurturing and relationship building opportunities when talking about the ID program with female students. Sue, an ID major, thought that recruiting female students to the ID major needed to begin with establishing a relationship with the female students before talking to them about the major.

The three primary female "appeal factors" suggestions identified in this theme -- focusing on introduction of Industrial Distribution to female students in high schools, using female ID students to promote the Industrial Distribution program

to other female students, and focusing on the concepts of relationship building when recruiting female students -- were consistent with findings associated with recruiting females to STEM majors and occupations. In her article, *How to Recruit Women and Girls to the STEM Classroom*, Milgram (2011) explained,

Women and girls need to see female role models in the workplace that look like them. They need to receive the message that women can work in STEM careers and be successful and fulfilled in their work life while still having a personal life, and they need to receive this message repeatedly. (p. 5)

To summarize the analysis of the data collected from the interviews of twelve female student interviewees selected for this study, four themes emerged that related to the purpose of this study.

1. *Emerging Theme 1: Planning for College.* While in high school, academic planning for college was not an orderly, systematic process for most students interviewed for this study.
2. *Emerging Theme 2: Understanding Industrial Distribution.* Understanding that industrial distribution is a discipline with many opportunities for females may encourage more female students to choose Industrial Distribution as an academic major.
3. *Emerging Theme 3: Selecting a Major.* Selecting an academic major was influenced by personal decision-making factors unique to each student interviewed.
4. *Emerging Theme 4: Recruiting More Female Students.* Recruiting more female students into the ID major is dependent upon promoting features and opportunities associated with the major that are of specific interest to female students.

RECOMMENDATIONS

The findings of this study can be useful for male-dominated ID programs and related occupations, as ID faculty members discuss, develop, and implement recruiting action plans in an effort to attract a greater number of female students to the ID major. Examining the situation at this university's ID program, it was discovered that the ID program's recruiting promotional material was designed more toward the interests of male students, that the ID students who made ID program presentations to high school students were nearly all male ID students, that ID faculty who taught the core group of ID classes were male instructors, student academic advisors for the ID program were all male faculty members, and that the ID faculty advisors for the ID student organization was a male faculty member. While the ID program at the UNK does

not deliberately discourage female students from enrolling in the ID major, subtle messages (such as those just listed) may be sent to potential female students recruits that portray an ID program that may not be "user friendly" to females. As Kanter (1977) pointed out, gender-appropriate behavior is often reinforced by actions and activities that take place within postsecondary institutions.

This study pointed out that interviewees were unaware of the industrial distribution discipline when they were in high school. This general lack of understanding about industrial distribution discipline, gender stereotypes, and the lack of accurate information about the University's ID major coupled with the female students' personal associations to the words "industrial" and "distribution," resulted in the development of misperceptions about the ID major by the interviewees. While non-ID interviewees did not come in contact with someone directly connected with the ID program, they did develop an awareness of the ID major. However, the awareness of the ID major did not translate into an accurate perception of the industrial distribution discipline for non-ID interviewees. Interviewees who became ID majors came in contact with students and faculty associated with the ID program who shared accurate information about the ID major, which in turn piqued the interest of the ID major, motivated ID interviewees to learn more about the ID program and career opportunities eventually resulting in ID interviewees deciding to enroll in the ID major.

The take-away from this study for any ID program dealing with the underrepresentation of female students in their ID major would be to develop an understanding of how female students are perceiving the ID major, and if misperceptions are discovered, to identify those factors that may be influencing female students' misperception of the ID major. In the case of UNK, recruiting plans and promotional material should be developed in a manner that delivers accurate information about ID major and related career opportunities that address the interests of female students in an effort to overcome current misperceptions held by their targeted female audience.

Second, interviewees in this study pointed out that they were significantly influenced by one-on-one discussions with individuals they trusted and respected when they were considering a change in academic majors. Based on this information, the ID programs should consider developing a female student recruiting strategy that includes one-on-one recruiting meetings involving current female ID students talking to undecided or dissatisfied non-ID female students about the benefits and opportunities associated with the ID major and related ID careers following college graduation. This type of meeting would provide an opportunity

for the social connections to take place and relationships to be formed. Several interviewees pointed out that if the ID program wanted to increase the number of female students enrolled in the ID major, there needed to be a more personal recruiting approach. Mary, an ID major, explained:

I feel the approach should be more of a softer approach on recruitment. On a high school visit you could have people do a little bit less of a presentation style and more of a circling your tables or sitting on the floors or being less formal. Also, maybe the existing girls in the program should go into the sororities and cultivate social relationships with other female students before trying to recruit them for the ID program instead of just the current one-time presentation.

The common misperception held initially by nearly all of the study's interviewees was that the University's ID major was basically a "guy only" major. The addition of a female faculty presence within the ID program at UNK would send a visible message to future female students that the ID academic major is not just for male students. Additionally, a female ID faculty member would provide female ID students with an academic advisor that may relate better to issues and concerns of female ID majors.

