TECHNICAL SKILL, INDUSTRY KNOWLEDGE AND EXPERIENCE, AND

INTERPERSONAL SKILL COMPETENCIES FOR FASHION DESIGN

CAREERS: A COMPARISON OF PERSPECTIVES BETWEEN

FASHION INDUSTRY PROFESSIONALS

AND FASHION EDUCATORS

A DISSERTATION

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

IN THE GRADUATE SCHOOL OF THE

TEXAS WOMAN'S UNIVERSITY

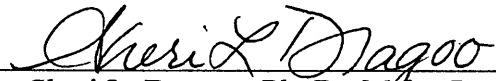COLLEGE OF ARTS AND SCIENCES

BY

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DENTON, TEXAS

MAY 2010

TEXAS WOMAN'S UNIVERSITY
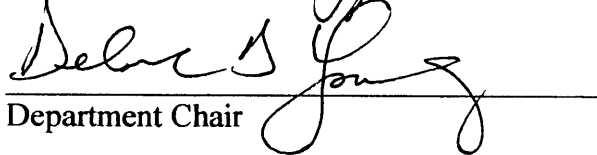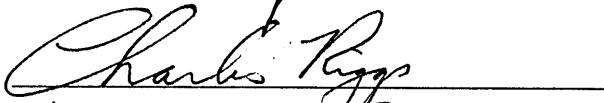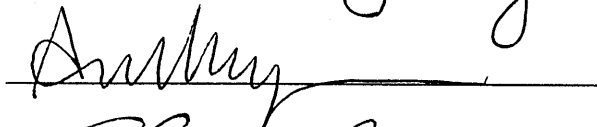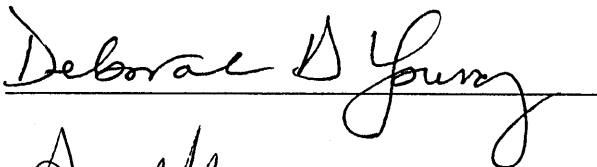DENTON, TEXAS

March 29, 2010

To the Dean of the Graduate School:

I am submitting herewith a dissertation written by Eunyoung Yang entitled "Technical Skill, Industry Knowledge and Experience, and Interpersonal Skill Competencies for Fashion Design Careers: A Comparison of Perspectives between Fashion Industry Professionals and Fashion Educators." I have examined this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy with a major in Fashion and Textiles.

_____
Sheri L. Dragoo, Ph. D., Major Professor

We have read this dissertation and recommend its acceptance:

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_____
Department Chair

Accepted:

_____
Dean of the Graduate School

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their unconditional love and support. Thank you for always believing me and for inspiring me with the powerful belief that I could accomplish anything through hard work and persistence. I never would have made it here without you as my foundation. My brother, you were always there for me, and I appreciate you more than you can imagine. I am truly fortunate to be member of this family. This dissertation is dedicated to my family.

ABSTRACT

EUNYOUNG YANG

TECHNICAL SKILL, INDUSTRY KNOWLEDGE AND EXPERIENCE, AND
INTERPERSONAL SKILL COMPETENCIES FOR FASHION DESIGN
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AND FASHION EDUCATORS

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In updating fashion and apparel related design programs, many educators are

striving to address the perspective of the fashion industry to obtain the career-specific

skill and knowledge requirements sought by employers when hiring college or university

graduates. Identifying such competencies from the view of fashion industry professionals

as well as fashion educators will be critical to make accurate and timely curriculum

decisions. Therefore, the purpose of the study was to examine and compare perception

differences between fashion educators and fashion industry professionals regarding the

necessary technical skills, industry knowledge and experience, and interpersonal skills, a

fashion design college or university graduate should have in order to acquire an entry-

level design position in the fashion industry.

Data was collected from 390 participants consisting of 171 Fashion Industry

Professionals and 219 Fashion Educators. Data was obtained through responses to a self-

administered, Web-based questionnaire. The study questionnaire contained competencies

in three areas of Technical Skills, Industry Knowledge and Experience, and Interpersonal

Skills. The research instrument consisted of two versions differing only in the demographics gathered for each participant group.

Competencies were rated by two participant groups -- Fashion Industry Professionals and Fashion Educators, whose perceived importance ratings differed in 110 of 112 total competencies. Overall, Interpersonal Skills were rated more important than Technical Skills or Industry Knowledge and Experience by both groups. Fashion Educators had significantly higher importance ratings than Fashion Industry Professionals in all three competency categories. In the Technical Skills category, Fashion Industry Professionals reported design skills as most important while Fashion Educators reported drawing skills most important. In the Industry Knowledge and Experience category, Fashion Industry Professionals reported experiential learning most important, with art/design knowledge highest for Fashion Educators. In the Interpersonal Skills category, Fashion Industry Professionals reported character as most important, with teamwork highest for Fashion Educators. Differences can be utilized by educators to revise and update programs, preparing students for the changing needs of the industry. Replication of the study should be made periodically to reflect fast changing fashion industry needs and conduct continuous program quality improvements.

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CHAPTER I

INTRODUCTION

Today's job market is more complex and competitive than ever before as more people are obtaining college degrees prior to seeking entry-level jobs. According to Bureau of Labor Statistics [BLS] (2008) in *Tomorrow's Jobs*, the employment structure in the U.S. economy continually changes with the adjustments in consumer demand, technology, population growth, and many other factors. From 2006 to 2016, the civilian noninstitutional population aged 16 years or older is projected to increase by about 22 million, from 229 million to 251 million showing 10.4 % growth. The total employment projections over the 2006-16 decade will increase by 10 % from 150.6 million in 2006 to 166.2 million in 2016, balancing the steady growth of the total population (BLS, 2008). However, for the fashion design career, employment is projected to increase only by 5 % from 20,000 in 2006 to 21,000 in 2016 ("Fashion Designers", 2008). As employment of fashion designers is projected to grow more slowly than the population, the job competition is expected to be keen for fewer job openings. In this highly competitive environment, it is critical for applicants to be well prepared with the skills needed for an entry-level position. Therefore, to better prepare students for their careers, fashion educators need to research the career-specific skill and knowledge requirements sought by employers when hiring college or university graduates for entry-level design positions.

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While the job market undergoes changes, fashion education programs are scrambling to adapt in the climate of unforeseen changes and external threats in the academic environment. In order to predict the future of fashion industry, Kim & Johnson (2007) studied the opinions of 30 apparel design and 48 retail merchandising majors concerning the future of the fashion industry or on what prospective professionals believe the future holds as they prepare for careers in the industry. As hard as academic programs work to stay connected to the industry, Kim & Johnson's findings implied that it was "quite possible that changes occur at a faster pace in the workplace than in academic settings" (p. 302). In response to the constant changes in the fashion industry, many educators in the field of fashion have been researching how to improve their programs by exploring social, technological, and economic changes that are impacting academia (Murray & Lafrenz, 2004; Nelson & Karpova 2005; Pate & Memken, 2004; Shen, 2005; Sinclair, 2008).

Granger (2007) stated students "often view college as a means to an end, the end being a rewarding career" in *Fashion: The Industry and Its Career* (p. xxiii). In order to meet the expectations of students who are pursuing college degrees in order to obtain better jobs, faculty members are facing difficulties in revising and developing the most up-to-date curriculum that builds upon knowledge and skills with the appropriate sequence of courses. In updating their apparel, merchandising and design program at a Midwestern university, Pate, Trautmann, Torntore, & Walters (2003) note the challenge was compounded by structural problems such as overcrowded programs, lack of

sufficient admission requirements, and inadequate prerequisites. The program has been updated based upon industry-determined professional competencies (Pate et al., 2003). Similar to the Pate et al. study, fashion educators are striving to address methods of adequate preparation of students for business environments. Increasing linkages with industry in the form of research projects, consultancies, field studies, and internships signal the continuation of the movement toward a professional orientation.

Viewing industry-academia linkages from the perspective of the fashion industry is important for fashion programs in order to equip students with a solid foundation of skills and knowledge sought by employers. Successful fashion educators have sought methods such as participating in internships to improve student skills. Southward and Burgess (2003) studied the effectiveness of internships for merchandising students. Internship site supervisors were asked to rate recently hired employees on nine job skills associated with entry-level merchandise positions, such as merchandising skills, product knowledge, communication, and teamwork. Results indicated that employees who had completed internships had a slightly higher mean score than those who had not completed an internship on all nine job skills. *Following directions* had the highest mean scores for both groups. Employees who had completed an internship scored 2.9 on the indicator *following directions* compared with those who had not completed an internship, who scored 1.8. Additionally, *communication* had the lowest mean score for both groups, with employees who had completed an internship scoring 2.5 and those who had not completed an internship scoring 1.4. Thus, the findings revealed the need for developing

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communication skills and revealed the benefit of the internship experience in improving those skills (Southward & Burgess, 2003).

Several studies have been completed in the field of manufacturing, retail, merchandising, and management of the fashion industry to examine the industry-based competencies necessary for entry-level positions (Frazier & Cheek, 2004; Kim & Johnson, 2007; King & Pookulangara, 2004; Wesley & Bickle 2005; Yu & Jin 2005). To date, however, little research exists regarding industry-based competencies for the career field of fashion design. There are a number of required skills for entry-level design positions in the fashion industry. Most companies require specific technical job skills related to design such as patternmaking, draping, sketching, and computer skills. Companies may also expect entry-level candidates to have a certain degree of industry knowledge and interpersonal skills. Whether companies require one technical skill or a combination of many, it is apparent that companies are seeking college or university graduates with suitable skills for a changing marketplace (Vogt, 2007). Therefore, fashion educators in the university community are faced with the responsibility of deciding what to teach and how to teach, as well as how much emphasis to put on each skill or area of knowledge.

Innovations in technology, changes in the business world, globalization, and the increasing diversity of the workforce may be altering the kinds of competencies and general skills colleges and universities are being called to deliver. Zekeri (2004) stated that college or university graduates typically find themselves in the center of economic,

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political, and social realities that define a complex global world. Thus, education at all institutions must address the diverse demands placed on college or university graduates because competencies and skills needed for effective functioning in a global society and in workplaces may be changing. If the educational system is to effectively prepare college or university graduates to fill job requirements in the 21st century, curricula must change to reflect the dynamic needs of modern industries in the information age (Sinclair, 2008).

Therefore, related undergraduate academic programs should reflect these changes to ensure that college or university graduates have the appropriate technical skills, industry knowledge and experience, and interpersonal skills to attain entry-level design positions and to progress upward in career paths. The identification of such skills from the view of both fashion industry professionals and fashion educators will be critical to make accurate and timely curriculum decisions. This research will aid fashion educators in examining current curricula in terms of how to adequately prepare students for the real world of business, by assessing skill importance levels identified by fashion industry professionals for college or university graduates. This study focused on technical skills, industry knowledge and experience, and interpersonal skills preferred by employers for entry-level positions in apparel and accessories design and manufacturing companies for college or university graduates.

Statement of the Problem

The purpose of the study was to examine and compare perception differences between fashion industry professionals and fashion educators regarding the necessary technical skills, industry knowledge and experience, and interpersonal skills, a fashion design college or university graduate should have in order to acquire an entry-level design position in the fashion industry. The focus of this study explored the design career within the fashion industry. Results may be used to make curriculum recommendations to college or university fashion programs to ensure that college or university graduates have the skill sets and knowledge necessary for entry-level design positions in the fashion industry.

Objectives of the Study

The primary objectives of the study were multiple. First, the study examined perceptions regarding the level of importance of specific Technical Skills, Industry Knowledge and Experience, and Interpersonal Skills needed for entry-level design positions in the fashion industry between Fashion Educator and Fashion Industry Professional groups. Fashion Industry Professionals and Fashion Educators were surveyed to obtain their perceptions of the level of importance of specific Technical Skills, Industry Knowledge and Experience, and Interpersonal Skills. Second, the study compared importance ratings on specific Technical Skills, Industry Knowledge and Experience, or Interpersonal Skills needed for entry-level design positions in the fashion industry between Fashion Industry Professionals and Fashion Educators. The study

sought to determine if there is agreement between the Fashion Industry Professionals and Fashion Educators on the perceived importance of study items.

Hypotheses

To accomplish the study objectives, the following hypotheses will be examined;

H1. a. Fashion Industry Professionals and Fashion Educators will report greater importance for Technical Skills than Industry Knowledge and Experience as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

b. Fashion Industry Professionals and Fashion Educators will report greater importance for Interpersonal Skills than Industry Knowledge and Experience as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

c. Fashion Industry Professionals and Fashion Educators will report greater importance for Interpersonal Skills than Technical Skills as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

H2. a. Fashion Educators will report greater importance for Technical Skills than Fashion Industry Professionals as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

b. Fashion Industry Professionals will report greater importance for Industry Knowledge and Experience than Fashion Educators as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

c. Fashion Industry Professionals will report greater importance for Interpersonal Skills than Fashion Educators as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

H3. Fashion Industry Professionals and Fashion Educators will report greater importance for experiential learning than the other four Industry Knowledge and Experience competency subsets of art/design knowledge, historical/cultural knowledge, merchandising knowledge, and production-related knowledge as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

H4. a. Fashion Industry Professionals and Fashion Educators will report greater importance for communication skills than the other four Interpersonal Skills competency subsets of attitude skills, character skills, teamwork skills, and leadership and management skills as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

b. Fashion Industry Professionals will report greater importance for teamwork skills than Fashion Educators as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

H5. Fashion Industry Professionals will report greater importance for computer skills than Fashion Educators as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

Definition of Terms

The following terms are defined for the purpose of this study:

Career. A profession for which one trains and is undertaken as a lifelong field of employment or vocation (Stone, 2008).

College or university graduate. Student who has completed degree requirements for graduation in fashion, apparel, or clothing design as a major or specialization at a two-year or four-year institution of higher education.

Competencies. A combination of attributes including skills, abilities, knowledge, and characteristics needed to perform a specific task (Jones, 2001).

Curriculum. The subjects taught at an educational institution; a sequential set of courses required in the program of study for graduation from a two-year or four-year college or university (Jones, 2001).

Designer. A person employed to create ideas that combine function and beauty into apparel or accessories products in the fashion industry, or a person who interprets the concepts communicated by stylists into actual products (Frings, 2008).

Entry-level position. A beginning stage of responsibility in a job category. In apparel and accessories design and manufacturing companies, this would include any assistance or responsible role or position for a beginning level employee.

Fashion Educators (FE). Degreed individuals at the instructor, lecturer, adjunct, assistant professor, associate professor, or full professor rank in two-year and four-year associates and bachelor degree-level institutions offering fashion, apparel, or clothing design as a major or specialization in a degree program in the United States; referred to as FE for the purpose of this study.

Fashion Group International (FGI). A global, non-profit, professional organization with 5000 members in the fashion industry including apparel, accessories, beauty and home (Fashion Group International, 2008).

Fashion Industry Professionals (FIP). Trained and experienced individuals in apparel and accessories design and manufacturing companies who employ apparel or accessories product designers in the United States; referred to as FIP for the purpose of this study.

Fashion industry. The manufacturers, jobbers, contractors, and vendors engaged in the manufacture of apparel and/or related fashion items including any business concerned with goods or services in which fashion is an element such as fiber, fabric,

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apparel design, manufacturing, distribution, styling, product development, resourcing, and consulting (Frings, 2008).

Industry Knowledge and Experience (IKE). For this study, knowledge and experience related to the fashion industry including market research, labor relations, and trading regulations, as well as support knowledge including art/design knowledge, historical/cultural knowledge, merchandising knowledge, production-related knowledge, and experiential learning; referred to as IKE for the purpose of this study.

International Textile and Apparel Association (ITAA). A professional association whose membership consists mainly of educators who teach at the college- or university-level in the field of clothing and textiles.

Internship. "Program in which individuals work for a company in the field at a small salary or perhaps no salary to gain firsthand experience; also called cooperative education" (Johnson & Moore, 2001, p. 35).

Interpersonal Skills (IS). For this study, a person's ability to relate to one another including attitude skills, character skills, communication skills, teamwork skills, and leadership and management skills; referred to as IS for the purpose of this study.

Level of importance. A judgment which is made by a study participants regarding a personal feeling as to the need for competency in a skill area.

Manufacturing. The actual production of fashion goods; to make or process raw materials into a finished product in an industrial-scale operation (Johnson & Moore, 2001).

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Merchandising. "To buy and sell commodities for a profit" (Rosenau & Wilson, 2006, p. 4); "The planning required on the part of retailers to have, for a specific consumer target group, the right merchandise at the right time, in the right place, in the right quantities, at the right price, and with the right promotion" (Stone, 2004, p. 471).

Production. "The construction process by which the materials, trims, findings, and textile pieces are merged into a finished apparel product, accessory, or home fashion" (Burns & Bryant, 2007, p. 598).

Technical Skills (TS). For this study, specific job skills related to design including patternmaking, sewing, drawing, design, computer, textile testing, product development, and promotion; referred to as TS for the purpose of this study.

URL. "Abbreviation of uniform resource locator, the global address of documents and other resources on the World Wide Web. The first part of the address indicated the Internet provider (IP) address or the name of the domain where the resource is located" (Sue & Ritter, 2007, p. 183); usually consisting of the access protocol (http), the domain name (www.hmco.com), and optionally the path to a file or resource residing on that server (Thomas, 2004).

Assumptions of the Study

The following assumptions are made for the study:

1. The participants have a basic understanding of the technical skills, industry knowledge and experience, and interpersonal skills assessed in the questionnaire.

2. The Fashion Industry Professionals composing the sample are representative of the industry.

3. The participants answer truthfully.

Limitations of the Study

The following limitations were applied to this study:

1. The Fashion Industry Professionals were limited to those professionals working in apparel and accessories design and manufacturing companies.

2. Within the representative companies, individual Fashion Industry Professionals were limited to CEO/president and designer/owner, executive vice president/senior vice president, vice president, general merchandise manager, divisional merchandise manager, department head, and designer.

3. Job titles collected in the demographic/professional data category of the survey may be inconsistent from company to company due to the structural differences among Fashion Industry Professionals' companies.

4. The Fashion Educator participants were limited to those employed by two-year and four-year institutions offering fashion, apparel, or clothing design as a major or specialization in the degree program.

CHAPTER II

REVIEW OF LITERATURE

Introduction

The fashion industry accounts for an estimated one-third of the world's economy from the production of raw material to the distribution of finished goods (Dickerson, 2003). The industry's component parts such as the design, production, and distribution of merchandise form the basis of a highly complex industry. While employing a great diversity of skilled and talented individuals, the industry offers a multitude of products, and absorbs a considerable portion of consumer spending. One out of every eight U.S. workers is employed in fashion or its allied-field industries (Dickerson, 2003). Therefore, the fashion industry continues to offer a wide variety of exciting and financially rewarding career opportunities. Because the design industry has undergone immense changes in the past two decades, these changes require regular realignment of fashion design curriculum with movement in the industry (Kim & Johnson, 2007). Only by exploring the current state of fashion curriculum in higher education and evaluating and contrasting perceptions of industry members and educators can an accurate assessment of necessary technical skills, industry knowledge and experience, and interpersonal skills be made.

The review of current texts used in curricula design instruction will provide an understanding of current skills required of apparel designers, and further justify the use of

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those skills in the survey instrument. Because there is scant research on fashion design curriculum and how it relates to industry needs, this review of literature relies upon investigations not only of the design discipline, but also of other disciplines, including manufacturing, merchandising, retailing, marketing, and business (Fiore & Ogle, 2000; Keech, 1998; Lee, 2001; Mhango, 2006; Neidermyer 2008; Sanders-Okine, 2005; Shen, 2005). In addition, a thorough review of similar studies will assist in unveiling methodologies and techniques utilized by other researchers in related disciplines which can be applied to this study. This review of related literature is comprised of the following sections: (a) fashion industry overview, (b) manufacturing, (c) retail merchandising, (d) design, and (e) fashion education. Sections b, c, and d are further subdivided by careers within the field and research that has been conducted.

Fashion Industry Overview

The fashion industry is an ever changing, complex enterprise. Because of its numerous allied-field industries from the production of raw material to the distribution of finished goods, the fashion industry is a broadly defined entity. The apparel industry is a part of the overall fashion industry and exemplifies a broad-based international system of producing, merchandising, marketing, and financing of textile and apparel products. It involves sourcing textiles and findings from domestic and international markets, manufacturing garments and related products, merchandising product lines, and marketing finished goods to retailers and ultimate consumers (Glock & Kunz, 2005). Participation in the U.S. apparel industry requires complex interactions and relationships

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among materials suppliers, apparel manufacturers, retailers, and consumers. Business success is dependent on meeting customers' needs. Apparel industry professionals seek levels of apparel performance and quality suited to price limitations, cost structures, product standards, profit goals, and target customers' needs and wants (Glock & Kunz, 2005).

In the vast network of the fashion industry, scholars define multiple levels. Dickerson (2003) categorized the fashion industry into three levels. The primary level provides the raw materials of fashion such as fibers, fabrics, leathers, and furs. The secondary level manufactures finished products of apparel and accessories. The tertiary level distributes the finished products to the ultimate consumer through various retail formats and marketing strategies (Dickerson, 2003). In *The dynamics of fashion*, Stone (2008) classified one more level of the industry, the auxiliary level. The auxiliary level is the only level that functions with all the other levels simultaneously. This level is composed of all the support services that are working constantly with primary producers, secondary manufacturers, and retailers to keep consumers aware of the fashion merchandise produced for ultimate consumption. On this level are all the advertising media such as print, audio, and visual, and fashion consultants and researchers (Stone, 2008). According to both scholars, these levels are composed of separate entities, but they also work interdependently. The primary level depends on the secondary for the sale of their products; the secondary level depends on the primary to provide materials from which to fabricate finished goods; and both levels depend on the retailer to present and

sell the merchandise to the ultimate consumer (Dickerson, 2003; Stone, 2008). Stone

(2008) illustrated the fashion pipeline flowchart in *The dynamics of fashion* as shown in

Figure 1.

Adding complexity to all levels, the fashion industry has become global in all

aspects through considerable changes in the 20th century. Social conditions in other

countries, such as the Asian economic crises of the late 1990s, and technological

advances resulted in significant impacts on the way in which manufacturers and retailers

participate in the global economy (Frings, 2008). In the process, the industry has changed

from a collection of "fairly independent national economies to a global economy"

(Dickerson, 2003, p. 18).
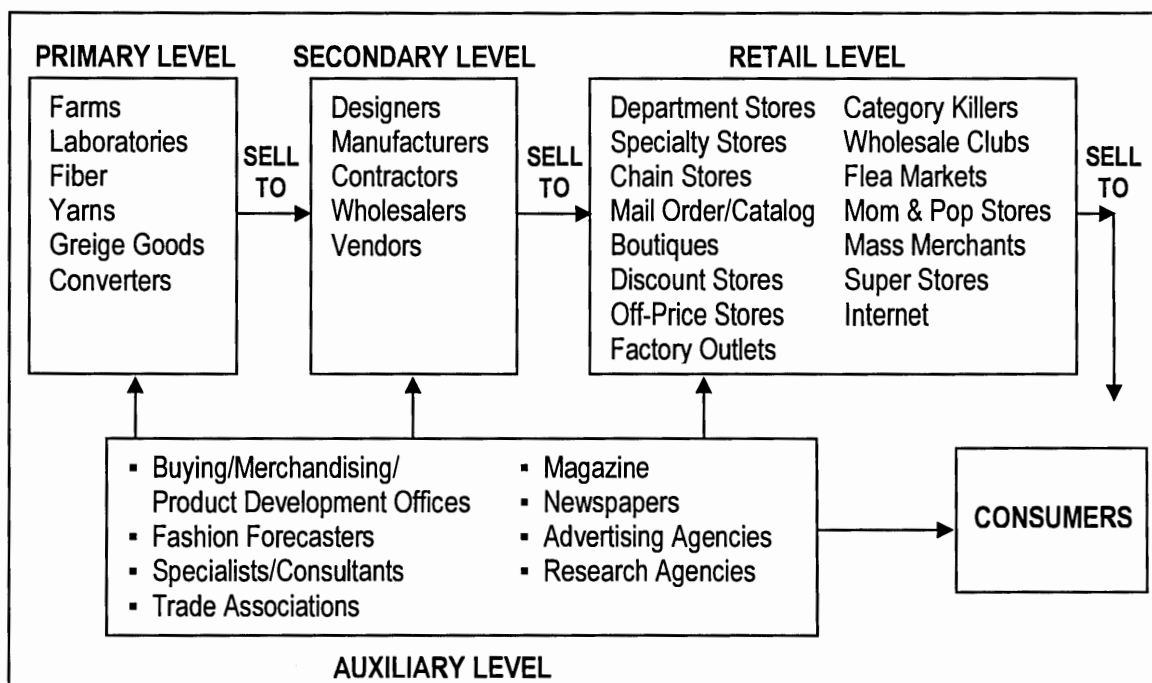
Figure 1. The levels of the fashion industry. Adapted from *The dynamics of fashion*

(Stone, 2008, p.121).

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Virtually all aspects of the fashion industry are affected by this globalization. As Granger (2007) defined, globalization is "the process of interlinking nations of the world with one another," thus emphasizing this growing trend in the fashion industry (p. 50). Large retailers have progressively taken their store concepts to the worldwide market by opening retail locations in other countries. Many manufacturers and retailers source their products overseas or in other countries. Overseas sourcing has become a standard for manufacturers and retailers as they can produce products in other countries at a lesser cost allowing the retailer to offer the consumer the same product at a lower price (Dickerson, 2003).

The globalization of the industry has relied upon the advancement of technology, thus transforming the industry in areas of communication with domestic and offshore vendors, apparel production, reordering systems, product design, and consumer shopping (Frings, 2008). Apparel designers must communicate the specifics of garment production to individuals with various backgrounds and within global environments (Neidermyer, 2008). As a result, more companies are requiring strong communication skills blended with technological experience and knowledge when hiring new employees (Burns, & Bryant, 2007; Stone, 2008). In fact apparel design students today must be prepared for careers that require varied skill sets, knowledge sets and experience to be successful. Comprehensive career preparation also entails a thorough investigation of career opportunities.

Career Classification Model and Conceptual Framework

      Several career classification models are offered to navigate a highly complex fashion industry which incorporates many smaller, related industries (Dias, 2008; Dickerson, 2003; Granger, 2007). The industry encompasses design, production, marketing, and distribution of clothing and accessories for children, men, women, and for areas of the home. This multifaceted industry offers many career opportunities for workers with many levels of skills, interests, and educational training. Entry positions are widely varied. Therefore, it is necessary to investigate career opportunities in each facet or level of the fashion industry. Granger (2007) grouped fashion careers into three main levels of the industry and used them as individual units of the book, *Fashion: The Industry and Its Career*. To provide a conceptual framework for the research regarding fashion career opportunities, Granger's (2207) career framework is adapted into three table formats; Table 1 (Careers in Raw Materials and Manufacturing in the Fashion Industry), Table 2 (Careers in Product Development and Sales for the Fashion Retailer), and Table 3 (Careers in the Ancillary Business).

      As evident in *Fashion: Industry and Its Careers*, fashion careers consist of varied professions because of the vast size of the fashion industry and its related fields (Granger, 2007). It is important to investigate available entry-level positions for college or university graduates from different disciplines due to the fact that fashion programs offer many disciplines or concentrations of study, varying by institution.

Table 1

Careers in Raw Materials and Manufacturing in the Fashion Industry (Granger, 2007)

Industry Sector	Career
Trend Forecasting	Trend Forecaster
Textile Product Development and Design	Fashion Director
	Textile Designer
	Textile Stylist
	Textile Colorist
	Textile Technician
	Textile Engineer
	Resource Room Director/ Reference Librarian
	Account Executive
Sourcing	Fashion Production Planner
	Piece Good Buyer
	Findings and/or Trimmings Buyer
	Sourcing Manager
	Licensing Director
Production	Product Manager
	Production Planner
	Production Manager
	Plant Manager
	Production Efficiency Manager
	Quality Control Manager
	Pattern Maker/ Pattern Production Manager
	Spreader and Cutter
Promotion	Fashion Stylist
	Public Relations Director
	Advertising Research and Promotion Positions
	Fashion Event Planner

Table 1, continued

Careers in Raw Materials and Manufacturing in the Fashion Industry (Granger, 2007)

Industry Sector	Career
Sales	Manufacturer's Representative
	Company Salesperson
	Merchandise Coordinator
	Showroom Salesperson
Accounting at the	Chief Financial Officer
Manufacturer's Level	Controller
	Senior Accountant
	Account Receivable Personnel
	Bookkeeper
	Account Payable Personnel
Human Resources	Human Resources Manager
	Human Resources Assistant Manager
	Hiring Manager
	Recruiter
	Trainer
	Benefits Manager
	Payroll Manager

Note. From *Fashion: The industry and its career,* by M. Granger, 2007.

Table 2

Careers in Product Development and Sales for the Fashion Retailer (Granger, 2007)

Industry Sector	Career
Product Development and Design by Retailer	Director of Product Development
	Product Design and Development Director
	Merchandiser
	Sourcing Staff
	Product Development and Private Label Designer
	Retail Trend Forecaster
	Colorist
	Textile Technical Designer
	Product Development Pattern Maker
	Quality Control Manager
Promotion in Retailing	Promotion Director
	Publicity and the Public Relations Director
	Public Relations Manager
	Special Event Coordinator
	Advertising Director
	Art Staff
	Art Director
	Web Designer
	Store Planning Director
	Visual Merchandiser
	Personal Shopper
Merchandising for the Retailer	General Merchandising Manager
	Divisional Merchandising Manager
	Buyer or Fashion Merchandiser
	Assistant Buyer
	Planner
	Distribution Manager/Allocator
	Merchandising Trainee

Table 2, continued

Careers in Product Development and Sales for the Fashion Retailer (Granger, 2007)

Industry Sector	Career
Management for the Retailer	Regional or District Manager
	Operation Manager
	Retail Store Manager
	Manager-in-Training
	Assistant or Associate Store Manager
	Department Manager
	Security Manager
	Customer Service Manager
	Retail Operation Owner

Note. From *Fashion: The industry and its career,* by M. Granger, 2007.

Table 3

Careers in the Ancillary Business (Granger, 2007)

Industry Sector	Career
Fashion Visuals and Media	Fashion Show and Event Planner
	Modeling and Talent Agency Director
	Fashion Photographer
	Art Photographer
	Fashion Costumer
Fashion Scholarship	Museum Director
	Museum Curator
	Assistant Curator
	Collection Manager
	Museum Archivist
	Museum Conservator
	Museum Technician
	Fashion Educator
Environments: Websites, Exteriors, and Interiors	Website Developer
	Architect
	Estate Broker
	Interior Designer
	Visual Merchandising Professional
	Mall Manager
	Assistant Mall Manager
Beauty, Spa, and Wellness	Product Developer or Technician
	Beauty Merchandising and Marketing Professional
	Online Marketing Manager - Beauty and Fashion House
	Makeup Artist
	Hair Stylist
	Director of Spa or Wellness Center

Note. From *Fashion: The industry and its career,* by M. Granger, 2007.

Table 3

Careers in the Ancillary Business (Granger, 2007)

Industry Sector	Career
Fashion Visuals and Media	Fashion Show and Event Planner
	Modeling and Talent Agency Director
	Fashion Photographer
	Art Photographer
	Fashion Costumer
Fashion Scholarship	Museum Director
	Museum Curator
	Assistant Curator
	Collection Manager
	Museum Archivist
	Museum Conservator
	Museum Technician
	Fashion Educator
Environments: Websites, Exteriors, and Interiors	Website Developer
	Architect
	Estate Broker
	Interior Designer
	Visual Merchandising Professional
	Mall Manager
	Assistant Mall Manager
Beauty, Spa, and Wellness	Product Developer or Technician
	Beauty Merchandising and Marketing Professional
	Online Marketing Manager - Beauty and Fashion House
	Makeup Artist
	Hair Stylist
	Director of Spa or Wellness Center

Note. From *Fashion: The industry and its career,* by M. Granger, 2007.

A list of entry-level jobs for college or university graduates of different disciplines in higher education was cited by Dickerson (2003) in *Inside the Fashion Business*. It was originally developed by Phyllis Madan and Marilyn Henrion of the Placement Department of the Fashion Institute of Technology, New York, affiliated with the State University of New York. It was later adapted and updated by Dickerson for *Inside the Fashion Business* (Dickerson, 2003, Appendix C). The modified Madan and Henrion's model of entry-level career opportunities was one of the most specific career categorization models for college or university graduates from clothing and textile programs. Their categorization was developed and can be noted in Table 4.

In *Core Concepts in Fashion,* Dias (2008) presented two main career focuses in the fashion industry; fashion design and fashion merchandising. The Dias' classification model was further specified into career paths for each position. Figure 2 presents the Dias career progression chart for the fashion design tracks, and Figure 3 presents the career path for the fashion merchandising tracks (Dias, 2008).

Despite the language difference in fashion career classification models, each occupation category requires job specific skills and knowledge. Therefore, as more first-time job seekers obtain college degrees, students desiring a successful career in the fashion field will have to be well prepared with the technical and social skills necessary for that career ("Fashion," 2009). They will have to possess an awareness of current problems facing the industry and be able to initiate alternatives in meeting them.

Table 4

Entry-Level Positions for Graduates of Different Disciplines (Dickerson, 2003)

Discipline in Fashion or Related Filed	Entry-Level Positions
Fashion Design Graduates	Assistant Designer Cutting Assistant Sketching Assistant Sketcher (Assistant to Designer) Sketcher/Stylist Junior Designer
Textile/Surface Design Graduates	Textile/Surface Designer Colorist Assistant to Stylist Lace and Embroidery Designer Screen Print Artist Woven Fabric Designer Painted Woven Designer Knit Designer Assistant Stylist
Advertising Design Graduates	Pasteup and Mechanical Artist Layout Artist Assistant Art Director
Fashion Illustration Graduates	Free-Lance Illustrator Staff Illustrator Sketcher
Fashion Buying and Merchandising (FBM) Graduates; (1) Retail Stores, and (2) Merchandising, Buying, and Product Development Organizations (Formerly Resident Buying Offices)	Management Trainee Department Manager Assistant Store Manager Buyer's Clerical Assistant Buyer Trainee (or Assistant Market Representative) Distribution Planner Product Development Trainee

Table 4, continued

Entry-Level Positions for Graduates of Different Disciplines

Discipline in Fashion or Related Filed	Entry-Level Positions
Fashion Buying and Merchandising (FBM) Graduates; Manufacturers (1) Retail Stores, and (2) Merchandising, Buying, and Product Development Organizations	Showroom Sales Trainee Showroom Receptionist Clerical Assistant Product Development Trainee Retail Sales Coordinator Merchandising Assistant Assistant Piece Goods and Trim Buyer Production Assistant Administrative Assistant
Apparel Production (or Manufacturing) Management Graduates	Production Control Assistant Import Coordinator Junior Industrial Engineer Costing Analyst Quality Control Specialist Assistant Plant Manager
Textile Development Graduates	Assistant Converter Assistant Stylist (Fabric or Yarn) Product Development Assistant (Textiles) Textile Technologist Sales Trainee Fabric Librarian
Patternmaking Technology Graduates	Assistant Patternmaker Assistant Designer (Technical) Technical Designer Trainee Quality Control Analyst Grader Trainee

Note. From *Inside the Fashion Business* (7th ed.), by K. G. Dickerson, 2003.

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Career Path for Fashion Designer

| Assistant Designer/ Product Developer | ⟹ | Assistant Designer/ Product Developer | ⟹ | Designer/ Director of Product Development |

Career Path for Patternmaker

| Pattern Grader | ⟹ | Assistant Patternmaker | ⟹ | Patternmaker | ⟹ | Product Engineer |

Career Path in Textiles

| Textile Design Assistant | ⟹ | Textile Designer or Colorist | ⟹ | Head Textile Designer |

Career Path in Production

| Production Assistant | ⟹ | Production Supervisor | ⟹ | Production Manager | ⟹ | VP of Production |

Figure 2. Dias fashion design career paths.

Career Path for Buyers

| Merchandise Assistant | ⇒ | Assistant Buyer | ⇒ | Associate Buyer | ⇒ | Buyer | ⇒ | Merchandise Director |

Career Path for Visual Merchandising

| Visual Merchandising Assistant | ⇒ | Visual Merchandising Supervisor | ⇒ | Visual Merchandising Liaison | ⇒ | Store Planner |

Career Path in Sales

| Sales Trainee | ⇒ | Sales Representative | ⇒ | Distric Sales Manager | ⇒ | Regional Sales Manager | ⇒ | VP of Sales |

Career Path in Retail

| Sales-person | ⇒ | Assistant Manager | ⇒ | Store Manager | ⇒ | Distric Manager | ⇒ | Regional Manager | ⇒ | VP of Operation |

Figure 3. Dias Fashion Merchandising/Retailing Career Paths.

Additionally, students will need a full understanding of the global fashion environment and its impact on each of the various sectors within the fashion business. They will need to be able to analyze and understand the behavior of consumers, and of course, have the ability to accurately predict the future. These abilities are prerequisites to making sound marketing decisions, and are developed through experience and classroom education using up to date fashion textbooks (Burns & Bryant, 2007; Dias, 2008; Dickerson, 2003; Frings, 2008; Glock & Kunz, 2005; Stone, 2008).

The question of determining the specific preparation needed by college or university graduates of fashion programs for successful entry into the fashion industry has been approached from a variety of angles. A survey of academic research in fashion related areas reveals several important, general trends. The unifying factor of several research studies is the emphasis on surveying the opinions of practitioners in the industry on the competencies and attributes needed by students entering the fashion industry. In the search of related studies, it was apparent that most studies had been done in the merchandising/management area, second in manufacturing, and the fewest were done in fashion design. Most studies addressed competencies necessary for appropriate curriculum development, yet little has been written comparing the opinions of industry professionals who participate in the hiring/training process to the academic point of view. Following is an overview of career opportunities and research within fashion and allied fields of manufacturing, merchandising, and design.

Manufacturing

According to the U.S. Department of Labor, jobs in textiles, textile production,

and apparel manufacturing will continue to become fewer as advances in manufacturing

technology allow fewer workers to produce greater output, and because growing imports

compete with domestically made textile and apparel products (BLS, 2008). However,

despite the overall decline in employment, the U.S. Department of Labor predicted job

prospects for skilled production workers, engineers, merchandisers, and designers should

be fair as the industry evolves into one that primarily requires people with good

communication skills, creativity, and who are skilled enough to operate today's high

technology computer-operated machines ("Textile," 2008). Apparel manufacturing is the

broad range of processes turning fabric into clothing on its way to the retailer (Frings,

2008). As shown in Table 1 and Table 3 in the previous section, there are diverse jobs

available in apparel manufacturing. In this diverse industry segment, each person within

an apparel manufacturing company must know something about all areas so that the

company operations run harmoniously (Burns, & Bryant, 2007). Each area of

manufacturing, product development, production, and marketing requires different

abilities and knowledge. Quick response technology, increased competition from foreign

manufacturers, and computer-aided design and manufacturing have been instrumental in

changing apparel manufacturing in the United States dramatically in recent years (Stone,

2008).

Careers in Manufacturing

Career opportunities for college or university graduates entering the apparel manufacturing field cover a broad scope. Jobs with manufacturers generally are found in areas of promotion or selling of merchandise, merchandising or styling of lines, and the product production and business end of the manufacturing process (Fringe, 2008). Although it is possible to locate manufacturers in many areas in the United States, most entry-level jobs related to fashion merchandising with manufacturers are available in the well-established centers including New York City, Los Angeles, Chicago, Dallas, Atlanta, Miami, San Francisco, and Seattle (Burns, & Bryant, 2007).

