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Order Number 9516022

An assessment determining needed entry-level skills for fashion design baccalaureate graduates and recommendations for fashion design curriculum development

Jones Genevieve P., Ph.D.

Southern Illinois University at Carbondale, 1994

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AN ASSESSMENT DETERMINING NEEDED ENTRY-LEVEL SKILLS FOR FASHION DESIGN BACCALAUREATE GRADUATES AND RECOMMENDATIONS FOR FASHION DESIGN CURRICULUM DEVELOPMENT

by

Genevieve P. Jones
Master of Science, Environmental Design

A Dissertation Submitted in Partial Fulfillment
of the Requirements for the Doctor of Philosophy Degree

Department of Curriculum and Instruction
in the Graduate School
Southern Illinois University
at Carbondale
April, 1994

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SIU

Dissertation Approval

The Graduate School
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April 14, 19 94

I hereby recommend that the dissertation prepared under my supervision by

Genevieve P. Jones

Entitled

An Assessment Determining Needed Entry-Level Skills For Fashion Design Baccalaureate Graduates

be accepted in partial fulfillment of the requirements for the

DOCTOR OF PHILOSOPHY degree.

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Committee
for the
Final Examination

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AN ABSTRACT OF THE DISSERTATION OF

GENEVIEVE P. JONES, for the Doctor of Philosophy degree in Education, concentration in Curriculum and Instruction on April 14, 1994 at Southern Illinois University at Carbondale

TITLE: AN ASSESSMENT DETERMINING NEEDED ENTRY-LEVEL SKILLS FOR FASHION DESIGN BACCALAUREATE GRADUATES AND RECOMMENDATIONS FOR FASHION DESIGN CURRICULUM DEVELOPMENT

Major Professor: Dr. William Coscarelli

A needs assessment was conducted to determine skills required by the fashion design industry for entry-level positions. The assessment was limited to fashion design experts, so that data collected could be used to prepare an up-to-date curriculum for fashion design programs.

A modified Delphi survey technique was used to collect data, whereby expert advisers, most of whom were supervisors of design rooms, participated in developing a list of desired skills sought when interviewing new employees.

Participants were initially contacted by telephone to ask their agreement to participate in the study. A total of thirty-three experts agreed to take part.

The first questionnaire yielded a list of twenty-two skills, but none of the participants listed tasks to be performed for each skill. Also, a total of only twenty-four participants actually responded by returning the questionnaire.

The skills determined in the Round 1 Questionnaire were formed into a list, and participants were asked to

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identify each skill as being desired, preferred, or not important. Participants were also asked to rank the skills in the order of importance from most important to least important. Twenty-two participants responded with ranked skills.

The Third Round Questionnaire asked participants to agree or disagree with the ranking of the skills. Only fourteen participants responded to the Third Round, so it was decided to re-structure the third round, adding tasks for each skill. Responses were again minimal, so calls were made to participants, and the Round Three Questionnaire was completed by twenty-seven of the original participants.

Results show that industry generally assumes that most technical skills for fashion design positions are being addressed in the classroom; however, organizational skills, interpersonal skills, and being a team player are not. These skills remained uppermost on a list of twenty skills. Those skills not important to participants included Draping, Portfolio Presentations, Accessories Design, and Finished Illustrations. Patternmaking and Computer-Aided Design were considered very important.

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ACKNOWLEDGEMENTS

I wish to thank the Chairperson of my Committee, Dr. William Coscarelli, for his tireless help in preparing this work, and the members of my Committee, Dr. Billy G. Dixon, Dr. James Leming, Dr. Emil Spees, and Dr. John Whitlock, for their patience, constructive criticism, and expert advice.

I would also like to thank my family for their constant support, and the participants who made this study possible.

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AN ASSESSMENT DETERMINING NEEDED ENTRY-LEVEL SKILLS FOR FASHION DESIGN BACCALAUREATE GRADUATES AND RECOMMENDATIONS FOR FASHION DESIGN CURRICULUM DEVELOPMENT

TABLE OF CONTENTS

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TABLE OF CONTENTS (continued)

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AN ASSESSMENT DETERMINING NEEDED ENTRY-LEVEL SKILLS FOR FASHION DESIGN BACCALAUREATE GRADUATES AND RECOMMENDATIONS FOR FASHION DESIGN CURRICULUM DEVELOPMENT

LIST OF TABLES

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AN ASSESSMENT DETERMINING NEEDED ENTRY-LEVEL SKILLS FOR FASHION DESIGN BACCALAUREATE GRADUATES AND RECOMMENDATIONS FOR FASHION DESIGN CURRICULUM DEVELOPMENT

CHAPTER I

The apparel industry in the United States has been in decline since the 1940s. At the present time, most garment manufacturing is done in foreign countries (Shelton and Dickerson, 1989).

While American manufacturers have charged that much of the decline can be traced to labor costs, another problem has been that the textile and garment trades no longer have apprenticeship programs in which new workers can be trained. Much of the actual construction of garments done in United States factories is done by immigrant laborers who learned techniques in their own countries.

The home economics courses offered in some colleges and universities have attempted to fill the void of the defunct apprenticeship programs; however, technical training needed in the apparel industry cannot be expected to be taught in a home economics program which traditionally offers home sewing techniques on domestic sewing machines, rather than production techniques on commercial sewing machines. Daggett (1980) has suggested that all home economics programs in the State of New York be discontinued because of their questionable value. Daggett's argument is that these programs do not serve the needs of employers, either from lack of competent teachers or appropriate equipment. Daggett further contends that many home economics programs

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have become dumping grounds for courses which do not seem to "fit" in other programs or areas.

Although the apparel industry in the United States has lost several million workers in the past four decades, these industries still provide nearly forty percent of the factory jobs available in this country (Shelton and Dickerson, 1989. The next section chronicles how the design industry began, evolved, how it is now organized, and concludes with the focal question of the study: "What should be included in a curriculum designed to train students for entry-level positions in fashion design?"

History and Organization of Fashion Design and Ready-to-Wear Clothing in America

History

While the production of fiber (cotton, flax and wool) can be dated to the beginning of U. S. history, fashion design and the ready-to-wear industries are infants.