Finally, the ID major should be promoted to female students in a manner that highlights the academic and career opportunities within ID in a manner that is appealing to women, such as relationship building, problem solving, and making a difference. The formation of a female ID promotion committee made up of only female students, both ID majors and interested non-ID majors, with the purpose of creating ID promotional material that would appeal specifically to female students could prove useful with improving how the University's ID program is perceived by female students as they consider and select their academic major.

FUTURE RESEARCH

Based on the researcher's review of literature, little has been written about the lack of females within the male-dominated industrial distribution academic and career disciplines. Follow-up research could be conducted to determine if an improved awareness and understanding the industrial distribution discipline among female students translated into an improved perception of the ID major and related careers resulting in an increased number of female students enrolled into ID majors. Future research could be focused on the effectiveness of female targeted promotional materials. Such a study might determine if promotional materials designed specifically toward the interests and expectations of female students was more effective in recruiting

female students into the ID major than generalized ID major promotional material.

A research project could be developed that measured the effectiveness of different delivery strategies for ID related information, such as one-to-one discussions, small group settings, social media, high school recruiting trips, and current ID majors versus ID alumni recruiting effectiveness. A specific study could be developed that tracks the effectiveness of developing a team of female ID students who are well-trained in presentation skills developed specifically to recruit female students in high schools, community colleges, and universities for the ID major and future ID related career opportunities.

A different area for future research related to female student enrollment in ID majors could be related to the development of a "blueprint" that could accurately identify female students who would be more likely have an interest in pursuing an ID major based on personality traits, behaviors, personal strengths and weaknesses, interests, past experiences, and other relevant factors. A related study could be focused on male students to accurately identify male students who would be more likely to have an interest in pursuing an ID major. A third related study could compare the findings from the two previous gender related studies to examine similarities and differences related to an ID major within the two gender groups of students. The results of the third study may be useful in determining if a single recruiting strategy could be developed that would transcend student gender to make the ID major equally attractive to male and female students.

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Appendix A

INTERVIEW PROTOCOL

The following is an example of the interview protocol used for this research project:

- Time of interview
- Date
- Place
- Interviewer
- Interviewee
- Project Description
 - The demand for female Industrial Distribution (ID) graduates consistently exceeded the availability of these graduates from the University of Nebraska at Kearney. The University of Nebraska at Kearney's student ratio of declared ID majors for the 2011-2012 school year was 90% male and 10% female. The purpose of this qualitative research study was to understand why so few female students within the College of Business and Technology at the University of Nebraska at Kearney selected ID as their major.
- **Research Question 1**
- How did the current majors of undergraduate female students at the University of Nebraska at Kearney compare to their original high school plans about their majors in college?
- **Interview Questions**
 1. When did you start your planning to attend a college or university?
 2. What college major did you think you would pursue if you attended college?
 3. Is your college major today the same as the major you thought you would pursue when you were in high school?
 4. When you were in high school, were you aware of the Industrial Distribution discipline as a possible major or career option?
- **Research Question 2**
- Prior to selecting their current majors, what did undergraduate female students at the University of Nebraska at Kearney know about the discipline of industrial distribution and the comprehensive major in industrial distribution?
- **Interview Questions**
 1. How would you define Industrial Distribution?
 2. What career opportunities come to mind when you think of the ID discipline?
 3. How did you become aware of the ID program once you arrived at college?
 4. Describe your understanding of the University of Nebraska at Kearney's ID program.
- **Research Question 3**
- What factors did undergraduate female students at the University of Nebraska at Kearney consider important when selecting their college majors?
- **Interview Questions**
 1. Tell me about the things you think are important when you are considering a major?
 2. What are your expectations about employment in your degree discipline following graduation?
- **Research Question 4**
- (For non-industrial distribution majors only.) What factors discouraged undergraduate female students at the University of Nebraska at Kearney from selecting industrial distribution as their major?
- **Interview Questions**
 1. Why didn't you select the ID degree as your major?
 2. Describe any negative perceptions you have or had of the University of Nebraska at Kearney's ID program.
 3. What would you change within the ID program to attract more females to the ID major?
- **Research Question 5**
- (For industrial distribution majors only.) What factors encouraged undergraduate female students at the University of Nebraska at Kearney to select industrial distribution as their major?
- **Interview Questions**
 1. Why did you select ID degree as your major?
 2. Do you think your female friends are aware of the University of Nebraska at Kearney's ID program and the career opportunities that are available for women?
 3. Describe any negative perceptions you have or had of the ID program.
 4. How did you overcome your negative perceptions of ID program in order to select ID as your major?
 5. What would you change within the ID program to attract more females to the ID major?