In 2006, approximately 595,000 wage and salary workers were employed by the textile, textile product, and apparel manufacturing industries according to U.S. Department of Labor (2008). In addition, there were also about 39,000 self-employed workers in this industry ("Textile," 2008). Frings (2008) stated that many students majoring in fashion are generally familiar with the design and merchandising careers in the apparel industry, but few are aware of the opportunities available in the production field. Apparel production offers many employment opportunities in various fields including merchandising, design, and quality control for the college or university graduates of fashion programs. Production managers must plan and monitor production to ensure that delivery dates are met. Therefore, a well-organized person is best suited for a career in fashion production. Besides technical knowledge, a production manager needs the ability to manage and motivate people to get the job done. There are a number of

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entry-level positions available in the manufacturing/production sector of the industry and some companies offer training for those who are qualified (Stone, 2008).

Quality analysis of apparel and textiles is important during and after production to ensure the product will measure up to specified standards and the demands of the end use (Kadolph, 2007). Textile quality analysis is the review of fibers, fabrics, and garments to ensure that products are meeting the expectations of their end-use function. The analysis process utilizes acceptable test methods or visual review to determine if the product is of acceptable quality. Consumers, manufacturers, and retailers using commonly acceptable standard levels set by industry associations such as the American Society for Testing and Materials (ASTM) to determine the acceptable quality levels. Acceptable quality levels vary from product to product and within product categories. For example, the acceptable quality level will differ between a silk shirt or blouse intended for eveningwear and a shirt intended for a sports uniform. Both are categorized as shirts but have different end-use functions (Burns, & Bryant, 2007).

Textile quality analysis encompasses a variety of products and industries. The quality of textiles can be evaluated at any or all of the following stages: fiber, fabric, piece goods, garment or product, and end-use function. Industries that incorporate quality analysis include fiber manufacturers, fabric producers, contract facilities, garment production facilities, retailers, and consumer groups (Burns, & Bryant, 2007; Kadolph, 2007). Industry knowledge needed for a successful career in textile quality analysis includes knowledge of textiles, design, merchandising, production, consumer behavior,

product and process evaluation, marketing, and statistics. In addition, people employed in textile quality analysis must have a fundamental understanding of test methods and standards (Glock & Kunz, 2005).

For college or university graduates with a design or merchandising major, entry-level positions include assistant to a showroom sales representative, product manager, merchandiser, and piece goods buyer. Similar to the major market showrooms, manufacturer's showroom representatives present the new line of goods to buyers. A merchandising assistant works closely with the merchandiser to put the line of goods together for each season. Responsibilities may include market and trend research, record keeping, filing swatches of fabrics, handling costing sheets, and helping to determine the price of each item (Vogt, 2007). Other entry-level positions include costing clerk/intern, who assists a costing engineer in setting the price of sample and production garments, a production assistant, who assists on all production-related detail work and recordkeeping for the plant manager, and quality control engineer (Stone, 2008). The entry-level fashion design career for a design major will be discussed in detail at the latter part of the chapter.

Research in Manufacturing

Because of the rapid changes in the apparel manufacturing environment, manufacturers are constantly seeking employees with updated skills and knowledge (Vogt, 2007). Therefore, determining the kind of technical skills, industry knowledge and experience, and interpersonal skills employers require for specific career areas is an important factor for both education and industry. A surge of research in the 90s began to

address the need for college-level clothing and textiles curriculum planners to evaluate changes in the apparel industry and to incorporate new elements into their programs that address these changes (Albanese, O'Neill, & Hines, 1998; Aranda, 1995; Laughlin & Kean, 1995, 1996; Miller, 1995; Wright & Nicholson, 1997). A limited number of studies have been conducted that address curriculum content and competencies needed by college or university graduates for successful entry into the apparel manufacturing field. Fashion studies involving the surveying of apparel manufacturers include those completed by Adamson (1989), Miller (1995), and Aranda (1995).

Earlier study by Adamson (1989) used a sample of 104 apparel manufacturers limited to the San Francisco Bay Area to determine their opinions of the level of importance of 35 specified competencies for entering management level positions in the areas of apparel production and apparel design. The competencies identified as essential or the most desirable by the participants included apparel construction and patternmaking. Some of the additional courses identified as essential or desirable by the designers in the Adamson (1989) study included understanding people, production management, understanding different cultures, basic math, speech, computer use in production, and plant layout. The competencies rated as least important in Adamson's study included basic manufacturing functions utilizing computers such as computer patternmaking, computer marker making, computer cutting, and computer grading.

Another study was conducted by Miller (1995) to determine the future hiring practices and required competencies for professional positions, those requiring a

bachelor's degree, within the U.S. garment industry. Although four-year colleges received higher ratings than two-year colleges, the results indicated that manufacturers' opinions of the level of industry preparation provided by college programs, of faculty awareness of industry's needs, and of the value of faculty as resource persons for industry were generally low. Miller divided competencies into three categories of apparel-related competencies, support competencies, and personal competencies. The study utilized a telephone survey asking respondents to rate the competencies. Manufacturers rated personal competencies significantly higher than apparel-related competencies, and support competencies significantly higher than apparel-related competencies. Among personal competencies, oral and written communications rated lower than other personal competencies. The highest-rated personal competencies were teamwork, listening, motivation, problem solving, and leadership. The highest-rated apparel-related competencies were computer applications, costing, industry internships, garment quality evaluation, and apparel production assembly processes. Thus, Miller concluded persons aspiring to careers in the apparel industry should be motivated, acquire a broad-based education, and possess excellent problem solving, communication, and people skills.

A similar study by Aranda (1995) was conducted to determine the level of education, professional affiliations, personal characteristics, work experience and specific competencies apparel manufacturing employers and post-secondary clothing and textiles educators rated as important for successful entry-level management positions in apparel manufacturing. The results from this study indicate that both employers and educators

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suggest that future entry-level managers in apparel manufacturing must be generalists and that a broad based education is recommended. Many employer respondents suggested a two- year (43%) or four-year (54%) college degree while the majority of them have earned at least a four-year college degree (82%). The respondents of this study appeared to put less emphasis on formal education for future entry-level managers and more emphasis on vocational training, on-the-job training or real life experiences. Many of the skills and attributes recommended by both employers and educators in the context of the Aranda study included communication skills, interpersonal skills, ethics, team player and knowledge of apparel manufacturing. Work experiences recommended included those that gave students exposure to apparel manufacturing in a management or team oriented role. Interestingly, in the Aranda study, there was a disparity between employers' and educators' ranking of the competency garment construction with employers indicating a much higher ranking than educators (1995).

Overall combined average of employers and educators in the Aranda study, competencies were ranked highest to lowest, respectively, as oral communication, quality control, costing, ethics, project management, personnel management, budget management, business practices, spreadsheet management, inventory control, production scheduling, data analysis, word processing, and data base management. Recommended foreign languages were Spanish and Chinese depending on geographic location of the educational institution and student interest. According to the findings of the study, Aranda (1995) concluded the study with curricula recommendations for two-year and

four-year academic programs. Critical competencies in clothing and textiles programs, presented from highest ranking to lowest were sourcing (international), human behavior, sourcing (U.S.), computer costing, unit production, cost accounting, mathematics, garment construction, computer use in unit production, industry product safety standards, distribution of goods, and issues of the industry.

Several of the competencies rated as important in these earlier studies (Adamson, 1989; Miller, 1995), supported by Aranda's findings, include understanding people, production management, and basic math and computer use in production. The competencies rated as least important in Adamson study (1989) that differ from results of the Aranda study (1995) include basic manufacturing functions utilizing computers: computer patternmaking, computer marker making, computer cutting, and computer grading. These differences may be explained by the growth in technology in the highly automated apparel production field noted between the time Aranda's 1995 study, and the Adamson study, six years prior. Clearly, a current survey should show even greater focus on technology in the industry and in curriculum.

More recent studies in manufacturing focus on domestic and international manufacturers and offshore sourcing of production reflecting the trend towards globalization of apparel manufacturing. Lee (2001) studied the Michigan apparel and textile industry to determine manufacturers' perceived needs with respect to making their firms more viable or competitive. The goal of the study was to provide criteria for action and identify strategies that universities can employ to help firms succeed and remain

competitive. Six main needs categories investigated in order of rated importance were product development, organization and management, technology and communication, marketing and international trade, human resources, and environmental issues and sustainability. Lee's study also found that manufacturers' most important specific needs are to: (a) locate sources of consistent quality textile inputs, (b) optimize functional roles in a small firm, (c) keep current with new developments in technology and communication, (d) find new domestic markets, (e) attract and train qualified workers, and (f) improve safe working environments. In Lee's study, manufacturers' perceived needs for the specific skills and knowledge of future employees were not addressed. Therefore, the research on those qualification competencies needs to be studied.

Merchandising

The role of merchandising in the fashion business may vary depending on the context of the retail or manufacturing environment (Rosenau & Wilson, 2006). As seen in the career classification models, there are merchandising careers in the manufacturing section of the fashion industry (Granger, 2007). Merchandising in the manufacturing environment involves the conceptualization, development, procurement of raw materials, sourcing of production, and delivery of apparel product to the retailers (Rosenau & Wilson, 2006).

According to Wolfe (2009), retail fashion merchandising is a dynamic business with fierce competition. In general, retail buying and merchandising enable end products to be placed in front of the consumer. Buyers select merchandise from manufacturers to

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be sold in their retail locations. The retail locations are where consumers are able to make purchases. Retailers are responsible for servicing consumers' needs in an attractive and easy-to-shop format (Wolfe, 2009). The wide variety of retail formats is the primary connection between manufacturers and ultimate consumers. Retailers typically sell products produced by manufacturers, but can also sell their own products if they manufacture. Typical retail formats are traditional retail brick and mortar stores or non-store venues which include catalog companies, television shopping channels, and electronic retail formats, particularly e-commerce venues (Levy & Weitz, 2007).

Careers in Merchandising

The essential area of a merchandising business is retail management (Levy & Weitz, 2007). In general, retail management is responsible for daily operations and selling within the retail site, while merchandising is responsible for buying merchandise, promoting merchandise to the point of sale, meeting consumer demand for merchandise, and making a profit. Merchandisers must determine their target market and develop merchandise and promotional pieces aimed toward that target market. Once the target market is defined, buyers must develop, source, and order merchandise to fulfill the target customer's wants and needs (Wolfe, 2009). As a result, merchandising is as important to the management process as management is to the merchandising process (Levy & Weitz, 2007).

Rosenau and Wilson (2006) profiled successful merchandisers as a blend of characteristics including logical, analytical thinker, and intuitive, expressive, and creative

individual. The successful merchandiser also needs to be knowledgeable of social and consumer lifestyle changes such as work ethics, leisure or vacation activities, music, movies, the arts, physical fitness, eating trends, attitudes, philosophies of life, geopolitics, language, global economy, and climatic changes which effect fashion preferences. Rosenau and Wilson (2006) profiled modern merchandisers and product managers as illustrated in Figure 4.

Retail management encompasses a wide range of opportunities and businesses. Each retail format demands a different type of retail management but all have commonalties, particularly in the management of people and merchandise with a specific focus on customer needs. Management in stores typically is more focused on ensuring that employees have strong communication skills to provide excellent customer service. Management in catalog and electronic retailing are more focused on having merchandise on hand when customers order merchandise. Strong retailers are efficient in ordering merchandise from the manufacturers or wholesaler to have on hand for the consumer as well as in pricing merchandise to see profit from sales (Levy & Weitz, 2007).

As an essential part of retail merchandising, the promotional or advertising department develops ways to reach the target customer and reassure the customer that the store can fulfill their needs. After enticing the customer to visit the store or Web sites, availability of merchandise is critical to sell-through. The target customer will make purchasing decisions based on several different factors including product appearance and characteristics, customer service, value, quality, and price (Burns, & Bryant, 2007).
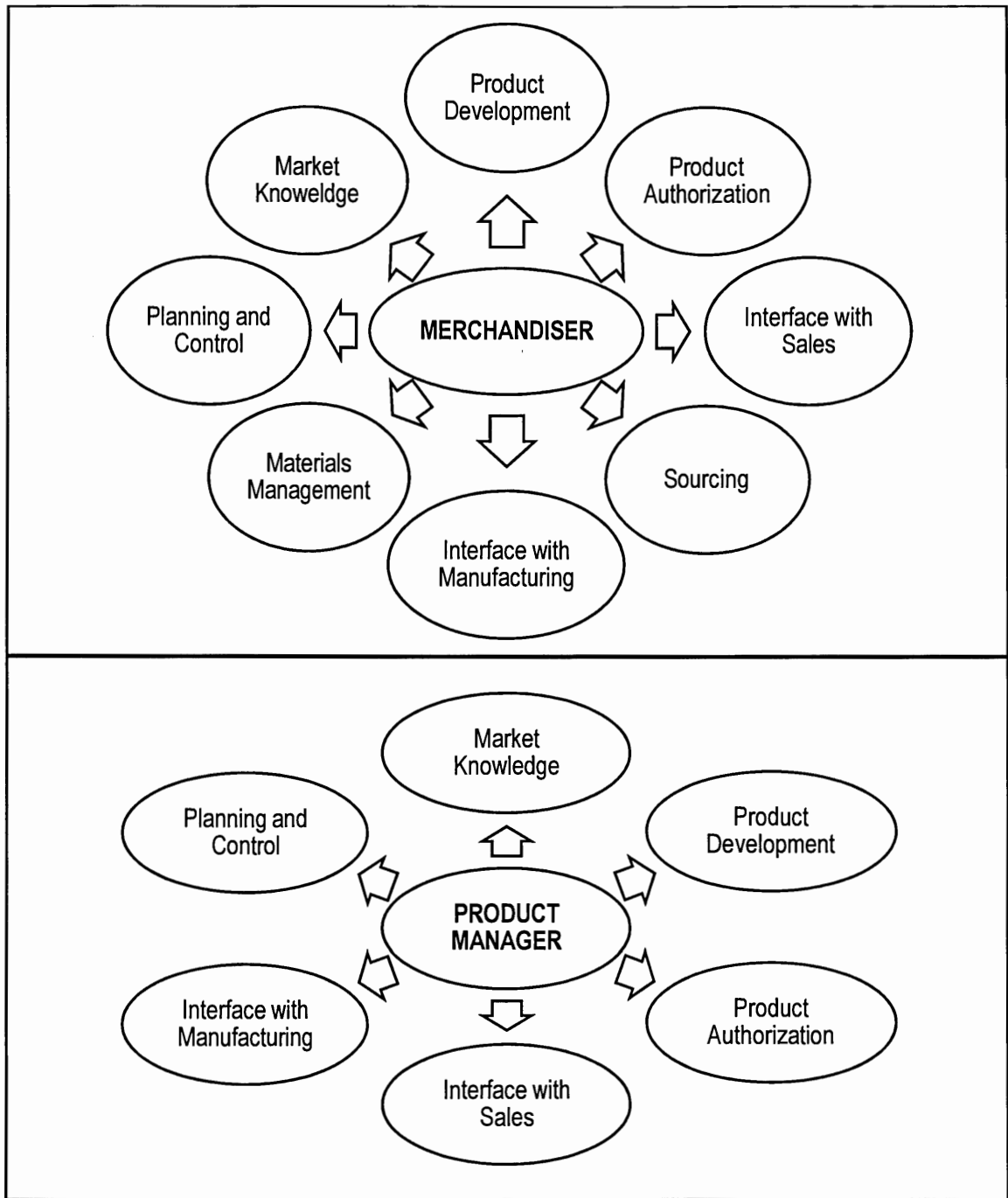
Figure 4. Multi-faced role of fashion merchandiser and product manager. Adapted from

Apparel Merchandising: The Line Starts Here (Rosenau & Wilson, 2006, p. 54).

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The selling floor of a retail establishment offers two career opportunities, retail sales or management. Retail sales personnel are responsible for helping customers, having product knowledge, and encouraging customers to make a purchase (Fringe, 2008). Retail managers are responsible for the daily operations, including controlling costs, managing employees, retail strategy, customer service, visual presentation, and overall sales of a retail store. Department stores, boutiques, chain stores, and specialty stores need mature and dependable individuals to groom for store managers. An assistant store manager works closely with the store manager and assists in all store operations such as opening and closing the store, serving customers, taking daily receipts to the bank, keeping the store supplied with merchandise, hiring and training workers, and handling the displays, advertising, accounts, and store security. This position requires strong interpersonal competencies such as being energetic, persuasive, and organized, as well as having leadership abilities and a good fashion sense (Stone, 2008).

Besides retail sales and management, merchandising graduates may seek entry-level positions as an assistant to a buyer or fashion coordinator. Successfully performing the function of buying is imperative within a retail organization. The function of buying includes selecting, developing, and ordering merchandise from manufacturers or distributors in order to have products in a retail store's inventory at the right time for customer purchases (Frings, 2008). An assistant buyer's position involves all-around exposure to each phase of the buyer's responsibilities, including all management duties. It includes handling some of the department's budget, selecting and promoting

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merchandise, maintaining sales and inventory records, and supervising sales and stock employees. It also means spending a good deal of time in the sales area with salespeople and customers, and becoming familiar with and knowledgeable about merchandise (Burns, & Bryant, 2007).

In addition to the retail sector, merchandising graduates can seek their starting job in a resident buying office or in a central buying office of a firm. The entry-level positions in buying offices include buyer's clerical, assistant buyer, and distributor/planner trainee. The responsibilities and qualification for these positions are similar to those in retail. However, the distributor/planner trainee position requires excellent math and analytical skills as well as organization skills (Wolfe, 2009).

The assistant to the fashion coordinator may be hired in any type of retail store, buying office, textile firm, pattern company, or manufacturer's office. Sometimes a trade organization may have a need for this type of assistant. The duties are often clerical in nature such as making appointments, telephoning contacts, booking models, and even running errands, and for this job good typing skills are an important asset. The assistant works closely with the fashion coordinator in putting on fashion shows, helping to write fashion bulletins, and spending time out in the market observing trends and new looks (Granger, 2007).

Retailing has become a complex, competitive, and changing business. Successful retail organizations are placing increased emphasis on recruiting, developing, and retaining executive talent to gain a competitive edge in the marketplace. Changing

demographics have resulted in a shrinking labor pool, mandating proper staffing, head count and skill sets in today's cost-conscious retail environment. Undergraduate curricula should reflect these changes to ensure that college or university graduates have the appropriate knowledge, attitudes, and skills to become successful retail managers.

Research in Merchandising

Due to the emergence of financial accountability, retailing and merchandising specializations need to determine if existing curricula effectively meet marketplace needs. The identification of competencies desired by retail recruiters of college or university graduates is critical in retailing and merchandising curriculum development. Over the past two decades, numerous studies have been completed in an effort to evaluate fashion merchandising, management, and marketing curricula and internship programs offered in colleges and universities (Donnellan, 1996; Frazier & Cheek , 2005; Keech, 1998; Wesley & Bickle, 2005). Review of these studies has revealed some common competencies needed by merchandising graduates for entry-level positions.

A study by Donnellan (1996) assessed the preferences of major retailers for entry-level managers and executive trainees with regard to academic preparation, skills, and qualifications. The study investigated the preferences of four categories of stores including department stores, general merchandise discounters, chain specialty stores, and specialty discounters. Of the four categories, department stores had the highest educational requirements and preferred that individuals entering executive management training positions have higher levels of education than individuals entering directly into

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entry-level management positions. When participants were asked to rank specific skills by preference to be possessed by employees, participants ranked leadership skills the highest, followed by management skills, and oral communication skills.

Keech (1998) also conducted a similar study to identify knowledge, attitude, and skills competencies needed for the entry-level retail management positions. Participants in the study consisted of merchandising division recruiters and store division recruiters from a cross section of retail organizations, and merchandising and marketing educators throughout the United States. Findings indicated that differences existed among recruiters, merchandising educators, and marketing educators with regard to specific competency categories. These results suggest the importance of industry-based competency identification in effectively matching collegiate retailing and merchandising curricula to marketplace needs.

Merchandising division recruiters identified the top three skill competencies needed for successful performance in the merchandising divisions as data analysis abilities, negotiation skills, and computer literacy. The top three knowledge competencies identified by industry recruiters in merchandising were knowledge of business ethics, knowledge of how to analyze vendor performances, and knowledge of merchandising planning and control. The top three attitude competencies identified were being ethical, being a team player, and having a strong work ethic (Keech, 1998).

Store division recruiters identified the top three skill competencies needed by employees for successful performance in the stores division as the ability to manage

stress, knowing how to prioritize, and being able to communicate orally. Both industry and educator participants identified the top three knowledge competencies needed by employees in store management as knowledge of retail work schedules, business ethics, and visual presentation methods. Store recruiters identified the top three attitude competencies needed by employees as being customer-oriented, being a team player, and being people-oriented (Keech, 1998).

The results of the Keech study indicated that differences existed among recruiters, merchandising educators, and marketing educators. Marketing educators rated knowledge competencies higher than recruiters and merchandising educators. The researcher suspected those higher ratings might be attributed to the theoretical emphasis on the delivery of subject matter in academic marketing programs. The results also indicated that merchandising educators rated attitude competencies lower than recruiters and marketing educators, and may be evidenced in the application-oriented nature of merchandising academic programs (Keech, 1998).

More recently, Wesley and Bickle (2005) assessed a paradigm for career preparation in retailing. The purpose of the study was to examine components of retail management and fashion merchandising internships offered at a large southern university and to assess how well interns rated on attributes sought by employers in the retailing industry. Four main attribute categories were measured on a five-point Likert-type scale (1=poor; 3=average; 5=excellent) by employers, skills and abilities, work habits, professionalism, and career potential. Retail management and fashion merchandising

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intern student performance was measured on 18 work-related skills such as written, oral, and auditory communication skills, analytical and critical thinking skills, and the ability to work independently and in groups.

Overall, the findings showed that students were rated as being well prepared for the internship position (87%; $n = 57$). Their technical (97%; $n = 62$) and communication skills (87%, $n = 57$) also rated as above average or excellent. Majority of the interns (91% to 98%) were rated as above average or excellent by his/her immediate supervisor on each of six work habits including. Sixty three interns (98%) were rated as being dependable; 61 interns (96%) were perceived as being above average or excellent in terms of responsibility. All 64 interns (100%) were rated as above average or excellent for being punctual and having attended work regularly. They were also cooperative (97%, $n = 62$), adapted well to change (94%, $n = 60$), and possessed a professional attitude (92%, $n = 59$). Fifty nine interns (91%) were rated as above average or excellent in terms of being courteous and friendly in demeanor. Sixty one interns (95%) were rated as above average or excellent regarding their understanding of the job description. As a result, Wesley and Bickle (2005) found employers appreciated well prepared interns and both intern and supervisor gained from the experience. Moreover, well balanced intern would be considered as prospects for entry level merchandising positions within the respective organizations.

In order to increase design and merchandising students' understanding of career options and career progression in fashion industries, Frazier & Cheek (2005) developed

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an innovative career exploration project. The project, assigned at two universities, created a career matrix that requires student teams to conduct research about careers in the fashion industry using the primary, secondary, retail, and auxiliary industry sectors model using technology and critical thinking skills (Frazier & Cheek, 2005). With successful collaborative work, student teams identified six job levels in the buying/merchandising function in ascending order with assistant buyer as the entry level job, and vice president of merchandising as the senior level. The teams also identified entry to senior level jobs in the management function. Table 5 shows a template matrix of jobs in buying/merchandising aligned with management at the same salary, education, and experience levels.

In completing the career matrix, the desired outcome was achieved in increasing student awareness of the types of jobs in selected areas of the fashion industry, education and experience requirements for various positions, and expected career progression within functional areas. In the process of completing the project, students were given the opportunity to increase proficiency in the use of multiple modes of technology. Students thereby enhanced information literacy skills as well as contributing cooperatively to complete a complex task, and improving teamwork and cooperative skills. The Frazier & Cheek (2005) study demonstrates a good example of educators utilizing a class project to explore career options while utilizing essential competencies that students need to develop for their career.

Table 5

Example of Job Level Display within the Buying/Merchandising and Management

Functions in the Retail Sector

Sales, Education and Experience	Buying/Merchandising	Management
Salary $80k-$140k 4+ years college 15+ years experience	Vice president-merchandising	Senior vice president of stores
Salary $70k-$120k 4+ years college 10+ years experience	General merchandise manager	Regional vice president of stores
Salary $60-$100k 4 years college 6+ years experience	Divisional merchandise manager	District supervisor
Salary $40k-$80k 4 years college 2-3 years experience	Senior buyer	Store manager
Salary $27k-$40k 2-4 years college 1-2 years experience	Merchandise analyst	Assistant store manager
Salary $24k-$36k 2-4 years college 1-2 years experience	Assistant buyer	Department manager

Note. From "Fashion industry career matrix: encouraging students to explore fashion-related careers," by B. J. Frazier and W. K. Cheek, 2005, *Clothing and Textiles Research Journal, 23*(4), p. 377.

Fashion Design

"You do it because you love to do it, and can't stop doing it" quotes designer Isaac Mizrahi as he characterized the fashion design career in a lecture hosted by the Fashion Group Foundation ("Fashion," 2009). So, what is involved in a fashion design career? Career activities in the fashion industry primarily consist of two functions, apparel design and apparel production. Apparel design includes the functions of designing, patternmaking, cutting, draping, and fitting, all of which must occur before a design can be produced. Apparel production describes the functions performed for the actual manufacturing of the garment that utilize technology, machinery, and labor (Tate, 2004). Many of the scholars in fashion agree that the key to the successful design of a product is the development of the fashion product with the consumer in mind (Burns, & Bryant, 2007; Fringe, 2008; Glock & Kunz, 2005; Tate, 2004).

Fashion design in the apparel industry is considered both product and process (Keiser & Garner, 2008). As a product, a design is a specific or unique version of a style. A new version of a style is called a design until it is adopted for a line to be manufactured. After the design is assigned a style number in the line, it is usually called a style, style number, or number. The ultimate objective of the design process is to create styles for a company's product line that will meet the needs of the target market and produce a profit. The design process proceeds in the context of the line plan and line concept. The design process is related primarily to the innovation aspect of product development, but in today's apparel firms, designers may be expected to develop line

plans and line concepts as well as pre-adoption, adoption, and post-adoption product development (Glock & Kunz, 2005).

In general, the design function is more or less important to the product development process depending on the degree of fashion orientation of a product line. Haute couture establishments target their merchandise to a very high-priced and highly fashion-oriented market. A company that places heavy emphasis on original and fashion-forward apparel gives a great deal of power, status, and influence to the designer. Designers for this type of firm will be expected to generate a steady flow of new, original ideas and sketches, and the creation of these new designs may receive a great deal of recognition in the trade press and consumer publications. Designers for these companies will be closely involved with merchandising decisions and content of the line (Glock & Kunz, 2005). Although design graduates generally prefer the more creative career path of high fashion, the number of these firms is limited and the opportunities to enter them are highly competitive.

Manufacturers with a more moderate fashion image place less emphasis on originality and creativity. The role of designers in these companies is usually less influential (Glock & Kunz, 2005). The greatest number of apparel designers is hired by manufacturers who mass produce clothing in the lower price ranges. The design process takes on a different focus in the company that makes primarily basic or staple products. Designers in these volume houses seldom develop original fashion, instead they tend to adapt fashion styles to meet efficiency and cost effectiveness and the creativity and

originality may be secondary (Tate, 2004). They usually create a line by modifying styles

from the previous season's line with some original styles added and may use ruboffs or

knockoffs (Glock & Kunz, 2005). Basic, staple products have longer selling seasons and

therefore require fewer lines per year and have less product change from one season to

the next (Tate, 2004).

Careers in Fashion Design

According to the U.S. Department of Labor, fashion designers held about 20,000

jobs in 2006 (BLS, 2008). About 28% of fashion designers worked for apparel, piece

goods, and notions merchant wholesalers, 48% worked for corporate offices involved in

the management of companies and enterprises, clothing stores, performing arts

companies, and specialized design services firms, and 24% were self-employed ("Fashion

Designers," 2008). The number of employees with design responsibilities depends on the

size of the apparel company as well as the diversity of product lines. A large company

may employ several designers or operate a design room with a designer and several

assistants, stylists, first pattern makers, and sample makers. In these larger companies, the

designer's responsibilities may include managing the work force in the design room,

creating new styles, and maintaining the company's design image and quality (Tate,

2004). Medium to small apparel companies typically employ one or more designers each

having an assistant or a group of design room staff members (Burns, & Bryant, 2007).

According to the U.S. Department of Labor, the best job opportunities between 2006 and

2016 will be in design firms that design mass market clothing sold in department stores

and retail chain stores, such as apparel wholesale firms. Although preferred by the majority of fashion design graduates, there will be fewer employment opportunities expected in design firms that cater to high-end department stores and specialty boutiques, as demand for expensive, high-fashion design declines relative to other luxury goods and services ("Fashion," 2008).

Clearly, with 24% of fashion designers classified by the US Labor Census (BLS, 2008) as self-employed, one career option for fashion design graduates may be a career as freelance designer in addition to design positions in companies (Dias, 2008). Both large and small companies use outside sources for their designs. Individual freelance designers and outside design studios are contractors who sell design services. Freelance designers are expected to generate original designs or adaptations that reflect a manufacturer's specifications. A freelance designer's responsibility may vary depending on the companies' requests and their contracts. For example, a freelancer's job may end with delivery of sketches to the company or a set of completed patterns for approved styles. Some freelance designers get more involved with a product through the production process (Dias, 2008). In addition to designing a line, many outside design studios offer specialized services such as providing original art, researching fabric and trim markets, and conducting international and domestic sourcing (Keiser & Garner, 2008).

Prospective fashion designers need to be imaginative and have an extensive knowledge of clothing and fabrics as well as an understanding of the technical and marketing aspects of the business (Glock & Kunz, 2005). Designing garments also

requires patternmaking and construction knowledge as designer Richard Tyler pointed out in the article presented in *Apparel Manufacturing: Sewn Product Analysis* (Glock & Kunz, 2005). In some companies, designers are involved in every step of the production of the line, from concept to completed product. Therefore, the better-prepared prospective designers are, the broader their opportunities will be. Two-year and four-year academic programs generally include courses in drawing, patternmaking, draping, sewing, fabrics and trimmings, principles of color and design, and the production and pricing of garments ("Fashion," 2009).

As their first job, college or university graduates of specialized fashion design programs are most likely to enter the apparel industry as assistant designers (Vogt, 2007). In general, an assistant may be working alongside the designer, helping at every stage. After the designer develops an idea, an assistant is responsible for following through to the finished sample, overseeing patternmaking and the production of the sample garment by the samplemakers. If there are no samplemakers in the workroom depending on the size of the company, assistant designers may be responsible for sewing the sample garment (Tate, 2004). In general, an assistant designer's clerical duties often involve keeping records of fabric and trim purchases as well as style numbers and details of each garment. Also, depending on the size and organization of the company, the assistant designers need to expect to perform typical office duties such as making appointments for designers, corresponding by telephone, fax, or telex overseas, and other secretarial duties (Tate, 2004).

Assistants also aid in selecting fabric and trimmings or visiting retail stores and attending fashion shows in order to obtain new fashion trends. Assistants may begin to consult with the designer about new designs and offer some original ideas after initial training and familiarization with design room procedures. When applying for the position of assistant designer, it is important to have a portfolio of ideas that displays his or her sense of design, color, and fabric to present to the potential employer (Dickerson, 2003).

Although limited opportunities are available, some companies hire sketching assistants for the job of documenting and recording style details and garments for each seasonal collection. In general, sketching assistants are responsible for sketching the line as well as developing accurate and detailed specification sheets. Because employers for this position usually expect a portfolio of detailed sketches to show illustration and organizational competencies, college or university graduates with outstanding illustration and organization skills may be suitable for this position (Fringe, 2008; Stone, 2008).

A critical entry-level position for fashion design graduates is patternmaker or assistant patternmaker. Patternmakers have a vital function in the production process by translating the design idea into a pattern for the actual garment. A patternmaker must be mathematically and technically oriented with a strong sense of proportion and dimension. They must have a keen sense of visualization from paper patterns to garments. The basic training for the position includes pattern drafting, draping, fitting, and alteration. With recent rapid advancement of technology, more companies are seeking patternmakers with adequate computer skills. In a larger company, the college or university graduate's first

job may be as an assistant patternmaker, a sample cutter, or a pattern grader ("Fashion," 2009).

More and more companies are acquiring advanced computer technology in their design and production which creates more specific job opportunities in the fashion design field. Traditionally, garment making was deemed a craft wherein the majority of the tasks involved in designing and producing garments were completed via hand techniques. Today, designers are increasingly relying on computer programs that enable them to adjust line, color, and decorative detail and to simulate the draping properties of different fabrics (Neidermyer, 2008). Garment illustrations, flat drawings, patterns, and cut plans can now be completed with computer aided design software by integrating the artistic skills with versatile computer drafting technology. Designers can utilize CAD to create and revise apparel designs. CAD-generated designs have such a finished look that they can be used in place of prototypes to present new lines to retail customers. Design adjustments can be shown on the screen to meet customers' needs, saving time and money that would otherwise be spent producing samples. At the entry-level, assistant designers will work under the CAD specialist to develop and evaluate designs to ensure that the construction, fit, styling, and sizing of the line reflect the designer's concept (Stone, 2008).

Another entry-level position created by advancing computer technology is a technical designer trainee. A technical designer is "a technician who works closely with fashion designers and manufacturing staff to make sure garments are produced with

technical accuracy and have the right fit for the consumers" (Vogt, 2007, p. 95). After the

line development stage in production, the technical designer will translate each design

into a pattern and write the specifications for constructing or producing the product

(Keiser & Garner, 2008). Often companies have technical designers to create the size

specs or patterns. Therefore the technical designers need solid skills in key design-related

tasks such as pattern making, grading, measuring and calculating, fitting, garment design

and construction, as well as textile knowledge and strong computer skills. A technical

designer uses advanced computer technology with complete designing and manufacturing

programs such as product data management allowing for accurate specs and integrates

this information with cost sheet and production (Vogt, 2007).

Research in Fashion Design

A limited number of studies have been conducted that investigated the curriculum

content and competencies needed by college or university graduates to enter successfully

into the fashion design field (Neidermyer, 2008; Quevedo, 1998; Wright, Cushman, &

Nicholson, 2002). Quevedo (1998) and Wright, Cushman, & Nicholson (2002) studies

were surveying both industry professionals and educators to exam fashion design

curriculum and competencies. And the Neidermyer (2008) surveyed only industry

professionals. Because of the similarity of the research objectives, the thorough review of

these studies will help to design current study.

The purpose of Quevedo's (1998) study was to determine the importance of

specific skills and/or learning concepts in fashion design careers and how often these

concepts are used on the job. A survey was designed to identify the designers' job skills and to determine how important certain competencies were for success in fashion design careers. In addition to the questions relating to the academic preparation, skills, performance expectations of entry-level fashion design positions, the respondents were also given an opportunity to give advice to aspiring designers and/or give additional information regarding skills needed by college or university graduates of fashion design programs.

The study population consisted of apparel manufacturing companies and/or design companies in the New York City Metropolitan area who hire fashion designers. The New York City area was chosen because of the large number of companies that this geographic area represents. Survey respondents were asked to indicate the degree of importance they associated with each of 64 learning concepts. The learning concepts were rated as *not important, of some importance, important, or essential* (Quevedo, 1998).

Results revealed four competencies rated as *essential* for success by the majority of the respondents. Findings showed color concepts (76.6%), clothing construction techniques (72.7%), garment fitting and alterations (71.4%), and basic garment construction techniques (63.6%) were the learning concept most valued by the study respondents. Concepts considered *important* by the greatest percentage of respondents were textile production, fabric surface design (48%), layout, design, and rendering fashion illustrations (48%), and designing for the mass market (42.8%). Factors rated as

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being *of some importance* by the greatest percentage of respondents were textile testing for use by consumers (45.4%), accounting (44.1%), and business law (44.1%). Learning concepts rated by the greatest percentage of respondents as *not important* for success in apparel design careers included business law (40.2%), labor relations (31.1%), and other foreign language (28.5%) (Quevedo, 1998).

Based on the findings of the study, Quevedo (1998) concluded that New York City Metropolitan area employers' regarded color concepts as the most essential skill/concept identified by over three-fourth of employers. Clothing construction techniques were rated second highest followed by garment fitting and alterations. More than half of the employers considered basic garment construction techniques and self-presentations such as resumes, how to dress, and how to interview as *essential*. Apparel terminology and internship experience in designing apparel were also considered *essential* by the majority of employers. More than half of the employers also considered portfolio development *important* for achieving success (Quevedo, 1998).

Wright, Cushman, & Nicholson (2002) investigated perceived importance of select attributes in the success of college or university graduates from apparel design programs between two groups of respondents. The research purpose was to discover how 47 attributes in affective traits and cognitive skills ranked in importance by apparel design professionals and university educators. The perceptions of the two groups were then analyzed to determine similarities and differences. The study used face-to-face interviews where total 29 respondents, 12 from the apparel design industry and 17 from

academia, sorted 47 positive attribute statements on a Likert scale of –5 through +5. Results revealed differences in perception between university educators and apparel design professionals.

Both groups strongly agreed on the importance of a student *having energy and passion for apparel design*. Eight out of twelve apparel design industry respondents rated strong affective traits such as *time-management skills*, the *ability to work as part of a team* and a *positive attitude* very highly. On the other hand, almost half of 17 academic respondents rated cognitive skills such as *a knowledge of textiles and fabric characteristics*, *an understanding of garment construction*, and *an understanding of pattern making* very highly. An additional point of difference between industry and academic respondents was noted in that academic respondents rated intrinsic affective traits such as *energy and passion for apparel design* and *creativity* more highly than industry respondents.

In summary, results from Wright et al. (2002) revealed apparel design industry respondents rated strong affective traits higher than academic respondents, while academic respondents rated cognitive skills mare important to students' success. The study concluded that there is a discrepancy between the opinion of apparel design industry respondents and academic respondents concerning what is important to college or university graduates' success in the apparel design field (Wright, et al., 2002).

A more recent study was done by Neidermyer (2008), titled *A Model of Continuous Feedback for Aligning Curriculum of Bachelor of Science Degree Programs*

with the Changing Needs of Technical Industries. The study purpose was to develop a method of surveying industry experts to identify changes that technical industries will face in the future and address their application into higher education curriculum. Specifically, this study was completed to determine current and future skills required of apparel designers for entry level positions. Neidermyer utilized a Delphi study technique to survey current apparel industry professionals to answer three research questions; (1) what is the current skill set required of Bachelor of Science degree college or university graduates for entry- level apparel design positions within the apparel industry, (2) how will the structure of the apparel industry change over the next seven years, and (3) what is the future skill set required of Bachelor of Science degree college or university graduates for entry-level apparel design positions within the apparel industry over the next seven years. Knowledge or skill level of the competency for design positions were rated with 5 point Likert scale of: 5= expert level of knowledge or skill, 4 = high level of knowledge or skill, 3 = moderate level of knowledge or skill, 2 = basic level of knowledge or skill, or 1 = no knowledge or skill required. And, the compiled list of predictions speed to market, technology, business practices, and price competitiveness was measured with 3 point Likert scale of: 1 = agree, 2= disagree, and 3 = no opinion.

The first round survey requested that participants identify the current and future skill sets required of entry-level apparel designers, and identify potential changes the apparel industry will experience over the next seven years. The second round survey was refined these skill sets and attempted to reach general agreement of the first round

competency results amongst the participants in order to compile to create the second survey. An analysis of the study findings presented eight statements of agreement in examining the seven year predictions identified by the participants of the apparel industry. The predictions resulting in mean, median, and mode scores of 1.00 agreement were:

1. There will continue to be increased competition to get trends to the market faster.

2. Web centric software will increase the direct contact between design, technical, planning, merchandising, and vendors.

3. More CAD will be required while freehand drawing will continue to decrease.

4. There will a continued increase in the types of technologies available and how they can be applied to manufacturing processes.