Early yarn and cloth production was done at home. When it was not possible for a family member to spin and weave, the family would employ itinerant weavers, who would stay with the family each year long enough to produce the amount of fabrics required by the family. The yarn and fabrics thus produced would then be made into clothing and household items by family members or itinerant seamstresses (Arnold and White, 1961).

Not until the end of the eighteenth century were there factories which provided American yarns for weaving and

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clothing production--but there were still no factories which did weaving and ready-made clothing.

Isaac Singer's improvements to Elias Howe's sewing machine invention made manufacturing possible in the 1850s. Singer's aggressive marketing of the sewing machine brought about the beginning of the garment industry in the United States (Ley, 1975).

Probably the very first ready-to-wear clothing in America came about as a result of the Civil War and the need for uniforms for the military. A record of measurements for the recruits was carefully kept, and later analyzed and standardized. So suits of clothing for men using standardized measurements was the next step to evolve (Arnold and White, 1961).

The first articles of clothing for women to be mass-produced were those items which did not need precise fitting--such things as hoopskirts, mantles and cloaks. Other available items were of such poor quality that only the poorest citizens would purchase them. But the industry grew rapidly, and by the early 1900s the term "ready-to-wear" had been coined, and the purchase of them or use of the term "ready-to-wear" were no longer derogatory.

The idea for ready-to-wear may have come from the marketing techniques used to collect and resell used clothing. Large advertisements were placed in newspapers asking for clothing which had been discarded or no longer fit. These items were sorted into approximate sizes and

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types, and resold at a handsome profit (Pope, 1970).

Training for the clothing and textile industries up to the Second World War was done in house, on an apprenticeship basis. Attaining a college degree to become part of the clothing industry was unheard of, and any training in college for patternmaking or sewing was aimed at home economics majors who would either become homemakers after college, or become home economics teachers. Industry was not considered in home economics colleges, and the skills required for garment construction were a small part of the overall curriculum concerned with running an efficient household.

The Second World War gave American designers their first chance to show their talents. Until that time, American manufacturers would go to Paris several times a year to choose garments from the Paris collections to bring home for copying. German occupation precluded this practice in the 1940s. The President of Lord & Taylor at the time, Dorothy Shaver, broke the Paris tradition, and for the first time, an important American department store featured the work of American designers (Pope, 1970).

Organization of the Fashion Industry

The fashions seen in the stores in any given season had their beginnings two years prior to their delivery to the retail store. First, color forecasters determine two years in advance what the color story would be. This information

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is given to the yarn mills, so that they can begin producing the yarns needed to produce the cloth. The yarns are then woven into cloth of various types and weights, and a variety of finishes is applied. In the meantime, designers sketch and complete sample garments which will be sent to the clothing manufacturers. The garment manufacturers will duplicate the patterns for the garments, either manually, or more often these days, by computer, so that when the cloth arrives, the manufacturers are ready to begin producing the items ordered by the designers. At this point, it is about four months before the garments will be shipped to the stores. Manufacturing and shipping continues into the season, and if the garments are successful, the manufacturers will receive reorders and continue shipping until the new season's garments are scheduled.

Careers

Students who receive degrees in fashion design have a number of job choices available to them after graduation. Some job titles for design students include quality control manager, merchandiser, fashion coordinator, sketcher, print journalist, fashion commentator, advertising director, art director, fashion photographer, stylist, fashion illustrator, and of course, fashion designer.

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Significance of Study

At the present time, there is no professional group for instructors of fashion design, where a systematic approach to determining curriculum can be discussed. Further, to this investigator's knowledge, no studies have been done in the fashion industry to determine if entry-level employees have been adequately trained for their positions. This study is an attempt to determine the entry-level needs of industry, so that instructors can bring their programs in line with what the fashion industry says it needs. The results should give guidelines to those instructors wishing to upgrade their programs, and provide the fashion industry with better trained employees.

Research Question

In the fashion industry, what entry-level skills are identified by experienced employees as being important, and to what extent, or in what ranked order is their importance designated?

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CHAPTER II

SURVEY OF THE LITERATURE

In order to determine what skills are required in the training or education of college students aspiring to the fashion design sector of the apparel industry, four areas need to be reviewed:

a. Literature on what is currently offered in fashion design programs;

b. Needs assessment theories and techniques;

c. Curriculum development for vocational education; and

d. Data collection methods.

Current Fashion Design Programs

In the spring of 1990, this author conducted a survey of 300 existing clothing and textiles programs to determine what courses were being offered at four-year colleges and universities. The list of schools surveyed was randomly compiled from the Association of College Professors of Textiles and Clothing (ACPTC; now called the International Textiles and Apparel Association (ITAA)). The survey had a 33 percent response rate, and revealed that there were few consistencies in the types of courses offered, the colleges in which clothing and textiles programs were housed, or the importance of clothing and textiles programs to the professional world.

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Because the response rate for the survey was only 33 percent, catalogs from selected colleges and universities offering fashion programs were gathered for comparison of degree requirements, courses offered, and the number of hours required in the major. Since there has been no systematic sampling of courses taught in the fashion design area, those catalogs from schools best-known for their fashion programs were included as models; and a random selection of other schools offering fashion programs was added for comparison. The random selection of "other schools" was developed from the directory of schools belonging to the Association of College Professors of Textiles and Clothing (ACPTC; since renamed International Textiles and Apparel Association (ITAA)).

Several programs offered by two-year colleges, four-year colleges, and a number of universities reveal little consistency in the offerings for degrees in fashion design, but do illustrate the differences between two-year (Associate) and four-year (Baccalaureate) programs.

Two-Year Schools

The four two-year colleges were the least consistent in the requirements for General Education courses. The Fashion Institute of Design and Merchandising in Los Angeles required a total of ninety-three "units" (quarter credit hours) to receive the A.A. degree. It also offered a Fashion Design Professional Designation (not considered a

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Baccalaureate degree) if the student completed an additional sixty-nine "units" from the course offerings. While there did not appear to be a "typical" sequence of courses for the A.A. degree, it would seem that the two-year schools concentrated more on fashion-oriented courses, with few, if any, general education courses. It was not clear from catalog information whether the two-year schools taught theory or hands-on courses.

Four-Year Colleges and Universities

The four-year colleges and universities examined were more consistent in the number of hours required to receive the Baccalaureate degree; however, the hours were distributed in very different ways. For example, Parsons School of Design and Rhode Island School of Design required all incoming freshmen to take the same sequence of courses, regardless of their major. In general, four-year schools appeared to offer fewer classes in hands-on design courses. The courses offered for all of the schools listed were collected and compared. The four-year schools, with the exception of the Fashion Institute of Technology (FIT) and Parsons, required a full one-third of the classes taken by students to be in the Liberal Arts or General Education areas. Also, only one course in crucial areas such as Draping and Patternmaking was offered at the four-year schools; however, FIT and Parsons do not list basic construction courses in their catalogs. It must be assumed

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by these schools that basic techniques were learned in high school or elsewhere before admission.

Essential courses found in almost every fashion design program include construction techniques, tailoring techniques, patternmaking, draping, and various types of construction classes. Classes which may or may not be offered include fashion sketching, color theory, merchandising for design majors, computer- aided design, accessories design, knit design, history of costume and/or fashion illustration, textile science, and the socio/psychological aspects of clothing. Some schools, mostly those of larger size or fashion specialty schools, offer classes where specialized fabrics are used, such as stripes, plaids, or luxury fabrics. In most schools, however, use of such fabrics was a part of advanced construction classes.

Comparison of Two-Year and Four-Year Programs

An interesting fact was revealed by referring to the catalogs of the schools cited. The two-year schools which had a heavy concentration of fashion courses and few, if any, Liberal Arts courses, listed instructors with mostly Baccalaureate degrees, but heavy industry experience. The four-year schools demanded terminal degrees of their incoming teachers, and no less than a Master's degree for existing, tenured teachers, in order for them to teach

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upper-level (junior and senior) courses. Little or no merit was given for experience over degrees; the degree in four-year institutions was the determining factor in securing and keeping a teaching position. This fact was supported by the review of more than forty position announcements for either fashion design or fashion merchandising teachers. All but one required advanced degrees; most required a Ph.D., EdD., or completed coursework for the Ph.D.; several requested industry experience as being "desired, but not essential."

Table 2.1 shows graduation requirements for two-year schools reviewed; Table 2.2 shows graduation requirements for four-year programs.

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Table 2.1

Fashion Curricula from Selected Two-Year Programs

Name of School	Degree Offered	Credit Hours in Major	Electives	General Education Credits	Total Credits
Fashion Institute of Design and Merchandising	A.A.	81	None	12	93
Fashion Institute of Technology	A.A.	45	27	27	72
Penn Valley Community College	A.A.S.	52	None	10	62
Los Angeles Trade Tech	A.A.	46	None	18	64

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Table 2.2

Fashion Curricula from Selected Four-Year Programs

Name of School	Degree Offered	Credit Hours in Major	Electives	General Education Credits	Total Credits
Columbia College	B.F.A.	72	None	48	120
Fashion Institute of Technology	B.F.A.	64.5	None	52.5	120
Parsons School of Design	B.F.A.	105	None	18	123
Syracuse University	B.S.				120*
Cornell University	B.S.				120*
Rhode Island School of Design	B.F.A.	72	6	42	120
Virginia Polytechnic	B.S.	84	15	2	101

* Breakdown of credit hours not in catalog.

A critical point should be made regarding graduates of two-year and four-year programs: Though there is no formal documentation, current experience seems to indicate that two-year graduates are placed into static positions with little opportunity for promotion.

Four-year programs are the entry-level assumptions for career development in the industry. In order to determine what should be in the programs, a systematic needs assessment should be conducted.

Needs Assessment Models

A number of different needs assessment models exist to guide the process. Seven of the models seemed relevant to curricular development in a training world and are listed in the accompanying table. Five models are discussed below to various extents, to illustrate the needs assessment process.

Training Needs Assessment

Rossett's (1987) theory of Training Needs Assessment (TNA) comes from the background of instructional systems, a discipline that explores systematic ways of delivering training and instructional materials to effect the most efficient and economical learning outcomes. She blends systems theory with learning theory in such a way that they become synergistic.

TNA is defined by Rossett as:

> ...The systematic study of a problem of innovation incorporating data and opinions from varied sources, in order to make effective decisions or recommendations about what should happen next (p. 3).

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Key Terms

In TNA, Rossett uses five key terms to characterize the theory: Optimals; Actuals; Feelings; Causes; Solutions.

Optimals. Optimals are the desired standard by which current situations are measured. The standard can take the form of policy, desired outcomes, or some type of national standard which must be met. Optimals answer the question, "What should be happening?"

Actuals. Actuals are the current conditions, or "What is actually happening?" To determine Actuals, Rossett suggests that existing records of outcomes be examined. Such records can take a variety of forms, depending upon what the problem is thought to be. This work is called Extant Data Analysis (EDA). Results of employee performances are reviewed through existing records, such as the number of complaints received from customers, the amount of breakage occurring, sales figures, etc. Other records which might be reviewed during EDA could include exit interviews or questionnaires completed by terminating employees or graduating students, letters of appreciation, and employee turnover.

The differences between optimals--the desired results--and actuals--current outcomes--are the discrepancies which must be addressed. It would be at this point, after the EDA has been completed, that TNA would be implemented. The TNA seeks new information, whereas the EDA examines existing information. The investigator's role in TNA is to first

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identify optimals and actuals. Then a way must be found to collect information from stakeholders which will aid the investigator in identifying causes of problems. "Stakeholder" is the term used by many researchers to define those people who have an interest in the outcomes of research or study of a particular situation. Detailed information which chronicles failures as well as successes is viewed as helpful, because anectdotal information many times contains the roots of problems which can be seen by the outside investigator, while it has been overlooked by those dealing with it every day.

Feelings. Feelings are the attitudes of those persons affected by the problem or situation, or "How does the stakeholder feel about it?" Some persons involved may have hunches as to why a problem has arisen, or how the problem can be solved. It could also be that some persons may feel threatened or in some way intimidated by what a TNA may reveal, and might resist efforts to implement changes in the status quo. Questioning supervisors and employees about their feelings or hunches concerning a situation can sometimes reveal the causes for discrepancies.