5. Apparel production will continue in low/no quota, non-English speaking countries.

6. New manufacturing areas will continue to develop in Asia.

7. Manufacturing in China will continue to grow.

8. There will be a continued requirement for more value added in a garment at less cost (Neidermyer, 2008, p. 85).

In addition, Neidermyer suggested that predictions resulting in mean scores of 1.50 or less and mean and mode scores of 1.00 (agree) should also be considered as important. These second group of predictions noted changes in the apparel industry that are already occurring or will occur more immediately than the above eight prediction statements with mean, median, and mode scores of 1.00 (agree).

The predictions resulting in mean scores of 1.50 or less were:

1. A movement in industry toward direct retail department stores or discount stores will continue.

2. The product development timeline will continue to decrease.

3. Retailers will be taking on more of the development processes to increase speed to market.

4. Patterns will increasingly be sent by computer as opposed to paper patterns through postal mail.

5. Virtual models will give a better visual of a design, how it will drape in various fabrics, and how proportions will look, etc. This will help to eliminate the amount of prototypes being made and will shorten the development time.

6. There will be continued advances in body scanning and how it will help accompany better understand the body they are trying to fit.

7. Technical designers will be required to find cheaper ways of constructing a garment to achieve designers "trend" look while maintaining product quality that is competitive with other brands and labels.

8. Consumers will want to pay less and less with each season.

9. Current domestic roles of sourcing and product development will continue to merge.

10. More and more processes will be done over seas closer to the factories in order to shorten the development and production cycle.

11. Continued competition to improve fit and quality.

12. Continued mergers and buyouts.

13. Technical specifications and pattern making will be completed by the factories.

14. Patterns will come from outside vendors and will require fit adjustments.

15. Fewer patterns will be made in house by technical designers.

16. Increased emphasis on basics (core) as opposed to fashion garments (specialty).

17. There will be a movement of placing designers overseas for quick product development turnaround.

18. A requirement will develop to get fit, construction, and design correct on the first prototype (Neidermyer, 2008, pp. 85-86).

Neidermyer indicated the entry-level employees' careers preparation will be continuously changing as the result of the seven year predictions. The predicted changes were (1) the apparel industry will continue to be affected by economic circumstances and global and technological advancements, (2) apparel designers will need to be more aware of the overall global product development process and learn to communicate with vendors around the world in standardized methods as the apparel industry continues to produce products in non-English speaking countries, and (3) technological advancements will continue to streamline the process in order to get the products to the market faster and at a continuously decreasing cost.

In summary, the majority of the study participants agreed that the current and projected skill and knowledge requirements for creative and technical designers must

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include (1) knowledge of the garment components and structures in order to instruct vendors regarding the production of the product, and (2) ability to communicate the garment requirements to producers that do not necessarily speak the same language. In contrast, as the apparel industry continues to shift to a global business structure, future entry-level creative and technical designers must be more knowledgeable about (1) managing product design throughout the entire product lifecycle and less concerned about the technicalities of garment components, (2) overall business processes to effectively work in a global product development environment, and (3) product data management technologies to communicate design requirements in the form of visual and standardized communication for the global market (Neidermyer, 2008).

Implications for the current study can be noted in that the Quevedo study conducted in 1998 should be updated. Wright, Cushman, & Nicholson study (2002) indicated a need to conduct a larger study utilizing a wider range of design professionals and academicians. The Wright et al. study utilized an interview method and only 29 study participants. although they surveyed both academic and industry participants, small sample numbers limit generalization of findings and responses revealed differences in perceptions between the two groups which need further investigation.

Although Neidermyer's 2008 study was the most up-to-date, there were only 13 study participants in the first round and 18 study participants in the second round. A larger study is needed to generalize the findings. Implications for the current study can be noted in that no consensus can be drawn among three studies conducted on fashion

design competencies. Further studies must be conducted with broader or national samples. Measures of skill and knowledge competencies from merchandising, marketing and apparel production studies also can be useful in creating a research instrument for use in this study.

University Curriculum

What factors really drive students in that final, crucial decision of which college to attend? An article in *Career World* (2006) presented findings of a survey on the factors that influence people when selecting a school or a program in college. The survey was conducted by Thomson Peterson's. Decision making factors on the survey were, how students are treated when they inquire the opinion of the family, and the school's or program's reputation and the student's personal goal. Peterson's study found that a student's personal or career goals provided the strongest influence as shown in Table 6. This evidence of the students' desire to get ready for their career through a college education substantiates the necessity to examine career preparation in the fashion design major.

As research helps to clarify technical design skills needed for entry-level positions in the fashion design, additional research relating to general job skills cannot be overlooked. With a highly competitive job market, employers will be looking for employees with a comprehensive set of skills, including interpersonal skills and broad based foundational knowledge skills.

Table 6

What Influences You Most When Selecting a School or Program?

How I'm treated when I inquire	7%
My family's opinion	5%
The school's or program's reputation	27%
My goals	59%

Note. From "Why Go There?" 2006, *Career World, 35 (1),* 4. Copyright 1998 by Weekly Reader Corporation.

In an effort to evaluate general career preparation of college or university graduates with demands of the modern labor market, Kuijpers, Schyns, and Scheerens (2006) emphasized the employee's active role and level of involvement with respect to his or her career. The study distinguished between six career competencies: (1) career-actualization-ability, the degree to which employees are capable of realizing personal goals and values in their working career; (2) career reflection, reviewing one's own competencies with respect to one's career; (3) motivation reflection, reviewing one's own desires and values with respect to one's career; (4) work exploration, orientation toward matching one's own identity and competencies to the required values and competencies in a specific work situation; (5) career control, career-related planning and influencing of learning and work processes; and (6) networking, setting up contacts that are relevant for one's career. The results indicate that, among others, the factors, career control and networking, are the most strongly associated with career success (Kuijpers, et al., 2006).

Macpherson's article in *Quill* (2006) focuses on the qualities needed by employees to advance their career. She listed the top five qualities employees need to advance their career; (1) self-motivated/lifelong learner; (2) interpersonal skills; (3) think strategically; (4) inquisitive/champion innovation; and (5) flexible/adaptable/open to change. The article also emphasized the importance of self motivation, self improvement, and self management of professional development.

Zekeri (2004) assessed former students' perceptions of which college curriculum competencies and skills acquired were most essential to improve their career experiences.

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291 former students from the two traditional (1862) white land-grant universities answered the questions on: "To improve your own career experiences, how would you rate the extent to which you needed or did not need to acquire the following competencies and skills in your college education?" The 15 action competencies consisted of items relevant to five communication and leadership skills, three group organizational skill, three management skills, and three quantitative analysis techniques as shown in Table 8. A five-point scale was used as follows: (1) not needed, (2) somewhat needed (3) much needed, (4) essential, and (5) not sure. The results of the study indicated that despite the technological changes occurring in places of work, skills in oral communication, written communication, public speaking, motivating and managing others, and effective group leadership are most essential for *career* improvement (see Table 7). Other skills former students found essential for *career* development are skills in finance and cost management, negotiating employees/employer differences, and handling consumer/customer relations (Zekeri, 2004).

According to Voorhees & Harvey (2005), the connection between the education system and a skilled workforce is inescapable. A high level of participation in training and education creates an even higher skill level of future workforce. In the global economy, institutions that do not promote avenues to increase their curriculum development to accommodate the workforce changes are greatly disadvantaged. The pace of change dictates that curriculum may never catch up (Voorhees & Harvey, 2005).

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Table 7

Average Need Score for 13 Action Competencies by Former Students (N=291)

Action competencies	Mean score
Skill in oral communication	3.49
Skill at using problem solving techniques	3.36
Skill in written communication	3.25
Skill in motivating and managing others	3.27
Skill in personal time management	3.27
Skill in setting personal goal	3.18
Skill in setting organizational goals & objectives	3.15
Skill in effective group leadership	3.07
Skill in project and/or program evaluation	2.90
Skill in public speaking	2.81
Skill in negotiating employee/employer differences	2.84
Skill in finance and cost management	2.80
Skill in handling consumer/customer relations	2.80
Skill in computer use	2.54
Skill in basic statistical techniques	2.43

Note. From "College Curriculum Competencies and Skills Former Students Found Essential to Their Careers," 2004, College Student Journal *38 (3),* 420. Copyright 2004 by Project Innovation, Inc.

Although some skills can be learned simply by exposure and practice, improving the skill set of a large number of workers requires their participation in formal learning. The relationship among the college or university graduates, the institution, and the employer is complex and depend on how graduates have engaged with employability development opportunities. To accommodate this need, more institutions are including institution-based activities afforded beyond the boundaries of the institution such as internship as part of the curriculum (Voorhees & Harvey, 2005).

According to education researcher Harvey (2005), skill development was the dominant curriculum development approach adopted by the higher education institutions in the late 1990s. However, as employer needs and college or university graduate attributes became more sophisticated, the narrow sense of a few specific work skills has broadened to supplement employability. Harvey (2005) stated four trending areas of curricula development in higher education to help develop student employability.

1. Embedded attribute development in the program of study, often the result of modifications to curricula to make attribute development, job-seeking skills, and commercial awareness explicit or to accommodate employer inputs.

2. Enhanced or revised central support (usually by way of the agency of career services) for undergraduates and graduates in their search for work, to which can be added the provision of sector-wide resources.

3. Innovative provision of work experience opportunities within, or external to, the program of study.

4. Enabled reflection on and recording of experience, attribute development, and achievement alongside academic abilities, through development of progress files and career management programs (Harvey, 2005, pp. 16-17).

Therefore, there is now a trend toward a more holistic approach to employability development across institutions. The cultural change in higher education has seen a shift toward a central support service working with program staff to help develop attributes as part of the curriculum and maximize reflection on an array of work experiences (Harvey, 2005).

If a specific curriculum does not attract and/or appropriately prepare students to meet the needs of employers with their rapidly changing job requirements, the survival of that discipline is threatened. When asked about their motivations for selecting a major and attitudes toward the utility of the major for securing employment upon completion of the degree, the majority of clothing and textiles students responded with "The (ideal) job search" (Nelson & Karpova, 2005, p. 459). Therefore, it is critical to both educators and industry professionals to continually evaluate clothing and textiles curricula and its alignment to industry movement and needs.

Curriculum Development in Fashion Programs

"Curriculum assessment is the lens through which a teacher/department evaluates the degree of success it has in educating its students" (Olmsted, 2004, p. 85). Is Olmsted's statement insinuating that the success of the academic program is dependent on how well the college or university graduates perform in their chosen career field or

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how well the college or university graduates get the jobs? Although it is not clear that the success of an academic program is determined by the college or university graduates' employment rate, increasing numbers of students are seeking their bachelor's degree in order to enter their chosen career field (Asher, 2009). Therefore, it is important to take a look at the fashion programs in higher education to determine how they are updating their curriculum to meet student needs and preparing them for jobs in their field.

The field of clothing and textiles has recently undergone considerable changes to develop the curriculum towards an industry orientation. Colleges and programs have redefined their clothing and textiles field to reflect this change with clothing and textiles related departments changing their names from home economics to consumer sciences. In addition, apparel or fashion has replaced the term clothing in the name of departments, majors, and primary professional organizations in the academic field. To accommodate the movement toward a professional orientation, increasing numbers of courses incorporate industry participation in the form of research projects, consultancies, field studies, and internships (Fiore & Ogle, 2000).

Laughlin and Kean (1995, 1996) conducted a comprehensive analysis of clothing and textiles academic programs in the United States. These researchers suggested that the development of a solid and holistic body of clothing and textiles knowledge may not have been a priority in the past. The mission and curricula of clothing and textiles programs had been more often defined by career opportunities in the industry. Further, these researchers found that clothing and textiles programs with a greater number of curricula

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elements (e.g., beginning textiles, color and design principles) were more likely to remain autonomous. In their concluding remarks, Laughlin and Kean underscore the need for an integrated approach to clothing and textiles education, putting forth a call to scholars in the field for the development of a common clothing and textiles identity (1995, p.196).

To clarify, Fiore & Ogle (2000) differentiated between a curriculum with an industry orientation and one with a professional orientation. A curriculum with an industry orientation entails dissection of apparel industry structure and responsibilities and a concentration on business profitability. As an example, researchers described curriculum that emphasized technical training of students to be efficient patternmakers or display artists which epitomize an industry orientation. A curriculum with a professional orientation stresses the importance of applying integrated, broad-based clothing and textiles knowledge to professional decisions. A professional orientation balances technical training with cognitive skills and knowledge of subject matter to prepare students to make future decisions that may affect consumer satisfaction and business profitability (Fiore & Ogle, 2000).

In the studies evaluating clothing and textile curricula, researchers (Fiore & Ogle, 2000; Laughlin & Kean, 1995, 1996) have shown that integration of subject matter is important to the field of clothing and textiles and is necessary for the development of successful students. Educators have begun to implement this goal. Student assignments have been developed that require higher cognitive thought processes involving integration of subject matter. Capstone courses assess the student's ability to integrate

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subject matter across related fields to professional decisions. However, Fiore & Ogle (2000) have pointed out that there was lack of learning aids for students that communicated to them the holistic nature of the curriculum and that facilitated the complex process of integrating subject matter. The researchers suggested that educators should be more than conduits of information and monitors of student progress. Thus, it is the role of an educator to facilitate a higher level learning such as critical thinking and problem solving that may assist students in the integration of information within and across subject matter areas.

In a study by Albanese, O'Neill, and Hines (1998), a review of current curricula in over 60 university apparel and textiles programs was performed to determine what courses were required as core curriculum in the degree programs. The result was that most programs required four courses for the core curriculum, the four courses being basic apparel construction; social, psychological, and cultural aspects of clothing; history of costume; and textiles. However, the researchers advised caution in using this information for program revision as the determined core represented what currently was required, not necessarily what currently was relevant (Albanese et al., 1998).

Laughlin and Kean (1995) surveyed all academic units with apparel and textiles programs that were at least four-year programs in order to determine common curricular elements across programs. Within apparel and textiles programs, results indicated the following seven common curricular elements: beginning textiles, color and design principles, social/psychological aspects of clothing, history of costume, cultural aspects

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of clothing, merchandise operations, and fashion theory. Of these seven common curricular elements, apparel and textiles educators expected competency only in beginning textiles. However, other competencies expected were in communication, flat pattern, decision-making, and intermediate textiles. Interestingly, educators expected an understanding of only one of the common seven curricular elements, cultural aspects of clothing. When asked about future directions of apparel and textiles programs, participants answered that there would be several additions to curricular elements, but limited reductions of curricular elements. Educators also responded that, in the future, courses offered would become more compact and provide more information (Laughlin & Kean, 1995).

Olmsted (2004) emphasized that although discipline-content competencies may be established by accrediting agencies, how well students have mastered each competency is often not known. Therefore, once the skills that the department most values have been defined, then assignments need to be designed that both teach and test those learning. For such goal, educators have shown their effort to update their curricular by developing new projects, updating course objectives, adapting newer techniques, and integrating the subject matters within and between the disciplines in fashion programs (Ames, 2004; Anderson & King, 2005; Lee, 2005; Marshall, 2005; Murray & Lafrenz, 2004).

Murray & Lafrenz (2004) integrated project assignments that combined stages of the design process through multiple courses of fashion design and fashion

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communication. Ames (2004) incorporated ethics into the fashion design and merchandising curriculum in order for the student to be aware of ethical conflicts confronting the industry and be prepared to address them responsibly. Lee (2005) also developed a course project to integrate elements of various textiles and clothing subject matters across various design courses. The design process was indirectly incorporated in Lee's project. Students need to be exposed to the systematic design process, not only to get ready for their career in the textiles and clothing industry, but also to enhance their creative critical thinking abilities and problem-solving skills in relation to clothing design and construction. Successfully creating a tremendous amount of motivation and enthusiasm among students, Lee encouraged the educators to facilitate the relevant development of students and to assess students' abilities to integrate knowledge by providing meaningful experiences in a classroom setting. Marshall (2005) researched ways to increase collaboration between the two majors of fashion merchandising and fashion design in hopes of enhancing the educational experience and increasing understanding of another field of study. The course project was a collaborative effort in which the design majors' creations were marketed by merchandising majors and creating a fashion show together as an end result. Marshall reported that the both groups of students became more understanding the importance of the principles they learned in class and also how to apply them. As a result of using this method for a few semesters, the process has also brought the two groups of majors together more collaboratively and both programs have been improved.

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Career Preparation in Fashion Design

As more companies are seeking the college or university graduates as an employee, more universities are revising their curriculum to meet the industry demand. Two-year associate degree programs in fashion are changing into four-year bachelor degree programs. Fashion major fields are dividing into more specified majors such as design, merchandising, marketing, textiles, and retailing (Fiore & Ogle, 2000). The important question and critical application for this research is to understand how to develop university curriculum that meets the demands of the changing workplace in fashion design. Alignment of curriculum to marketplace needs is critical to the mission of academic institutions. Further, curriculum must be developed with professional competencies in focus, specifically, those viewed as essential by industry members. Surveying alums is one effective method to gain an understanding of how curriculum prepares college or university graduates for the marketplace. This strategy, carried out by Pate, Trautmann, & Torntore, & Walters (2003), has allowed respective programs to assess, redirect, or modify curriculum to better align with the marketplace.

Across general education and in some fields of specialization, the articulation of specific learning competencies is a major challenge because faculty members tend to organize the curriculum and course of study around the presentation of content rather than on building specific skills across the curriculum (Jones, 2001). There is an ongoing effort by educators to identify and define important competencies by evaluating skills, knowledge, and interpersonal requirements. Due to these needs in higher education, the

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ITAA Curricular Development and Review Committee revisited the competencies and surveyed the membership on awareness and use of the competencies for the discipline of textiles and apparel at the 2004 ITAA Annual Meeting in Portland (Anderson & King, 2005). To much surprise, data analysis indicated 59% of respondents were aware that the competencies existed but have neither seen them or do not use them in their curricular development or assessment initiatives (Anderson & King, 2005, spec. 2). Therefore, there is an ongoing need for evaluation of the curriculum to define and adapt necessary competencies. This research can aid further in defining the competencies by surveying industry professionals about expectations for current and future competent performance in fashion design career.

When employers hire for a position, typically a list of qualifications is outlined for that specific position. Qualifications often included are work experience, education, interpersonal skills, and knowledge about the industry. These abilities, proficiencies, and competencies are considered as job skills needed for an employee to be successful in their professional position. In the fashion industry, entry-level skill requirements depend on whether the position is in apparel design and production, textile quality analysis, or retail merchandising and management (Wolfe, 2009). For the proposed objective of this study, career competencies of technical skills, industry knowledge and experience, and interpersonal skills will be reviewed from current textbooks. Additionally, the list of competencies from the similar studies will be reviewed for further adaptation into the research instrument.

Technical Skills. In order to identify job skills needed for the fashion design profession, it is necessary to review the designers' responsibilities in detail. The fashion design profession requires a variety of skills and abilities that enable designers to interpret fashion trends. Designers' duties may vary greatly depending on the company. They may only design and supervise the workroom staff in some companies. In other cases, they may be involved in every aspect of production, from creating the original design to supervising the final alterations on the finished garment. Knowledge of various sewing and construction techniques is required to understand the production process which enables the designer to ultimately create an appealing garment that will be suitable and affordable to a targeted population (Tate, 2004).

In addition to construction techniques, the designer must be knowledgeable about fabrics and trimmings and be familiar with the patternmaking, fitting, draping, sewing, costing, and the production process for the designer to supervise the details of completing each garment (Kemp-Gatterson & Stewart, 2009). Production of a garment undergoes a series of steps. First, the designer communicates his/her ideas by drawing a sketch. The designer's sketching skills and artistic abilities enable visual communication of the proportion, silhouette, and details of the design (Keiser & Garner, 2008). Many rough sketches are drawn to show the details of a new style. They are worked on until a series of drawings, or a collection, is completed. These final designs are then approved by the manufacturer or owner of the company. Once approved, a paper pattern is made of the sketch (Tate, 2004).

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Both flat pattern and draping are techniques employed by designers in creating the garment. Draping is a three-dimensional process of patternmaking, which is a basic skill that enables the fashion designer to translate their design into a finished garment. This technique allows fashion designers to visualize fabric performance and translate design concepts on a commercial dress form. On the other hand, flat patternmaking involves accurate manipulation of measurements and angles to create a pattern for the use of clothing construction (Burns & Bryant, 2007). Then, patterns are examined for their fit by making first samples, fitting on a fit model, and checking carefully by the designer for any alterations or changes in design. Often merchandisers or salespeople will have a chance to view and comment on the designer's samples that are made from the desired materials. If the sample garment is approved, it will become part of the manufacturer's line and then be shown to buyers (Keiser & Garner, 2008).

The industry has changed profoundly during the last 30 years because of the increasing use of the computer (Tate, 2004). Many apparel firms are seeking faster and more efficient methods of product development. Computer technology can reduce the time required and increase the accuracy of many processes. Computer systems are now available to serve the needs of both small and large apparel firms. Computer-aided design (CAD) is the application of computer technology to the development of a garment up to the point of production. CAD systems for design, patternmaking, grading, and marker making have been available for many years. CAD systems offer significant benefits in time reduction, improved quality, and cost control, through the computerization of

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patternmaking, pattern grading, marker making, and plotting. This powerful tool will continue to change the way apparel is designed and manufactured. In design, the computer is a tool that speeds up the information-gathering process, sketches and images of garments, makes patterns, and grades them efficiently, and streamlines the manufacturing process. The future of fashion design and manufacturing is inevitably linked to the increasing use of computer systems and unending progress and change. Therefore, today's designers must obtain sufficient and updated computer skills (Glock & Kunz, 2005; Tate, 2004).

Hines, Swinker, and Fray (2003) note the importance of computer experience for incoming students in merchandising as well as design. They focus on Web navigation and electronic search strategies. Study findings validate the importance of incorporating Web and electronic modes into the fashion curriculum. Additionally, Brannon and Xiao (2003) note the importance of computer experience and its relevance and necessity in the entry-level design position. Specifically, the researchers note Adobe Photoshop requirements in many advertisements for design jobs.

Industry Knowledge and Experience. In addition to technical skills involved in garment production, the designer must understand supporting concepts of design, production, quality, art and color. As with any career, support knowledge allows the employee a broad perspective and the flexibility needed to be successful (Tate, 2004). Vogt (2007) pointed out the designers need to ensure that garments can be produced efficiently and cost-effectively by understanding the manufacturing side of the industry.

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This requires designers to understand the technical limits of the production system, costing/markup system, fabric properties and care, and marketing and promotion that are involved in the whole production process (Vogt, 2007). For example, in a factory with limited sewing equipment for delicate fabrics, the designer's selection of appropriate fabric for the equipment is particularly important. Designers should recognize potential problems when they construct the sample in the design room. The designer should also test how each new fabric reacts to pressing, washing, or dry cleaning. Therefore, the designer's knowledge of textile and care properties is critical to produce cost effective garments (Tate, 2004).

While a great deal of fashion designers' work is creative in nature, "Designers are challenged to show an understanding of culture, economics, lifestyle, and global mobility in every step in their creative processes" (Kemp-Gatterson & Stewart, 2009, p. 119). Along with production related knowledge, they must also learn and understand the economic and political world. Kemp-Gatterson & Stewart (2009) listed history, economy, society, culture, and politics as fashion designers' inspiration sources for creativity as well as for the marketing aspect of understanding consumer needs. Moreover, a solid understanding of world events will help product developers clarify how and where products should be manufactured in this marketplace of growing global integration. Product sourcing and production out-sourcing will be impacted by the continuing globalization of all industries. Trade and international changes impact U.S. companies as does the political climate in the countries acting as trade partners (Burns & Bryant, 2007).

Yu and Jin (2005) also emphasized the importance of incorporating the global

perspective in education to prepare students for the global business environment. The

study evaluated input from the US business communities and provided suggestions for

enhancing the international dimensions of the apparel and merchandising curriculum in

the USA. Results indicated that the most important benefit of doing business

internationally was an expanded market, while the obstacle identified most often was

cultural differences. The study also found that understanding (i.e. cultural/business

practice differences, etc.) is more critical than application or competency (i.e. specific

skills) within college level international education curriculum and that taking both

general and product-specific approaches is the most efficient way to enhance

international dimensions in apparel and textiles curricula (Yu & Jin, 2005).

Being familiar with the fashion industry through education, research, and

experience is the basis of industry knowledge. For university students, industry

knowledge most often is taught by university faculty through lecture and activity in a

classroom environment, and discovered by students through course projects, case studies,

research, and practicum (Wesley & Bickle, 2005). To supplement this education, some

universities require completion of an internship or cooperative education or work-study

program to assist students with their understanding of fashion and the industry. Industry

knowledge also may be realized through on-the-job experience obtained by students

while in college (Southward & Burgess, 2003). When Southward & Burgess (2003)

studied the effectiveness of internships for retailers and educators, the benefits included

better preparation of students for business, realistic learning opportunities, and connections or networking opportunities for permanent employment. The study additionally revealed that employers hired college or university graduates with an internship experience at a greater rate (85%) than college or university graduates without an internship experience.

Interpersonal Skills. Interpersonal skills are important to college or university graduates in any major in any career field (Asher, 2009). According to a survey of corporate recruiters by the National Association of Colleges and Employers in *Job Outlook 2009* (2008), interpersonal skills were the most predominant attributes sought after by employers seeking new employees. Identified skills were communication skills, honesty/integrity, teamwork skills, motivation/initiative, strong work ethic, analytical skills, flexibility/adaptability, and self-confidence.

Designers' interpersonal skills, such as good communication skills, play an important role in sales when they work with salespeople and retail buyers. Designers need to be able to work comfortably with people in order to communicate through a complex industry network of buyers, salespeople, design room staff, management, production staff, and publicity teams. Interpersonal skills are critical because designers are often members of a design team. They often conduct sales meetings to explain to sales staff the styling of a line and the specific fabric information they need to sell the merchandise to buyers (Tate, 2004). To improve students' interpersonal skills and build

stronger characteristics, educators are constantly developing and revising their course content to incorporate projects with such purpose.

Bye (2004) developed a course project to improve students' group communication skills through role playing. The instructor assigned each student specific responsibilities in a product development environment for a major mass-market retailer. As the result of the project, the students learned appreciation for the importance of communication skills and acknowledged needs of flexibility and teamwork skills (Bye, 2004). Sanders-Okine (2005) notes the importance of introducing students to the peer-review process using industry panels to jury work at multiple stages in the students' program, and aids in students' knowledge discovery in tangible and meaningful ways. Sanders-Okine's (2005) industry panel provides students with more opportunity to communicate with professionals.

Interpersonal skills are also critical when an employee is a member of a team such as a design team responsible for developing a category of products or a quality analysis team responsible for testing and analyzing new fabrics (Keiser & Garner, 2008). Kwak, Black, & Stepina (2005) examined the relationship between apparel product development team characteristics and team effectiveness in apparel product development (APD). The study surveyed 22 apparel companies with one or more APD teams to assess team characteristics and team effectiveness. The study result indicated the team interaction and team interdependence predicted team member job satisfaction and team member judgment of effectiveness. Among the 11 team characteristics, potency/team spirit,

workload sharing, and communication with teams displayed the highest correlation with APD team effectiveness (Kwak, Black, & Stepina, 2005). Lafrenz (2004) conducted a study assessing the need for teamwork skills among fashion college or university graduates. Interviews with alumni and external program reviewers revealed and substantiated that the fashion industry seeks college or university graduates with effective teamwork skills.

Earlier work by Miglietti (2002) is substantiated through the study noting teamwork based projects aid in developing interpersonal and communication skills while deeply integrating students in the learning process. Teamwork is further enhanced when partnering group work with new technologies as tested by Fraizer and Cheek (2005). Fraizer and Cheek assessed an active learning strategy titled *Fashion Career Matrix*. They found small groups in the technology based projects were effective in increasing student interaction, communication, and problem solving skills, thus enhancing student cognition.

Although education and experience requirements vary even between one company and another within the fashion industry, an increasing number of companies expect their applicants for entry-level positions to have a college degree (Stone, 2008). However, according to the U.S. Department of Labor on fashion designer census, employers usually seek designers with a 2- or 4-year degree who are knowledgeable about textiles fabrics, ornamentation, and fashion trends ("Fashion Designers," 2008). There is no clear answer in the debate regarding curriculum theory and competency-

based curriculum. It is essential to understand curriculum development as an on-going and changing process. The researcher's goal is to evaluate current perceptions of both industry and education members to assess factors aiding in the on-going evaluation of fashion curriculum and to add to the body of knowledge regarding fashion design competencies.

CHAPTER III

PROCEDURE

The purpose of the study was to examine and compare perception differences

between Fashion Industry Professionals and Fashion Educators regarding the necessary

Technical Skills, Industry Knowledge and Experience, and Interpersonal Skills, a fashion

design college or university graduate should have in order to acquire an entry-level

design position in the fashion industry. The focus of this study explored the design career

within the fashion industry. Results may be used to make curriculum recommendations to

college or university fashion programs to ensure that college or university graduates have

the skill sets and knowledge necessary for entry-level design positions in the fashion

industry. The procedures for this study were categorized and presented in the following

sections: (a) research design, (b) selection of the sample, (c) research instrument,

(d) collection of research data, and (e) the statistical analysis of data.

Research Design

This study utilized a descriptive research design. Data was collected using a

survey research method in order to test hypotheses and to determine perceived levels of

importance within and differences in perceptions between Fashion Educator and Fashion

Industry Professional subject groups. In the development of the research instrument, all

variables in the study were defined based upon a thorough review of the related research

and literature. In order to avoid measurement error, Dillman, Smyth, and Christian's

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(2008) recommendations on how to write a questionnaire for Internet use and how to order the questions were followed. The measurement error also was controlled by adapting research instrument language based upon valid and reliable instruments utilized in previous studies by Quevedo (1998) and Aranda (1995). Additionally, content validation was addressed through the use of a validity test, specifically the survey items were tested through an inter-rater reliability analysis.

In an attempt to control the non-response error common to survey research, after the initial broadcast email of an in-text cover letter, the researcher facilitated a higher response rate through a follow-up email request for participation among Fashion Industry Professionals and Fashion Educators. Two email reminders were sent to Fashion Industry Professionals and Fashion Educators at one week intervals after the initial cover letter email. According to Dillman et al. (2008), multiple contacts are essential to strong response rates, second only to incentives.

Dillman et al. (2008) found that one of the largest contributors to improve response rates is "the appropriate use of prepaid token financial incentives" (p. 238). Dillman et al. (2008) also pointed out that the incentives functions as a social exchange role, or a novel and unexpected gesture. Most importantly, an incentive reduces nonresponse bias. The researchers also suggested utilizing promised or contingent incentives instead of advance incentives in an effort to save valuable resources (Dillman et al., 2008). In order to increase the response rate in this study, participants were offered an opportunity to participate in an electronic drawing for one of three gift certificates

to Barnes & Noble or one of three gift certificates to Target at the completion of the survey. This drawing was separate from the survey results so the participants' email addresses cannot be linked to their answers. The researcher randomly selected a winner from the email list generated. The winners of the electronic drawing were notified by email and received their gift card by mail.

Selection of Sample

The study population consisted of two groups, (a) Fashion Industry Professionals (FIP) in apparel and accessories design and manufacturing companies in the United States, and (b) Fashion Educators (FE) employed by two-year and four-year institutions in the United States offering fashion, apparel, or clothing design as a major or specialization in the degree program. Professional membership listings were used to identify each group.

Fashion Industry Professionals were identified through the membership directory of the Fashion Group International [FGI], a non-profit organization for industry professionals (FGI, 2008). From the 2009-2010 FGI directory, Fashion Industry Professionals were selected under the title/position codes indicated in the directory adjacent to each name. Names indicating the following codes were added to the sample group; *a*-CEO/president and designer/owner; *d*-executive vice president/ senior vice president; *e*-vice president; *f*-general merchandise manager; *g*-divisional merchandise manager; *h*-department head; and *o*-designer (see Figure 5).

PRIMARY BUSINESS

A   Finance
B   Insurance
C   Media (Print or Electronic)
D   Real Estate
E   Retail Trade
F   Service related
    (such as advertising, education,
    public relations, executive search,
    personal services, graphic design)
G   Wholesale Trade
    (includes manufacturing
    and suppliers)
H   New Technologies
    (Internet/e-business)

TITLE/POSITION

a   CEO/President
    COO
    Editor in Chief
    Partner-Owner
    Designer-Owner
b   Managing Director
    General Manager
c   CFO/Publisher
d   Executive Vice President
    Senior Vice President
e   Vice President
f   General Merchandise Manager
        (or equivalent)
g   Divisional Merchandise Manager
        (or equivalent)
h   Manager/Director/Dept. Head
I   Sales Representative/Account Executive
J   Buyer
k   Coordinator/Administrator
I   Consultant
m   Editor
n   Columnist/Writer
o   Designer/Graphic Designer
p   Professor/Teacher/Trainer

SPECIALTY

1   Accessories
2   Advertising
3   Catalogue/Mail Order
4   Children s Apparel & Accessories
5   Commercial Art/Graphic Design/Photography
6   Cosmetics
7   Direct Marketing
8   Education/Libraries
9   Executive Search/Employment Agencies
10 Food/Beverages
11 Gifts/Novelty/Hobby/Books
12 Model/Talent Agencies
13 Home Furnishings/Decorative Items/Table Top
14 Human Resources
15 Legal Services
16 Image Consulting
17 Interior Design
18 Intimate Apparel
19 Investment Banking/Brokerage/Advisory
20 Licensing
21 Management Consulting
32 Marketing
22 Men's Apparel & Accessories
23 Museums/Galleries
24 Personal Services/Salons/Spas
33 Product Development
25 Professional Membership Organizations
26 Public Relations/Event-Show Planning
27 Public Administration/
    Trade Commission/Government
28 Real Estate
34 Shopping Center/Mall Management
29 Textile/Fabric/Fiber
30 Visual Merchandising
31 Women's Apparel

**appears after zip code and
indicates mailing address**

(H) Home address
(B) Business address

HOW TO USE DIRECTORY CODES: classification codes appear at the last line of each member's information. Refer to this list for code identification.

Figure 5. FGI directory classification codes. From *FGI Membership Directory* (2008,

p.119).

In addition, the selection of participants for this study was limited to the primary business specialty classification codes of; *1*-accessories; *4*-childrens apparel & accessories; *18*-intimate apparel; *22*-men's apparel & accessories; *33*-product development; *29*-textile/fiber/fabric; and *31*-woman's apparel (see Figure 5). The researcher identified within the FGI directory only members from U.S. cities and states who meet the criteria listed above.

The primary list of Fashion Educators (FE) was obtained from the membership list of the International Textile and Apparel Association (ITAA). ITAA is a professional association whose membership consists mainly of educators who teach at the college- or university-level in the field of clothing and textiles. The ITAA membership directory was used to obtain a listing of educators employed by two-year and four-year institutions offering fashion, apparel, or clothing design as a major or specialization in the degree program in the United States. However, the membership directory provided by ITAA did not contain information about the members' area of research interest or teaching specialty. Because the objective of the study was to survey Fashion Educators in the design concentration, the final fashion educator sample list was verified using a follow-up on-line Web search of ITAA affiliated two-year and four-year institutions.

To identify Fashion Educators, the complete ITAA directory was first downloaded into table format by the researcher. Information contained in the table columns indicated each member's name, email address, and institution where they are teaching. Second, the members were grouped by institution and members from outside

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the U.S. will be eliminated. To validate the final list of active faculty members, the list of

Fashion Educators was verified through a Web search, visiting each institution's

departmental Web site for up-to-date faculty listings and email addresses. Among the

faculty members in each school, the participant list included faculty who teach in the

design, construction, or illustration area indicated by their course schedules or teaching

interest listed on the Web sites. Additional names found in the Web site search were

added to the sample group, if the Web site indicates construction, apparel design,

draping, flat patternmaking, tailoring, sketching, illustration or other design related

courses as classes taught or as areas of teaching interest.

In addition to the ITAA membership directory listing, additional participants were

identified from *Career Opportunities in the Fashion Industry, 2nd edition* (Vogt, 2007).

Vogt (2007) lists American colleges, universities, and other institutions offering

educational programs related to fashion and apparel, textiles, and/or fabric sciences. Each

school is listed with an address, telephone number, and Web address. The researcher will

scan through the listing to identify schools not included in the ITAA directory. A visit

was made to the school Web sites to identify Fashion Educator participants meeting the

same criteria as the selection for ITAA member participants. The Fashion Educators list

from both sources were combined and sorted into alphabetical order of names to

eliminate duplication. To facilitate adequate sample size and because of the limited

number of faculty in fashion design, other means of recruitment was used, specifically,

the *Survey Recruitment* feature provided by PsychData. *Survey Recruitment* allowed a

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participant to forward the survey address to other potential participants at the end of the survey. In order to control sampling error, the introduction of the Fashion Educators' survey included a mandatory question that would qualify each participant as a fashion design educator and eligible participant. The question asked if they are teaching fashion design courses. The Fashion Educators who choose "no" were directed to the closing message.

Research Instrument

The instrument was designed to obtain responses from Fashion Industry Professionals and Fashion Educators working in the United States. This research had been approved by the Texas Woman's University Institutional Review Board (IRB) as required by the Code of Federal Regulations Title 45, Part 46. The research instrument developed for this study was a self-administered, Web-based survey. Dillman et al. (2008) stated that for the participants to give accurate and precise answers, questionnaire layouts and the design and wording of individual questions are extremely important. In developing the questionnaire, previous clothing and textiles and fashion studies were examined for guidance as to appropriate content, format, and measurement to achieve validity. Based on information presented by Quevedo (1998) and Aranda (1995), a self-administered questionnaire was used to gather information regarding technical skills, industry knowledge and experience, and interpersonal skills. The Quevedo (1998) and Aranda (1995) questionnaires were modified and combined for use in the current study following Dillman's Tailored Design Method (Dillman, et al., 2008). The Quevedo and

Aranda questionnaires were administered using traditional postal mail service and follow-up postcards. This survey, however, was administered electronically. An electronic in-text cover letter invited the potential study participants to participate in the proposed study and complete the questionnaire by either clicking on the embedded hyperlink URL or copying and pasting the URL into their Web browser.

The study cover letter presented the purpose of the survey, instructions, length of time needed to complete the survey, confidentiality, incentive, the researcher's contact information as well as the survey link. A copy of this letter can be found in Appendix A for Fashion Industry Professionals' and Appendix B for Fashion Educators'. The questionnaire was designed through the use of PsychData^{TM}, LLC. PsychData is a professionally developed and maintained Web presence with the technology that combines parent-level, centralized database architecture with strict security policies and procedures ("PsychData," 2009).