Knowing the feelings or hunches of the stakeholders can be helpful in identifying causes. For this reason, involving significant parties to "buy in" to the TNA before changes are implemented should help to make participants cooperative during the study.

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Causes. Causes are the probable reasons for discrepancies between optimals and actuals. Determination of the causes should be sought in many ways, by a variety of means, so that all possibilities can be explored. Rossett describes four types of causes generally found:

1. Absence of skill or knowledge.
2. Absence of incentive or improper incentive.
3. Absence of environment support.
4. Absence of motivation.

There can be a number of causes for a single problem, and it is the function of the investigator to collect as many perspectives as possible, rather than collecting data from a single supervisor or employee, so that all possible causes of a problem can be considered.

Solutions. Solutions determine ways to solve the problem or current conditions. Recommendations are sought from management, staff, or employees involved in the discrepant results, after which recommendations are made by the investigator. Solutions would be reported in the analysis given to the organization at the completion of the TNA.

Procedures

Rossett's prescription for TNA steps are as follows:

1. Determine purposes of the TNA based on initiators. There are three kinds of initiators:

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a. Performance problems. Performance problems happen in the midst of ongoing efforts in situations when employees ought to know how.

b. New systems and technologies. The introduction of new systems and technologies is capturing a greater share of the time of the trainer or instructional technologist.

c. Automatic of habitual training. Training happens because it has always happened, because the law mandates for it to happen or because it looks good for it to happen. There is no particular problem here and no new system of technology for which employees must be trained (p. 7).

2. Identify where information can be obtained.

3. Select methods for obtaining the information.

4. Conduct the TNA in stages:

Stage 1. Meet with randomly selected sources to ask why there is a problem.

Stage 2. Meet with subject matter experts for opinions on possible causes of the problem.

Stage 3. Observe the steps in the problem activity to determine if the problem can be identified.

Stage 4. Meet with training personnel to determine if the investigator's findings are congruent with their hunches [feelings]

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5. Use findings for decision making.

The scope of the TNA is dependent upon the type of information required and the quality of the information received. While inferential statistics can be used in some cases, Rossett discourages the practice because of the large number of responses required. Repeated contact with a few reliable sources is Rossett's recommendation because:

> ...quality of information is more affected by the question asked and the time and skill employed in soliciting information than it is by automatically relying upon large sample sizes (pp. 70-1).

Techniques

There are four major techniques practiced for gathering information during TNA:

Interviewing. Interviewing is the most prevalent tool of TNA. Interviewing can sometimes lead the investigator to existing records which can aid in revealing problems. In preparing for an interview, Rossett suggests the following steps:

1. Know the purpose of the interview and be able to verbalize it to the interviewee. The investigator should have a general idea what tasks the interviewee performs, and be able to discuss the reason this person was chosen, so that the investigator can make the interviewee feel comfortable and open in answering questions.

2. Develop a guide or script for the interview. A guide or script will aid the interviewer in asking the same questions of all interviewees regarding the same problem.

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In this way, information from various sources on the same problem can be considered from a number of perspectives.

3. Study the subject or task. Be able to discuss the subject in question by learning basic structure or language. If a task has a number of steps which need to be followed in sequence, or if certain language or terms are used for the situation under study, the interviewer should be familiar with the task steps or language used to identify them so that the interviewer and interviewee have no difficulty in communication.

4. Schedule the interview at the least intrusive time. If an interviewer arrives at a time that is inconvenient for the interviewee to take time away from the task to discuss problems, the interview will more than likely be unsuccessful.

Observation. Rossett says that, while observation is not used very much, this method should be encouraged because of its value in identifying discrepancies in performance. Suggested steps in conducting observations are as follows:

1. Prepare for the observation by having specific goals identified.

If employee performance is in question, a general idea of what the task is and how it is to be performed must be known by the observer, so that gaps, sequence of the tasks, or problems with equipment used can be noted. As in any type of research, observation, either overt or covert, can affect the performance of those being observed.

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2. Observe in a way that will provide valid results.

It is sometimes necessary for the observer to ask questions of the person being observed, so that the observer can understand what is happening. In such cases, overt observation is used. However, there are times when persons must be observed without their knowledge, either for safety reasons, or security reasons. In these cases, the use of covert observation is warranted.

3. Design an observation guide that will provide the information needed.

The observation guide should contain a description of the task being observed, possible discrepancies, and some sort of a rating scale which can be later analyzed. The guide will be especially useful if more than one observation is required; the same information will be collected in each observation.

Facilitating Groups. Facilitating groups include stakeholders working together to solve a problem. A facilitating group should include representative employees who can give input to the problem; members of management, supervisors, and training personnel. Rossett uses these steps to prepare a facilitating group:

1. Be clear about why the group is being gathered.

Far more cooperation can be gleaned from a group when honest, open reasons are given. The problems should be discussed, and participants should be free to respond candidly with their views.

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2. Establish an agenda which includes:

    a. Participants and their roles.

    b. Purposes.

    c. Process rules.

    d. Time, place and length of proceedings.

Participants should be carefully chosen so that there are representatives familiar with the problem at several levels.

The purposes of the group should be clearly indicated, so that all members have an understanding that they have been chosen to help solve the problem in question.

Any rules, stated either by the organization requesting the TNA or the investigator, should be clearly stated, and the group should agree to, and adhere to them.

3. Selecting participants and allocating roles:

    a. Who will participate?

    b. Who will be the leader?

    c. Who will record the meeting?

    d. What will be the investigator's role?

Those selected to participate in the facilitating group should be willing participants from each level of the organization, from employees, supervisors, training staff, and management.

The leader of the group, according to Rossett, should generally not be from management, and should not be the investigator. There should be general consensus by the

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group as to who will be selected as the leader. The group should also be in agreement as to who and how the meetings are recorded. Election of a secretary is suggested.

The investigator, according to Rossett, can give guidance to the meetings, or propose the topics to be discussed so that meetings are productive and have direction; however, the investigator should then play a passive role in the facilitating group meetings.

Questionnaires. In writing an effective questionnaire for the TNA, Rossett suggests the following steps:

1. Figure out what data are needed and from whom.

A target population is needed to guarantee that the information needed can be obtained. The population could be a single organization, members of particular vocations, unions, or associations.

2. Write effective items.

Rossett prefers open-ended questions, so that there is elaboration of the problems in question. Open-ended questions also encourage respondents to offer possible solutions or causes.

3. Write understandable directions.

The questionnaire directions should be written in such a way that there is no mistake on the part of the respondents as to what is expected of them.

4. Write an effective cover letter.

A cover letter can effectively motivate or discourage a

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respondent. The cover letter should contain the reason for the request to complete the questionnaire, what the investigator hopes to accomplish, and a guarantee of anonymity to the respondent.

Report of the Results

In communicating the results of the TNA, the document should include the reason the TNA was carried out, how the information was gathered, what was discovered, what the implications are, whether the findings are supported with reliable documentation, suggested recommendations, and assurance that the recommendations will be executed.

A needs assessment can have far-reaching, perhaps even political ramifications. It is imperative that all participants understand that the results obtained through this process are meant to be positive, and implementation of any new methods, systems, or technology can be beneficial to all those involved.

Needs Assessment

The Kaufman & English (1979) theory of needs assessment was developed from the authors' backgrounds in education, and views needs assessment as an integral component of improving curriculum and educational outcomes.

Key Terms

Needs assessment, as defined by Kaufman and English is:

> ...a formal process which determines the gaps between current outputs or outcomes and required or desired outcomes or outputs; places these gaps

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> in priority order; and selects the most important for resolution. "Need" is defined as a gap between current outcomes or outputs and desired (or required) outcomes or outputs (p. 8).

Kaufman and English identify needs assessment in two major categories; those which are conducted within the organization, or internal needs assessments, and those conducted outside the organization, or external needs assessments. The authors suggest an external needs assessments as a logical starting place to determine gaps between what students learn in school and what is needed by students to be successful after graduation.

Kaufman and English provide a glossary in the text to clarify how certain terms are used by them. Following are some of the key terms utilized throughout the work."

Inputs. Those factors which are used to develop, support, and maintain education, including: money, time, learners (including their entry skills, knowledges, and attitudes), teachers, administrators, computers, teaching machines, dollars, buildings, equipment, etc.

Processes and Products. The tools, techniques, strategies, and methods which intervene with the learner or staff to change behavior and develop necessary skills, knowledges, and attitudes necessary for success in school and later in society. These include: curriculum, programmed instruction, television, computer-assisted instruction, staffing patterns, organizational development teach teaching, differentiated staffing, etc.

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Outputs. The results of the application of inputs and processes in terms of in-school performance, as indicated by course grades, graduates, diplomas, certificates of completion, teach scores (athletics), etc.

Outcomes. The ultimate referent for any agency dealing with interventions: the survival and contribution of learners in society. Included here would be indicators such as: survival, contribution, societal adjustment, personal happiness, personal satisfaction, positive self-concept, etc. (pp. 124-5; authors' italics).

> The dimensions of 'inputs,' 'processes,' and 'outputs' are considered to be 'internal' or school-based considerations, while 'outcomes' are related to 'external' considerations. Seen in this manner, the utility of the schools, including their inputs, their methods, and procedures, and their outputs, are meaningfully understood in terms of their impact or 'value added' in society. It is to this 'external' societally-related referent that education should move and attempt to achieve success (pp. 125-6).

Other key terms used throughout the text should be clarified as well. The authors use the term "gap" to define the difference between current outcomes and desired outcomes; they also use the term "gap analysis" synonymously with needs assessment. The term "partner groups" refers to those persons who have agreed to cooperate and participate in the needs assessment. Partner groups can consist of people within and without the educational system. Kaufman and English suggest the following general steps for conducting a needs assessment:

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Procedures

Decide to plan systematically. The system approach in planning includes steps to identify, define, justify, design, implement, evaluate, and revise a system from the beginning, and does not consider how things are currently being accomplished.

The authors have not offered a specific plan; instead, they emphasize that it is necessary to tailor each assessment procedure according to the participants and the reasons for the assessment. Otherwise, the authors claim, participants will spend time ranking current concerns, with no considerations for new goals and objectives.

Obtain commitment. Obtain commitment of the initial planning group to find a model or standard from outside the organization to use in planning goals and objectives. This model is called the "external referent."

The external referent is used to identify gaps, and if gaps are found to identify alternative solutions and revise as required.

Identify the various partner groups. Identify the various partner groups which will be participating in the needs assessment. The partner groups should be representative of the population in general.

Obtain commitment of the partnership groups. Obtain commitment of the partnership groups to participate in the needs assessment effort and external-type planning.

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Obtain data on current survival/contribution levels. Obtain data on current survival/contribution levels for graduates of the school system. This should include current data and data for some period in the past to provide a trend.

Identify the survival/contribution requirements. Identify the survival/contribution requirements--currently and in the future--for those who will be legally exiting from the system. A period of ten to twenty years is frequently useful, but be sure that the period will cover those learners who are in transition within the system currently.

Determine the present and anticipated gaps. Determine the present and anticipated gaps between current survival/contribution levels and desired/required levels. Make sure that these gaps are written as measurable behavioral statements which relate to outcomes, not just outputs, processes, or inputs.

Using the partners, place the gaps in priority order. Using the partners, place the gaps in priority order, perhaps ranked on the basis of the "cost" to close the gap and the "cost" to ignore the gap. "Cost" here is in societal terms, not the dollar figures to obtain the methods-means for actually closing the gaps.

Determine disagreements between partner groups. These may occur both within a partnership group (for instance

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among the educators) as well as between the partner groups. List these for action.

Reconcile the disagreements. Each set of disagreements is unique, so there are no sure how-to-do-its for this step. Usually, there will be a requirement to collect more data about survival and contribution levels and criteria so that an issue may be resolved. Frequently, disagreements occur over means, or how-to-do-its, rather than upon gaps in results. Take care to assure that disagreements are defined in terms of outcomes, not processes. When the item at issue is a process, a means, an input, or an output, it might be useful to re-write the need in terms of its logical consequences in the external world. After it is related to outcomes, disagreements will tend to be minimized and often go away.