The study questionnaire contained questions regarding the importance of knowledge and skill-based competencies for entry-level positions within apparel and accessories design and manufacturing companies. The questionnaire contained a list of competencies, which were categorized into the three areas of Technical Skills, Industry Knowledge and Experience, and Interpersonal Skills. The questionnaire contained the following four sections; (a) Technical Skills (TS) needed for fashion design including patternmaking techniques, sewing techniques, drawing skills, design skills, computer skills, textile skills, product development, and promotional skills (see Table 8);

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Table 8

Competency Section 1 – Technical Skills (TS)

Patternmaking techniques	a. Flat patternmaking
	b. Draping
	c. Pattern drafting
	d. Pattern grading
	e. Marker making
	f. Fitting/alterations
Sewing techniques	a. Basic garment construction
	b. Machine sewing
	c. Hand sewing
	d. Tailoring
	e. Couture/custom sewing
Drawing skills	a. Fashion sketching
	b. Flat/technical drawing
	c. Colored illustration
	d. Portfolio organization and development
	e. Line sheet development
Design skills	a. Apparel design
	b. Color selection/matching
	c. Trend sourcing/interpretation (style selection)
	d. Fabric selection
	e. Surface design
	f. Textile design
	g. Design for a specialty market (i.e. bridal)

Table 8, continued

Competency Section 1 – Technical Skills (TS)

Computer skills	a. CAD patternmaking b. CAD grading c. CAD marker making d. Computer-aided design including 3D draping e. CAD cutting f. Costing g. EDI/electronic data interchange and PDM/product data management h. Computer graphics development (i.e. PhotoShop, Illustrator, NED Graphics) i. Spreadsheet and timeline management j. Word processing
Textile evaluation skills	a. Fiber and fabric selection for garment performance b. Textile testing (i.e. stretching, color fastness) c. Laundry/dry cleaning procedures d. Fabric construction and performance assessment
Product development skills	a. Production costing b. Merchandising c. Contractor and vendor sourcing d. Quality control e. Process and workflow charts f. Specification development
Promotional skills	a. Fashion show production b. Visual merchandising (display) c. Styling/coordination d. Internet and Web presentations e. Branding f. Positioning g. Advertising

(b) Industry Knowledge and Experience (IKE) including art/design knowledge, historical/ cultural knowledge, merchandising knowledge, production-related knowledge, and experiential learning (see Table 9); (c) Interpersonal Skills (IS) including attitude skills, character skills, communication skills, teamwork skills, and leadership and management skills (see Table 10); and a section of (d) demographic information.

The survey started on the opening page with the purpose statement and instructions (see Appendix E). Additionally, Fashion Educators' survey opening page included the mandatory question to qualify each participant as a fashion design educator (see Appendix F). Following this, each competency section was presented and participants were asked to rate the importance of each competency item for an entry-level position in fashion design using a level of importance scale. To measure the perceptions of importance, a 5-point Likert-type scale was used in response to all of the questions relating to the three competency sections. The rating values were applied into a matrix using poles format, ranging from 1 (*Not at all important*) to 5 (*Extremely important*). For most effective statistical result, the matrix using poles format was advised to have greater efficiency in measuring importance as a scale. Each competency item was followed by single select matrix answer section with numbers 1 through 5 arranged horizontally, with the descriptions of the first and last post. Under the three main competency categories, each competency subset was identified by number and each competency item was listed. A copy of the competency sections in the survey is shown in Appendix G, *Career Competencies in Fashion Design Survey.*

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Table 9

Competency Section 2 – Industry Knowledge and Experience (IKE)

Art/design knowledge	a. Art history
	b. Color theory
	c. Design principles and elements
Historical/cultural knowledge	a. Consumer behavior
	b. Socio-cultural perspectives
	c. History of costume
	d. Theories of fashion change
Merchandising knowledge	a. Advertising
	b. Apparel terminology
	c. Budget/product cost
	d. Knowledge of major market areas
	e. Market research
	f. Marketing
	g. Trend forecasting
Production-related knowledge	a. Textile properties; fibers, yarns, finishes
	b. Figure/size analysis (size specification)
	c. Quality control
	d. Quick Response Technology (QRT)
	e. Domestic and international sourcing
Experiential learning	a. Design internships
	b. Shadow days
	c. Industry design critique
	d. Industry tours
	e. Practical application and simulation
	f. Part time job-design or related
	g. Part time job-retail or merchandising or related
	h. General work experience

Table 10

Competency Section 3 – Interpersonal Skills

Attitude skills	a. Ambitious
	b. Analytical
	c. Confident
	d. Energetic
	e. Enthusiastic
	f. Pleasant
	g. Positive attitude
	h. Professional
	i. Visionary
Character skills	a. Committed
	b. Creative
	c. Ethical
	d. Honest
	e. Intelligent
	f. Logical
	g. Loyal
	h. Perseverant
	i. Reliable
	j. Responsible
	k. Strong work ethic
Communication skills	a. Oral
	b. Written
	c. Visual
	d. Foreign language(s)

Table 10, continued

Competency Section 3 – Interpersonal Skills

Teamwork skills	a. Dependable
	b. Flexible
	c. Organized
	d. People oriented
	e. Problem solver
	f. Team player
Leadership and management skills	a. Decision maker
	b. Delegator
	c. Initiator
	d. Leader
	e. Time manager

Design: Career Competencies in Fashion Design Survey

The Technical Skills (TS) category questions under subsets 1 through 8 asked

participants to rate each Technical Skills item (Table 8) for an entry-level position in

fashion design using the five-point importance scale stated above. The Industry

Knowledge and Experience (IKE) questions under subsets 9 through 13 asked

participants to rate each Industry Knowledge and Experience item (Table 9) for an entry-

level position in fashion design using the five-point importance scale stated above. The

third competency category, Interpersonal Skills (IS) questions under subsets 14 through

18, asked participants to rate each Interpersonal Skills item (Table 10) for an entry-level

position in fashion design using the same five-point importance scale. A copy of the

competency section of the questionnaire is shown in Appendix G. The research

instrument consisted of two versions differing in the introduction page with delimitating

question only for the Fashion Educators' survey and the demographic professional

information which was in the final section following the three competency category

sections.

Fashion Industry Professional Survey

Professional questions asked for participants' career information (i.e., company

information from Fashion Industry Professionals and institution information from

Fashion Educators). In the Fashion Industry Professional questionnaire, Question 19 and

Question 20 asked the participant's gender and age in a single-select, multiple-choice

question format. Questions 21 through 24 consisted of questions regarding participant's

career and education. Question 21 and Question 22 were one-line answer free response formats with 10 character limit which asked for the number of years participants have been employed in the fashion industry as well as the number of years participants have been employed in their current company. Additionally, Question 23 was a 100 character limit, one-line answer format asking the title of the participant's current position whereas Question 24 was a single-select multiple choice format requesting the participant's highest level of education.

Question 25 through 31 elicited participants' company information whereas Question 25 was a single select multiple choice format asking the number of people employed in the participants' place of employment. The choice of employee numbers was listed as the range of less than 5, 6 - 25, 26 - 50, 51 - 100, 101 - 150, 151 - 500, and 501 - above. Furthermore, Question 26 was a multiple-select format which asked participants to select all the market divisions in participant's design department whereas Question 27 requested information on how many individuals work in their design department along with their job category such as designer, assistant designer, technical designer, patternmaker, sample maker, cutter, marker maker, interns, and others. Question 28 asked if participants' job responsibility includes hiring entry-level design positions. For Question 29, a single choice between *required* and *preferred* asked if a college degree is required for an entry-level design position whereas Question 30 asked if participants' company offers internships to college students.

Participants were asked to indicate the more important factor when hiring for an entry-level design position by rating the importance of *previous work experience* on Question 31a and *four-year Degree* on Question 31b. Question 31a and Question 31b used the same matrix with the poles format used for rating competency items that was, one being *Not at all important* and five being *Extremely important*. Finally, Question 32, asked participants to give additional information or advice to contribute to an aspiring fashion designer regarding skills and knowledge needed for a fashion design career in an open-end essay answer format with 8000 character limit (see Appendix H).

Fashion Educator Survey

In order to control sampling error, the introduction of the Fashion Educators' survey included a mandatory question that would qualify each participant as a fashion design educator. The question asked if they are teaching fashion design courses. The Fashion Educators who choose "no" were directed to the closing message. If participants choose "yes", they started the competency sections of questionnaire (see Appendix F).

After three competency sections of questionnaire, the Fashion Educators' demographic and professional section started with Question 19 and Question 20 that were similar to that of the Fashion Industry Professionals questionnaire asking participants' gender and age. Questions 21 through 24 requested data regarding participants' years of teaching (Q21), years of employment at participant's current institution (Q22), title of current position (Q23), and the highest degree held (Q24). Question 25 asked if the participant has worked in the fashion industry with *question logic* application directing

the participants to three different paths in the questionnaire. If participants answered "Yes, currently working", they then were directed to Question 26b and Question 26C. If participants answer "Yes, but not currently working" was selected, participants were directed to Questions 26a, 26b, and 26c. If participants answered "No, never worked in the industry" was selected, participants skipped Question 26a, b, and c, and moved on to Question 27. These questions were as follows: Question 26a was "how many years since you have been employed in the industry?" Question 26b was "what position have you been employed in the industry?" and Question 26c was "how many years have you been employed in the industry?"

Questions 27 through 28 elicited information about participant's institution and the fashion programs. A multiple-select multiple choice format was used for Question 27 on majors being offered whereas Question 28 asked about the courses being offered in the participants' institutions. Because of ever-changing technology in computer programs, Question 28a requested information on the computer program being used in their CAD course, if any. Question 29 asked if the internship is offered in the participants' institutions with question logic application. If participants select yes, participants were taken to Question 29, which asked if an internship is required to complete the program. The final two questions requested information regarding recent changes in the participants' programs by asking participants' to indicate any courses which were added (Q30) or were eliminated (Q31) with 1000-character limit free response format (see Appendix I).

As both the Fashion Industry Professionals and Fashion Educators questionnaires conclude, participants were linked out of the study survey and to the incentive prompt by clicking "continue to next page." Participants had an opportunity to enter the drawing for gift certificates or pass on to the next page. Finally, the closing screen displayed the completion of the survey and thanks for their participation. It also provided a form for the name and email address of other potential participants. Once the recruitment form was filled, the survey link was automatically sent to the potential participants' email address without revealing their name or email address to the researcher (see Appendix J).

Testing of the Research Instrument for Reliability and Validity

A pre-test survey was conducted to pretest the research instrument and research procedure for comprehension of the instructions and clarity of the terminology prior to the main study. The pre-test survey used a judgment sample of six Fashion Educators and six Fashion Industry Professionals. Participants for the pre-test survey were recruited from the researcher's personal contacts who met the same criteria as the study sample groups. Moreover, the participants for this pre-test survey were also established through requirements of participation including: current employment in the apparel industry and a minimum of 3 years of apparel industry experience for Fashion Industry Professionals, and current employment in a higher education institution and a minimum of 10 years of teaching experience for Fashion Educators.

Several potential participants from each group of Fashion Industry Professionals and Fashion Educators were contacted via phone and/or email and asked to voluntarily

participate in the survey to evaluate the proposed study questionnaire. After the initial

communication via phone and/or email, an in-text cover letter was sent to each

participant. The cover letter included the same information as the actual survey cover

letter, however, in addition included the purpose of the pre-test survey and the estimated

time to take the evaluation part of the pre-test survey beyond the main survey.

The pre-test participants began by indicating the time they started the survey and

continued as the actual research survey. After the research survey section, participants

were asked to indicate the time they completed the survey to verify the time consumed on

the actual research survey. Participants were then asked to indicate their opinions on the

ease or difficulty for study participants to answer the research questionnaire. The

following sections asked participants to evaluate each of the competency subsets and

their items. The evaluation questions asked these participants to rate the ease of

understanding the competency items and if the competency items were an adequate

representation of each subset. In addition, participants were asked to add any missed

items and comments, so that action could be taken to refine weaknesses of the

questionnaire and establish content validity.

Additionally, experienced researchers employed by Programs in Fashion and

Textiles at Texas Woman's University reviewed the electronic questionnaire to detect

flaws and make recommendations for improvements. In addition to the educational

experts, a professional statistician evaluated the questionnaire for its format and the valid

application of the statistical procedure. The validity test participants were not included in

participate in the survey to evaluate the proposed study questionnaire. After the initial communication via phone and/or email, an in-text cover letter was sent to each participant. The cover letter included the same information as the actual survey cover letter, however, in addition included the purpose of the pre-test survey and the estimated time to take the evaluation part of the pre-test survey beyond the main survey.

The pre-test participants began by indicating the time they started the survey and continued as the actual research survey. After the research survey section, participants were asked to indicate the time they completed the survey to verify the time consumed on the actual research survey. Participants were then asked to indicate their opinions on the ease or difficulty for study participants to answer the research questionnaire. The following sections asked participants to evaluate each of the competency subsets and their items. The evaluation questions asked these participants to rate the ease of understanding the competency items and if the competency items were an adequate representation of each subset. In addition, participants were asked to add any missed items and comments, so that action could be taken to refine weaknesses of the questionnaire and establish content validity.

Additionally, experienced researchers employed by Programs in Fashion and Textiles at Texas Woman's University reviewed the electronic questionnaire to detect flaws and make recommendations for improvements. In addition to the educational experts, a professional statistician evaluated the questionnaire for its format and the valid application of the statistical procedure. The validity test participants were not included in

the main study sample and the data was not analyzed as part of the main study.

Overall Rating for Scale

The twelve raters (i.e., six Fashion Educators and six Fashion Industry Professionals) were asked to rate the overall ease of rating the career competencies for the fashion design scale from 1 (very difficult) to 5 (very easy). Fashion Industry Professionals' ratings of the survey's difficulty rating ranged from 2.00 to 5.00, with a mean of 4.17 (*SD* = 1.17), indicating that the survey was thought to be relatively easy for future participants to rate. Educators' answers ranged from 3.00 to 5.00, with a mean of 4.50 (*SD* = 0.84), which indicated that Fashion Educators believed the survey to also be relatively easy (see Table 11).

Inter-rater Reliability

Technical Skills Category. The 18 items were analyzed for inter-rater reliability for both Fashion Industry Professionals and Fashion Educators, using *Cronbach's alpha.* As shown in Table 12, the pattern making items for Fashion Industry Professionals had a reliability rating of .767 whereas those items had a reliability rating of .529 for Fashion Educators. The items for sewing techniques for Fashion Industry Professionals had a reliability rating of .868 and a reliability rating of .881 for Fashion Educators. Furthermore, the items for drawing skills had a .707 reliability rating for Fashion Industry Professionals and .680 reliability rating for Fashion Educators whereas design skills had a .837 reliability rating for Fashion Industry Professionals and .914 reliability rating for Fashion Educators.

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Table 11

Means and Standard Deviations of Difficulty of Career Competencies for Fashion Design

as Rated by Fashion Industry Professionals and Fashion Educators in Pre-test (N = 12)

	N	Mean	SD	Min	Max
Difficulty of Survey					
Industry	6	4.17	1.17	2	5
Educator	6	4.50	0.84	3	5

Table 12

Inter-rater Reliability Ratings for the 18 Competency Items as Rated by Fashion Industry

Professionals and Fashion Educators in Pre-test (Cronbach's Alpha)

| | Inter-rater Reliability Ratings | |
	Professional	Educator
Technical Skills		
Patternmaking techniques	.767	.529
Sewing techniques	.868	.881
Drawing skills	.707	.680
Design skills	.837	.914
Computer skills	.632	.643
Textile evaluation skills	.716	.869
Product development skills	.600	.736
Promotional skills	.657	.694
Industry Knowledge and Experience		
Art/design knowledge	.854	.778
Historical/cultural knowledge	.800	.864
Merchandising knowledge	.791	.862
Production-related knowledge	.889	.587
Experiential learning	.581	.663
Interpersonal Skills		
Attitude skills	.682	.868
Character skills	.635	.754
Communication skills	.800	.977
Teamwork skills	.600	.715
Leadership and management skills	.557	.819

The computer skills for Fashion Industry Professionals had a reliability rating of .632 and .643 reliability rating for Fashion Educators whereas the textile evaluation for Fashion Industry Professionals had a reliability rating of .716 and a reliability rating of .869 for Fashion Educators. Finally, product development skills for Fashion Industry Professionals had a reliability rating of .600 and a reliability rating of .736 for Fashion Educators whereas promotional skills had a reliability rating of .657 for Fashion Industry Professionals and .694 reliability rating for Fashion Educators.

Industry Knowledge and Experience. As also shown in Table 12, the items of art and design knowledge for Fashion Industry Professionals had a reliability rating of .854 and .778 for Fashion Educators whereas the items for historical and cultural knowledge had a reliability rating of .800 for Fashion Industry Professionals and .864 for Fashion Educators. The items for merchandising knowledge had a reliability rating of .791 for Fashion Industry Professionals and .862 for Fashion Educators whereas production-related knowledge had a reliability rating of .889 for Fashion Industry Professionals and .587 for Fashion Educators. Finally, Fashion Industry Professionals gave a .581 inter-rater reliability rating for the experiential items and Fashion Educators gave a .663 inter-rater reliability rating for these items.

Interpersonal Skills. As shown in Table 12, the items for attitude skills had an inter-rater reliability rating of .682 for Fashion Industry Professionals and .868 for Fashion Educators whereas the characteristic skill items had a .635 inter-rater reliability rating for Fashion Industry Professionals and .754 for Fashion Educators. Additionally,

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Fashion Industry Professionals gave a .800 inter-rater reliability rating to the communication skill items and Fashion Educators gave a .977 reliability rating. Furthermore, the teamwork items were rated by the six Fashion Industry Professionals and received an inter-rater reliability rating of .600 whereas .715 by Fashion Educators. Finally, the leadership and management skill items received a reliability rating of .557 from Fashion Industry Professionals and .819 for Fashion Educators.

Ease of Understanding Survey Items

The pre-test participants were also asked to rate the ease (or difficulty) of understanding each of the 18 items which comprised the career competencies for fashion design scale. As before, the items were rated on a scale ranging from 1.00 (very difficult) to 5.00 (very easy). As shown in Table 13, Fashion Industry Professionals rated each of the 18 items as being somewhat easy to complete as all means were greater than 3.67 whereas Fashion Educators rated each of the 18 items as being moderately easy to complete as all means were greater than 4.67.

The 12 pre-test participants were also asked to rate how adequate each of the questions about the 18 items represent those particular items. As shown in Table 14, the 18 items were rated on a scale ranging from 1.00 (not at all adequate) to 5.00 (very adequate). Fashion Industry Professionals rated the questions for each of the items to be somewhat adequate in representing the items as all means were greater than 3.67 whereas Fashion Educators rated the questions for each of the items to be moderately to very adequate with all means greater than 4.83.

Table 13

Means and Standard Deviations for Ease of Answering the 18 Competency Items

	N	Mean	SD	Min	Max
Patternmaking techniques					
Industry	6	4.17	1.17	2	5
Educator	6	5.00	0.00	5	5
Sewing techniques					
Industry	6	4.00	1.26	2	5
Educator	6	4.83	0.41	4	5
Drawing skills					
Industry	6	4.17	0.98	3	5
Educator	6	4.83	0.41	4	5
Design skills					
Industry	6	4.17	1.17	2	5
Educator	6	4.83	0.41	4	5
Computer skills					
Industry	6	3.83	1.60	1	5
Educator	5	5.00	0.00	5	5
Textile evaluation skills					
Industry	6	4.33	1.21	2	5
Educator	5	5.00	0.00	5	5
Product development skills					
Industry	6	4.33	1.03	3	5
Educator	6	4.83	0.41	4	5
Promotional skills					
Industry	6	4.67	0.82	3	5
Educator	5	5.00	0.00	5	5
Art/design knowledge					
Industry	6	4.50	0.84	3	5
Educator	6	5.00	0.00	5	5

Table 13, continued

Means and Standard Deviations for Ease of Answering the 18 Competency Items

	N	Mean	SD	Min	Max
Historical/cultural knowledge					
Industry	5	4.40	0.89	3	5
Educator	6	4.67	0.82	3	5
Merchandising knowledge					
Industry	6	4.50	0.84	3	5
Educator	6	4.83	0.41	4	5
Production-related knowledge					
Industry	6	3.67	1.03	2	5
Educator	6	4.83	0.41	4	5
Experiential learning					
Industry	6	4.33	1.03	3	5
Educator	6	5.00	0.00	5	5
Attitude skills					
Industry	6	4.67	0.52	4	5
Educator	6	4.83	0.41	4	5
Character skills					
Industry	6	4.50	0.84	3	5
Educator	6	4.83	0.41	4	5
Communication skills					
Industry	6	4.67	0.52	4	5
Educator	6	4.83	0.41	4	5
Teamwork skills					
Industry	6	4.67	0.52	4	5
Educator	6	5.00	0.00	5	5
Leadership and management skills					
Industry	6	4.67	0.52	4	5
Educator	6	4.83	0.41	4	5

Table 14

Means and Standard Deviations for the Adequacy of the Competency Items

	N	Mean	SD	Min	Max
Patternmaking techniques					
Industry	6	4.33	0.82	3	5
Educator	6	4.83	0.41	4	5
Sewing techniques					
Industry	6	3.83	1.17	2	5
Educator	6	5.00	0.00	5	5
Drawing skills					
Industry	6	4.33	0.52	4	5
Educator	6	4.83	0.41	4	5
Design skills					
Industry	6	4.17	0.75	3	5
Educator	5	5.00	0.00	5	5
Computer skills					
Industry	6	4.17	0.98	3	5
Educator	5	5.00	0.00	5	5
Textile evaluation skills					
Industry	6	4.50	0.55	4	5
Educator	5	5.00	0.00	5	5
Product development skills					
Industry	6	4.00	0.89	3	5
Educator	6	4.83	0.41	4	5
Promotional skills					
Industry	6	4.33	0.82	3	5
Educator	5	5.00	0.00	5	5
Art/Design knowledge					
Industry	6	4.33	0.52	4	5
Educator	6	4.83	0.41	4	5

Table 14, continued

Means and Standard Deviations for the Adequacy of the Competency Items

	N	Mean	SD	Min	Max
Historical/cultural knowledge					
Industry	6	4.33	0.52	4	5
Educator	6	4.83	0.41	4	5
Merchandising knowledge					
Industry	6	4.17	1.17	2	5
Educator	5	5.00	0.00	5	5
Production-related knowledge					
Industry	6	3.67	1.37	1	5
Educator	6	4.83	0.41	4	5
Experiential learning					
Industry	5	4.60	0.55	4	5
Educator	6	4.83	0.41	4	5
Attitude skills					
Industry	6	4.33	0.82	3	5
Educator	5	5.00	0.00	5	5
Characteristic skills					
Industry	6	4.50	0.55	4	5
Educator	5	5.00	0.00	5	5
Communication skills					
Industry	6	4.67	0.52	4	5
Educator	6	4.83	0.41	4	5
Teamwork skills					
Industry	6	4.67	0.52	4	5
Educator	6	4.83	0.41	4	5
Leadership and management skills					
Industry	6	4.67	0.52	4	5
Educator	6	4.83	0.41	4	5

In reviewing reliability ratings, means and standard deviations, and participant comments, the researcher noted the following trends. Strong inter-rater reliability measures were noted for design skills (.837 and .914), sewing techniques (.868 and .881), art/design knowledge (.854 and .778) and communication skills (.800 and .977). Concurringly, few comments were made in these competency areas regarding deficits, thus no changes were made to these competency measures.

Weak inter-rater reliability ratings were noted for competency measures patternmaking techniques (.529 for fashion educators), computer skills (.632 and .643), product development skills (.600 and .736), promotional skills (.657 and .694), and experiential learning (.581 and .663). See Table 12 for all ratings. Interestingly, participants, when asked whether there were items missing within a competency category, responded with recommendations within the specific competency areas with weak inter-rater reliabilities. When participants were asked for additional comments about the research instrument, additional comments reinforced the previous comments regarding missing competencies and offered encouragement from participants to clarify these key points. See Table 15 for the summary of comments about missing competency items. In an attempt to increase the content validity and reliability of the instrument, and after thorough evaluation of comments and ratings, the researcher revised the instrument, adding six individual competency items shown in Table 15 and revising and clarifying language on six other competency terms.

Table 15

Summary of Comments About Missing Competency Items

Competency Section	Item Missing	Source of Comment (Professional/Educator)
Patternmaking techniques	Pattern drafting	Both
	Computerized patternmaking	Both
Computer skills	Cad illustration (adobe products)	Both
Product development skills	Contractor and vendor sourcing	Both
	Process and workflow charts	Professional
Promotional skills	Internet or web presentations	Both
	Timelines for meetings	Professional
	Branding, positioning, advertising	Educator
Experiential learning	Practical application and simulation	Both

Collection of Research Data

To collect data, the survey URL (PsychData Web address) was emailed to the two sample groups in the form of an emailed in-text cover letter. One form of the self-administered URL questionnaire was addressed to Fashion Industry Professionals employed by apparel and accessories design and manufacturing companies in the United States. The other form of the self-administered URL questionnaire was addressed to Fashion Educators in two- and four-year associates and bachelor degree-level institutions teaching fashion, apparel, or clothing design as a major or specialization in a degree program in the United States. The cover letter explained the purpose of the survey, instructions, and estimated time to complete the survey, along with the researcher's contact information. An emailed invitation link to the URL questionnaire invited the participant to respond to the questionnaire by either clicking on the embedded hyperlink URL or copying and pasting the URL into a Web browser. The sample group was asked to respond to the questionnaire on the Web. To facilitate a higher response rate and to control the non-response error, an email reminder was sent to the Fashion Industry Professionals and Fashion Educators a week after the initial survey broadcast. Additionally, a second and final email broadcast was sent to both groups a week after the first reminder. A copy of the email reminders can be found in Appendix C for Fashion Industry Professionals and Appendix D for Fashion Educators. Survey responses were no longer accepted five days after the final reminder. The time period for the survey totaled three weeks and five days. After the survey closes, data was downloaded and

assembled by sample group, and prepared for analysis. SPSS file was used to download the data in order to run the statistics, and the names of each competency item on the column for identification of the questions were displayed.

Fashion Industry Professionals and Fashion Educators surveys were distributed in different time frames. The Fashion Industry Professional survey was announced through email cover letter during the third week of August, 2009 and collected through the second week of September, 2009 in order to avoid the seasonal market time period. The Fashion Educators survey was announced from the third week of September and collected through the second week of October in order to avoid the beginning of the school year. To maximize response, follow-up emails were scheduled for each participant group in one week intervals from the initial email cover letter.

Statistical Analysis of Data

Data was analyzed using the Statistical Program for Social Sciences (SPSS). As a preliminary assessment, frequency and percentage distributions of demographics, career history, education background, and company information provided by the Fashion Industry Professionals (FIP) were utilized for descriptive purposes. For Fashion Educators (FE), frequency and percentage distributions of demographics, previous and/or current industry experience, educational background, and institution and program information were utilized for descriptive purposes.

The analyses included means and standard deviations, frequencies and percentages, with repeated measures analysis of variance (ANOVAs) and multiple

analysis of variance (MANOVAs) conducted to assess the hypotheses. Preliminary analysis with Pearson product moment correlations between continuous variables, chi square analyses between categorized variables, and *t*-tests and ANOVAs were used to determine potential covariates. The Statistical Package for the Social Sciences (SPSS 15.0) was used to conduct all statistical tests with an alpha of .05. A power analysis with alpha .05, a minimum power of .80, and a moderate effect size revealed a minimum sample size of 138 for two sample groups combined was needed for analysis. Hypotheses for the proposed study were analyzed as follows:

Hypothesis 1

H1 a. Fashion Industry Professionals and Fashion Educators will report greater importance for Technical Skills than Industry Knowledge and Experience as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

b. Fashion Industry Professionals and Fashion Educators will report greater importance for Interpersonal Skills than Industry Knowledge and Experience as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

c. Fashion Industry Professionals and Fashion Educators will report greater importance for Interpersonal Skills than Technical Skills as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

Method of analysis: 3 competency categories (TS, IKE, and IS) x 2 participant groups (FE and FIP) repeated measures MANOVA where measure is the within subject effect and participant is the between subject effect.

Data to be utilized: The data tested was taken from responses to the items on the questionnaire as follows:

Technical Skills/Q1a-Q8g	50 Items
Industry Knowledge and Experience/Q9a-Q13h	27 Items
Interpersonal Skills/Q14a-Q18e	35 Items

Group: Fashion Industry Professionals and Fashion Educators.

Statistical tests employed: Mean scores was calculated for each subset of Technical Skills, Industry Knowledge and Experiences, and Interpersonal Skills categories for Fashion Industry Professionals and Fashion Educators. The overall mean scores for each competency category were calculated for each sample group. The repeated measures MANOVA compared overall mean scores between Fashion Industry Professionals and Fashion Educators among the three variables to test H1a, H1b, and H1c.

Hypothesis 2

H2 a. Fashion Educators will report greater importance for Technical Skills than Fashion Industry Professionals as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

b. Fashion Industry Professionals will report greater importance for Industry Knowledge and Experience than Fashion Educators as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

c. Fashion Industry Professionals will report greater importance for Interpersonal Skills than Fashion Educators as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

Method of analysis: 3 competency categories (TS, IKE, and IS) x 2 participant groups (FE and FIP) repeated measures MANOVA where measure is the within subject effect and participant is the between subject effect.

Data to be utilized: The data tested was taken from responses to the items on the questionnaire as follows:

Technical Skills/Q1a-Q8g	50 Items
Industry Knowledge and Experience/Q9a-Q13h	27 Items
Interpersonal Skills/Q14a-Q18e	35 Items

Group: Fashion Industry Professionals and Fashion Educators.

Statistical tests employed: Mean scores were calculated for each subset of Technical Skills, Industry Knowledge and Experiences, and Interpersonal Skills categories for Fashion Industry Professionals and Fashion Educators. The overall mean scores for each competency category were calculated for each sample group. The

repeated measures MANOVA compared overall mean scores between Fashion Industry Professionals and Fashion Educators on Technical Skills, Industry Knowledge and Experiences, and Interpersonal Skills to statistically test H2a, H2b, and H2c.

Hypothesis 3

H3.   Fashion Industry Professionals and Fashion Educators will report greater importance for experiential learning than the other four Industry Knowledge and Experience competency subsets of art/design knowledge, historical/cultural knowledge, merchandising knowledge, and production-related knowledge as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

Method of analysis: 5 IKE subsets x 2 participant groups (FE and FIP) repeated measures MANOVA where measure is the within subject effect and participant is the between subject effect.

Data to be utilized: The data tested was taken from responses to the items on the questionnaire as follows:

Art/design knowledge/Q9a-Q9c	3 Items
Historical/cultural knowledge/Q10a-Q10d	4 Items
Merchandising knowledge/Q11a-Q11g	7 Items
Production-related knowledge/Q12a-Q12e	5 Items
Experiential learning/Q13a-Q13h	8 Items

Group: Fashion Industry Professionals and Fashion Educators.

Statistical tests employed: Mean scores was calculated for each subset of Industry Knowledge and Experiences category for Fashion Industry Professionals and Fashion Educators. The repeated measures MANOVA compared mean scores of each subset between Fashion Industry Professionals and Fashion Educators among the five variables to test H3.

Hypothesis 4

H4 a. Fashion Industry Professionals and Fashion Educators will report greater importance for communication skills than the other four Interpersonal Skills competency subsets of attitude skills, character skills, teamwork skills, and leadership and management skills as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

b. Fashion Industry Professionals will report greater importance for teamwork skills than Fashion Educators as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

Method of analysis: 5 IS subsets x 2 participant groups (FE and FIP) repeated measures MANOVA where measure is the within subject effect and participant is the between subject effect.

Data to be utilized: The data tested was taken from responses to the items on the questionnaire as follows:

Attitude skills/Q14a-Q14i	9 Items
Character skills /Q15a-Q15k	11 Items
Communication skills/Q16a-Q16d	4 Items
Teamwork skills/Q17a-Q17f	6 Items
Leadership and management skills /Q18a-Q18e	5 Items

Group: Fashion Industry Professionals and Fashion Educators.

Statistical tests employed: Mean scores were calculated for each subset of Interpersonal Skills category for Fashion Industry Professionals and Fashion Educators. The repeated measures MANOVA compared mean scores of each subset between Fashion Industry Professionals and Fashion Educators among the five variables to test H4a and H4b.

Hypothesis 5

H5. Fashion Industry Professionals will report greater importance for computer skills than Fashion Educators as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

Method of analysis: 8 TS subsets x 2 participant groups (FE and FIP) repeated measures MANOVA where measure is the within subject effect and participant is the between subject effect.

Data to be utilized: The data tested was taken from responses to the items on the questionnaire as follows:

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Patternmaking techniques/Q1a-Q1f   6 Items

Sewing techniques/Q2a-Q2e   5 Items

Drawing skills/Q3a-Q3e   5 Items

Design skills/Q4a-Q4g   7 Items

Computer skills/Q5a-Q5j   10 Items

Textile evaluation skills/Q6a-Q6d   4 Items

Product development skills/Q7a-Q7f   6 Items

Promotional skills/Q8a-Q8g   7 Items

Group: Fashion Industry Professionals and Fashion Educators.

Statistical tests employed: Mean scores were calculated for each subset of the

Technical Skills category for Fashion Industry Professionals and Fashion Educators. The

repeated measures MANOVA compared mean scores of each subset between Fashion

Industry Professionals and Fashion Educators among the eight variables to test H5.

CHAPTER IV

ANALYSIS OF THE DATA

A descriptive research design was used for this study. The purpose of the study

was to examine and compare perception differences between Fashion Industry

Professionals and Fashion Educators regarding the necessary technical skills, industry

knowledge and experience, and interpersonal skills a fashion design student should have

in order to acquire an entry-level design position in the fashion industry. Data was

collected from educators and professionals in the industry in order to test the hypotheses

and to determine perceived levels of importance within and differences in beliefs between

Fashion Industry Professionals and Fashion Educators groups. Profiles were developed

for each group by using information regarding participants' demographic characteristics

and their profession-related information. Data was obtained through responses to a self-

administered, Web-based questionnaire. The questionnaire for the study can be found in

Appendix E-I.

Description of the Samples

Data was collected through the use of a self-administered, Web-based survey. The

study population consisted of two groups, Fashion Industry Professionals and Fashion

Educators. Professional membership listings were used to identify each group. To collect

data, the survey URL (PsychData Web address) was emailed to the two sample groups in

the form of an emailed in-text cover letter. One form of the self-administered URL

questionnaire was addressed to Fashion Industry Professionals employed by apparel and accessories design and manufacturing companies in the United States. The other form of the self-administered URL questionnaire was addressed to Fashion Educators in two- and four-year associates and bachelor degree-level institutions teaching fashion, apparel, or clothing design as a major or specialization in a degree program in the United States.

The emailed cover letter explained the purpose of the survey, instructions, and estimated time to complete the survey, along with the researcher's contact information. A copy of this letter for each sample group can be found on Appendix A for Fashion Industry Professionals and Appendix B for Fashion Educators. The sample group was asked to respond to the questionnaire on the Web. To facilitate a higher response rate and to control the non-response error, two email reminders were sent to the Fashion Industry Professionals and Fashion Educators at one-week intervals after the initial survey broadcast. A copy of the email reminders can be found in Appendix C for Fashion Industry Professionals and Appendix D for Fashion Educators.

During the fall of 2009, the survey cover letter was sent to 1178 Fashion Industry Professionals and 775 Fashion Educators. Throughout the time frame of data collection, 264 Fashion Industry Professionals clicked on the start survey, but 93 of those individuals either did not respond to any of the questions on the survey or did not complete a sufficient portion of the survey to be used for analysis. As a result, the total questionnaires completed by Fashion Industry Professionals was 171, producing a useable response rate of 14.5%. For the Fashion Educator group, 264 clicked on the

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survey link. However, 44 educators did not answer any questions after the mandatory question to qualify as a design educator. Therefore 44 educators were eliminated from the total sample population, leaving 731 eligible Fashion Educators. Additionally one participant clicked out after a few questions. As a result, the total questionnaires completed by Fashion Educators were 219 producing a useable response rate of 30% for the Fashion Educator group. After the survey closed, data was downloaded and assembled by sample group, and prepared for analysis using the statistical SPSS package. The data file maintained the name of each competency item displayed as a column identifier.

The research instrument consisted of two versions differing only in the demographic professional information gathered for Fashion Industry Professionals and Fashion Educators. The demographic section was the final section of the questionnaire following the three competency category sections. Demographic data were analyzed using frequencies and percentages, thus developing descriptive profiles for each participant group in this study.

Fashion Industry Professionals

The total participants for the current study included 390 participants which consisted of 171 Fashion Industry Professionals. Demographic data gathered for the Fashion Industry Professional group description included information regarding participants' age, gender, educational status, as well as their career and company information. As shown in Table 16, the majority were between the ages of 45 and 64.

Table 16

Frequencies and Percentages of Age, Gender, and Education Variables for Fashion

Industry Professionals

	N	%
Age		
18-24	1	0.6
25-34	30	18.4
35-44	24	14.7
45-54	54	33.1
55-64	39	23.9
65-74	14	8.6
75 or older	1	0.6
Gender		
Male	12	7.4
Female	150	92.6
Highest Level of Education		
High School Diploma	4	2.4
Trade (Technical) School	4	2.4
Associates Degree	24	14.6
Bachelors Degree (BA/BFA/BS)	84	51.2
Masters Degree (MA/MS/MED/MFA/MBA)	37	22.6
Doctoral Degree	3	1.8
Other	8	4.9

More specifically, 33.1% reported that they were between the ages of 45 and 54 and another 23.9% were between the ages of 55 and 64. Approximately 18% were between the ages of 25 and 34 (18.4%), 14.7% were between the ages of 35 and 44, and 8.6% were between the ages of 65 and 74. Only about 1% of the sample was either between the ages of 18 and 24 (.6%), or 75 or older (.6%). In terms of gender, nearly all of the participants were female (92.6%). Also shown in Table 16, over half of the Fashion Industry Professionals reported their highest level of education was a bachelor's degree (51.2%). Approximately 15% had earned an associate's degree (14.6%), and 22.6% had earned a master's degree. Smaller proportions reported having only a high school diploma (2.4%), having completed trade (technical) school (2.4%), having a doctoral degree (1.8%), or another level of education (4.9%). Fashion Industry Professionals were asked to report how many years they were employed in the fashion industry. As shown in Table 17, employment ranged from 1 to 62 years, with an average of 21.74 years (SD=12.18). Fashion Industry Professionals were employed at their current company for an average of 10.43 years (SD=9.06), ranging from 0 to 40 years (see Table 17).

When participants were asked the title of their current position, the majority of 166 Fashion Industry participants were working in design and design-related positions (see Table 18). More specifically, 77 participants were designers (46.4%) including owner/president/designers, head designers, VPs of design, assistant designers, and associate designers. Approximately 20% were CEOs, owners, or presidents of apparel companies ($n = 33$).

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Table 17

Mean and Standard Deviation of Years of Industry Employment for Fashion Industry

Professionals

	N	Mean	SD	Min	Max
Years Employed in Industry	164	21.74	11.97	1	62
Years Employed at Current Company	156	10.43	9.06	0	40

Table 18

Frequencies and Percentages of Demographic Categorical Variables for Fashion

Industry Professionals

	N	%	
Current Position			
Designer	77	46.4	
CEO/Owner/President	33	19.9	
Creative Director	19	11.4	
Technical Designer	19	11.4	
Product Development Director	6	3.6	
Vice President	3	1.8	
Design Consultant	3	1.8	
Fashion Entrepreneur	1	0.6	
Fashion Editor	1	0.6	
Special Events Coordinator	1	0.6	
Graphic Artist	1	0.6	
Director of Supply Chain	1	0.6	
Career Counselor	1	0.6	
Size of Company			
Less than 5	63	38.9	
6-25	38	23.5	
26-50	10	6.2	
51-100	4	2.5	
101-150	2	1.2	
151-200	5	3.1	
201-300	2	1.2	
301-400	3	1.9	
401-Above	35	21.6	

Table 18, continued

Frequencies and Percentages of Demographic Categorical Variables for Fashion

Industry Professionals

	N	%	
Divisions of Design Department			
Womens	116	70.3	
Mens	38	23.0	
Juniors	29	17.6	
Children	40	24.2	
Maternity	13	7.9	
Active	25	15.2	
Accessories	47	28.5	
Job Responsibility to Hire Entry Level			
Yes	83	52.5	
No	75	47.5	
College Degree Required			
Required	63	40.4	
Preferred	73	46.8	
Unsure	20	12.8	
Company Offers Internships			
Yes	91	58.3	
No	53	34.0	
I don't know	12	7.7	

Note. Participants were able to select more than one option; therefore, percentages may not equal 100%

Nineteen technical designers (11.4%) included technical design managers, design technologists, and head patternmakers. Creative directors constituted 11.4% of the sample. Smaller proportions reported titles as directors of product development (3.6%), vice presidents (1.8%), and design consultants (1.8%). Only single participants were each a fashion entrepreneur, fashion editor, special events coordinator, graphic artist, or director of supply chain, and career counselor.