List the agreed-upon needs. List the agreed-upon needs and consider these and the previous agreed-upon needs (from step eight above), and re-rank.

Cycle through the previous three steps. This steps may not be required, unless there are additional disagreements.

List needs in priority order. The needs should be in descending order.

Select the needs for action, and list them. These needs selected for action are now the "problems" for further activity and resolution.

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Continue the needs assessment process. The fact that a needs assessment is never completed should be understood and serve as a basis for "institutionalizing" the process. Needs change as the external world changes. Schedule the next assessment, even if it has to be two years later.

Be prepared to consider new needs. Be prepared to consider new needs which might arise during the course of planning and implementation of the problems selected.

Be sure that the partner groups are personally and publicly thanked. It is very important that the partner groups be recognized for their contribution, and that they are kept informed of the progress. Their job is a difficult and sensitive one, and they should not be made to feel "used" or as though they were mere "rubber stamps." They were not, and their contribution should be publicly dignified (pp. 189-191).

The steps given above are described by the authors as suggested steps in an alpha needs assessment, where a new curriculum is being planned, and there are no ground rules, existing curricula, or starting conditions to be dealt with. Other types of assessments are described as:

Beta. The type of assessment conducted when there are gaps between the existing outputs and the required/desired outputs.

Gamma. Begins by identifying discrepancies between methods and means in order to resolve the problem.

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Delta. Gap analysis which relates to implementation of selected methods and means.

Epsilon. Gap analysis in relation to existing objectives, but not to any referent outside of the agency or organization.

Zeta. A gap analysis for the entire process, based on the entire process as given and only discrepancies relative to the system are determined (p. 61).

The authors state that Beta designs are the most common within school-based assessments. A Beta design is considered the most rational procedure to effect student learning and performance and is flexible enough to be functional. The authors also point out, however, that Beta-type design can also become so ambiguous as to be next to useless, but will continue to be used in the school system because vagueness allows decision makers to interpret policy in different ways (p. 239). Kaufman and English reiterate that, Alpha design would be more effective.

Collecting Data

Kaufman and English suggest the following techniques for securing participation in needs assessment.

Mailed Surveys. Mailed surveys are the cheapest way of gathering information. However, respondents to surveys usually have a much different attitude than those who do not respond to the survey. The authors feel that an

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80 percent response rate is desirable; otherwise, non-response bias is difficult to control.

Telephone Surveys. Telephone surveys can raise the possibility of interview bias. It is also more time-consuming and can be expensive if not being conducted by volunteers.

Personal Interviews. Kaufman and English consider personal interviews the most productive approach to gathering data, but at the same time it is very time consuming. A small sample, even in an urban area, can be of enormous help.

Reporting the Data. Kaufman treats all major subgroups contacted as equal with regard to how survey questions are answered and how data are later weighted. In the early stages, desired outcomes are what partner groups are considering, and one group should not have more influence than another.

The PAT Model of Needs Assessment

Sleezer (1990) compiled the work of needs assessment practitioners and determined that, while much has been written about needs assessment, there has not been a clearcut model which could be utilized in conducting a needs assessment. Consequently, Sleezer developed the Performance Analysis for Training (PAT) model. Using subject matter

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analysis from Swanson and Gradous (1986) as a basis for the model, Sleezer prepared a model schematic to be used in conducting a needs analysis. Also prepared were a set of 15 worksheets, which divide the work into three phases, each with subdivisions labeled "steps."

Procedures

The first phase covers data collecting methods arranged in seven steps:

Identify perceived opportunities. This is simply a factsheet which describes the organization and its products, and the perceived needs as reported by various persons within the organization.

Determine the purpose and parameters of the analysis. This step describes the "salient characteristics" of the decision maker within the organization, the analyst, and the organization; this step also requires the keeping of summary notes.

Gather information about potential opportunities/needs.

Gather anecdotal information. This step requests the recording of "anecdotes, stories, vocabulary, and examples of positive or negative experiences that can be used in the instruction or that can be used to describe the training need." (p. 69).

Analyze information. This worksheet is a checklist which determines if information has been handled in a

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methodical way, and has been verified and discussed by those participants involved.

Report the findings to decision makers. This worksheet provides a checklist and list of questions which should determine if the report to be submitted contains all of the information necessary for the decision maker to take action.

Decision makers acknowledge, prioritize, and determine the training opportunities/needs. This worksheet sets out the "specific performance opportunities/needs for which training resources should be allocated (p. 72).

Phase 2

The second phase of the PAT model is based upon the work of Swanson and Gradous (1986) and includes charts upon which to analyze behavior in the workplace.

Phase 3

The third phase analyzes individual capabilities, and determines which employees need training and the kind of training they need. The steps in the third phase include:

Identify characteristics and capabilities of the group of trainees.

Gather anecdotal information.

Gather information on nontraining causes of performance.

Synthesize and analyze information.

Report the findings to the decision makers.

Probably the most valuable information recorded in Sleezer is the annotated bibliography of needs assessment

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and organizational training authors from 1961 through early 1990. She gives succinct, accurate reports of the authors' backgrounds and philosophies, allowing readers to judge quickly whether certain works will be helpful to them in their investigations.

While there are several other needs assessment theories, e.g. Burton and Merrill (1977), Zemke and Kramlinger (1992), Thomas and Gray (1991) and Swanson and Gradous (1986), they share many of the characteristics of the authors previously cited, beginning with the identification of what is happening now; then, what should be happening; the importance of the gap; identification of instructional deficiencies in knowledge, skills, or attitudes; what solutions can be done economically; and finally, what side effects might occur if corrective action is taken.

DACUM (Developing a Curriculum)

DACUM (Norton, 1985) or Developing a Curriculum, is a system used by vocational educators to conduct assessment of job descriptions. The purpose for using DACUM is to establish a relevant and up-to-date curriculum base for instructional programs. It was developed in the 1960s by the Experimental Projects Branch of the Canada Department of Manpower and Immigration and the General Learning Corporation of New York to provide technical direction to a

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women's Job Corps program in Clinton, Iowa. The system seemed to have very promising applications in other vocational areas, and a model was developed and subsequently called "DACUM."