In terms of company size, the majority of Fashion Industry Professionals represented smaller companies employing fewer than 50 people (68.6%) as shown in Table 18. More specifically, 38.9% had less than 5 employees, 23.5% had between 6 and 25 employees, and 6.2% had between 26 and 50 employees. Approximately 22% reported a company of 401 employees and above (21.6%). Only 9.9% represented companies with a staff of between 51 and 400 employees, which includes 2.5% between 51 and 100 employees, 1.2% between 101 and 150, 3.1% between 151 and 200, 1.2% between 201 and 300, and 1.9% between 301 and 400 employees.

As part of the survey, Fashion Industry Professionals provided information on divisions of the design department at their current companies (womens, mens, juniors, childrens, maternity, active, and accessories), selecting more than one option if applicable. As seen in Table 18, the womens department was reported with the highest percentage of 70.3%. Mens, childrens, and accessories were relatively comparable with 23.0%, 24.2%, and 28.5%, respectively. Participants reported 17.6% having a juniors wear, 15.2% with an active wear, and only 7.9% with a maternity wear department.

Fashion Industry Professionals were asked if their job responsibility included hiring entry-level design staff members. As shown in Table 18, about half of the Fashion Industry Professionals expressed a job responsibility to hire entry level employees (52.5%). They were also asked if a college degree was required. Almost one-half (46.8%) stated that a college degree was preferred whereas 40.4% stated that a college degree was required and 12.8% were unsure. Finally, Fashion Industry Professionals were also asked if their company offers internships to college students. Nearly 60% of Fashion Industry Professionals reported that the company offers internships (58.3%).

Participants were also asked to indicate how many individuals work in each category at their place of employment. As seen in Table 19, an average of 4.01 designers was reported. They also reported an average of 4.77 assistant designers, an average of 5.51 technical designers, an average of 3.46 sample makers, and an average of 2.30 patternmakers. Additionally, participants reported cutters averaging at 1.30 and interns averaging at 1.89. Finally, an average of only .89 individuals were reported as marker makers employed in their company.

Fashion Industry Professionals were asked to rate the importance of having previous work experience and having a four year degree when hiring for an entry level position (Table 19). On a scale of 1 (not at all important) to 5 (extremely important) previous work experience had a mean of 3.56 (SD=1.18) and four year degree had a mean of 3.47 (SD=1.17).

Table 19

Means and Standard Deviations of Demographic Continuous Variables for Fashion

Industry Professionals

	N	Mean	SD	Min	Max
Individuals Employed in Each Category at Current Company					
Designer	128	4.01	13.31	0	100
Assistant Designer	82	4.77	13.25	0	100
Technical Designer	71	5.51	14.45	0	100
Patternmaker	70	2.30	5.58	0	40
Sample Maker	67	3.46	12.21	0	100
Cutter	63	1.30	1.66	0	10
Marker Maker	47	0.89	1.27	0	6
Intern	57	1.89	2.53	0	10
Importance of Previous Work Experience When Hiring for Entry Level Position	159	3.56	1.18	1	5
Importance of Four Year Degree When Hiring for Entry Level Position	159	3.47	1.17	1	5

Fashion Educators

The 390 participants for the current study included 219 Fashion Educators. Demographic data gathered for the Fashion Educator group included information regarding participants' age, gender, educational status, teaching history, industry work experience, institution and program information, and internship requirement in their programs. The sample for the current study included 219 Fashion Educators.

As shown in Table 20, the majority were between the ages of 45 and 64. More specifically, 38.4% reported that they were between the ages of 55 and 64, and another 23.3% were between the ages of 45 and 54. 17.4% were between the ages of 35 and 44, 10.5% were between the ages of 25 and 34 and 9.6% were between the ages of 65 and 74. Only 1% of the sample was either between the ages of 18 and 24 (.5%), or 75 or older (.5%). Nearly all of the Fashion Educators were also female (92.2%).

As with Fashion Industry Professionals, Fashion Educators also reported their highest level of education (see Table 21). Nearly half of the Fashion Educators have obtained a PhD (45.2%). The other participants identified their highest degrees as 34 MS (16%), 15 MA (6.9%), 10 BFA (4.6%), 10 MFA (4.6%), 9 BA (4.1%), 9 MEd (4.1%), 8 BS (3.7%), 4 MBA (1.8%), and 3 EdD (1.4%). An additional 7.8% of Fashion Educators reported holding a different degree not listed in the survey as "other." Educators selecting "other," identified degrees of ABD ($n = 8$), MD ($n = 1$), EdS ($n = 1$), MSed ($n = 1$), Post Doc ($n = 1$), AAS ($n = 1$), Teaching Certificate ($n = 1$), as well as some of the participants selected "other" because they had multiple degrees ($n = 3$).

Table 20

Frequencies and Percentages of Age and Gender Variables for Fashion Educators

	N	%	
Age			
18-24	1	0.5	
25-34	23	10.5	
35-44	38	17.4	
45-54	51	23.3	
55-64	84	38.4	
65-74	21	9.6	
75 or older	1	0.5	
Gender			
Male	17	7.8	
Female	201	92.2	

Table 21

Frequencies and Percentages of Education Variables for Fashion Educators

	N	%
Highest Degree Held		
BA	9	4.1
BFA	10	4.6
BS	8	3.7
MA	15	6.9
MS	34	15.7
MFA	10	4.6
MEd	9	4.1
MBA	4	1.8
PhD	98	45.2
EdD	3	1.4
Other	17	7.8
Current Position		
Associate Professor	37	18.2
Assistant professor	36	17.7
Professor	33	16.3
Instructor	33	16.3
Program Director	29	14.3
Adjunct	13	6.4
Lecturer	11	5.4
Dean	3	1.5
Department Head	2	1.0

When Fashion Educators were asked the title of their current position, the majority of participants 203 participants identified themselves as full-time ranking faculty (69%). More specifically, they were 37 associate professors (18.2%), 36 assistant professors (17.7%), 33 full professors (16.3%), 29 program directors (14.3%) including program coordinators and chairs, deans (1.5%), and department heads (1.0%). Sixteen percent were instructors ($n = 33$) and 5.4% were lecturers ($n = 11$). Adjuncts, including part-time instructors, composed 6.4% of the Fashion Educator group ($n = 13$). Approximately 3% of participants identified their position titles each as Teacher Specialist, Fashion tutor, VP Education, Teaching Assistant, Career Advisor, Freelance Patternmaker and Educator/writer/researcher/product development.

When Fashion Educators were asked to report how many years they had been teaching, a total of 217 participants reported as seen in Table 22. Their teaching experience ranged from 0 to 50 years, with an average of 17.38 years ($SD=11.68$). Fashion Educators also reported an average number of 11.60 years ($SD=9.70$) employed at their current teaching institution, ranged from 0 to 40 years. When Fashion Educators were asked their work experience in the fashion industry, 89% of participants stated that they had worked in the fashion industry. Among the participants with industry working experience, 73.5% reported that they were not currently working in the industry and 15 % reported they were currently employed in the industry (see Table 23). In addition, a total of 152 Fashion Educators had been employed in the fashion industry an average of 12.29 years ($SD=10.07$), ranging from 0 to 40 years (see Table 22).

Table 22

Means and Standard Deviations of Fashion Educators' Career

	N	Mean	*SD*	Min	Max
Years Teaching	217	17.38	11.68	0	50
Years Employed at Current Institution	211	11.60	9.70	0	40
Years Employed in Industry	152	12.29	10.07	0	40

Table 23

Frequencies and Percentages of Demographic Categorical Variables for Fashion

Educators

	N	%
Work in Fashion Industry		
Yes, Currently Working	34	15.5
Yes, but Not Currently Working	161	73.5
Majors Offered at Institution		
Design	167	77.7
Retail	79	36.7
Merchandising	161	74.9
Production	47	21.9
Marketing	73	34.0
Management	60	27.9
Textiles	54	25.1
Internship Offered at Institution		
Yes	184	85.6
No	31	7.9
Internship Required for Graduation		
Yes	110	61.5
No	69	38.5

Note. Participants were able to select more than one option; therefore, percentages may not equal 100%

Fashion Educators were asked to identify all of the program majors offered at their respective institutions (i.e., design, retail, merchandising, production, marketing management, textiles). Design and merchandising were the most common majors, with 77.7% of institutions offering design and 74.9% offering merchandising. Over one third of the institutions offered retail as a major (36.7%), exactly 34% offered marketing, 27.9% offered management, 25.1% offered textiles, and 21.9% offered production. When Fashion Educators were asked if an internship was offered in their program, the majority of the participants indicated that their institution did offer internships (85.6%). Furthermore, 61.5% of those programs that offered internship required the internship as a graduation requirement (Table 23).

Table 24 illustrates the courses offered in the fashion and apparel field at the institutions. Fashion Educators were instructed to select every course option that applied to their particular institution. Among 215 Fashion Educators who answer this question, the most offered course in participants' institutions was Apparel Construction Techniques (87.0%). Over three-quarters participants indicated their institutions offered Textiles (86.5%), History of Costume (84.7%), Flat Pattern Techniques Design (81.4%), Internship (79.5%), Introduction of Merchandising (77.2%), Computer Aided Design (76.7%), and Draping Techniques Design (76.3%). Courses offered by over 60 % of participants' institutions were Fashion Sketching (74.9%), Fashion Portfolio Development (69.3%), Principles of Color/Design (67.0%), Merchandising Mathematics (63.3%), Retail Buying (62.3%), and Advanced Construction Techniques (61.9%).

Table 24

Frequencies and Percentages of Courses Offered at Institutions in the Fashion and

Apparel Field

	N	%
Apparel Construction Techniques	187	87.0
Textiles	186	86.5
History of Costume	182	84.7
Flat Pattern Techniques Design	175	81.4
Internship	171	79.5
Introduction of Merchandising	166	77.2
Computer Aided Design	165	76.7
Draping Techniques Design	164	76.3
Fashion Sketching	161	74.9
Fashion Portfolio Development	149	69.3
Principles of Color/Design	144	67.0
Merchandising Mathematics	136	63.3
Retail Buying	134	62.3
Advanced Construction Techniques	133	61.9
CAD Patternmaking	120	55.8
Fashion Promotion	120	55.8
Fashion Trends	117	54.4
Cultural Perspectives of Clothing	116	54.0
Advanced Merchandising	116	54.0
Social/Psychological Aspect	115	53.5

Note. Participants were able to select more than one option; therefore, percentages may not equal 100%

Table 24, continued

Frequencies and Percentages of Courses Offered at Institutions in the Fashion and

Apparel Field

	N	%
Apparel Production Analysis	114	53.0
Advanced Patternmaking	113	52.6
Career Development	106	49.3
CAD Apparel Design	99	46.0
Fashion Theory	94	43.7
Tailoring Techniques Design	85	39.5
Technical Design	81	37.7
Textile Product Testing	77	35.8
CAD Grading	75	34.9
Production Techniques	72	33.5
CAD Marker Making	70	32.6
Seasonal Collections Design	65	30.2
Couture Techniques Design	64	29.8
Textile/Apparel Economics	62	28.8
Mass Production Techniques Design	56	26.0
Advanced Collections Design	56	26.0
Advanced Textiles	51	23.7
Special Clothing Problems Design	46	21.4
Textile Detergency	9	4.2

Note. Participants were able to select more than one option; therefore, percentages may not equal 100%

As also seen in Table 24, over half participants indicated CAD Patternmaking (55.8%), Fashion Promotion (55.8%), Fashion Trends (54.4%), Cultural Perspectives of Clothing (54.0%), Advanced Merchandising (54.0%), Social/Psychological Aspect (53.5%), Apparel Production Analysis (53.0%), and Advanced Patternmaking (52.6%) being offered in their institutions. Less common courses included Career Development (49.3%), CAD Apparel Design (46.0%), Fashion Theory (43.7%), Tailoring Techniques Design (39.5%), Technical Design (37.7%), Textile Product Testing (35.8%), CAD Grading (34.9%), Production Techniques (33.5%), CAD Marker Making (32.6%), Seasonal Collections Design (30.2%), Couture Techniques Design (29.8%), Textile/Apparel Economics (28.8%), Mass Production Techniques Design (26.0%), Advanced Collections Design (26.0%), Advanced Textiles (23.7%), and Special Clothing Problems Design (21.4%). Few institutions offered Textile Detergency (4.2%).

Questionnaire Inter-rater Reliability

Inter-rater reliability was analyzed to determine if the survey questions statistically measured intended concepts and to assess factor loading of question subsets. Questions explored competency categories of Technical Skills, Industry Knowledge and Experience, and Interpersonal Skills. Each competency category consisted of competency subsets. Technical Skills category consisted of eight subsets that were patternmaking techniques, sewing techniques, drawing skills, design skills, computer skills, textile evaluation skills, product development skills, and promotional skills. Industry Knowledge and Experience category consisted of five subsets that were art/design knowledge,

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historical/cultural knowledge, merchandising knowledge, production-related knowledge, and experiential learning. Interpersonal Skills category consisted of five subsets that were attitude skills, character skills, communication skills, teamwork skills, and leadership and management skills.

Technical Skills

The 8 subsets of Technical Skills category were analyzed for reliability for both Fashion Industry Professionals and Fashion Educators, using *Cronbach's alpha.* As shown in Table 25, the patternmaking techniques for Fashion Industry Professionals had a reliability rating of .873 whereas those items had a reliability rating of .807 for Fashion Educators. The items for sewing techniques for Fashion Industry Professionals had a reliability rating of .853 and a reliability rating of .834 for Fashion Educators. Furthermore, the items for drawing skills had a .753 reliability rating for Fashion Industry Professionals and .747 reliability rating for Fashion Educator whereas design skills had a .842 reliability rating for Fashion Industry Professionals and .752 reliability rating for Fashion Educator. The computer skills for Fashion Industry Professionals had a reliability rating of .869 and .884 reliability rating for Fashion Educators whereas the textile evaluation skills for Fashion Industry Professionals had a reliability rating of .887 and a reliability rating of .810 for Fashion Educators. Finally, product development skills for Fashion Industry Professionals had a reliability rating of .900 and reliability rating of .879 for Fashion Educators whereas promotional skills had a reliability rating of .928 for Fashion Industry Professionals and .904 reliability rating for Fashion Educators.

Table 25

Reliability Ratings for the 18 Competency Subsets for Educators and Professionals

(Cronbach's Alpha)

| | Inter-rater Reliability Ratings | |
	Professionals	Educator
Technical Skills		
Patternmaking techniques	.873	.807
Sewing techniques	.853	.834
Drawing skills	.753	.747
Design skills	.842	.752
Computer skills	.869	.884
Textile evaluation skills	.887	.810
Product development skills	.900	.879
Promotional skills	.928	.904
Industry Knowledge and Experience		
Art/design knowledge	.833	.684
Historical/cultural knowledge	.830	.776
Merchandising knowledge	.888	.867
Production-related knowledge	.828	.782
Experiential learning	.879	.855
Interpersonal Skills		
Attitude skills	.788	.795
Character skills	.838	.871
Communication skills	.611	.521
Teamwork skills	.830	.844
Leadership and management skills	.914	.849

Industry Knowledge and Experience

The 5 subsets of Industry Knowledge and Experience category were analyzed for reliability for both Fashion Industry Professionals and Fashion Educators, using *Cronbach's alpha* (see Table 25). The art/design knowledge items had a reliability rating of .833 for Fashion Industry Professionals and .684 for Fashion Educators whereas the items for historical/cultural knowledge had a reliability rating of .830 for Fashion Industry Professionals and .776 for Fashion Educators. The items for merchandising knowledge had a reliability rating of .888 for Fashion Industry Professionals and .867 for Fashion Educators whereas production-related knowledge had a reliability rating of .828 for Fashion Industry Professionals and .782 for Fashion Educators. Finally, Fashion Industry Professionals had a .879 inter-rater reliability rating for the items for experiential learning and Fashion Educators had a .855 inter-rater reliability rating for these items.

Interpersonal Skills

As shown in Table 25, the 5 subsets of Interpersonal Skills category were analyzed for reliability for both Fashion Industry Professionals and Fashion Educators, using *Cronbach's alpha*. The items for attitude skills had an inter-rater reliability rating of .788 for Fashion Industry Professionals and .795 for Fashion Educators whereas the character skills items had a .838 inter-rater reliability rating for Fashion Industry Professionals and .871 for Fashion Educators. Additionally, a .611 inter-rater reliability rating was assessed for responses by Fashion Industry Professionals for to the communication skills while Fashion Educators had a .521 reliability rating for the same

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items. Furthermore, the teamwork skills items had an inter-rater reliability rating of .830 by Fashion Industry Professionals whereas Fashion Educators rated those items at .844. Finally, leadership and management skills received a reliability rating of .914 from Fashion Industry Professionals and .849 for Fashion Educators.

<div align="center">Relationships between Continuous Variables</div>

A Pearson product moment correlation analysis examines the relationship between the continuous variables, for example, between the subset importance ratings scores for the Technical Skills questionnaire. Scores may range from -1.00 for a perfect negative relationship to 1.00 for a perfect positive relationship between variables. A significant positive relationship indicates that as one variable increases, the other variable also significantly increases. Conversely, a significant negative relationship indicates that as one variable increases, the other variable significantly decreases. Correlations analyses were conducted on the Technical Skills competency category importance ratings scores, the Industry Knowledge and Experience competency category importance ratings scores, and the Interpersonal Skills competency category importance ratings scores.

To examine the relationship between the Technical Skills competency subsets a Pearson product moment correlation was conducted. As shown in Table 26, each of the Technical Skills subsets importance ratings scores were significantly positively correlated with each other (*r*s between .213 to .699, *p* < .01), indicating that participants who rated greater importance on one Technical Skill tended to rate the other Technical Skills as highly important.

<div align="center">154</div>

Table 26

Pearson Product Moment Correlations of Technical Skills Subsets

	Patternmaking techniques		Sewing techniques		Drawing skills		Design skills		Computer skills		Textile evaluation skills		Product development skills	
Sewing techniques	.600	**												
Drawing skills	.213	**	.316	**										
Design skills	.248	**	.346	**	.467	**								
Computer skills	.614	**	.441	**	.307	**	.420	**						
Textile evaluation skills	.455	**	.472	**	.214	**	.442	**	.531	**				
Product development skills	.445	**	.345	**	.291	**	.448	**	.699	**	.626	**		
Promotional skills	.329	**	.415	**	.329	**	.473	**	.559	**	.481	**	.627	**

Note. ** $p < .01$

A mean overall Technical Skills importance ratings score was therefore created by averaging the Technical Skills Subset importance ratings scores.

Another Pearson product moment correlation was conducted to examine the relationships between the different Industry Knowledge and Experience competency subsets. As shown in Table 27, each of the Industry Knowledge and Experience subset importance ratings scores were significantly positively correlated with each other (rs between .405 to .682, $p < .01$), indicating that participants who rated greater importance on one of the Industry Knowledge and Experience subsets tended to rate the other Industry Knowledge and Experience subsets as highly important. A mean overall Industry Knowledge and Experience importance ratings score was therefore created by averaging the Industry Knowledge and Experience subset importance ratings scores.

Additionally, a Pearson product moment correlation analysis was conducted to examine the relationships between the Interpersonal Skills competency subset importance ratings scores. As shown in Table 28, each of the Interpersonal Skills competency subset importance ratings scores were significantly positively correlated with each other (rs between .466 to .712, $p < .01$), indicating that participants who rated one of the Interpersonal Skills competency subsets importance ratings scores as highly important tended to rate the other Interpersonal Skills competency subsets as highly important. A mean overall Interpersonal Skills competency category importance ratings score was therefore created by averaging the Interpersonal Skills competency subsets importance ratings scores.

Table 27

Pearson Product Moment Correlations of Industry Knowledge and Experience Subsets

	Art/design knowledge	Historical/cultural knowledge	Merchandising knowledge	Production-related knowledge
Historical/cultural knowledge	.647 **			
Merchandising knowledge	.405 **	.634 **		
Production-related knowledge	.477 **	.590 **	.682 **	
Experiential learning	.437 **	.499 **	.552 **	.500 **

Note. ** $p < .01$

Table 28

Pearson Product Moment Correlations of Interpersonal Skills

	Attitude skills	Character skills	Communication skills	Teamwork skills
Character skills	.712 **			
Communication skills	.446 **	.471 **		
Teamwork skills	.610 **	.688 **	.550 **	
Leadership and management skills	.560 **	.497 **	.474 **	.539 **

Note. ** $p < .01$

Finally, a Pearson product moment correlation was conducted to examine the relationships between the overall Technical Skills competency category importance ratings scores, the overall Interpersonal Skills competency category importance ratings scores and overall Industry Knowledge and Experience competency category importance ratings scores. As shown in Table 29, each of the overall importance ratings scores were significantly positively correlated with each other (rs between .514 and .789, $p < .01$), indicating that participants who rated one of the competency category as highly important tended to rate the other competency category as highly important.

Primary Analyses

A repeated measures multivariate analysis of variance (MANOVA) was conducted to examine the effect of group (i.e., Fashion Industry Professionals and Fashion Educators) on overall Technical Skills importance ratings scores, overall Industry Knowledge and Experience importance ratings scores, and overall Interpersonal Skills importance ratings scores. As shown in Table 30, there was a significant main effect of subset on total participants' importance ratings scores, $F(2, 774) = 357.32$, $p < .001$, partial $\eta^2 = .480$. Both groups had significantly higher Interpersonal Skills importance ratings scores ($M = 4.49$, $SD = .02$) than Industry Knowledge and Experience importance ratings scores ($M = 4.04$, $SD = .03$) and Technical Skills importance ratings scores ($M = 3.90$, $SD = .03$). Furthermore, total participants' Industry Knowledge and Experience importance ratings scores ($M = 4.04$, $SD = .03$) were significantly higher than their Technical Skills importance ratings scores ($M = 3.90$, $SD = .03$).

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Table 29

Pearson Product Moment Correlations of Overall Technical Skills Importance Ratings

Scores, Overall Industry Knowledge and Experience Importance Ratings Scores, and

Overall Interpersonal Skills Importance Ratings Scores

	Industry Knowledge and Experience	Technical Skills
Technical Skills	.789**	
Interpersonal Skills	.532**	.514**

Note. ** $p < .01$

Table 30

Means and Standard Deviations of Overall Technical Skills, Overall Interpersonal Skills,

Overall Industry Knowledge and Experience by Group

| | Professionals (n = 171) | | Educators (n = 218) | |
	Mean	SD	Mean	SD
Technical Skills	3.78	.60	4.02	.47*
Industry Knowledge and Experience	3.90	.66	4.18	.50*
Interpersonal Skills	4.45	.39	4.53	.35*

Note. Multivariate Effect: Survey: $F(2, 774) = 357.32, p < .001, \eta^2 = .480$, Group: $F(1, 387) = 21.27, \eta^2 = .052$, Group x Survey Interaction: $F(2, 774) = 10.51, p < .001, \eta^2 = .026$. * indicate significant differences between groups and column differences greater than .165 for Fashion Educators and .032 for Fashion Industry Professionals indicate significant differences between subsets

Furthermore, there was a significant main effect of group (Fashion Industry Professionals versus Fashion Educators) on total participants' importance ratings scores, $F(1, 387) = 21.27$, $p < .001$, partial $\eta^2 = .052$. Fashion Educators had significantly higher survey importance ratings scores ($M = 4.25$, $SD = .03$) than Fashion Industry Professionals ($M = 4.04$, $SD = .03$).

There was a significant interaction between the competency subset and participant group on importance scores, $F(2, 774) = 10.51$, $p < .001$, partial $\eta^2 = .026$ (see Table 30). Upon further examination of the results, statistical findings demonstrated that participants group (Fashion Industry Professionals versus Fashion Educators) had a significant effect on the overall Interpersonal Skills importance scores, $F(1, 387) = 4.87$, $p < .05$, partial $\eta^2 = .012$. Fashion Educators had significantly higher Interpersonal Skills scores ($M = 4.53$, $SD = .35$) than Fashion Industry Professionals ($M = 4.45$, $SD = .39$).

Participants group also had a significant effect on overall Industry Knowledge and Experience importance ratings scores, $F(1, 387) = 23.46$, $p < .001$, partial $\eta^2 = .057$. Fashion Educators had significantly higher Industry Knowledge and Experience importance ratings scores ($M = 4.18$, $SD = .50$) than Fashion Industry Professionals ($M = 3.90$, $SD = .66$). Finally, participants group had a significant effect on overall Technical Skills importance ratings scores, $F(1, 387) = 18.98$, $p < .001$, partial $\eta^2 = .047$. Fashion Educators had significantly higher Technical Skills importance ratings scores ($M = 4.02$, $SD = .47$) than Fashion Industry Professionals ($M = 3.78$, $SD = .60$).

Finally, when looking at Fashion Industry Professionals, each competency category had a significant effect on participants' importance ratings scores, $F(2, 340) = 161.21$, $p < .001$, partial $\eta^2 = .487$. As also shown in Table 30, Fashion Industry Professionals' Interpersonal Skills importance ratings scores were significantly higher ($M = 4.45$, $SD = .39$) than their Industry Knowledge and Experience importance ratings scores ($M = 3.90$, $SD = .66$) and their Technical Skills importance ratings scores ($M = 3.78$, $SD = .60$). Furthermore, Fashion Industry Professionals' Industry Knowledge and Experience importance ratings scores were significantly higher ($M = 3.90$, $SD = .66$) than their Technical Skills importance ratings scores ($M = 3.78$, $SD = .60$). When examining Fashion Educators, competency category had a significant effect on participants' importance ratings scores, $F(2, 434) = 196.12$, $p < .001$, partial $\eta^2 = .475$. Fashion Educators' Interpersonal Skills importance ratings scores were significantly higher ($M = 4.53$, $SD = .35$) than their Industry Knowledge and Experience importance ratings scores ($M = 4.18$, $SD = .50$) and their Technical Skills importance ratings scores ($M = 4.02$, $SD = .47$). Furthermore, Fashion Educators' Industry Knowledge and Experience importance ratings scores were significantly higher ($M = 4.18$, $SD = .50$) than their Technical Skills ($M = 4.02$, $SD = .47$).

Technical Skills

A repeated measures MANOVA was conducted to examine the effect of groups (Fashion Industry Professionals and Fashion Educators) and subsets on participants' importance ratings scores for Technical Skills competency category. There was a

significant main effect of subsets on total participants' importance ratings scores, F (7, 2688) = 49.58, p < .001, η^2 = .114. Table 31 shows the importance ratings of each competency item in the Technical Skills category by each participant group. In summary, Table 32 shows statistical significance for five of the eight subsets of the Technical Skills category and their importance ratings by participant group. As shown in Table 32, both Fashion Industry Professionals and Fashion Educators rated the promotional skills subset (M = 3.52, SD = .90) lower than all other Technical Skills subsets. The design skills subset had the highest importance ratings scores (M = 4.16, SD = .56) overall.

More specifically, participants' promotional skills importance ratings scores were significantly lower (M = 3.52, SD = .90) than their patternmaking techniques importance ratings scores (M = 3.94, SD = .79), sewing techniques importance ratings scores (M = 3.88, SD = .77), drawing skills importance ratings scores (M = 4.13, SD = .64), design skills importance ratings scores (M = 4.16, SD = .56), computer skills importance ratings scores (M = 3.76, SD = .78), textile evaluation skills importance ratings scores (M = 3.97, SD = .84), and product development skills importance ratings scores (M = 3.94, SD = .83). Additionally, participants' drawing skills importance ratings scores were significantly higher (M = 4.13, SD = .64) than their patternmaking techniques importance ratings scores (M = 3.94, SD = .79), sewing techniques importance ratings scores (M = 3.88, SD = .77), computer skills importance ratings scores (M = 3.76, SD = .78), textile evaluation skills importance ratings scores (M = 3.97, SD = .84), and product development skills importance ratings scores (M = 3.94, SD = .83).

Table 31

Means and Standard Deviations of 50 Competency Items Under 8 Competency Subsets

in Technical Skills Category

| | Professionals | | Educators | |
	Mean	SD	Mean	SD
Patternmaking techniques	3.77	0.87	4.08	0.69*
Flat patternmaking	4.12	1.02	4.55	0.70
Draping	3.94	1.07	4.31	0.85
Pattern drafting	3.80	1.14	4.05	1.02
Pattern grading	3.31	1.22	3.75	1.11
Marker making	3.15	1.21	3.56	1.13
Fitting/alterations	4.29	1.00	4.29	0.94
Sewing techniques	3.84	0.84	3.91	0.71
Basic garment construction	4.69	0.69	4.71	0.57
Machine sewing	4.15	1.00	4.39	0.83
Hand sewing	3.60	1.15	3.56	1.09
Tailoring	3.58	1.10	3.57	0.94
Couture/custom sewing	3.19	1.21	3.36	1.06
Drawing skills	4.02	0.68	4.21	0.59*
Fashion sketching	3.96	0.95	4.15	0.88
Flat/technical drawing	4.34	0.86	4.49	0.72
Colored illustration	3.38	1.07	3.61	1.00
Portfolio organization and development	4.23	0.94	4.49	0.79
Line sheet development	4.17	0.95	4.30	0.80

Table 31, continued

Means and Standard Deviations of 50 Competency Items Under 8 Competency Subsets

in Technical Skills Category

| | Professionals | | Educator | |
	Mean	SD	Mean	SD
Design skills	4.11	0.63	4.19	0.49
Apparel design	4.56	0.68	4.68	0.57
Color selection/matching	4.45	0.84	4.53	0.67
Trend sourcing/interpretation (style selection)	4.39	0.78	4.54	0.67
Fabric selection	4.58	0.69	4.74	0.51
Surface design	3.78	0.90	3.68	0.87
Textile design	3.56	1.01	3.54	0.96
Design for a specialty market (i.e. Bridal)	3.47	1.13	3.64	0.95
Computer skills	3.48	0.77	3.99	0.71*
CAD patternmaking	3.49	1.16	4.25	0.90
CAD grading	3.05	1.18	3.90	1.04
CAD marker making	2.94	1.15	3.76	1.12
Computer-aided design including 3D draping	3.34	1.14	3.78	1.05
CAD cutting	2.65	1.16	3.21	1.20
Costing	3.82	1.19	4.30	0.89
EDI/electronic data interchange and PDM/product data management	3.27	1.22	3.81	1.01
Computer graphics development (i.e. Photoshop, Illustrator, NED Graphics)	4.27	0.84	4.52	0.69
Spreadsheet and timeline management	3.94	1.13	4.06	0.99
Word processing	4.05	1.03	4.30	0.95

Table 31, continued

Means and Standard Deviations of 50 Competency Items Under 8 Competency Subsets

in Technical Skills Category

| | Professionals | | Educator | |
	Mean	SD	Mean	SD
Textile evaluation skills	3.90	0.94	4.03	0.75
Fiber and fabric selection				
For garment performance	4.40	0.90	4.69	0.58
Textile testing (i.e. Stretching, color fastness)	3.69	1.14	3.68	1.02
Laundry/dry cleaning procedures	3.41	1.24	3.50	1.12
Fabric construction and				
Performance assessment	4.08	1.08	4.26	0.88
Product development skills	3.75	0.90	4.09	0.73*
Production costing	3.84	1.15	4.27	0.92
Merchandising	3.93	0.99	4.13	0.90
Contractor and vendor sourcing	3.57	1.11	3.92	1.02
Quality control	3.82	1.19	4.13	0.89
Process and workflow charts	3.48	1.07	3.77	0.97
Specification development	3.86	1.05	4.33	0.83
Promotional skills	3.37	0.99	3.64	0.81*
Fashion show production	2.88	1.20	3.37	1.05
Visual merchandising (display)	3.26	1.22	3.53	1.03
Styling/coordination	3.71	1.09	3.85	0.93
Internet and Web presentations	3.57	1.20	3.81	1.00
Branding	3.61	1.19	3.79	1.04
Positioning	3.49	1.18	3.75	1.03
Advertising	3.11	1.26	3.41	1.06

Note. Multivariate Effect: Survey: $F(7, 2688) = 49.58$, p < .01, $\eta^2 = .114$, Group: $F(1, 387) = 18.56$, $p < .01$, $\eta^2 = .046$, Group x Survey Interaction: $F(4, 384) = 6.23$, $p < .01$, $\eta^2 = .016$. * indicates significant differences between groups and column differences greater than .091 for Fashion Educators and .188 for Fashion Industry Professionals indicate significant differences between subsets

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Table 32

Means and Standard Deviations of Technical Skills Subset by Group and as a Whole

	Total Participants (n = 386)		Professionals (n = 170)		Educators (n = 216)	
	Mean	SD	Mean	SD	Mean	SD
Patternmaking techniques	3.94	.79	3.77	.87	4.08	.69*
Sewing techniques	3.88	.77	3.84	.84	3.91	.71
Drawing skills	4.13	.64	4.02	.68	4.21	.59*
Design skills	4.16	.56	4.11	.63	4.19	.49
Computer skills	3.76	.78	3.48	.77	3.99	.71*
Textile evaluation skills	3.97	.84	3.90	.94	4.03	.75
Product development skills	3.94	.83	3.75	.90	4.09	.73*
Promotional skills	3.52	.90	3.37	.99	3.64	.81*

Note. Multivariate Effect: Survey: $F(7, 2688) = 49.58$, $p < .01$, $\eta^2 = .114$, Group: $F(1, 387) = 18.56$, $p < .01$, $\eta^2 = .046$, Group x Survey Interaction: $F(4, 384) = 6.23$, $p < .01$, $\eta^2 = .016$. * indicates significant differences between groups and column differences greater than .091 for Fashion Educators and .188 for Fashion Industry Professionals indicate significant differences between subsets

Finally, participants' computer skills importance rating scores were significantly lower ($M = 3.76$, $SD = .78$) than their patternmaking techniques importance ratings scores ($M = 3.94$, $SD = .79$), sewing techniques importance ratings scores ($M = 3.88$, $SD = .77$), drawing skills importance ratings scores ($M = 4.13$, $SD = .64$), design skills importance ratings scores ($M = 4.16$, $SD = .56$), textile evaluation skills importance ratings scores ($M = 3.97$, $SD = .84$), and product development skills importance ratings scores ($M = 3.94$, $SD = .83$).

There was also a significant main effect of group (Fashion Industry Professionals versus Fashion Educators) on participants' importance ratings scores, $F(1, 384) = 18.56$ $p < .001$, $\eta^2 = .046$. Fashion Educators had significantly higher overall importance ratings scores for Technical Skills ($M = 4.02$, $SD = .47$) than Fashion Industry Professionals ($M = 3.78$, $SD = .60$). The results also indicated a significant interaction of subset importance ratings scores and group (Fashion Industry Professionals versus Fashion Educators), $F(7, 2688) = 6.24$, $p < .001$, $\eta^2 = .016$. When examining Fashion Industry Professionals, competency subsets had a significant effect on participants' importance ratings scores. As shown in Table 32, Fashion Industry Professionals had significantly lower promotional skills subset importance ratings scores ($M = 3.37$, $SD = .99$) than their patternmaking techniques importance ratings scores ($M = 3.77$, $SD = .87$), sewing techniques importance ratings scores ($M = 3.84$, $SD = .84$), drawing skills importance ratings scores ($M = 4.02$, $SD = .68$), design skills importance ratings scores ($M = 4.11$, $SD = .63$), computer skills importance ratings scores ($M = 3.48$, $SD = .77$), textile evaluation skills

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importance ratings scores (M = 3.80, SD = .94), and product development skills importance ratings scores (M = 3.75, SD = .90). Additionally, Fashion Industry Professionals' computer skills importance ratings scores were significantly lower (M = 3.48, SD = .77) than their patternmaking techniques importance ratings scores (M = 3.77, SD = .87), sewing techniques importance ratings scores (M = 3.84, SD = .84), drawing skills importance ratings scores (M = 4.02, SD = .68), design skills importance ratings scores (M = 4.11, SD = .63), textile evaluation skills importance ratings scores (M = 3.80, SD = .94) and product development skills importance ratings scores (M = 3.75, SD = .90). Fashion Industry Professionals' product development skills importance ratings scores were significantly lower (M = 3.75, SD = .90) than their drawing skills importance ratings scores (M = 4.02, SD = .68), design skills importance ratings scores (M = 4.11, SD = .63), and textile evaluation skills importance ratings scores (M = 3.90, SD = .94). Additionally, Fashion Industry Professionals' drawing skills importance ratings scores were significantly higher (M = 4.02, SD = .68) than their patternmaking techniques importance ratings scores (M = 3.77, SD = .87) and sewing techniques importance ratings scores (M = 3.84, SD = .84). Finally Fashion Industry Professionals' design skills importance ratings scores (M = 4.11, SD = .63) were significantly higher than their patternmaking techniques importance ratings scores (M = 3.77, SD = .87), sewing techniques importance ratings scores (M = 3.84, SD = .84), product development skills (M = 3.75, SD = .90) and promotional skills importance ratings scores (M = 3.37, SD = .99).

Additionally, when examining Fashion Educators, competency subsets had a significant effect on participants' importance ratings scores, $F(7, 1505) = 24.67, p < .001, \eta^2 = .103$. As shown in Table 32, Fashion Educators' promotional skills importance ratings scores were significantly lower ($M = 3.64, SD = .81$) than their patternmaking techniques ($M = 4.08, SD = .69$), sewing techniques importance ratings scores ($M = 3.91, SD = .71$), drawing skills importance ratings scores ($M = 4.21, SD = .59$), design skills importance ratings scores ($M = 4.19, SD = .49$), computer skills importance ratings scores ($M = .3.99, SD = .71$), textile evaluation skills ($M = 4.03, SD = .73$), and product development skills importance ratings scores ($M = 4.09, SD = .73$). Fashion Educators' drawing skills importance ratings scores were significantly higher ($M = 4.21, SD = .59$), than their patternmaking techniques importance ratings scores $M = 4.08, SD = .69$), sewing techniques importance ratings scores ($M = 3.91, SD = .71$), computer skills importance ratings scores ($M = .3.99, SD = .71$), textile evaluation skills importance ratings scores ($M = 4.03, SD = .73$), product development skills importance ratings scores ($M = 4.09, SD = .73$), and promotional skills importance ratings scores ($M = 3.64, SD = .81$). Finally, Fashion Educators' design skills were significantly higher ($M = 4.19, SD = .49$) than their patternmaking techniques ($M = 4.08, SD = .69$), sewing techniques importance ratings scores ($M = 3.91, SD = .71$), computer skills importance ratings scores ($M = 3.99, SD = .71$), textile evaluation skills importance ratings scores ($M = 4.03, SD = .75$), product development skills importance ratings scores ($M = 4.09, SD = .73$), and promotional skills importance ratings scores ($M = 3.64, SD = .81$).

Finally, group had a significant effect on patternmaking techniques, $F(1, 384) =$ 15.30, $p < .001$, $\eta^2 = .038$ as Fashion Educators had significantly higher patternmaking techniques importance ratings scores ($M = 4.08$, $SD = .69$) than Fashion Industry Professionals ($M = 3.77$, $SD = .87$). Group had a significant effect on drawing skills importance ratings scores, $F(1, 384) = 7.99$, $p < .001$, $\eta^2 = .020$. Fashion Educators had significantly higher drawing skills importance ratings scores ($M = 4.21$, $SD = .59$) than Fashion Industry Professionals ($M = 4.02$, $SD = .68$).