By 1975, the DACUM procedure had been introduced to the National Center for Research in Vocational Education at Sangomon State University in Springfield, Illinois. There, in January, 1976, Robert E. Norton employed Larry Coffin as a facilitator for conducting the first DACUM workshop for the Center. Subsequently, DACUM workshops have been held at many places in many countries, for the purposes of defining occupations in a variety of industries and vocations.

In the DACUM system, a group of expert workers is gathered together to describe their jobs. The group consists of eight to twelve expert workers recruited from business, industry, or the professions. A facilitator, skilled in DACUM methods, serves as the chairperson for this group or committee, and over a period of two to three days, conducts workshops to define the occupational duties and tasks for the occupation under scrutiny. Because the participants are experts in their field, they do not need any advance preparation to take part in the workshops.

The facilitator guides the participants through the following steps:

1. Orient the committee to DACUM.
2. Review job or occupational area of concern.

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3. Identify the general areas of responsibility (duties).

4. Identify the specific tasks performed in each duty area.

5. Review and refine task and duty statements.

6. Sequence task and duty statements.

7. Identify entry-level tasks.

8. Other options, as desired (pp. 1, 2).

The DACUM process usually results in the identification of eight to twelve duties and fifty to two hundred task statements that outline what a successful worker in a particular job or cluster of related jobs must be able to do. These tasks are then commonly submitted to a larger but still select group of workers and/or the immediate supervisors of such workers for verification purposes (p. 2).

One advantage of DACUM over other types of assessments for the development of a curriculum base is that it is far less expensive than alternative methods. It is also fairly quick and has high validity. In addition, DACUM has public relations value for the institution conducting it:

> Once employers understand the purpose and the process of DACUM, their first reaction is almost one of sheer shock when they realize that this school or college really wants industry to help them identify the competencies needed by workers in their field...it often takes them a while to understand that this school or college is really serious about wanting industry to help determine what tasks students must be able to perform in

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order to make program completers valuable future employees (p. 3).

Swanson and Gradous

Swanson and Gradous (1986) look at job performance from the perspective of organizational training, stressing job descriptions as a crucial area in the development of curricula. Their work in designing ways of analyzing various types of jobs would be invaluable in preparing a needs assessment instrument which adequately covers the actual boundaries of the specific job. The Swanson and Gradous criteria for good job descriptions include the title of the job, the scope of the job, the form in which the job is described, and the length of the description.

1. The title of the job should usually be more than one word and less than four words.

2. The scope of the job being considered should embrace the totality of the job and communicates this by labeling two to seven job functions or clusters of work activity.

3. The form of the job description should be written in full sentences, rather than in lists of activities.

4. The length of the description in most cases should not exceed 75 words. If a task inventory is not attached to the job description, then the description can be somewhat longer--between 75 and 150 words.

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According to Swanson and Gradous, "scope" is the most difficult criterion to satisfy. They suggest clustering of job functions, rather than listing tasks. A task inventory then, would accompany the job description, followed by a procedure analysis. A procedure analysis requires observation by the investigator, so that the task can be seen, step by step to completion. The procedure analysis may run to many pages, and requires that the investigator be present, so that questions can be fielded while the work is in progress. Otherwise, several important steps may be left out of the procedure analysis.

Swanson and Gradous describe three elements of a procedure analysis as (1) observing the work performance; (2) analyzing the tasks, and (3) revising the task inventory based on the in-depth information derived from developing the procedural analyses. The following forms were offered by Swanson and Gradous for recording job descriptions, task inventories, and procedure analyses.

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Table 2.3

Hypothetical Job Description for Fashion Designer

The fashion designer sketches concepts for the line. A group of at least 250 designs is expected for each season. The fashion designer should have proficient sketching and construction skills to be able to convey to the patternmaker and the samplehand how the garments are to be constructed. Draping and patternmaking skills are also required. The fashion designer will have visited fabric and yarn shows to choose fabrics for the line, and have a color story in mind. Knowledge of costing and specing are essential to the survival of the company.

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Table 2.4

Hypothetical Task Inventory for Fashion Designer

1.	Choose color story for collection.
2.	Shop fabric and yarn markets.
3.	Choose fabrics for the line.
4.	Sketch garments.
5.	Complete specification sheets for each garment.
6.	Choose trims.
7.	Meet with first patternmaker.
8.	Approve samples.
9.	Order production patterns cut.
10.	Approve prints from converter (if necessary).
11.	Approve colors from converter (if necessary).
12.	Order production schedule.
13.	Prepare samples for market shows with samplehand.
14.	Go to market shows.
15.	Accept orders for merchandise.
16.	Oversee production.
17.	Oversee re-orders.
18.	Check which garments are not selling.
19.	Remove from production garments not selling.
20.	Order revised production.

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Table 2.5

Hypothetical Procedure Analysis for Fashion Designer

Task: Choose color story for collection

Safety and other precautions: None

Performance standard: Given a list of fabric mills, yarn mills and color forecasters, fashion designer will contact them to order catalogs for the specified season.

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1. Call fabric mills and order catalogs.
2. Call yarn mills and order catalogs.
3. Call color forecasters and order color charts.
4. Examine fabrics available.
5. Order swatches of fabrics being considered.
6. Examine yarns available.
7. Order yarn samples being considered.
8. Prepare presentation board with colors chosen.
9. Present color storyboard to administration for approval.

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Discussion of Needs Assessment Techniques

In general, authors discussing needs assessment/analysis agree on the principle of determining what is needed and how information should be gathered to identify the best way to fill the need. The authors do not, however, seem to agree on the definitions of terms used. Some authors (Kaufman and Bowers, May/June, 1990), object to the way other authors use certain terms; however, a closer look at the Kaufman/Bowers article reveals that it is more a question of <u>when</u> the process has been determined to be <u>begun</u>, rather than actual disagreement with the process discussed by other authors. For example, Rossett begins by reviewing existing documents within the organization to be studied, to determine if, or where, there are problems (EDA). Kaufman begins by compiling a standard or ideal, by which to judge existing conditions, and then determines if there is a gap between the standard and existing conditions.