Fashion Industry Professionals and Fashion Educators also had a significant effect on computer skills importance ratings scores, $F(1, 384) = 43.92$, $p < .001$, $\eta^2 = .103$. Fashion Educators had significantly higher computer skills importance ratings scores ($M = 3.99$, $SD = .71$) than Fashion Industry Professionals ($M = 3.48$, $SD = .77$). Additionally, group also had a significant effect on product development skills importance ratings scores, $F(1, 384) = 16.58$, $p < .001$, $\eta^2 = .041$. Fashion Educators had significantly higher product development skills importance ratings scores ($M = 4.09$, $SD = .73$) than Fashion Industry Professionals ($M = 3.75$, $SD = .90$). Finally, group had a significant effect on promotional skills importance ratings scores, $F(1, 384) = 8.75$, $p < .001$, $\eta^2 = .022$. Fashion Educators had significantly higher promotional skills importance ratings scores ($M = 3.64$, $SD = .81$) than Fashion Industry Professionals ($M = 3.37$, $SD = .99$).

Industry Knowledge and Experience

Another repeated measures MANOVA was conducted to examine the effect of groups and subsets on participants' importance ratings scores for the Industry Knowledge

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and Experience competency category. Table 33 shows the importance ratings of each competency item in the Industry Knowledge and Experience category by participant group. In summary, Table 34 shows statistical significance by competency subset within the Industry Knowledge and Experience category by participant group. There was a significant main effect of subsets on total participants' importance scores, $F(4, 1528) = 12.36$ $p < .001$, partial $\eta^2 = .031$.

Total participants' overall experiential learning importance ratings scores ($M = 4.18$, $SD = .66$) were significantly higher than their art/design knowledge importance ratings scores ($M = 4.10$, $SD = .78$), historical/cultural knowledge importance ratings scores ($M = 3.98$, $SD = .80$), merchandising knowledge importance ratings scores ($M = 4.04$, $SD = .73$) and production-related knowledge importance ratings scores ($M = 3.98$, $SD = .74$). Total Participants' historical/cultural knowledge importance ratings scores were significantly lower ($M = 3.98$, $SD = .80$) than art/design knowledge importance ratings scores ($M = 4.10$, $SD = .78$), merchandising knowledge importance ratings scores ($M = 4.04$, $SD = .73$), and experiential learning importance ratings scores ($M = 4.18$, $SD = .66$). Finally, participants' merchandising knowledge importance ratings scores were significantly higher ($M = 4.04$, $SD = .73$) than their production-related knowledge importance ratings scores ($M = 3.98$, $SD = .76$).

As also shown in Table 34, there was a significant main effect of group (Fashion Industry Professionals versus Fashion Educators) on participants' importance ratings scores, $F(1, 382) = 23.72$ $p < .001$, partial $\eta^2 = .058$.

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Table 33

Means and Standard Deviations of 27 Competency Items Under 5 Competency Subsets in

Industry Knowledge and Experience Category

	Professionals		Educator	
	Mean	SD	Mean	SD
Art/design knowledge	3.92	0.92	4.24	0.62*
Art history	3.50	1.19	3.78	0.97
Color theory	3.96	1.05	4.28	0.77
Design principles and elements	4.28	0.92	4.67	0.60
Historical/cultural knowledge	3.71	.85	4.19	0.70*
Consumer behavior	3.96	0.96	4.28	0.87
Socio-cultural perspectives	3.78	0.96	4.10	0.91
History of costume	3.49	1.17	4.17	0.90
Theories of fashion change	3.63	1.06	4.18	0.92
Merchandising knowledge	3.89	.81	4.16	0.64*
Advertising	3.24	1.15	3.53	1.02
Apparel terminology	4.46	0.87	4.67	0.67
Budget/product cost	3.91	1.10	4.24	0.87
Knowledge of major market areas	4.05	1.01	4.25	0.82
Market research	3.84	1.08	4.14	0.88
Marketing	3.66	1.14	3.82	0.99
Trend forecasting	4.14	0.94	4.46	0.73

Table 33, continued

Means and Standard Deviations of 27 Competency Items Under 5 Competency Subsets in

Industry Knowledge and Experience Category

| | Professionals | | Educator | |
	Mean	SD	Mean	SD
Production-related knowledge	3.83	.81	4.10	0.65*
Textile properties; fibers, yarns, finishes	4.32	0.86	4.52	0.68
Figure/size analysis (size specification)	4.13	0.96	4.27	0.83
Quality control	3.84	1.13	4.08	0.92
Quick Response Technology (QRT)	3.25	1.15	3.64	0.99
Domestic and international sourcing	3.58	1.07	4.02	0.97
Experiential learning	4.11	.70	4.23	0.63
Design internships	4.49	0.80	4.66	0.73
Shadow days	3.85	1.05	3.82	1.05
Industry design critique	3.92	1.01	4.19	0.93
Industry tours	4.08	0.99	4.30	0.81
Practical application and simulation	4.13	0.98	4.44	0.80
Part time job – design or related	4.28	0.92	4.24	0.96
Part time job – retail or Merchandising or related	3.94	1.02	4.05	0.96
General work experience	4.19	0.92	4.15	0.96

Note. Multivariate Effect: Survey: $F(4, 1528) = 12.36$, $p < .01$, $\eta^2 = .031$, Group: $F(1, 382) = 23.72$, $\eta^2 = .058$, Group x Survey Interaction: $F(4, 1528) = 6.23$, $p < .01$, $\eta^2 = .016$. * indicate significant differences between groups and column differences greater than .125 for Fashion Educators and .177 for Fashion Industry Professionals indicate significant differences between subsets

Table 34

Means and Standard Deviations of Industry Knowledge and Experience Subset by Group and as a Whole

	Total Participants (n = 389)		Professionals (n = 171)		Educators (n = 218)	
	Mean	SD	Mean	SD	Mean	SD
Art/design knowledge	4.10	.78	3.92	.92	4.24	.62*
Historical/cultural knowledge	3.98	.80	3.71	.85	4.19	.70*
Merchandising knowledge	4.04	.73	3.89	.81	4.16	.64*
Production-related knowledge	3.98	.74	3.83	.81	4.10	.65*
Experiential learning	4.18	.66	4.11	.70	4.23	.63

Note. Multivariate Effect: Survey: F (4, 1548) = 144.82 $p < .001$, $\eta^2 = .543$; Group: F (1, 387) = 5.06, $p < .05$, $n^2 = .013$, Group x Survey Interaction: F (4, 1548) = 10.12, $p < .001$, $n^2 = .016$. * indicate significant differences between groups and column differences greater than .251 for Fashion Educators and .107 for Fashion Industry Professionals indicate significant differences between subsets

Fashion Educators had significantly higher Industry Knowledge and Experience importance ratings scores (M = 4.18, SD = .50) than Fashion Industry Professionals (M = 3.89, SD = 66).

Additionally, there was also a significant interaction of subsets and group on participants' survey importance ratings scores, F (4, 1528) = 6.23, p < .001, η^2 = .016. When examining Fashion Industry Professionals, subset had a significant effect on participants' importance ratings scores, F (1, 167) = 9.70, p = .002, η^2 = .055. As shown in Table 34, Fashion Industry Professionals' historical/cultural knowledge subset importance ratings scores (M = 3.71, SD = .85) were significantly lower than their art/design knowledge subset importance ratings scores (M = 3.92, SD = .92), merchandising knowledge subset importance ratings scores (M = 3.89, SD = .81), and experiential learning subset importance ratings scores (M = 4.11, SD = .70). When examining Fashion Educators, competency subsets had a significant effect on participants' importance ratings scores, F (4, 860) = 3.07, p < .05, η^2 = .014. As with the Fashion Industry Professionals importance ratings scores, Fashion Educators' production-related knowledge subset importance ratings scores were significantly lower (M = 4.10, SD = .65) than their art/design knowledge subset importance ratings scores (M = 4.24, SD = .62), historical/cultural knowledge subset importance ratings scores (M = 4.18, SD = .70), and experiential learning subset importance ratings scores (M = 4.23, SD = .63).

Finally, group (Fashion Industry Professionals versus Fashion Educators) had a significant effect on art/design knowledge subset importance ratings scores, F (1, 382) =

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16.31, $p < .001$, $\eta^2 = .041$. Fashion Educators had significant higher art/design knowledge

subset importance ratings scores ($M = 4.24$, $SD = .62$) than Fashion Industry

Professionals ($M = 3.92$, $SD = .92$). Group had a significant effect on historical/cultural

knowledge subset importance ratings scores, $F(1, 382) = 35.35$, $p < .001$, $\eta^2 = .085$.

Fashion Educators had significantly higher historical/cultural knowledge subset

importance ratings scores ($M = 4.19$, $SD = .70$) than Fashion Industry Professionals ($M =$

3.72, $SD = .85$). Additionally, group had a significant effect on merchandising knowledge

subset importance ratings scores, $F(1, 382) = 13.04$, $p < .001$, $\eta^2 = .033$. Fashion

Educators had significantly higher merchandising knowledge subset importance ratings

scores ($M = 4.10$, $SD = .64$) than Fashion Industry Professionals ($M = 3.89$, $SD = .81$).

Finally, group had a significant effect on production-related knowledge subset

importance ratings scores, $F(1, 382) = 13.63$, $p < .001$, $\eta^2 = .034$. Fashion Educators had

significantly higher production-related knowledge subset importance ratings scores ($M =$

4.10, $SD = .65$) than Fashion Industry Professionals ($M = 3.83$, $SD = .80$).

Interpersonal Skills

Finally, a separate repeated measures MANOVA was conducted to examine the

effect of groups and subsets on participants' importance ratings scores for the

Interpersonal Skills competency category. Table 35 shows the importance ratings of each

competency item in the Interpersonal Skills category by participant group. In summary,

Table 36 reveals statistical significance for 2 of the 5 competency subsets within the

Interpersonal Skills category and their importance ratings by participant group.

Table 35

Means and Standard Deviations of 35 Competency Items Under 5 Competency Subsets in

Interpersonal Skills Category

	Professionals		Educator	
	Mean	SD	Mean	SD
Attitude skills	4.57	0.39	4.62	0.36
Ambitious	4.56	0.64	4.59	0.62
Analytical	4.30	0.71	4.51	0.62
Confident	4.55	0.68	4.61	0.54
Energetic	4.64	0.57	4.69	0.52
Enthusiastic	4.69	0.53	4.73	0.50
Pleasant	4.55	0.70	4.46	0.74
Positive attitude	4.82	0.43	4.79	0.46
Professional	4.76	0.53	4.87	0.38
Visionary	4.28	0.82	4.38	0.80
Character skills	4.68	0.34	4.63	0.38
Responsible	4.88	0.34	4.88	0.35
Reliable	4.87	0.34	4.86	0.36
Strong work ethic	4.87	0.37	4.86	0.40
Honest	4.81	0.52	4.73	0.56
Committed	4.78	0.55	4.72	0.52
Ethical	4.78	0.55	4.71	0.56
Creative	4.72	0.47	4.65	0.59
Perseverant	4.66	0.54	4.61	0.61
Intelligent	4.47	0.64	4.42	0.68
Logical	4.36	0.77	4.37	0.74
Loyal	4.29	0.81	4.15	0.83

Table 35, continued

Means and Standard Deviations of 35 Competency Items Under 5 Competency Subsets in

Interpersonal Skills Category

	Professionals		Educator		
	Mean	SD	Mean	SD	
Communication skills	4.20	0.51	4.37	0.44	*
Oral	4.61	0.59	4.78	0.51	
Written	4.37	0.84	4.55	0.67	
Visual	4.69	0.56	4.75	0.50	
Foreign language(s)	3.11	0.96	3.42	0.97	
Teamwork skills	4.64	0.43	4.67	0.42	
Dependable	4.77	0.54	4.84	0.44	
Flexible	4.69	0.54	4.73	0.52	
Organized	4.71	0.49	4.73	0.53	
People oriented	4.39	0.74	4.32	0.73	
Problem solver	4.57	0.61	4.68	0.52	
Team player	4.68	0.57	4.72	0.55	
Leadership and management skills	4.14	0.79	4.35	0.56	*
Decision maker	4.13	0.92	4.38	0.68	
Delegator	3.89	0.95	4.15	0.82	
Initiator	4.17	0.89	4.30	0.72	
Leader	4.08	0.96	4.26	0.73	
Time manager	4.44	0.79	4.67	0.60	

Note. Multivariate Effect: Survey: $F(4, 1548) = 144.82, p < .001, \eta^2 = .543$; Group: $F(1, 387) = 5.06, p < .05, n^2 = .013$, Group x Survey Interaction: $F(4, 1548) = 10.12, p < .01, n^2 = .016$. * indicate significant differences between groups and column differences greater than .251 for Fashion Educators and .107 for Fashion Industry Professionals indicate significant differences between subsets

Table 36

Means and Standard Deviations of Interpersonal Skill Subset by Group and as a Whole

	Total Participants (n = 389)		Professionals (n = 171)		Educators (n = 218)	
	Mean	*SD*	Mean	*SD*	Mean	*SD*
Attitude skills	4.60	.37	4.57	.39	4.62	.36
Character skills	4.66	.38	4.68	.34	4.63	.38
Communication skills	4.29	.48*	4.20	.51	4.37	.44*
Teamwork skills	4.65	.42	4.64	.43	4.67	.42
Leadership and management skills	4.25	.70	4.14	.79	4.35	.56*

Note. Multivariate Effect: Survey: $F(4, 1548) = 144.82$ $p < .001$, $\eta^2 = .543$; Group: $F(1, 387) = 5.06$, $p < .05$, $n^2 = .013$, Group x Survey Interaction: $F(4, 1548) = 10.12$, $p < .01$, $n^2 = .016$. * indicate significant differences between groups and column differences greater than .251 for Fashion Educators and .107 for Fashion Industry Professionals indicate significant differences between subscales

There was a significant main effect of subsets on total participants' importance ratings scores, $F(4, 1548) = 144.82$, $p < .001$, $\eta^2 = .543$. As shown in Table 36, total participants' overall communication skills importance ratings scores were significantly lower ($M = 4.29$, $SD = .48$) than their attitude skills importance ratings scores ($M = 4.60$, $SD = .37$), character skills importance ratings scores ($M = 4.66$, $SD = .38$), and teamwork skills importance ratings scores ($M = 4.65$, $SD = .42$). Their attitude skills importance ratings scores were significantly higher ($M = 4.60$, $SD = .37$), than their leadership and management skills importance rating scores ($M = 4.25$, $SD = .68$), but were significantly lower than their character skills importance ratings scores ($M = 4.66$, $SD = .38$) and teamwork skills importance ratings scores ($M = 4.65$, $SD = .42$). Additionally, their character skills importance ratings scores ($M = 4.66$, $SD = .37$) were significantly higher than their leadership and management skills importance ratings scores ($M = 4.25$, $SD = .68$). As also shown in Table 36, there was a significant main effect of group (Fashion Industry Professionals versus Fashion Educators) on participants' importance ratings scores, $F(1, 387) = 5.06$, $p < .05$. $\eta^2 = .013$. Fashion Educators had significantly higher overall importance rating scores for Interpersonal Skills ($M = 4.53$, $SD = .35$) than Fashion Industry Professionals ($M = 4.45$, $SD = .39$).

There was also a significant interaction of subset importance ratings scores and groups on participants' importance ratings scores for Interpersonal Skills, $F(4, 1548) = 10.12$, $p < .001$. $\eta^2 = .091$. As shown in Table 36, when examining Fashion Industry Professionals, competency subsets had a significant effect on participants' importance

ratings scores, $F(4, 1548) = 10.12$, $p < 001$, $\eta^2 = .091$). Fashion Industry Professionals'

character skills importance ratings scores were significantly higher ($M = 4.68$, $SD = .34$)

than their attitude skills importance ratings scores ($M = 4.57$, $SD = .39$), communication

skills importance ratings scores ($M = 4.20$, $SD = .51$), and leadership and management

skills importance ratings scores ($M = 4.64$, $SD = .43$). Furthermore, Fashion Industry

Professionals' attitude skills importance ratings scores were significantly higher ($M =$

4.57, $SD = .39$) than their communication skills importance ratings scores ($M = 4.20$, $SD =$

.51), and leadership and management skills importance ratings scores ($M = 4.64$, $SD =$

.79). Finally, Fashion Industry Professionals' teamwork skills subset importance ratings

scores were significantly higher ($M = 4.64$, $SD = .43$) than their attitude skills subset

importance ratings scores ($M = 4.57$, $SD = .39$), communication skills subset importance

ratings scores ($M = 4.20$, $SD = .51$) and leadership and management skills subset

importance ratings scores ($M = 4.14$, $SD = .79$).

When examining Fashion Educators, competency subsets had a significant effect

on participants' importance ratings scores. Fashion Educators' communication skills

subset importance ratings scores were significantly lower ($M = 4.37$, $SD = .44$) than their

attitude skills subset importance ratings scores ($M = 4.62$, $SD = .36$), character skills

subset importance ratings scores ($M = 4.63$, $SD = .38$), and teamwork skills subset

importance ratings scores ($M = 4.67$, $SD = .42$). Additionally, Fashion Educators'

leadership and management skills were significantly lower ($M = 4.35$, $SD = .56$) than

their attitude skills subset importance ratings scores ($M = 4.62$, $SD = .36$), character skills

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subset importance ratings scores ($M = 4.63$, $SD = .38$), and teamwork skills subset importance ratings scores ($M = 4.67$, $SD = .42$).

Furthermore, group (Fashion Industry Professionals versus Fashion Educators) had a significant effect on participants' communication skills subset importance ratings scores, $F(1, 387) = 13.26$, $p < 001$, $\eta^2 = .033$). As also shown in Table 36, Fashion Educators had significantly higher communication skills importance ratings scores ($M = 4.37$, $SD = .44$) than Fashion Industry Professionals ($M = 4.20$, $SD = .51$). Finally, group had a significant effect on participants' leadership and management skills subset importance ratings scores, $F(1, 387) = 9.81$, $p < .002$, $\eta^2 = .025$. Fashion Educators had significantly higher leadership and management skills importance ratings scores ($M = 4.35$, $SD = .56$) than Fashion Industry Professionals ($M = 4.14$, $SD = .79$).

Testing of Hypotheses

Five hypotheses were designed for this study. All of the hypotheses were tested using multiple analysis of variance (MANOVAs). The MANOVA is used in cases where there are two or more dependent variables. As well as identifying whether changes in the independent variables have significant effects on the dependent variables, MANOVA is also used to identify interactions among the dependent variables and among the independent variables. As part of the survey, participants were asked to respond to 112 competency items that served to assess skill and knowledge importance for a fashion design career. Each competency item was rated by participants by using rating values ranging from 1 (Not at all important) to 5 (Extremely important). Responses to the

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competency items were summed to reflect means for each competency subset; 8 competency subsets for the Technical Skills category, 5 competency subsets for the Industry Knowledge and Experience category, and 5 competency subsets for the Interpersonal Skills category. Analyses were then conducted to examine potential differences between Fashion Industry Professionals and Fashion Educators on the importance ratings scores in the current study and based on the study hypotheses.

As shown in the primary analysis, the independent variables for the study were participant groups; Fashion Industry Professionals and Fashion Educators. The dependent variables were eight (8) competency subsets of patternmaking techniques, sewing techniques, drawing skills, design skills, computer skills, textile evaluation skills, product development skills, and promotional skills in the Technical Skills category; five (5) competency subsets of art/design knowledge, historical/cultural knowledge, merchandising knowledge, production-related knowledge, *and* experiential learning in the Industry Knowledge and Experience category; and five (5) competency subsets of attitude skills, character skills, communication skills, teamwork skills, and leadership and management skills in the Interpersonal Skills category.

Hypothesis 1 was tested to assess whether there were significant differences in the dependent variables of importance ratings scores of Technical Skills, Industry Knowledge and Experience, and Interpersonal Skills with respect to both participant groups acting as the independent variables. Hypothesis 2 was tested to assess whether there were significant differences in the dependent variables of importance ratings scores

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of Technical Skills, Industry Knowledge and Experience, and Interpersonal Skills with respect to each participant group acting as the independent variables. Hypothesis 3 was tested to assess whether there were significant differences in the dependent variable of importance ratings scores of 5 Industry Knowledge and Experience subsets with respect to both participant groups acting as the independent variables. Hypothesis 4 was tested to determine whether there were significant differences between the dependent variables of importance ratings scores of 5 Interpersonal Skills subsets with respect to both participant groups acting as the independent variables. Hypothesis 5 was tested to assess whether there were significant differences between the dependent variables of importance ratings scores of 8 Technical Skills subsets with respect to each participant group acting as the independent variable.

Hypothesis 1

H1a. Fashion Industry Professionals and Fashion Educators will report greater importance for Technical Skills than Industry Knowledge and Experience as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

H1b. Fashion Industry Professionals and Fashion Educators will report greater importance for Interpersonal Skills than Industry Knowledge and Experience as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

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H1c. Fashion Industry Professionals and Fashion Educators will report greater importance for Interpersonal Skills than Technical Skills as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

The method of analysis for Hypothesis 1 was a 3 x 2 design, where 3 competency categories (Technical Skills, Industry Knowledge and Experience, and Interpersonal Skills) x 2 participant groups (Fashion Industry Professionals and Fashion Educators) were assessed using a repeated measures MANOVA where measure was the within subject effect and participant was the between subject effect. The data tested was taken from responses to the 50 Technical Skills competency items, 27 Industry Knowledge and Experience competency items, and 35 Interpersonal Skills competency items.

As shown in Table 37, the mean scores were calculated for each subset of Technical Skills, Industry Knowledge and Experience, and Interpersonal Skills categories for Fashion Industry Professionals and Fashion Educators. The overall mean scores for each competency category were 3.91 for Technical Skills, 4.06 for Industry Knowledge and Experience, and 4.49 for Interpersonal Skills. There was a significant main effect of competency category on participants' importance ratings scores, $F(2, 774) = 357.32$, $p <$ .001, partial $\eta^2 = .480$. Total participants' Industry Knowledge and Experience importance ratings scores ($M = 4.06$, $SD = .37$) were significantly higher than their Technical Skills importance ratings scores ($M = 3.91$, $SD = .55$). Therefore, Hypothesis 1a was rejected.

Table 37

Means and Standard Deviations of Overall Technical Skills, Overall Industry Knowledge and Experience, and Overall Interpersonal Skills by Group and as a Whole

	All Participants (n = 389)		Professionals (n = 171)		Educators (n = 218)		
	Mean	SD	Mean	SD	Mean	SD	
Technical Skills	3.91	.55	3.78	.60	4.02	.47	*
Industry Knowledge and Experience	4.06	.37	3.90	.66	4.18	.50	*
Interpersonal Skills	4.49	.37	4.45	.39	4.53	.35	*

Note. Multivariate Effect: Survey: $F(2, 774) = 357.32, p < .001, \eta^2 = .480$, Group: $F(1, 387) = 21.27, \eta^2 = .052$, Group x Survey Interaction: $F(2, 774) = 10.51, p < .001, \eta^2 = .026$. * indicate significant differences between groups and column differences greater than .165 for Fashion Educators and .032 for Fashion Industry Professionals indicate significant differences between subsets

As also shown in Table 37, participants had significantly higher Interpersonal Skills importance ratings scores ($M = 4.49$, $SD = .37$) than Industry Knowledge and Experience importance ratings scores ($M = 4.06$, $SD = .37$). Therefore, Hypotheses 1b was accepted. Furthermore, participants' Industry Knowledge and Experience importance scores were significantly higher than their Technical Skills importance ratings scores. Participants had significantly higher Interpersonal Skills importance ratings scores ($M = 4.49$, $SD = .37$) than Technical Skills importance ratings scores ($M = 3.91$, $SD = .55$). Therefore, Hypothesis 1c was also accepted.

Hypothesis 2

H2a. Fashion Educators will report greater importance for Technical Skills than Fashion Industry Professionals as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

H2b. Fashion Industry Professionals will report greater importance for Industry Knowledge and Experience than Fashion Educators as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

H2c. Fashion Industry Professionals will report greater importance for Interpersonal Skills than Fashion Educators as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

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The method of analysis for Hypothesis 3 was a 3x2 design where 3 competency categories (Technical Skills, Industry Knowledge and Experience, and Interpersonal Skills) x 2 participant groups (Fashion Industry Professionals and Fashion Educators) were assessed using a repeated measures MANOVA where the measure was the within subject effect and participant was the between subject effect. The data tested was taken from responses to the 50 Technical Skills competency items, 27 Industry Knowledge and Experience competency items, and 35 Interpersonal Skills competency items. Participant group had a significant effect on overall Technical Skills importance ratings scores, F (1, 387) = 18.98, $p < .001$, partial $\eta^2 = .047$.As shown in Table 37, Fashion Educators had significantly higher Technical Skills importance ratings scores ($M = 4.02$, $SD = .47$) than Fashion Industry Professionals ($M = 3.78$, $SD = .60$). Therefore, Hypothesis 2a was accepted.

Group also had a significant effect on overall Industry Knowledge and Experience importance ratings scores, F (1, 387) = 23.46, $p < .001$, partial $\eta^2 = .057$. However, Fashion Educators had significantly higher Industry Knowledge and Experience importance ratings scores ($M = 4.18$, $SD = .50$) than Fashion Industry Professionals ($M = 3.90$, $SD = .66$). Therefore, Hypothesis 2b was rejected.

In analyzing the Interpersonal Skills category between Fashion Industry Professionals and Fashion Educators, statistical findings revealed that group had a significant effect on the overall importance ratings scores, F (1, 387) = 4.87, $p < .05$, partial $\eta^2 = .012$. However, Interpersonal Skills scores were significantly higher for

Fashion Educators (M = 4.53, SD = .35) than Fashion Industry Professionals (M = 4.45, SD = .39). Therefore, Hypothesis 2c was also rejected.

Hypothesis 3

H3. Fashion Industry Professionals and Fashion Educators will report greater importance for experiential learning than the other four Industry Knowledge and Experience competency subsets of art/design knowledge, historical/cultural knowledge, merchandising knowledge, and production-related knowledge as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

The method of analysis for Hypothesis 3 utilized a 5 x 2design where 5 competency subsets of Industry Knowledge and Experience x 2 participant groups (Fashion Industry Professionals and Fashion Educators) were assessed using a repeated measures MANOVA where measure was the within subject effect and participant was the between subject effect. The data tested was taken from responses to the 3 competency items in art/design knowledge, 4 competency items in historical/cultural knowledge, 7 competency items in merchandising knowledge, 5 competency items in production-related knowledge, and 8 competency items in experiential learning. Mean scores were calculated for each subset of the Industry Knowledge and Experience category for Fashion Industry Professionals and Fashion Educators. The repeated measures MANOVA compared mean scores of each subset between Fashion Industry Professionals and Fashion Educators among the 5 competency subset variables to test Hypothesis 3.

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As previously shown in Table 34, there was a significant main effect of competency subsets on participants' importance scores, $F(4, 1528) = 12.36 \, p < .001$, partial $\eta^2 = .031$. Participants' experiential learning importance ratings scores ($M = 4.18$, $SD = .66$) were significantly higher than their art/design knowledge scores ($M = 4.10$, $SD = .78$), historical-cultural knowledge scores ($M = 3.98$, $SD = .80$), merchandising knowledge scores ($M = 4.04$, $SD = .73$) and production-related knowledge scores ($M = 3.98$, $SD = .74$). Therefore, Hypothesis 3 was accepted.

Hypothesis 4

H4a. Fashion Industry Professionals and Fashion Educators will report greater

   importance for communication skills than the other four Interpersonal Skills

   competency subsets of attitude skills, character skills, teamwork skills, and

   leadership and management skills as necessary competencies for a fashion design

   college or university graduate to acquire an entry-level design position in the

   fashion industry.

H4b. Fashion Industry Professionals will report greater importance for teamwork skills

   than Fashion Educators as necessary competencies for a fashion design college or

   university graduate to acquire an entry-level design position in the fashion industry.

   Hypothesis 4 utilized a 5x2 design where 5 competency subsets of Interpersonal

Skills x 2 participant groups (Fashion Industry Professionals and Fashion Educators)

were assessed using a repeated measures MANOVA to investigate whether participants

rated communication skills more important than the other 5 competency subsets in

Interpersonal Skills category. The data tested was taken from responses to the 9 competency items in attitude skills, 11 competency items in character skills, 4 competency items in communication skills, 6 competency items in teamwork skills, and 5 competency items in leadership and management skills. Mean scores were calculated for each subset of the Interpersonal Skills category for Fashion Industry Professionals and Fashion Educators. The repeated measures MANOVA compared mean scores of each subset between Fashion Industry Professionals and Fashion Educators among the 5 competency subset variables to test Hypothesis 4a and 4b.

There was a significant main effect of competency subsets on participants' survey scores, $F(4, 1548) = 144.82$, $p < .001$, $\eta^2 = .543$. However, as previously shown in Table 36, participants' communication skills importance ratings scores were significantly lower ($M = 4.29$, $SD = .48$) than their attitude importance ratings scores ($M = 4.60$, $SD = .37$), character skills importance ratings scores ($M = 4.66$, $SD = .38$), and teamwork importance ratings scores ($M = 4.65$, $SD = .42$). Therefore Hypothesis 4a was rejected. Further analysis comparing importance ratings scores from each participant group revealed a significant interaction between 5 Interpersonal Skills competency subsets importance ratings scores and participant group. However, the significant effect was not with the teamwork skills as the hypothesis projected. Instead, the group (Fashion Industry Professionals versus Fashion Educators) had a significant effect on participants' communication skills importance ratings scores, $F(1, 387) = 13.26$, $p < 001$, $\eta^2 = .033$.

Participants' teamwork skills importance ratings scores did not have any significance by group. Therefore, Hypothesis 4b was rejected.

Hypothesis 5

H5.   Fashion Industry Professionals will report greater importance for computer skills than Fashion Educators as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

Hypothesis 5 utilized a 8x2 design where 8 competency subsets of Technical Skills x 2 participant groups (Fashion Industry Professionals and Fashion Educators) were assessed using a repeated measures MANOVA to investigate whether there was any significance on importance ratings scores of computer skills by participant group. The data tested was taken from responses to the 6 competency items in patternmaking techniques, 5 competency items in sewing techniques, 5 competency items in drawing skills, 7 competency items in design skills, 10 competency items in computer skills, 4 competency items in textile evaluation skills, 6 competency items in product development skills, and 7 competency items in promotional skills. Mean scores was calculated for each subset of the Technical Skills category for Fashion Industry Professionals and Fashion Educators. The repeated measures MANOVA compared mean scores of each subset between Fashion Industry Professionals and Fashion Educators among the 8 competency subset variables to test Hypothesis 5.

The results indicated a significant difference of Technical Skills subset importance ratings scores and group (Fashion Industry Professionals versus Fashion

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Educators), $F(7, 2688) = 6.24$, $p < .001$, $\eta^2 = .016$ (see Table 32). Group also had a significant effect on computer skills importance ratings scores, $F(1, 384) = 43.92$, $p < .001$, $\eta^2 = .103$. However, contrary to the projection in Hypothesis 5, Fashion Educators had significantly higher computer skills importance ratings scores ($M = 3.99$, $SD = .71$) than Fashion Industry Professionals ($M = 3.48$, $SD = .77$). Additionally, when combining participant groups, computer skills importance ratings scores were significantly lower ($M = 3.48$, $SD = .77$) than patternmaking techniques importance ratings scores ($M = 3.77$, $SD = .87$), sewing techniques importance ratings scores ($M = 3.84$, $SD = .84$), drawing skills importance ratings scores ($M = 4.02$, $SD = .68$), design skills importance ratings scores ($M = 4.11$, $SD = .63$), textile evaluation skills importance ratings scores ($M = 3.80$, $SD = .94$), or product development skills importance ratings scores ($M = 3.75$, $SD = .90$). Therefore, Hypothesis 5 was rejected.

Summary of Data Analyses

Pearson product moment correlations of each competency category revealed that each of the Technical Skills subsets, Industry Knowledge and Experience subsets, and Interpersonal Skills subsets were significantly positively correlated with each other. This indicated that participants who rated greater importance on one Technical Skills subset tended to rate the other Technical Skills subsets as important as well; participants who rated greater importance on one Industry Knowledge and Experience subset tended to rate the other knowledge and experience subsets as important as well; and participants who rated greater importance on one Interpersonal Skills subset tended to rate the other

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Interpersonal Skills subsets as important as well. A Pearson product moment correlation was also conducted to examine the relationships between Technical Skills, Industry Knowledge and Experience, and Interpersonal Skills categories. Test results revealed a significant positive correlation with each other, indicating that participants who rated greater importance for one of the competency categories tended to rate the other categories as important.

The five hypotheses were analyzed through the use of repeated measures MANOVAs. Hypothesis 1 was partially accepted. Both Fashion Industry Professionals and Fashion Educators had significantly higher Interpersonal Skills importance ratings scores than Industry Knowledge and Experience importance ratings scores. Participants also had significantly higher Interpersonal Skills importance ratings scores than Technical Skills importance ratings scores, thus supporting H1b. However, the importance ratings scores for Technical Skills were not greater than their Industry Knowledge and Experience importance ratings scores. On the contrary to the Hypothesis 1a, participants' Industry Knowledge and Experience importance ratings scores were significantly higher than their Technical Skills importance ratings scores, thus rejecting Hypothesis 1c.

Hypothesis 2 was also partially accepted. In comparing importance ratings scores by each participant group, Fashion Educators had significantly higher Technical Skills importance ratings scores than Fashion Industry Professionals, thus supporting Hypothesis 2a. However, results indicated the opposite results for Hypothesis 2b and 2c.

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Fashion Educators had significantly higher importance ratings scores on both competency categories of Industry Knowledge and Experience (2b) and Interpersonal Skills (2c) than Fashion Industry Professionals. Therefore, Hypothesis 2b and 2c were rejected.

Within the Industry Knowledge and Experience category, as stated in Hypothesis 3, both Fashion Industry Professionals and Fashion Educators reported greater importance for experiential learning than the other four Industry Knowledge and Experience competency subsets of art/design knowledge, historical/cultural knowledge, merchandising knowledge, and production-related knowledge thus supporting the projection of Hypothesis 3. However, both Hypothesis 4 and 5 were rejected. For Hypothesis 4, both participant groups reported significantly lower communication skills importance ratings scores were than other four Interpersonal Skills competency subsets. Furthermore, participants' teamwork skills importance ratings scores did not have any significance by the groups. The results also indicated that Fashion Educators had significantly higher computer skills importance ratings scores, not Fashion Industry Professionals (as projected in Hypothesis 5).

This chapter outlined the results and statistical findings of the Career Competencies in Fashion Design Survey taken by 390 Fashion Industry Professionals and Fashion Educators. The competency items were selected to examine and compare perception differences between Fashion Industry Professionals and Fashion Educators regarding the necessary Technical Skills, Industry Knowledge and Experience, and Interpersonal Skills, needed by a fashion design college or university graduate in order to

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acquire an entry-level design position in the fashion industry. The findings are further

discussed and expanded with conclusions and implications in Chapter Five.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Fashion design is exciting occupation which draws many college or university students to major or specialize in fashion design or related fields. According to the Bureau of Labor Statistics (2008) Job Outlook for the fashion designer occupation over the 2006-16 decade, employment is projected to increase only by 5 percent from 20,000 in 2006 to 21,000 in 2016 ("Fashion Designers", 2008). Compared to the total employment projected to increase by 10 percent from 150.6 million in 2006 to 166.2 million in 2016, the employment of fashion designers is projected to grow more slowly therefore, the job competition is expected to be keen for fewer job openings.

In order to meet the expectations of students who are pursuing college or university degrees in this highly competitive environment, faculty members are facing difficulties in revising and developing the most up-to-date curriculum that builds upon knowledge and skills with the appropriate sequence of courses. In updating fashion and apparel related design programs, many educators are striving to address methods of adequate preparation of students for business environments. Therefore, to better prepare students for their careers, fashion educators need to view industry-academia linkages from the perspective of the fashion industry to obtain the career-specific skill and knowledge requirements sought by employers when hiring college or university graduates.

Summary of the Study

The question of determining the specific preparation needed by college or university graduates of fashion programs for successful entry into the fashion industry has been approached from a variety of angles. A survey of academic research in fashion related areas reveals several important, general trends. The unifying factor of several research studies is the emphasis on surveying the opinions of practitioners in the industry on the competencies and attributes needed by students entering the fashion industry. In the search of related studies, it was apparent that most studies had been done in the merchandising/management area, second in manufacturing, and the fewest were done in fashion design. Most studies addressed competencies necessary for appropriate curriculum development, yet little has been written comparing the opinions of industry professionals who participate in the hiring/training process to the academic point of view.

Identifying such competencies from the view of both fashion industry professionals and fashion educators will be critical to make accurate and timely curriculum decisions. Therefore, the purpose of the study was to examine and compare perception differences between fashion industry professionals and fashion educators regarding the necessary technical skills, industry knowledge and experience, and interpersonal skills, a fashion design college or university graduate should have in order to acquire an entry-level design position in the fashion industry. The focus of this study was to explore the design career within the fashion industry.

The primary objectives of the study were multiple. First, the study examined perceptions regarding the level of importance of specific technical skills, industry knowledge and experience, and interpersonal skills needed for entry-level design positions in the fashion industry between fashion industry professional and fashion educator groups. Fashion industry professionals and fashion educators were surveyed to obtain their perceptions of the level of importance of specific technical skills, industry knowledge and experience, and interpersonal skills. Second, the study compared importance ratings on specific technical skills, industry knowledge and experience, or interpersonal skills needed for entry-level design positions in the fashion industry between fashion industry professionals and fashion educators. The study sought to determine if there is agreement between the fashion industry professionals and fashion educators on the perceived importance of study items.

This study utilized a descriptive research design. Data was collected using a survey research method in order to test hypotheses and to determine perceived levels of importance within and differences in perceptions between two subject groups of Fashion Industry Professionals and Fashion Educators. Fashion Industry Professionals were individuals employed in apparel and accessories design and manufacturing companies in the United States. And Fashion Educators were individuals employed by two-year and four-year institutions in the United States offering fashion, apparel, or clothing design as a major or specialization in the degree program. Professional membership listings were used to identify each group; Fashion Group International for the fashion industry

professional group and International Textile and Apparel Association for the fashion educator group. Additional fashion educator participants were identified from school Web sites of American colleges, universities, and other institutions offering educational programs related to fashion and apparel, textiles, and/or fabric sciences listed in *Career Opportunities in the Fashion Industry, 2nd edition* (Vogt, 2007).

The research instrument developed for this study was a self-administered, Web-based survey. The questionnaire was designed through the use of PsychData™, LLC. An electronic in-text cover letter invited the potential study participants to participate in the proposed study and complete the questionnaire by either clicking on the embedded hyperlink URL or copying and pasting the URL into their Web browser.

The survey started on the opening page with the purpose statement and instructions. Following this, each competency section was presented and participants were asked to rate the importance of each competency item for an entry-level position in fashion design using a level of importance scale. To measure the perceptions of importance, a 5-point Likert-type scale was used in response to all of the questions relating to the three competency sections. The rating values were applied into a matrix using poles format; ranging from 1 (Not at all important) to 5 (Extremely important).

The questionnaire contained the following four sections; (a) Technical Skills (TS) including 50 competency items under 8 subsets of patternmaking techniques, sewing techniques, drawing skills, design skills, computer skills, textile skills, product development, and promotional skills; (b) Industry Knowledge and Experience (IKE)

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including 27 competency items under 5 subsets of art/design knowledge, historical/cultural knowledge, merchandising knowledge, production-related knowledge, and experiential learning; (c) Interpersonal Skills (IS) including 35 competency items under 5 subsets of attitude skills, character skills, communication skills, teamwork skills, and leadership and management skills; and (d) a section of demographic information.

Prior to the main study, a pre-test survey was conducted to examine the research instrument and research procedure for comprehension of the instructions and clarity of the terminology. The pre-test survey used a judgment sample of six Fashion Industry Professionals and six Fashion Educators. Participants for the pre-test survey met the same criteria as the study sample groups. The pre-test participants were not included in the main study sample and the data was not analyzed as part of the main study. As a part of pre-test survey, participants were asked their opinion about answering and understanding the survey instrument after taking the research survey. The overall rating for ease of using the measurement scale, both Fashion Industry Professionals and Fashion Educators indicated that the survey was thought to be relatively easy for future respondents to rate. When participants were asked about ease of understanding survey items, both groups also indicated that the competencies were relatively easy to understand. In addition, participants were asked to add any missed items and comments, so that action could be taken to refine weaknesses of the questionnaire and establish content validity. Each subset of Technical Skills, Industry Knowledge and Experience, and Interpersonal Skills category was analyzed for inter-rater reliability for both Fashion Industry Professionals

and Fashion Educators, using *Cronbach's alpha.* After reviewing reliability ratings and after thorough evaluation of comments, the researcher revised the instrument, adding six individual competency items and revising and clarifying language on six other competency terms in an attempt to increase the content validity and reliability of the instrument. Additionally, experienced researchers from the Programs in Fashion and Textiles at Texas Woman's University reviewed the electronic questionnaire to detect flaws and make recommendations for improvements. In addition to the educational experts, a professional statistician evaluated the questionnaire for its format and the valid application of the statistical procedure.

Data were collected through the use of a self-administered, web-based survey. The study population consisted of two groups, Fashion Industry Professionals and Fashion Educators. Professional membership listings were used to identify each group. To collect data, the survey URL (PsychData Web address) was emailed to the two sample groups in the form of an emailed in-text cover letter. One form of the self-administered URL questionnaire was addressed to Fashion Industry Professionals employed by apparel and accessories design and manufacturing companies in the United States. The other form of the self-administered URL questionnaire was addressed to Fashion Educators in two- and four-year associates and bachelor degree-level institutions teaching fashion, apparel, or clothing design as a major or specialization in a degree program in the United States. The emailed cover letter explained the purpose of the survey, instructions, and estimated time to complete the survey, and provided the researcher's contact information.

A copy of this letter for each sample group can be found on Appendix A (Fashion Industry Professionals) and Appendix B (Fashion Educators).

The sample group was asked to respond to the questionnaire on the Web. To facilitate a higher response rate and to control the non-response error, two email reminders were sent to the Fashion Industry Professionals and Fashion Educators at one-week intervals after the initial survey broadcast. A copy of the email reminders can be found in Appendix C for Fashion Industry Professionals and Appendix D for Fashion Educators.

The research instrument consisted of two versions differing only in the final demographic section requesting professional information for Fashion Industry Professionals (see Appendix H) and Fashion Educators (see Appendix I). Demographic data were analyzed using frequencies and percentages to develop profiles to describe each participant group in this study.

Findings of the Study

During the fall of 2009, the survey cover letter was sent to 1178 Fashion Industry Professionals and 775 Fashion Educators. The total useable questionnaires completed by Fashion Industry Professionals were 171 producing a useable response rate of 14.5%. For the Fashion Educator group, the total of 219 useable questionnaires completed, producing a useable response rate of 30%. After the survey closed, data was downloaded and assembled by sample group, and prepared for analysis. The SPSS 15.0 file was used to download the data in order to conduct all statistical tests with an alpha level of .05.

Demographic Profiles

As a preliminary assessment, demographic data were analyzed using frequencies and percentages to develop profiles describing each participant group in the study. Approximately 60% of the total participants were between the ages of 45 and 64 (59.7%). The rest of participants were between the ages of 35 and 44 (16.2%), 13.9% were between the ages of 25 and 34, and 9.2% were between the ages of 65 and 74. Nearly all of the participants were females (92.4%).

Because of the professional requirements, the highest level of education differed by the participant groups. Over half of the Fashion Industry Professionals reported their highest level of education was a bachelor's degree (51.2%). Additionally, 22.6% of the Fashion Industry Professionals reported earning a master's degree, and 14.6% had earned an associate's degree as their highest level of education. Four participants had earned high school diplomas or completed technical trade school, and three Fashion Industry Professionals had earned doctoral degrees. As for Fashion Educators, nearly half of the Fashion Educators had obtained a doctoral degree (46.5%). Approximately 33% of the Fashion Educators had a master's degree (33.2%) and 12.4% had earned a bachelor's degrees. The remaining 17 Fashion Educators reported holding a degree noted as "other". Details on theses degrees and educational background can be found dialog pertaining to Table 21 in Chapter 4.

The 171 Fashion Industry Professionals demographic profile also included information regarding participants' career and company information. Of the total

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participants who answered the question regarding the years of employment in the fashion industry (n=164), employment ranged from 1 to 62 years, with an average of 21.74 years. Moreover, Fashion Industry Professionals were employed at their current company for an average of 10.43 years, ranging from 0 to 40 years.

When participants were asked the title of their current position, 166 participants responded with a title. Nearly half of the participants were designers or held positions of design (46.4%). Approximately 20% were CEOs, owners, or presidents of apparel companies (19.9%). Creative directors constituted 11.4% of the group, with another 11.4% identifying themselves as technical designers including technical design managers, design technologists, and head patternmakers. Smaller proportions identified themselves as directors of product development (3.6%), vice presidents (1.8%), and design consultants (1.8%). Only single participants identified themselves as a fashion entrepreneur, fashion editor, special events coordinator, graphic artist, director of supply chain, and career counselor.

In terms of company size, the majority of Fashion Industry Professionals represented smaller companies employing fewer than 50 people (68.6%). Additionally, approximately 22% of Fashion Industry Professionals represented a company of 401 employees and above (21.6%). When Industry Professionals were asked about divisions of the design department in their company, the highest percentage was reported for the womens department (70.3%). Mens (23.0%), childrens (24.2%), and accessories (28.5%) were relatively comparable. Fewer participants reported having a juniors department

(17.6%) or an active wear department (15.2%). Only 7.9% of participants included a maternity department.

More than half of the participants, who answered on their job responsibility question, expressed a job responsibility to hire entry level employees (52.5%). When they were asked if a college degree was required, almost one-half (46.8%) stated that a college degree was preferred whereas 40.4% stated that a college degree was required. When participants were asked to rate the importance of previous work experience and having a four year degree when hiring for an entry level position on an importance rating ranging from 1 (not at all important) to 5 (extremely important), the results for both categories were similar, with previous work experience having a mean of 3.56 and four year degree having a mean of 3.47. Finally, Fashion Industry Professionals were also asked if their company offers internships to college students. Nearly 60% of the Fashion Industry Professionals reported that the company offers internships (58.3%).

In developing a demographic profile for Fashion Educators, survey questions included participants' teaching history, industry work experience, institution and program information, and internship requirements. Out of a total 219 Fashion Educator participants, 203 had answered the question on the title of their current position. The majority of participants were full-time ranking faculty (69%) consisting of associate professors (18.2%), assistant professors (17.7%), full professors (16.3%), program directors (14.3%), program coordinators, chairs and deans (1.5%), and department heads (1.0%). Another 28.1% were faculty members classified as instructors (16.3%), lecturers

(5.4%), and adjuncts (6.4%). Fashion Educators reported an average of 17.38 years teaching experience and an average 11.60 years employment at their current teaching institution. Additionally, majority of Fashion Educators reported that they had worked in the fashion industry (89%). Including 15.5% of the Fashion Educators who were currently working in the fashion industry and in education, a total of 152 Fashion Educators had been employed in the fashion industry an average of 12.29 years.

When Fashion Educators were asked if an internship was offered in their program, the majority of the participants indicated that their institution did offer internships (85.6%). Among those institutions, 61.5% stated that internship was required as a graduation requirement to compete their program. Fashion Educators also identified all of the majors offered at their respective institutions. With 77.7% of institutions offering design and 74.9% offering merchandising, design and merchandising were the most common majors. When surveyed, Fashion Educators identified courses offered in the fashion and apparel area at their institutions. Core fashion courses offered by at least 50% of the respondents are listed in Table 38.

Competency Categories

The study analyses included means and standard deviations, frequencies and percentages, with multiple analysis of variance MANOVAs conducted to assess the hypotheses. Preliminary analysis with a Pearson Product Moment correlation was conducted to examine the relationships between three competency categories.

Table 38

Courses Offered at Institutions in the Fashion and Apparel Field Selected by Majority of

Participants

	N	*%*
Apparel Construction Techniques	187	87.0
Textiles	186	86.5
History of Costume	182	84.7
Flat Pattern Techniques Design	175	81.4
Internship	171	79.5
Introduction of Merchandising	166	77.2
Computer Aided Design	165	76.7
Draping Techniques Design	164	76.3
Fashion Sketching	161	74.9
Fashion Portfolio Development	149	69.3
Principles of Color/Design	144	67.0
Merchandising Mathematics	136	63.3
Retail Buying	134	62.3
Advanced Construction Techniques	133	61.9
CAD Patternmaking	120	55.8
Fashion Promotion	120	55.8
Fashion Trends	117	54.4
Cultural Perspectives of Clothing	116	54.0
Advanced Merchandising	116	54.0
Social/Psychological Aspect	115	53.5
Apparel Production Analysis	114	53.0
Advanced Patternmaking	113	52.6

Note. Participants were able to select more than one option; therefore, percentages may not equal 100%

As a result, there were significantly positive correlations among Technical Skills, Industrial Knowledge and Experience, and Interpersonal Skills competency categories, indicating that individuals who rated greater importance on one of the scales tended to rate the other scales as important. Furthermore, each of the Technical Skills subsets, Industry Knowledge and Experience subsets, and Interpersonal Skills subsets importance ratings scores were also significantly positively correlated with each other, indicating that individuals who rated greater importance on one subset within the category tended to rate the other subsets within the category as important as well.

A repeated measures multivariate analysis of variance (MANOVA) was conducted to examine the effect of group (Fashion Industry Professionals and Fashion Educators) on overall Industry Knowledge and Experience importance ratings scores, overall Interpersonal Skills importance ratings scores and overall Technical Skills importance ratings scores. There were significant differences on participants' importance ratings scores. both participant groups had significantly higher overall Interpersonal Skills importance ratings scores ($M = 4.49$) than Industry Knowledge and Experience importance ratings scores ($M = 4.06$) and Technical Skills importance ratings scores ($M = 3.91$) as seen in Table 39.

Furthermore, there was a significant difference on overall importance ratings scores between Fashion Industry Professionals and Fashion Educators. Fashion Educators had significantly higher survey importance ratings scores ($M = 4.25$) than Fashion Industry Professionals ($M = 4.04$).

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Table 39

Rank of Importance Rating Means of Competency Categories

Rank	Competency Category	All Participants (n = 389) Mean	Professionals (n = 171) Mean	Educators (n = 218) Mean
1	Interpersonal Skills	4.49	4.45	4.53
2	Industry Knowledge and Experience	4.06	3.90	4.18
3	Technical Skills	3.91	3.78	4.02

For Fashion Educators, from highest value to lowest value, means of each category importance ratings scores were Interpersonal Skills 4.53, Industry Knowledge and Experience 4.18, and Technical Skills 4.02. Fashion Industry Professionals' means in order of highest to lowest were Interpersonal Skills scores 4.45, Industry Knowledge and Experience importance ratings scores 3.90, and Technical Skills 3.78.

Competency Subsets

To examine the effect of groups and scales on participants' importance ratings scores for competency subsets within each category, repeated measures MANOVAs were conducted. Within the Technical Skills category, overall, the design skills subset was rated of highest importance ($M = 4.16$). As shown in Table 40, the design skills subset was followed by overall importance ratings of drawing skills ($M = 4.13$), textile evaluation skills ($M = 3.97$), product development skills ($M = 3.94$), patternmaking techniques ($M = 3.94$), sewing techniques ($M = 3.88$), and computer skills ($M = 3.76$). Finally, participants' promotional skills subset importance ratings scores ($M = 3.52$) were significantly lower than all the other subsets (Table 32).

The importance ratings of each Technical Skills subset were significantly different between Fashion Industry Professionals and Fashion Educators (see Table 32). Fashion Industry Professionals rated importance of design skills the highest ($M = 4.11$), followed by drawing skills ($M = 4.02$), textile evaluation skills ($M = 3.80$), sewing techniques ($M = 3.84$), patternmaking techniques ($M = 3.77$), product development skills ($M = 3.75$), computer skills ($M = 3.48$), and promotional skills ($M = 3.37$).

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Table 40

Rank of Importance Rating Means of Technical Skills Competency Subsets by Group

Rank	All Participants	Mean	Professionals	Mean	Educators	Mean
1	Design Skills	4.16	Design Skills	4.11	Drawing Skills	4.21
2	Drawing Skills	4.13	Drawing Skills	4.02	Design Skills	4.19
3	Textile Evaluation Skills	3.97	Textile Evaluation Skills	3.90	Product Development Skills	4.09
4	Product Development Skills	3.94	Sewing Techniques	3.84	Patternmaking Techniques	4.08
5	Patternmaking Techniques	3.94	Patternmaking Techniques	3.77	Textile Evaluation Skills	4.03
6	Sewing Techniques	3.88	Product Development Skills	3.75	Computer Skills	3.99
7	Computer Skills	3.76	Computer Skills	3.48	Sewing Techniques	3.91
8	Promotional Skills	3.52	Promotional Skills	3.37	Promotional Skills	3.64

Fashion Educators ranked importance of subsets differently than Fashion Industry Professionals except promotional skills. Drawing skills subset ($M = 4.21$) was rated the highest, followed by design skills ($M = 4.19$), product development skills ($M = 4.09$), patternmaking techniques ($M = 4.08$), textile evaluation skills ($M = 4.03$), computer skills ($M = .3.99$), sewing techniques ($M = 3.91$), and promotional skills ($M = 3.64$).

In examining the Industry Knowledge and Experience category, there was a significant difference on importance ratings scores. As seen on Table 41, overall experiential learning importance ratings ($M = 4.18$) was the highest, followed by overall importance ratings of art/design knowledge ($M = 4.10$), historical/cultural knowledge ($M = 3.98$), merchandising knowledge ($M = 4.04$), and production-related knowledge importance ratings scores ($M = 3.98$). However, each participant group reported different results. Although Fashion Industry Professionals rated experiential learning ($M = 4.11$) the highest in overall rating, their importance ratings were followed by art/design knowledge ($M = 3.92$), merchandising knowledge ($M = 3.89$), production-related knowledge ($M = 3.83$), and historical/cultural knowledge ($M = 3.71$). Fashion Educators reported art/design knowledge ($M = 4.24$) as the highest importance, followed by experiential learning ($M = 4.23$), historical/cultural knowledge ($M = 4.19$), merchandising knowledge ($M = 4.10$), and production-related knowledge ($M = 4.10$).

Within the Interpersonal Skills competency category (Table 42), overall importance ratings of the character skills subset was the highest then the other four Interpersonal Skills competency subsets ($M = 4.66$).

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Table 41

Rank of Importance Rating Means of Industry Knowledge and Experience

Competency Subsets by Group

Rank	All Participants	*M*	Professionals	*M*	Educators	*M*
1	Experiential Learning	4.18	Experiential Learning	4.11	Art/Design Knowledge	4.24
2	Art/Design Knowledge	4.10	Art/Design Knowledge	3.92	Experiential Learning	4.23
3	Merchandising Knowledge	4.04	Merchandising Knowledge	3.89	Historical/Cultural Knowledge	4.19
4	Historical/Cultural Knowledge	3.98	Production-Related Knowledge	3.83	Merchandising Knowledge	4.16
5	Production-Related Knowledge	3.98	Historical/Cultural Knowledge	3.71	Production-Related Knowledge	4.10

Table 42

Rank of Importance Rating Means of Interpersonal Skills Competency Subsets by Group

Rank	All Participants	*Mean*	Professionals	*Mean*	Educators	*Mean*
1	Character Skills	4.66	Character Skills	4.68	Teamwork Skills	4.67
2	Teamwork Skills	4.65	Teamwork Skills	4.64	Character Skills	4.63
3	Attitude Skills	4.60	Attitude Skills	4.57	Attitude Skills	4.62
4	Communication Skills	4.29	Communication Skills	4.20	Communication Skills	4.37
5	Leadership and Management Skills	4.25	Leadership and Management Skills	4.14	Leadership and Management Skills	4.35

Overall importance ratings of the character skills by total participants was followed by overall importance ratings of teamwork skills ($M = 4.65$), attitude skills ($M = 4.60$), communication skills ($M = 4.29$), and leadership and management skills ($M = 4.25$). Although there were significant differences on importance ratings scores by each participant group, there were little differences in the reported rank of Interpersonal Skills subsets between Fashion Industry Professionals and Fashion Educators.

Fashion Industry Professionals' importance ratings were highest on character skills subset ($M = 4.68$), followed by teamwork skills ($M = 4.64$), attitude skills ($M = 4.57$), communication skills ($M = 4.20$), and leadership and management skills ($M = 4.64$). Fashion Educators rated the teamwork skills subset ($M = 4.67$) the highest, followed by character skills ($M = 4.63$), attitude skills ($M = 4.62$), communication skills ($M = 4.37$), and leadership and management skills ($M = 4.35$).

Hypotheses

Five hypotheses were designed for this study. All of the hypotheses were tested using multiple analysis of variance (MANOVAs). As shown in the primary analysis, the independent variables for the study were participant groups; Fashion Industry Professionals and Fashion Educators. The dependent variables were eight competency subsets of patternmaking techniques, sewing techniques, drawing skills, design skills, computer skills, textile evaluation skills, product development skills, and promotional skills in the Technical Skills category; five competency subsets of art/design knowledge, historical/cultural knowledge, merchandising knowledge, production-related knowledge,

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and experiential learning in the Industry Knowledge and Experience category; and five competency subsets of attitude skills, character skills, communication skills, teamwork skills, and leadership and management skills in the Interpersonal Skills category.

Hypothesis 1 read as follows; Fashion Industry Professionals and Fashion Educators will report greater importance for (a) Technical Skills than Industry Knowledge and Experience, (b) Interpersonal Skills than Industry Knowledge and Experience, and (c) Interpersonal Skills than Technical Skills as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

In analyzing the data, there was a significant main effect for competency category on participants' importance ratings scores. As previously shown in Table 30, the overall mean scores for each competency category were 3.91 for Technical Skills, 4.06 for Industry Knowledge and Experience, and 4.49 for Interpersonal Skills. Participants' Industry Knowledge and Experience importance ratings scores ($M = 4.06$, $SD = .37$) were significantly higher than their Technical Skills importance ratings scores ($M = 3.91$, $SD = .55$). Therefore, Hypothesis 1a was rejected. Participants' Interpersonal Skills importance ratings scores ($M = 4.49$, $SD = .37$) were significantly higher than Industry Knowledge and Experience importance ratings scores ($M = 4.06$, $SD = .37$). Therefore, Hypotheses 1b was accepted. Finally, participants had significantly higher Interpersonal Skills importance ratings scores ($M = 4.49$, $SD = .37$) than Technical Skills importance ratings scores ($M = 3.91$, $SD = .55$). Therefore, Hypothesis 1c was also accepted.

Hypothesis 2 read as follows; (a) Fashion Educators will report greater importance for Technical Skills than Fashion Industry Professionals as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry, (b) Fashion Industry Professionals will report greater importance for Industry Knowledge and Experience than Fashion Educators as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry, and (c) Fashion industry professionals will report greater importance for Interpersonal Skills than Fashion Educators as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

Between Fashion Industry Professionals and Fashion Educators, there were significant effects on Overall Technical Skills, Overall Industry Knowledge and Experience, and Interpersonal Skills importance ratings scores. As also previously shown in Table 30, Fashion Educators had significantly higher Technical Skills importance ratings scores ($M = 4.02$, $SD = .47$) than Fashion Industry Professionals ($M = 3.78$, $SD = .60$). Therefore, Hypothesis 2a was accepted. However, Fashion Educators had significantly higher Industry Knowledge and Experience importance ratings scores ($M = 4.18$, $SD = .50$) than Fashion Industry Professionals ($M = 3.90$, $SD = .66$). Therefore, Hypothesis 2b was rejected. Hypothesis 2c was also rejected because Interpersonal Skills scores were significantly higher for Fashion Educators ($M = 4.53$, $SD = .35$) than Fashion Industry Professionals ($M = 4.45$, $SD = .39$).

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Hypothesis 3 read as follows; Fashion Industry Professionals and Fashion Educators will report greater importance for experiential learning than the other four Industry Knowledge and Experience competency subsets of art/design knowledge, historical/cultural knowledge, merchandising knowledge, and production-related knowledge as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

The data tested was taken from responses to the 3 competency items in art/design knowledge, 4 competency items in historical/cultural knowledge, 7 competency items in merchandising knowledge, 5 competency items in production-related knowledge, and 8 competency items in experiential learning. There was a significant main effect of subsets of the Industry Knowledge and Experience category on both participants' importance ratings scores. As previously shown in Table 34, participants' experiential learning importance ratings scores ($M = 4.18$, $SD = .66$) were significantly higher than their art-design knowledge scores ($M = 4.10$, $SD = .78$), their historical-cultural knowledge scores ($M = 3.98$, $SD = .80$), their merchandising knowledge scores ($M = 4.04$, $SD = .73$) and their production-related knowledge scores ($M = 3.98$, $SD = .74$). Therefore, Hypothesis 3 was accepted.

Hypothesis 4 read as follows; (a) Fashion Industry Professionals and Fashion Educators will report greater importance for communication skills than the other four Interpersonal Skills competency subsets of attitude skills, character skills, teamwork skills, and leadership and management skills as necessary competencies for a fashion

design college or university graduate to acquire an entry-level design position in the fashion industry, and (b) Fashion industry professionals will report greater importance for teamwork skills than Fashion Educators as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

In investigating whether participants rated communication skills subset more important than the other 5 competency subsets in Interpersonal Skills category, there was a significant main effect of subsets on participants' survey importance ratings scores (Table 36). Participants' communication skills importance ratings scores were significantly lower (M = 4.29, SD = .48) than their attitude importance ratings scores (M = 4.60, SD = .37), their character skills importance ratings scores (M = 4.66, SD = .38), and their teamwork importance ratings scores (M = 4.65, SD = .42). Therefore, Hypothesis 4a was rejected. There was also a significant interaction of the 5 Interpersonal Skills competency subsets and the two participant groups on importance scores. However, teamwork skills importance ratings scores did not have any significance between the groups (Table 36). Fashion Industry Professionals' importance rating score was 4.64 and Fashion Educators rated 4.67. Therefore, Hypothesis 4b was rejected.

Hypothesis 5 read as follows; Fashion Industry Professionals will report greater importance for computer skills than Fashion Educators as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

The results indicated a significant difference of 8 Technical Skills subset importance ratings scores and group (Fashion Industry Professionals versus Fashion Educators). However, contrary to the Hypothesis, Fashion Educators had significantly higher computer skills importance ratings scores ($M = 3.99$, $SD = .71$) than Fashion Industry Professionals ($M = 3.48$, $SD = .77$). Therefore, Hypothesis 5 was rejected. Additionally, as previously seen in Table 39, overall computer skills importance ratings scores were significantly lower ($M = 3.48$) by the both participants combined than overall importance ratings of design skills ($M = 4.16$), drawing skills ($M = 4.13$), textile evaluation skills ($M = 3.97$), product development skills ($M = 3.94$), patternmaking techniques ($M = 3.94$), and sewing techniques ($M = 3.88$).

Discussion of Findings and Conclusions

The finding of this study corresponded with those reported by previous literature. Past studies had investigated whether there were differences in the ratings by U.S. apparel manufacturers and post-secondary apparel educators on competencies and attributes needed by future entry-level managers in apparel manufacturing (Aranda, 1995). Miller (1995) had determined the future hiring practices of manufacturers for professional positions within the apparel industry, while Neidermyer (2008) determined current and future skills required of apparel designers for entry level positions. Finally, Quevedo, (1998) and Wright, et al (2002) investigated which attributes were perceived to be important for the success of graduates from apparel design programs. The current study revealed important findings through examining and comparing perception

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differences between Fashion Industry Professionals and Fashion Educators regarding the necessary Technical Skills, Industry Knowledge and Experience, and Interpersonal Skills, a fashion design college or university graduate should have in order to acquire an entry-level design position in the fashion industry.

When Fashion Industry Professionals were asked to identify divisions of the design department in their company, without any surprise, the highest percentage noted a womens department (70.3%). However, participants reported smaller, yet relatively comparable divisions of mens (23.0%), childrens (24.2%), and accessories (28.5%). From the results on design divisions, it was apparent that womens wear is the major employer in the current job market for fashion graduates. However, one can also interpret design divisions as reason to extend subject areas within college course offerings to include such garment categories as mens, childrens, and accessories.

When Fashion Industry Professionals were asked if a college degree was required to be hired in their companies, almost one-half (46.8%) stated that a college degree was preferred whereas 40.4% stated that a college degree was required. When responding to questions asking participants to rate the importance of previous work experience and having a four year degree when hiring for an entry level position, the results for both questions were similar. On importance ratings ranging from 1 (not at all important) to 5 (extremely important), previous work experience had a mean of 3.56 and having a four year degree had a mean of 3.47. Although there was not a statistically significant difference between ratings for previous work experience and four year degree, mean

results indicated an importance of both work experience and education considered by Fashion Industry Professionals when hiring.

Similar conclusions were drawn from the Aranda (1995) study where both employers and educators suggested that future entry-level managers in apparel manufacturing must be generalists and a broad based education was recommended. Respondents from the Aranda study (1995) put less emphasis on formal education for future entry-level managers and more emphasis on on-the-job training and real life experiences. Aranda's findings support the current study findings indicating the higher importance ratings on work experience and the experiential learning competency subset. Furthermore, findings reaffirm the need of internships and industry linked curriculum development such as practical application and simulation, industry tours, industry design critique, and shadow days in fashion design programs.

When Fashion Industry Professionals in current study were asked if their company offers internships to college students, 58.3% reported that their company did offer internships. When asked to rate the importance of internship, 65.5% of Fashion Industry participants rated it 5 being *extremely important* with a mean of 4.49 and median of 5. When comparing the value placed on internships by Fashion Industry Professionals and study results showing 61.5 % of the Fashion Educators reported that the internship is required for graduation in their institutions, findings project an intense competition among college students even to get internships.

Miller (1995) conducted a study to determine the future hiring practices and required competencies for professional positions within the U.S. garment industry. Participants rated personal competencies (comparable with Interpersonal Skills in current study) significantly higher than apparel-related competencies (comparable with Technical Skills), and support competencies (comparable with Industry Knowledge and Experience) significantly higher than apparel-related competencies. As proven with Hypothesis 1, the current study shows similar results to Miller (1995) on the level of importance of competency categories reporting highest to lowest, respectively, as Interpersonal Skills, Industry Knowledge and Experience, and Technical Skills.

The previous study results from Wright et al. (2002) revealed apparel design industry respondents rated strong affective traits higher than academic respondents. The affective traits were comparable with Interpersonal Skills competency category in current study. In contrast to the result of Wright et al., the current study revealed that Fashion Educators rated Interpersonal Skills significantly higher than Fashion Industry Professionals resulting in the rejection of Hypothesis 2c. In addition, Fashion Educators had significantly higher overall survey importance ratings scores than Fashion Industry Professionals for every competency category. The study results also revealed a discrepancy between the opinion of Fashion Industry Professionals and Fashion Educators concerning the importance of each competency item needed for entry-level design positions in the fashion industry.

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Interpersonal Skills

According to a survey of corporate recruiters by the National Association of

Colleges and Employers in *Job Outlook 2009* (2008), interpersonal skills were the most

predominant attributes sought after by employers seeking new employees in any career

field. In previous literature on the fashion industry, research frequently found personal

traits such as attitude and character of college graduates were most important to be

successfully employed and promoted in a fashion career. Those personal traits were

categorized as Interpersonal Skills in this study. Findings on the Interpersonal Skills

category showed similarities to previous studies. Miller (1995) classified Interpersonal

Skills as personal traits. Among Miller's personal traits, the highest-rated were teamwork,

listening, motivation, problem solving, and leadership. Another study by Wright,

Cushman, & Nicholson (2002) investigated perceived importance of select attributes in

the success of college or university graduates from apparel design programs. Twelve

participants from the apparel design industry and 17 participants from academia rated 47

affective trait and cognitive skill attributes. Both groups strongly agreed on the

importance of a student's energy and passion for apparel design. Eight out of twelve

apparel design industry respondents rated very highly affective traits such as time-

management skills, the ability to work as part of a team, and a positive attitude (Wright et

al, 2002).

When comparing the results of personal competencies (Miller, 1995) and

affective traits (Wright et al, 2002) to the Interpersonal Skills category findings of the

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current study, results showed similar importance for the teamwork skills subset (n=4.65 on a scale of 1 to 5). Teamwork skills were rated the second highest only to character skills in the Interpersonal Skills category by Fashion Industry Professionals with highest rated traits as dependable, organized, flexible, team player, problem solver, and people oriented, respectively. Fashion Educators had reported similar ratings to Fashion Industry Professionals, with only slight differences in importance ratings. Teamwork skills were rated highest, with dependable as most important, followed by flexible, organized, team player, problem solver, and people oriented.

Character skills were rated second highest by Fashion Educators with responsible as most important, followed by reliable, strong work ethic, honest, committed, ethical, creative, perseverant, intelligent, logical, and loyal. Dissimilarly, Fashion Industry Professionals rated the character skills subset highest with survey items including responsible, reliable, strong work ethic, honest, committed, ethical, creative, perseverant, intelligent, logical, and loyal, respectively from highest to lowest. Among five subsets in Interpersonal Skills category, Fashion Educators rated four competency subsets higher overall than Fashion Industry Professionals. Only the competency subset of character skills was rated higher by Fashion Industry Professionals than Fashion Educators in Interpersonal Skills category, indicating the stress industry places on hiring college graduates of good character.

Both Fashion Industry Professionals and Fashion Educators rated leadership and management skills the lowest of the Interpersonal Skills category. Among the leadership

and management skills, time manager was rated higher than other competency items such as decision maker, initiator, leader, and delegator. Because the study focus was on entry-level positions, findings were not surprising that lesser importance was reported on the leadership and management skills subset by both groups. In summary, Table 43 illustrates the top 15 Interpersonal Skills competencies rated by each participant group of Fashion Industry Professionals and Fashion Educators.

As found in previous studies (Aranda, 1995; Miller, 1995; Wright et al, 2002), the current study reaffirmed the importance of Interpersonal Skills as the highest rated category. Interpersonal Skills are critical because designers are often members of a design team (Tate, 2004). To improve students' interpersonal skills and build stronger character, educators are constantly developing and revising their course content to incorporate projects with such purpose.

As reviewed, Bye (2004) developed a course project to improve students' group communication skills. Through role playing, each student was assigned specific responsibilities in a product development environment for a major mass-market retailer. Sanders-Okine (2005) utilized the peer-review process using industry panels to jury at multiple stages in the students' projects aiding in character development. Because the importance of Interpersonal Skills was reaffirmed in the current study, educators need to develop and provide more ways to encourage students to interact with each other and professionals during their academic program.

Table 43

Ranking of Interpersonal Skills Competencies by Participant Group

Overall Rank	Competency	Overall Mean	Professionals Rank	Mean	Educator Rank	Mean
1	Responsible	4.88	1	4.88	1	4.88
2	Strong work ethic	4.86	2	4.87	4	4.86
3	Reliable	4.86	3	4.87	3	4.86
4	Professional	4.81	9	4.76	2	4.87
5	Dependable	4.81	8	4.77	5	4.84
6	Positive attitude	4.81	4	4.82	6	4.79
7	Honest	4.77	5	4.81	9	4.73
8	Committed	4.75	7	4.78	13	4.72
9	Ethical	4.75	6	4.78	15	4.71
10	Organized	4.72	11	4.71	11	4.73
11	Visual	4.72	14	4.69	8	4.75
12	Enthusiastic	4.71	13	4.69	10	4.73
13	Flexible	4.71	12	4.69	12	4.73
14	Team player	4.70	15	4.68	14	4.72
15	Oral	4.70	18	4.61	7	4.78

Industry Knowledge and Experience

The globalization of the industry has relied upon the advancement of technology, thus transforming the industry in areas of communication with domestic and offshore vendors, apparel production, reordering systems, product design, and consumer shopping (Frings, 2008). In order to keep pace with a changing industry environment and create marketable products, apparel design students today must be prepared for careers that require varied skill sets, knowledge sets and experience to be successful. Besides the technical skills involved in garment production, the designer must understand supporting concepts of design, production, quality, art and color (Tate, 2004). Additionally, as Vogt (2007) pointed out, designers need to ensure that garments can be produced efficiently and cost-effectively by understanding the manufacturing side of the industry. Thus, the current study surveyed the perceived importance of Industry Knowledge and Experience competencies.

Despite the continuing globalization of industries with increases in product sourcing and production out-sourcing (Burns & Bryant, 2007), the current study result revealed that production-related knowledge was the lowest in overall importance ratings by both participant groups. Among the production-related knowledge category, textile properties (fibers, yarns, finishes) and figure/size analysis (size specification) were rated significantly higher in importance than other competencies such as quality control, Quick Response Technology (QRT), and domestic and international sourcing. Additionally, Designers for companies with heavy emphasis on original and fashion-forward apparel

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work closely with line content and merchandising decisions, giving a great deal of power, status, and influence to the designers (Glock & Kunz, 2005). Therefore, it was necessary for the current study to investigate how important merchandising knowledge was for the fashion design entry-level position.

In Quevedo's 1998 study, New York City Metropolitan area employers' were asked to indicate the degree of importance they associated with 64 learning concepts. The learning concepts were rated as *not important, of some importance, important, or essential*. Quevedo revealed that apparel terminology and internship experience in designing apparel were considered *essential*. In the current study result, among Industry Knowledge and Experience subsets, overall ratings of merchandising knowledge were reported of median importance. However, within the subset, apparel terminology was rated of highest importance among competency items which was in agreement with Quevedo's study. Trend forecasting, knowledge of major market areas, budget/product cost, market research, and marketing followed in importance from high to low. Advertising was rated as the least important among all competencies in the Industry Knowledge and Experience category.

Developing awareness and industry knowledge within the fashion industry begins with education, research, and experience as a base. Industry knowledge may also be realized through on-the-job experience obtained by students while in college (Southward & Burgess, 2003). For university students, industry knowledge is most often taught by university faculty through lecture and activity in a classroom environment, and

discovered by students through course projects, case studies, research, and practicum (Wesley & Bickle, 2005). More universities require completion of an internship, cooperative education or a work-study program to supplement experiential education to assist students with their understanding of fashion and the industry. When Southward and Burgess (2003) studied the effectiveness of internships, the benefits included better preparation of students for business, realistic learning opportunities, and connections or networking opportunities for permanent employment. A previous study by Miller (1995) also indicated internships as one of the highest-rated apparel-related competencies.

The result of the current study supported past literature stating the critical role of experiential learning in the fashion design career. Experiential learning competencies included design internships, shadow days, industry design critique, industry tours, practical application and simulation, part time job-design or related, part time job-retail or merchandising or related, and general work experience. In agreement with previous studies (Miller, 1995; Southward & Burgess, 2003), the experiential learning competency subset reported the highest overall importance ratings of all 5 subsets in the Knowledge and Experience competency category. Within the experiential learning competency subset, design internship had the highest importance ratings. In overall ratings by both participant groups, the design internship was most important.

However, the ratings within the Industry Knowledge and Experience subsets between Fashion Industry Professionals and Fashion Educators showed some interesting differences. As both groups were in agreement rating design internship as the highest in

importance, the rest of competencies were rated differently by group. Fashion Industry Professionals rated part time job-design or related as second in importance, and general work experience as third in importance. On the other hand, Fashion Educators rated practical application and simulation as the second and industry tours as the third most important competency. The results seems to make clear perception differences between groups by indicating that Fashion Industry Professionals place more importance on real world experiences and Fashion Educators place more importance on classroom experiences. Interestingly the part time job-design or related and general work experience were the only competency items that were rated higher by Fashion Industry professionals than Fashion Educators in Industry Knowledge and Experience category.

Finally, despite emphasis on historical/cultural knowledge found in literature, study findings indicate a different focus. Knowledge elements emphasized by Kemp-Gatterson and Stewart (2009) were historical/cultural knowledge. Because the fashion designers' work is creative in nature, an understanding of the culture, economics, lifestyle, and global mobility that influences designers in their creative processes is important. Kemp-Gatterson and Stewart (2009) also listed history, economy, society, culture, and politics as important for fashion designers' inspiration sources as well as the marketing importance of understanding consumer needs. However, the study results showed historical/cultural knowledge was reported least important by Fashion Industry Professionals. A summary of the Industry Knowledge and Experience category results is presented in Table 44, which illustrates the top 15 competencies.

Table 44

Ranking of Industry Knowledge and Experience Competencies by Participant

Group

Overall Rank	Competency	Overall Mean	Professionals Rank	Mean	Educator Rank	Mean
1	Design internships	4.58	1	4.49	3	4.66
2	Apparel terminology	4.57	2	4.46	1	4.67
3	Design principles and elements	4.48	4	4.28	2	4.67
4	Textile properties; fibers, yarns, finishes	4.42	3	4.32	4	4.52
5	Trend forecasting	4.30	7	4.14	5	4.46
6	Practical application and simulation	4.29	8	4.13	6	4.44
7	Part time job-design or related	4.26	5	4.28	12	4.24
8	Figure/size analysis (size specification)	4.20	9	4.13	10	4.27
9	Industry tours	4.19	10	4.08	7	4.30
10	General work experience	4.17	6	4.19	17	4.15
11	Knowledge of major market areas	4.15	11	4.05	11	4.25
12	Consumer behavior	4.12	12	3.96	8	4.28
13	Color theory	4.12	13	3.96	9	4.28
14	Budget/product cost	4.08	16	3.91	13	4.24
15	Industry design critique	4.06	15	3.92	14	4.19

Technical Skills

Tate (2004) indicated that designers' duties may vary greatly depending on the company. They may only design and supervise the workroom staff in some companies. In other cases, they may be involved in every aspect of production, from creating the original design to supervising the final alterations on the finished garment (Tate, 2004). Therefore, the fashion design profession requires a variety of skills and abilities to enable designers to get involved in every stage of production. In order to determine the perceived importance in each competency, the Technical Skills category in the current study was divided into patternmaking techniques, sewing techniques, drawing techniques, design skills, computer skills, textile evaluation skills, product development skills, and promotional skills. As previously reviewed, Quevedo (1998) examined the degree of importance in 64 learning concepts for the fashion design career. Results of his study revealed color concepts as the most essential skill/concept identified by employers. Dissimilarly, color selection/matching was fifth in overall importance ratings in the Technical Skills category of the current study. In Quevedo's study, clothing construction techniques were rated second highest followed by garment fitting and alterations.

Knowledge of various sewing and construction techniques is required to understand the production process which enables the designer to ultimately create an appealing garment that will be suitable and affordable to a targeted population (Tate, 2004). Similar to Quevedo's (1998) findings revealing clothing construction as one of the most essential learning concepts, overall ratings of basic garment construction in

current study was reported of highest importance in the Technical Skills category. Competencies of lesser importance within the sewing techniques subset were machine sewing, hand sewing, tailoring, and couture/custom sewing in the order of importance. Differences between groups revealed higher importance ratings on hand sewing and tailoring competencies by Fashion Industry Professionals than Fashion Educators. The results may indicate that the Fashion Industry Professionals valued understanding of various construction techniques which enables the designer to ultimately create more marketable products.

In addition to construction techniques, the designer must be knowledgeable about fabrics and trimmings and be familiar with the patternmaking, fitting, draping, sewing, costing, and the production process for the designer to supervise the details of completing each garment (Kemp-Gatterson & Stewart, 2009). Both flat pattern and draping are patternmaking techniques employed by designers in creating the garment (Burns & Bryant, 2007). In the current study, the patternmaking techniques subset was rated fourth in importance among eight Technical Skills subsets. However, overall importance ratings of flat patternmaking placed it tenth among a total of 50 Technical Skills competency items. And in agreement with Quevedo (1995), fitting/alteration was ranked eleventh. When comparing participant groups, Fashion Educators rated flat patternmaking significantly higher ($M = 4.55$) than Fashion Industry Professionals ($M = 4.12$). Fashion Educators may believe in the importance of understanding patternmaking as a required foundation skill in designing garments. Although Fashion Industry Professionals'

importance ratings for flat patternmaking was still high, they may see this competency required more for patternmakers and not as much for fashion designers.

As Keiser and Garner (2008) stated, the designer communicates his/her ideas by drawing a sketch. The designer's sketching skills and artistic abilities enable visual communication of the proportion, silhouette, and details of the design (Keiser & Garner, 2008). Quevedo study results reported that more than half of the employers considered portfolio development *important* for a successful fashion career (1998). In the current study, participants were asked to rate importance of fashion sketching, flat/technical drawing, colored illustration, portfolio organization and development, and line sheet development within the drawing skills subset. Fashion Industry Professionals rated flat/technical drawing higher than portfolio organization and development, whereas Fashion Educators rated the two competencies with the same importance rating. The next most important drawing skill competencies were line sheet development, fashion sketching and colored illustration in order of high to low importance by both groups.

Within the Technical Skills category, of the eight skills subsets, the design skills subset was rated of highest overall importance by total participants. Among the design skills competencies, fabric selection was highest importance by both Fashion Industry Professionals and Fashion Educators. This result supports the previous research findings of Wright, Cushman, & Nicholson (2002) indicating almost half of 17 academic respondents rated knowledge of textiles and fabric characteristics very highly. Following fabric selection in current study, the apparel design competency was rated second highest

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in importance. As noted in Quevedo's study as a most essential skill, color selection/matching in current study was rated third in importance among seven competencies in the design skills subset, yet fifth overall in the 50 competencies in the Technical Skills category. In summary of the Technical Skills category results, Table 45 illustrates the top 15 competencies rated by each participant group.

In design, the computer is a tool that speeds up the information-gathering process, aids with sketches and images of garments, makes patterns, and grades them efficiently, and streamlines the manufacturing process (Glock & Kunz, 2005). Therefore, today's designers must obtain sufficient and updated computer skills (Tate, 2004). Brannon and Xiao (2003) noted the importance of computer experience and its relevance and necessity in the entry-level design position. Specifically, the researchers note Adobe Photoshop requirements in many advertisements for design jobs (Brannon & Xiao, 2003). Miller (1995) also reported the highest-rated apparel-related competency was computer applications. When Aranda (1995) reported different importance ratings on computer skills compared to the earlier similar study by Adamson (1989), the differences were explained by the growth in technology in the highly automated apparel production field noted between the time the Adamson study and the Aranda study (1995). From these earlier study results, Hypothesis 5 was projected, as it reads Fashion Industry Professionals will report greater importance for computer skills than Fashion Educators as necessary competencies for a fashion design college or university graduate to acquire an entry-level design position in the fashion industry.

Table 45

Ranking of Technical Skills Competencies by Participant Group

Overall Rank	Competency	Overall Mean	Professionals Rank	Mean	Educator Rank	Mean
1	Basic Garment Construction	4.70	1	4.69	2	4.71
2	Fabric Selection	4.66	2	4.58	1	4.74
3	Apparel Design	4.62	3	4.56	4	4.68
4	Fiber and Fabric Selection for Garment Performance	4.55	5	4.40	3	4.69
5	Color Selection/Matching	4.49	4	4.45	7	4.53
6	Trend Sourcing/Interpretation (Style Selection)	4.47	6	4.39	6	4.54
7	Flat/Technical Drawing	4.42	7	4.34	9	4.49
8	Computer Graphics Development (i.e. PhotoShop, Illustrator, NED Graphics)	4.40	9	4.27	8	4.52
9	Portfolio Organization and Development	4.36	10	4.23	10	4.49
10	Flat Patternmaking	4.34	13	4.12	5	4.55
11	Fitting/Alterations	4.29	8	4.29	17	4.29
12	Machine Sewing	4.27	12	4.15	11	4.39
13	Line Sheet Development	4.24	11	4.17	14	4.30
14	Word Processing	4.18	15	4.05	15	4.30
15	Fabric Construction and Performance Assessment	4.17	14	4.08	19	4.26

The background for this projection was that computer applications in the fashion industry have continued to grow as computer technology has grown and professionals would require greater skill bases from new employees. However, the result of the current study was contradictory to the Hypothesis. The results revealed that Fashion Educators rated computer skills much higher than Fashion Industry Professionals. Furthermore, both participant groups' overall importance ratings score revealed computer skills as one of the least important skills in comparison to the 8 other Technical Skills competency subsets. When looking into the individual competency items in the computer skills subset, computer graphics including Photoshop, Illustrator, and NED Graphics were rated the highest by both groups. The second most important competency was word processing. This result might indicate that the responsibility of entry-level employees includes clerical duties such as keeping records of fabric and trim purchases, style numbers and details of each garment, as well as typical office duties such as making appointments for designers, corresponding by telephone, fax, or telex overseas, and other secretarial duties (Tate, 2004).

Implications of the Study

The focus of this study was to explore the design career and its Technical Skills, Industry Knowledge and Experience, and Interpersonal Skills competencies within the fashion industry. Based on the overall mean scores of the competencies found in this study, the following implications are noted for curriculum in college or university fashion

programs to ensure that college or university graduates have the skill sets and knowledge necessary for entry-level design positions in the fashion industry.

Findings from this study indicate that there were significant differences in the perception between Fashion Industry Professionals and Fashion Educators regarding the necessary Technical Skills, Industry Knowledge and Experience, and Interpersonal Skills a fashion design college or university graduate should have in order to acquire an entry-level design position in the fashion industry. Differences indicate that fashion design educators can reexamine the current curricular to incorporate more of the competencies identified as important by industry members. Similarities in the findings from both Fashion Industry Professionals and Fashion Educators revealed that the most important competencies were Interpersonal Skills. Although most educators attempt to build well-rounded skill sets and help to develop good character, needed Interpersonal Skills cannot just be learned from textbooks and examinations. Therefore, fashion educators need to constantly seek new ways to bring projects and activities into the classroom to incorporate students' interaction and build interpersonal skills.

In order to incorporate the highest rated importance in Interpersonal Skills, educators need to develop group oriented projects and assignments that encourage students to be more responsible, reliable, professional, dependable, committed, and organized. As Bye (2004) developed a course project to improve students' group communication skills through role playing, similarly, simulations involving students as members of a design team may be very effective on developing those interpersonal skills.

Careful planning and implementation of simulations will develop students' skills in communication and a broad range of other interpersonal skills. As suggested in the previous literature, many educators also invite professional designers to critique student work. This may be the optimum way for students to be exposed to the design team critique. If industry professionals are not available, inviting other classes as guests in their presentation may motivate students to be more professional and organized.

One of the highest importance ratings was reported for experiential learning. When Fashion Educators were surveyed, only 110 Fashion Educators (61.5%) reported that internship was required for graduation in their institutions. However, Fashion Industry Professionals rated the design internship as the most important competency within the experiential learning category. Based on these finding, academic programs may want to re-think internship requirements for completing the design degree. A variety of Experiential learning strategies can be used in academic environments including direct work experience through mentorships, field trips where students interface with apparel designers, projects and activities utilizing team effort, group presentations, and various out-of-class experiences can be promoted including encouraging students to attend and become student members of apparel trade organizations, meetings and conferences; and inviting professionals to critiques student projects.

Probably the most challenging curriculum development issue for fashion design educators in 4-year institutions is the limited credit hours available for the major courses. When participants were surveyed regarding select courses offered in their institution, the

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following courses were reported by at least 50% of participants; apparel construction techniques, textiles, flat pattern techniques, computer aided design, draping techniques, fashion sketching, fashion portfolio development, advanced construction techniques, CAD patternmaking, and advanced patternmaking. However, these courses were selected by Fashion Educators from both 2-year and 4-year institutions. Considering that a large number of courses at 4-year institutions are dedicated to general education and departmental core courses, educators at 4-year institutions need to review their programs to evaluate the need for the courses stated above.

Although educators may argue that 2-year and 4-year degrees may have different job markets, the study results indicated that the Fashion Industry Professionals had split opinions on college degree requirement for an entry-level design position. Among 156 participants who answered, 63 (40.4%) selected "college degree required", 73 (46%) selected "college degree preferred", and only 20 (12.8%) selected "unsure". Furthermore, Fashion Industry Professionals also assigned slightly greater importance to previous work experience ($M = 3.56$) when hiring entry-level position than 4-year degree ($M = 3.47$). This may also indicate that employers currently put more emphasis on vocational training, on the job training, or real life experiences or are looking for students with greater balance than just classroom education. Blending classroom teaching with internship and work experience may provide the strongest caliber of potential employee for the fashion industry.

Over three quarters of the Fashion Educators (77.7%) reported offering design as a major in their programs and universities. Within academic programs, the majority of the Fashion Educators (87%) indicated that their institution offered apparel construction techniques as a course. Considering these statistics combined with study results revealing the most highly rated Technical Skill was the basic garment construction competency by Fashion Industry Professionals and Fashion Educators, faculty should continue to stress the importance of basic sewing and construction skills in the classroom. Additionally, the techniques taught in the apparel construction classes were not surveyed in current study. Detailed techniques and concepts chosen by educators in apparel construction classes might be interesting, if not essential to research further.

Fashion Educators reported overall Technical Skills importance ratings significantly higher than Fashion Industry Professionals. Additionally, five of the eight competency subsets were statistically significant, with higher Fashion Educator importance ratings than Fashion Industry Professional importance ratings. However, there were a few Technical Skills competencies that were rated higher importance by Fashion Industry Professionals, which Fashion Educators might factor into future curriculum decisions. Fashion Industry Professionals rated surface design techniques and textile design techniques higher importance than Fashion Educators within the design skills subset. Additionally, within the sewing techniques subset, hand sewing and tailoring were rated higher importance by Fashion Industry Professionals than Fashion Educators. Hand sewing and tailoring techniques are the cornerstone on which many

apparel construction skills are built. Fashion Educators may be trying to distance themselves from a skill that is seen as a very traditional or dated concept, however it has clear importance in the industry. Also important to note is the fact that only 39.5% of the Fashion Educators identified a tailoring techniques design course as a course offered at their current institutions. This may reflect the lower importance rating assigned by Fashion Educators for the tailoring competency. As stated previously, this result may indicate that the Fashion Industry Professionals value the understanding of various construction techniques which enable the designer to ultimately create more marketable products.

Although computer skills were not rated higher by Fashion Industry Professionals than Fashion Educators as the research hypothesis projected, it was still rated as important with a mean score of 3.48 out of 5.00. With a great deal of evidence in the literature, computer skills will become more essential in fashion industry. Fashion Educators need to update their curriculum to meet the fast changing industry. Computer graphics development (i.e. PhotoShop, Illustrator, NED Graphics) and word processing were the highest ranked competencies by Fashion Industry Professionals. Compare to the courses offered by Fashion Educators' institution, it was apparent that most of the design majors ($n = 167$) offered computer graphics development courses ($n = 165$). However, the study results did not clarify the course contents of those courses. Fashion Educators could use the study findings regarding computer skills to modify course content to

include skill competencies such as spreadsheets, and timeline management, and costing in their CAD classes.

Recommendations for Further Research

This study focused on identifying the differences and similarities in perceptions regarding the level of importance of specific Technical Skills, Industry Knowledge and Experience, and Interpersonal Skills needed for entry-level design positions in the fashion industry between Fashion Educator and Fashion Industry professional groups. Since findings revealed higher overall ratings on almost every competency category by Fashion Educators compared to Fashion Industry Professionals, further research could be conducted to investigate this difference and propose remedies for aligning perception differences. Additional research is recommended in the following areas:

1. The current study asked opinions of educators without the 2- or 4-year program distinction. Therefore, investigation is needed to compare curriculum contents of 2-year fashion design program and 4-year fashion design program. Additionally, research could be conducted to compare differences in industry expectations of graduates of the two types of programs.

2. Further investigation should be undertaken to explore the curriculum contents of the fashion design courses. By accessing competencies currentiy used for specific design courses such as clothing construction, CAD apparel design, and other apparel design courses, more credible and industry specific curriculum can be developed.

3. Replication of the study should be made as the industry environment changes. At five to seven year intervals, this study should be replicated in order to reflect fast changing fashion industry needs.

4. Further investigation should be undertaken to explore specified areas within the design field such as apparel design, accessory design, technical design, or textile design.

Summary

The findings of this study identified the importance of competencies relating to fashion design from the view of both Fashion Educators and Fashion Industry Professionals. The purpose of the study was to examine and compare perception differences between Fashion Educators and Fashion Industry Professionals regarding the necessary Technical Skills, Industry Knowledge and Experience, and Interpersonal Skills, a fashion design college or university graduate should have in order to acquire an entry-level design position in the fashion industry. The focus of this study was to explore the fashion design career within the fashion industry.

In the current study, Technical Skills, Industry Knowledge and Experience, and Interpersonal Skills were rated by two participant groups of Fashion Industry Professionals and Fashion Educators. Differences in perceived importance by Fashion Industry Professionals and Fashion Educators were found in the vast majority (110 of 112) of the competency important ratings. Additionally, statistically significant differences were reported in 10 of the 18 competency subsets of the Technical Skills,

Industry Knowledge and Experience, and Interpersonal Skills categories. Overall, Interpersonal Skills competencies, as a group, were rated the most important competency category by both groups. Also, Fashion Educators had significantly higher importance ratings than Fashion Industry Professionals in all three competency categories. In the Technical Skills category, Fashion Industry Professionals reported greatest importance for the design skills, whereas Fashion Educators reported greatest importance for drawing skills. In the Industry Knowledge and Experience category, greatest importance was reported for experiential learning by Fashion Industry Professionals, whereas art/design knowledge was reported of greatest importance by Fashion Educators. In the Interpersonal Skills category, greatest importance was reported for character skills by Fashion Industry Professionals, whereas Fashion Educators reported greatest importance for teamwork skills. Fashion Educators reported higher importance for all category subsets ($n = 18$) except one. Within each competency category, the only competency subset rated higher by Fashion Industry Professionals was character skills within the Interpersonal Skills category.

This study provides helpful information regarding the necessary skills for an entry-level design position in the fashion industry. Findings revealed differences in the perceptions of industry members and educators regarding what important competencies were and the levels of importance assigned them. This study provides a summary of these differences so that changes can be made to align important competencies. It is the goal and responsibility of fashion design programs and educators to produce graduates with

the skills, competencies and attributes to find employment and to be viable in their career. Therefore, information obtained by this study can be used by Fashion Educators in developing or modifying apparel design curriculum to stay current with the industry and prepare students that meet industry skill demands.

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APPENDIX A

Email Cover Letter for Fashion Industry Professionals

Dear Respected Industry Professional:

The success of your firm results in your unique leadership role in the fashion industry. Firms such as yours have an ongoing need for competent employees with appropriate education and skills.

A nationwide study to address the issues of skills, knowledge, and attributes needed for entry-level design positions in the fashion industry is being conducted through Programs in Fashion and Textiles at Texas Woman's University. You are one of the representatives of U.S. fashion companies being asked to give their opinion about these issues. Your viewpoint is essential in helping to establish educational programs which are responsive to your needs as employers. Your answers to the questionnaire ultimately may be helpful in shaping curriculum and giving direction for education.

The questionnaire should take only about 10-15 minutes to complete. You may be assured of complete confidentiality. Your participation in this survey is voluntary and you may withdraw at any time. The submission of your completed questionnaire constitutes your informed consent to act as a participant in this research.

In order to access and complete the questionnaire, click on:
Careers in Fashion Design: Industry Professional Survey

If you are unable to open this survey, try copying the entire URL into your browser.
https://www.psychdata.com/s.asp?SID=130229

At the completion of the survey you will have the opportunity to participate in an electronic drawing for one of three gift certificates to Barnes & Noble or one of three gift certificates to Target to thank you for your participation in the survey. To enter, you will be asked to provide your e-mail address. This drawing is separate from the survey results so your email cannot be linked to your answers. The researcher will randomly select a winner from the email list generated. The winners of the electronic drawing will be notified by email and will receive their gift card electronically.

If you have any questions, I encourage you to contact me via email at EYang@twu.edu or by phone at 919-760-8729. You may also contact my advisor via email at SDragoo@twu.edu or by phone at 940-898-2664.

Thank you very much for your time and assistance in this endeavor.

Sincerely,

Eunyoung Yang, M.A., Doctoral Student and Principal Researcher
Sheri Dragoo, Ph.D., Research Advisor
Fashion & Textiles, Texas Woman's University

APPENDIX B

Email Cover Letter for Fashion Educators

Dear Distinguished Fashion Educator:

A nationwide study to address the issues of skills, knowledge, and attributes needed for entry-level design positions in fashion industry is being conducted through Programs in Fashion and Textiles at Texas Woman's University. You are one of the fashion educators in the U.S. being asked to give their opinion about these issues. Your viewpoint is essential in helping establish programs which are most responsive to the needs of the fashion industry. Your answers to the questionnaire ultimately may be helpful in shaping curriculum and giving direction for education.

The questionnaire should take only about 10-15 minutes to complete. You may be assured of complete confidentiality. Your participation in this survey is voluntary and you may withdraw at any time. The submission of your completed questionnaire constitutes your informed consent to act as a participant in this research.

In order to access and complete the questionnaire, click on:
Careers in Fashion Design: Fashion Educator Survey

If you are unable to open this survey, try copying the entire URL into your browser.
https://www.psychdata.com/s.asp?SID=130234

At the completion of the survey you will have the opportunity to participate in an electronic drawing for one of three gift certificates to Barnes & Noble or one of three gift certificates to Target to thank you for your participation in the survey. To enter, you will be asked to provide your e-mail address. This drawing is separate from the survey results so your email cannot be linked to your answers. The researcher will randomly select a winner from the email list generated. The winners of the electronic drawing will be notified by email and will receive their gift card electronically.

If you have any questions, I encourage you to contact me via email at EYang@twu.edu or by phone at 919-760-8729. You may also contact my advisor via email at SDragoo@twu.edu or by phone at 940-898-2664.

Thank you very much for your time and assistance in this endeavor.

Sincerely,

Eunyoung Yang, M.A., Doctoral Student and Principal Researcher
Sheri Dragoo, Ph.D., Research Advisor
Fashion & Textiles, Texas Woman's University

APPENDIX C

Industry Professional Follow-up Email Reminders

Industry Professional 1st Follow-up Email Reminder

Dear Respected Industry Professional:

Two weeks ago, you received an email containing a URL link to participate in an electronic survey entitled, Careers in Fashion Design Survey, seeking opinions about preparation needed by future entry-level fashion design employees.

If you have already completed the electronic survey, *THANK YOU*! If you have not completed the electronic survey, please take a moment to do so within the *next seven days*. Participation is voluntary.

To participate now, please "CLICK" on the URL address below. Upon clicking on the URL address indicated below, you will be directed automatically to the electronic questionnaire and you can begin answering questions. The estimated time to complete the survey is approximately 10-15 minutes.

Careers in Fashion Design: Industry Professional Survey

If you are unable to open this survey, try copying the entire URL below into your browser.
https://www.psychdata.com/s.asp?SID=130229

Because this questionnaire was sent to a representative sample of fashion industry it is imperative that yours be included in the study if results are to accurately represent the opinions of the group. Your viewpoint is essential in helping establish educational programs which are responsive to your needs as employers. Your answers to the questionnaire may ultimately be helpful in shaping curriculum and direction for education.

If you have any questions, I encourage you to contact me via email: EYang@twu.edu or by phone 919-760-8729.

Sincerely,
Eunyoung Yang, M.A.
Doctoral Student and Principal Researcher
Fashion & Textiles, Texas Woman's University

Industry Professional 2nd Follow-up Email Reminder

Dear Respected Industry Professional:

A week ago, you received an email containing a URL link to participate in an electronic survey entitled, Careers in Fashion Design Survey, seeking opinions about preparation needed by future entry-level fashion design employees.

If you have already completed the electronic survey, *THANK YOU*! If you have not completed the electronic survey, please take a moment to do so within the *next seven days*. Participation is voluntary.

The final date for completing the electronic questionnaire is September 12, 2009.

To participate now, please "CLICK" on the URL address below. Upon clicking on the URL address indicated below, you will be directed automatically to the electronic questionnaire and you can begin answering questions. The estimated time to complete the survey is approximately 10-15 minutes.

Careers in Fashion Design: Industry Professional Survey

If you are unable to open this survey, try copying the entire URL below into your browser.
https://www.psychdata.com/s.asp?SID=130229

Because this questionnaire was sent to a representative sample of fashion industry members, it is imperative that yours be included in the study if results are to accurately represent the opinions of the group. Your viewpoint is essential in helping establish educational programs which are responsive to your needs as employers. Your answers to the questionnaire may ultimately be helpful in shaping curriculum and providing direction for education.

If you have any questions, I encourage you to contact me via email: EYang@twu.edu or by phone 919-760-8729.

Sincerely,
Eunyoung Yang, M.A.
Doctoral Student and Principal Researcher
Fashion & Textiles, Texas Woman's University

APPENDIX D

Fashion Educator Follow-up Email Reminders

Fashion Educator 1st Follow-up Email Reminder

Dear Distinguished Fashion Educator:

Two weeks ago, you received an email containing a URL link to participate in an electronic survey entitled, Careers in Fashion Design Survey, seeking opinions about preparation needed by future entry-level fashion design employees.

If you have already completed the electronic survey, *THANK YOU*! If you have not completed the electronic survey, please take a moment to do so within the *next seven days*. Participation is voluntary.

To participate now, please "CLICK" on the URL address below. Upon clicking on the URL address indicated below, you will be directed automatically to the electronic questionnaire and you can begin answering questions. The estimated time to complete the survey is approximately 10-15 minutes.

Careers in Fashion Design: Fashion Educator Survey

If you are unable to open this survey, try copying the entire URL into your browser.
https://www.psychdata.com/s.asp?SID=130234

Because this questionnaire was sent to a small, but representative, sample of fashion educators, it is imperative that your response be included in the study if results are to accurately represent the opinions of the group. Your viewpoint is essential in helping establish programs which are most responsive to the needs of the fashion industry. Your answers to the enclosed questionnaire may ultimately be helpful in shaping curriculum and providing direction for education.

If you have any questions, I encourage you to contact me via email: EYang@twu.edu or by phone 919-760-8729.

Sincerely,
Eunyoung Yang, M.A.
Doctoral Student and Principal Researcher
Fashion & Textiles, Texas Woman's University

Fashion Educator 2nd Follow-up Email Reminder

Dear Distinguished Fashion Educator:

A week ago, you received an email containing a URL link to participate in an electronic survey entitled, Careers in Fashion Design Survey, seeking opinions about preparation needed by future entry-level fashion design employees.

If you have already completed the electronic survey, *THANK YOU*! If you have not completed the electronic survey, please take a moment to do so within the *next seven days*. Participation is voluntary.

The final date for completing the electronic questionnaire is October 3, 2009.

To participate now, please "CLICK" on the URL address below. Upon clicking on the URL address indicated below, you will be directed automatically to the electronic questionnaire and you can begin answering questions. The estimated time to complete the survey is approximately 10-15 minutes.

Careers in Fashion Design: Fashion Educator Survey

If you are unable to open this survey, try copying the entire URL into your browser.
https://www.psychdata.com/s.asp?SID=130234

Because this questionnaire was sent to a small, but representative, sample of fashion educators, it is imperative that your response be included in the study if results are to accurately represent the opinions of the group. Your viewpoint is essential in helping establish programs which are most responsive to the needs of the fashion industry. Your answers to the enclosed questionnaire may ultimately be helpful in shaping curriculum and providing direction for education.

If you have any questions, I encourage you to contact me via email: EYang@twu.edu or by phone 919-760-8729.

Sincerely,
Eunyoung Yang, M.A.
Doctoral Student and Principal Researcher
Fashion & Textiles, Texas Woman's University

APPENDIX E

Career Competencies in Fashion Design Survey

Fashion Industry Professional Opening Page

CAREER COMPETENCIES IN FASHION DESIGN:
INDUSTRY PROFESSIONAL SURVEY

The purpose of this survey is to better understand the necessary job skills for college graduates who are seeking entry-level positions in the fashion design industry.

All answers will be strictly anonymous. Your participation in this survey is voluntary and you may withdraw at any time. The submission of your completed questionnaire constitutes your informed consent to act as a participant in this research.

Please answer all of the questions.
The survey has four sections and will take only about 15 minutes. Your response is important!

THANK YOU FOR YOUR PARTICIPATION!

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COMPETENCY SECTIONS followed,

APPENDIX F

Career Competencies in Fashion Design Survey

Fashion Educator Opening Page

CAREER COMPETENCIES IN FASHION DESIGN: FASHION EDUCATOR SURVEY

The purpose of this survey is to better understand necessary job skills for college graduates who are seeking entry-level positions in the fashion design industry.

This survey is designed to obtain opinions of fashion educators who teach in fashion design or related programs.

All answers will be strictly anonymous. Your participation in this survey is voluntary and you may withdraw at any time. The submission of your completed questionnaire constitutes your informed consent to act as a participant in this research.

Please answer all of the questions.
The survey has four sections and will take only about 15 minutes. Your response is important!

THANK YOU FOR YOUR PARTICIPATION!

* This survey is designed to obtain opinions of fashion educator who is teaching fashion design courses.
  Do you teach any fashion design major course?

  ☐ Yes ☐ No

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COMPETENCY SECTIONS followed,

APPENDIX G

Career Competencies in Fashion Design Survey

Competency Sections

TECHNICAL SKILLS

Please rate the importance of each TECHNICAL SKILL item for an entry-level position in fashion design using the following scale.

1. Patternmaking Techniques

Flat patternmaking							
	Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Draping							
	Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Pattern drafting							
	Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Pattern grading							
	Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Marker making							
	Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Fitting/alterations							
	Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

2. Sewing Techniques

Basic garment construction						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Machine sewing						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Hand sewing						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Tailoring						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Couture/custom sewing						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

3. Drawing Skills

Fashion sketching						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Flat/technical drawing						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Colored illustration						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Portfolio organization and development						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Line sheet development						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

4. Design Skills

Apparel design							
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Color selection/matching							
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Trend sourcing/interpretation (style selection)							
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Fabric selection							
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Surface design							
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Textile design							
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Design for a specialty market (i.e. bridal)							
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

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5. Computer Skills

CAD patternmaking							
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

CAD grading							
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

CAD marker making							
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Computer-aided design including 3D draping							
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

CAD cutting							
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Costing							
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

EDI/electronic data interchange and PDM/product data management							
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Computer graphics development (i.e. PhotoShop, Illustrator, NED Graphics)							
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Spreadsheet and timeline management							
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Word processing							
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

6. Textile Evaluation Skills

Fiber and fabric selection for garment performance

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

Textile testing (i.e. stretching, color fastness)

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

Laundry/dry cleaning procedures

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

Fabric construction and performance assessment

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

7. Product Development Skills

Production costing

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

Merchandising

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

Contractor and vendor sourcing

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

Quality control

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

Process and workflow charts

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

Specification development

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

8. Promotional Skills

Fashion show production						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Visual merchandising (display)						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Styling/coordination						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Internet and Web presentations						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Branding						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Positioning						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Advertising						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

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INDUSTRY KNOWLEDGE & EXPERIENCE

Please rate the importance of each INDUSTRY KNOWLEDGE & EXPERIENCE
item for an entry-level position in fashion design using the following scale.

9. Art/Design Knowledge

Art history						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Color theory						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Design principles and elements						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

10. Historical/Cultural Knowledge

Consumer behavior						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Socio-cultural perspectives						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

History of costume						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Theories of fashion change						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

11. Merchandising Knowledge

Advertising

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

Apparel terminology

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

Budget/product cost

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

Knowledge of major market areas

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

Market research

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

Marketing

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

Trend forecasting

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

12. Production-Related Knowledge

Textile properties; fibers, yarns, finishes

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

Figure/size analysis (size specification)

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

Quality control

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

Quick Response Technology (QRT)

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

Domestic and international sourcing

Not at all important ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Extremely important

13. Experiential Learning

Design internships						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Shadow days						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Industry design critique						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Industry tours						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Practical application and simulation						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Part time job - design or related						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Part time job - retail or merchandising or related						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

General work experience						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

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INTERPERSONAL SKILLS

Please rate the importance of each INTERPERSONAL SKILL item for an entry-level position in fashion design using the following scale.

14. Attitude Skills

Ambitious							
	Not at all important	▢ 1	▢ 2	▢ 3	▢ 4	▢ 5	Extremely important

Analytical							
	Not at all important	▢ 1	▢ 2	▢ 3	▢ 4	▢ 5	Extremely important

Confident							
	Not at all important	▢ 1	▢ 2	▢ 3	▢ 4	▢ 5	Extremely important

Energetic							
	Not at all important	▢ 1	▢ 2	▢ 3	▢ 4	▢ 5	Extremely important

Enthusiastic							
	Not at all important	▢ 1	▢ 2	▢ 3	▢ 4	▢ 5	Extremely important

Pleasant							
	Not at all important	▢ 1	▢ 2	▢ 3	▢ 4	▢ 5	Extremely important

Positive attitude							
	Not at all important	▢ 1	▢ 2	▢ 3	▢ 4	▢ 5	Extremely important

Professional							
	Not at all important	▢ 1	▢ 2	▢ 3	▢ 4	▢ 5	Extremely important

Visionary							
	Not at all important	▢ 1	▢ 2	▢ 3	▢ 4	▢ 5	Extremely important

15. Character Skills

Committed							
	Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Creative							
	Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Ethical							
	Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Honest							
	Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Intelligent							
	Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Logical							
	Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Loyal							
	Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Perseverant							
	Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Reliable							
	Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Responsible							
	Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Strong work ethic							
	Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

16. Communication Skills

Oral						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Written						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Visual						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Foreign language(s)						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

17. Teamwork Skills

Dependable						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Flexible						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Organized						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

People oriented						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Problem solver						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

Team player						
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	Extremely important

18. Leadership and Management Skills

Decision maker						
Not at all important	▢ 1	▢ 2	▢ 3	▢ 4	▢ 5	Extremely important

Delegator						
Not at all important	▢ 1	▢ 2	▢ 3	▢ 4	▢ 5	Extremely important

Initiator						
Not at all important	▢ 1	▢ 2	▢ 3	▢ 4	▢ 5	Extremely important

Leader						
Not at all important	▢ 1	▢ 2	▢ 3	▢ 4	▢ 5	Extremely important

Time manager						
Not at all important	▢ 1	▢ 2	▢ 3	▢ 4	▢ 5	Extremely important

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APPENDIX H

Career Competencies in Fashion Design Survey

Fashion Industry Professional Demographic Section

INFORMATION ABOUT YOU & YOUR COMPANY

19. Please indicate your gender

    ☐ Male ☐ Female

20. Please select the category that includes your age.

    ☐ 16 or younger   ☐ 18-24   ☐ 25-34   ☐ 35-44   ☐ 45-54   ☐ 55-64
    ☐ 65-74   ☐ 75 or older

21. How many years have you been employed in the industry?

    [   ]

22. How long have you been employed with your current company?

    [   ]

23. What is the title of your current position?

    [   ]

24. What is your HIGHEST level of education?

    ☐ High School Diploma

    ☐ Trade (Technical) School

    ☐ Associates Degree

    ☐ Bachelors Degree (BA/BFA/BS)

    ☐ Masters Degree (MA/MS/MED/MFA/MBA)

    ☐ Doctoral Degree

    ☐ Other (Please specify)
    [   ]

25. What is the size of your company? Please, indicate by the number of employees.

    ☐ Less than 5   ☐ 6-25   ☐ 26-50   ☐ 51-100   ☐ 101-150
    ☐ 151-200   ☐ 201-300   ☐ 301-400   ☐ 401-Above

26. What are the divisions in your design department? Please select all that apply.

☐ Womens ☐ Mens ☐ Juniors ☐ Children ☐ Maternity

☐ Active ☐ Accessories ☐ Other (Please specify)

Other: [   ]

---

27. In your design department, how many individuals work in each category?

[   ] Designer

[   ] Assistant Designer

[   ] Technical Designer

[   ] Patternmaker

[   ] Sample Maker

[   ] Cutter

[   ] Marker Maker

[   ] Intern

[   ] Other

---

28. Does your job responsibility include hiring entry-level design staff members?

☐ Yes ☐ No

29. Is a college degree required for an entry-level design position in your company?

☐ Required ☐ Preferred ☐ Unsure

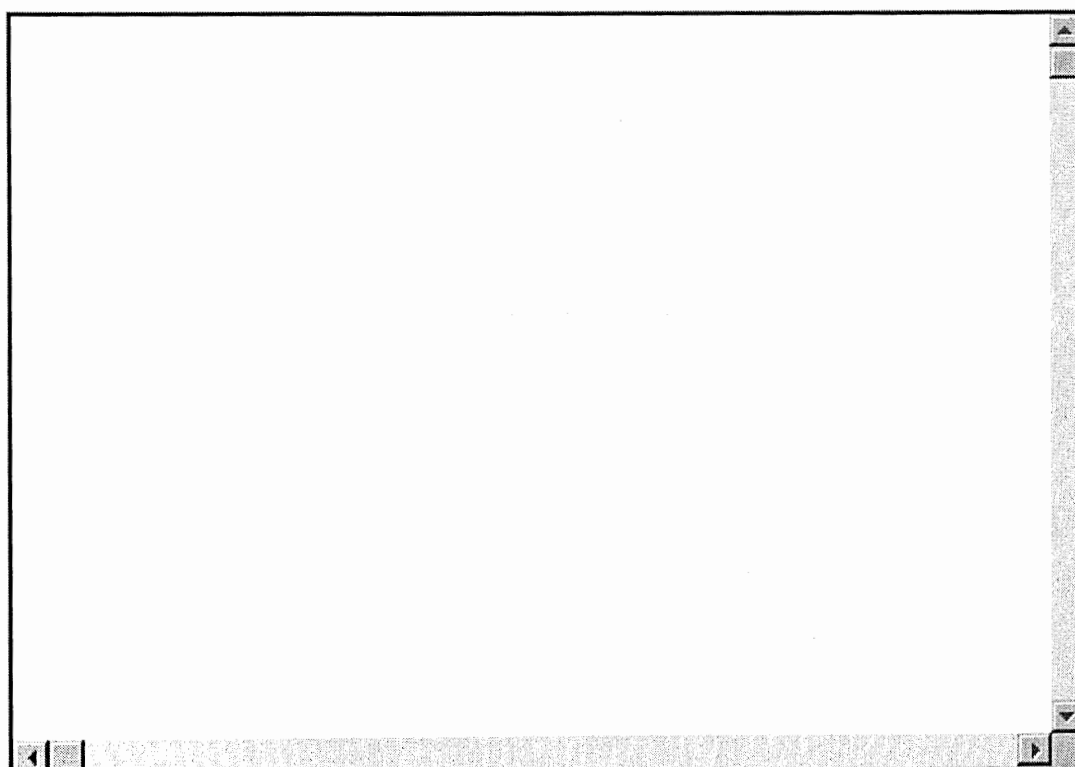30. Does your company offer internships to college students?

☐ Yes ☐ No ☐ I don't know.

31. Which of the following is the more important factor when hiring for an entry-level design position?

Previous Work Experience					
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5 Extremely important

Four-Year Degree					
Not at all important	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5 Extremely important

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32.   Please use the space below for any additional information or advice you wish to contribute to an aspiring fashion designer regarding skills and knowledge needed for a fashion design career.

(7900 characters remaining)

Continue ONLY when finished. You will be unable to return or change your answers.

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APPENDIX I

Career Competencies in Fashion Design Survey

Fashion Educator Demographic Section

INFORMATION ABOUT YOU & YOUR INSTITUTION

19. Please indicate your gender.

    ☐ Male ☐ Female

20. Please select the category that includes your age.

    ☐ 16 or younger ☐ 18-24 ☐ 25-34 ☐ 35-44 ☐ 45-54 ☐ 55-64
    ☐ 65-74 ☐ 75 or older

21. How many years have you been teaching?

    [   ]

22. How many years have you been employed with your current institution?

    [   ]

23. What is the title of your current position?

    [   ]

24. What is your highest degree held?

    ☐ BA ☐ BFA ☐ BS ☐ MA ☐ MS ☐ MFA ☐ MEd
    ☐ MBA ☐ PhD ☐ EdD ☐ Other (Please specify)
    Other: [   ]

* 25. Have you worked or are you currently working in the fashion industry?

    ☐ Yes, currently working.
    ☐ Yes, but not currently working.
    ☐ No, never worked in the industry.

26a. How many years since you've been employed in the industry?

    [   ]

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26b. What position have you been employed in the industry?

[   ]

26c. How many years have you been employed in the industry?

[   ]

27. What majors are offered related to fashion/apparel field in your institution? Please, select all that apply.

☐ Design

☐ Retail

☐ Merchandising

☐ Production

☐ Marketing

☐ Management

☐ Textiles

☐ Other (Please specify)

[   ]

28. What courses are offered in the fashion/apparel field in your institution? Please, select all that apply.

☐ Apparel construction techniques

☐ Advanced construction techniques

☐ Computer aided design

☐ CAD Patternmaking

☐ CAD Marker making

☐ CAD Grading

☐ CAD Apparel design

☐ Couture techniques design

☐ Draping techniques design

☐ Flat pattern techniques design

☐ Advanced patternmaking

☐ Mass production techniques design

☐ Seasonal collections design

☐ Advanced collections design

☐ Special clothing problems design

☐ Tailoring techniques design

☐ Fashion sketching

☐ Fashion portfolio development

☐ Principles of color/design

☐ Apparel production analysis

☐ Production techniques

☐ Career development

☐ Cultural perspectives of clothing

☐ Fashion theory

☐ Social/psychological aspect

☐ Introduction of merchandising

☐ Advanced merchandising

☐ Merchandising mathematics

☐ Fashion trends

☐ Fashion promotion

☐ Retail buying

☐ History of costume

☐ Technical design

☐ Textiles

☐ Textile/apparel economics

☐ Textile product testing

☐ Advanced textiles

☐ Textile detergency

☐ Internship

☐ Other (Please specify)

[text box with scrollbar]

28a. If your program offers CAD class, what is the computer software/program(s) used?

[text box]

* 29b. Is internship offered in your program?

☐ Yes ☐ No

29a. Is internship REQUIRED for design majors to complete the program?

☐ Yes ☐ No

30. Have you recently added any course to your program? If yes, please list the course(s).

[text box with scrollbar]

(1000 characters remaining)

31. Have you recently eliminated any course to your program? If yes, please list the course(s).

[text box with scrollbar]

(1000 characters remaining)

Continue ONLY when finished. You will be unable to return or change your answers.

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APPENDIX J

Career Competencies in Fashion Design Survey

Survey Incentive and Closing Page

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Completion of the Career Competencies in Fashion Design

Please enter your email address for the opportunity to participate in an electronic drawing for one of three gift certificates to Barnes & Noble or one of three gift certificates to Target to thank you for your participation in the survey. This drawing is separate from the survey results so your email cannot be linked to your answers.

If you decided not to participate in the drawing, please click "Continue to Next Page".

Continue ONLY when finished. You will be unable to return or change your answers.

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THANK YOU VERY MUCH FOR YOUR PARTICIPATION!

Invite Another to Participate

To		(email to whom)
From		(email from whom)
Your Name		(first and last name)
Message		This will send an invitation for the following survey: *"CAREER COMPETENCIES IN FASHION DESIGN"*

For maximum confidentiality, please close this window.

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