The Swanson and Gradous methods of observing expert workers actually performing their functions seemed at first glance to be a good method of obtaining specific tasks and procedures. However, such a technique for the purposes of this investigation would be too expensive and time-consuming, as the expert workers are spread across the country. The Swanson and Gradous method would be most helpful in a situation where only one organization was being studied, and all observations could be conducted in the same place.

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A summary table of authors on needs assessment appears on the next page as Table 2.6.

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Table 2.6

Summary of Needs Assessment Techniques

Model	Background	Primary Participants	Techniques	Major Steps
Burton and Merrill	Education	Group process	Telephone surveys Questionnaires Interviews	Determine goals Identify discrepancies between goals and status quo Establish priorities
Kaufman and English	Instructional Design	Partner groups--within and without the organization	Mailed surveys Telephone surveys Interviews	Find model outside organization Compare model to current situation Identify gaps Rank gaps in priority order Select most important needs for action
DACUM (Developing a Curriculum)	Vocational Education	Expert workers in field being investigated	DACUM facilitator	Select experts Orient experts to DACUM Review positions being investigated Identify duties of the positions Identify tasks within duties Sequence tasks and duties Identify entry-level tasks
Swanson and Gradous	Organizational Training	Expert workers and observer	Observation of expert workers	Observe work performance Develop task inventory for position List procedures involved in tasks Revise task inventory if necessary
TNA (Training Needs Assessment)	Instructional Systems	Group process	Interviews Observations Facilitating groups Questionnaires	Select groups Establish agenda Select participants Determine data gathering techniques Analyze data Report results
PAT (Performance Analysis for Training	Vocational Education	Group process	Behavior analysis worksheets	Data collection Behavior analysis Analyze training needs
Zemke and Kramlinger	Vocational Education	Group process	Mailed surveys Telephone surveys Interviews	Use model to standardize Determine discrepancies Identify gaps which can be closed with training Select gaps for action Determine consequences of closing

A method of collecting needs assessment data efficiently from a variety of geographically separated sources needed to be explored. Such a method was found in literature documenting the Delphi method of data collection.

The Delphi Method of Data Collection

The Delphi method of collecting information had its origins in defense research (Dalkey and Helmer, 1963). It was the name given to an Air Force sponsored Rand Corporation study, starting in the early 1950s, and concerned the use of expert opinion. The objective of the original study was to "obtain the most reliable consensus of opinion of a group of experts...by a series of intensive questionnaires interspersed with controlled opinion feedback" (p. 1).

Linstone (1975) describes the Delphi method as:

> ...a method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem (p. 3).

Use of the Delphi method of data collection requires the use of experts in the field being investigated, and does not rely upon large numbers of respondents. Instead, participants are chosen for their expertise in various phases of the vocation--those who hire candidates for the position, those who perform the work, those who supervise the work, and those responsible for training the workers.

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Structured communication, as discussed in Linstone (1975), is accomplished by obtaining feedback from individuals concerning specific problems; assessment of the group judgment or view; opportunities for the individual participants to revise their views; and some degree of individual anonymity.

The Delphi method of data collection allows the investigators to develop a series of questionnaires, usually five, each one building upon the data collected and revised in the previous questionnaire, so that the end result is a concensus of experts in the field being studied.

Example of a Small Delphi Survey

In the area of agricultural education, Sutphin and Camp (1990) used a modified Delphi method to construct a consensus model on applications of microcomputers in agricultural education. One of the major reasons for the use of the Delphi method for Sutphin and Camp was the prohibitive time, commitments, and costs associated with group meetings (p. 67). For example, consensus opinion, where all participants are convened in one location, makes it difficult to arrange for a large number of experts to take part in a study. Also, it would fall to the investigators to arrange and pay for travel and lodging, as well as the cost of the meeting place. Further, it would be difficult to get the number of experts necessary to give up the time needed to accomplish the goals of the study. All

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of these barriers were eliminated with the use of the Delphi method.

Another quality of Delphi investigations is that respondents can remain anonymous, allowing all participants to have equal weight. This is not possible where all participants are in the same location.

The Sutphin and Camp respondents consisted of experts on microcomputers, teachers, teacher educators, supervisors, and business and industry representatives. Because experts in the field being investigated were used, large numbers of respondents were not necessary (Linstone, 1975). Those considered experts, it was felt, would be in positions within the field of study where they would be offering opinions based upon their knowledge and experience.

The first round of questionnaires netted 24 respondents. Those who did not respond were dropped from the study, and the second round of questionnaires was sent to the responding 24. Twenty-one continued through the third round of questionnaires. The researchers considered the caliber of the remaining 21 to be an adequate representation of the types of respondents originally sought for the panel.

Because general consensus was so close after the third roundof questionnaires, the investigators concluded that more rounds were not necessary.

When the Delphi method is used, with more than one instrument to be submitted to the panel, the first

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instrument is intentionally brief and vague. Following instruments become more detailed and specific. In the Sutphin and Camp study, the first instrument contained the following four questions:

1. What curriculum materials, teaching aids, and/or in-service assistance are needed to implement computing in the local agricultural program?

2. How should curriculum materials be used to implement instructional technology in agricultural education (p. 68)?

3. What facilities and equipment are needed to implement computer applications in agricultural education?

4. What should be the uses of computers in local agricultural education programs (p. 69)?

For Round Two, the four questions were reworded as stem statements and posed again. This time each was followed by a list of statements generated in Round One. Round Three reported the comments and arguments generated in Round Two. In this study, the consensus was close enough for the researchers to concur that no further rounds were necessary.

According to Linstone and Turoff (1975), some of the problems encountered in the Delphi method are listed below. This investigator has supplied possible solutions to these problems.

Imposing monitor views. Imposing monitor views and preconceptions of a problem upon the respondent group by overspecifying the structure of the Delphi and not allowing for the contribution of other perspectives related to the problem being studied.

It is very important that the first round

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questionnaire states the questions to be answered in such a way that the respondents feel free to give detailed responses without being restricted or forced to answer in a way that will reflect the investigator's biases.

Assuming that Delphi can be a surrogate for all other human communications in a given situation.

While the Delphi method is capable of gathering information from respondents who are anonymous to one another, it cannot replace face to face discussion of issues of interest to all participants. It is a way, however, of giving equal weight to all participants, and gathering the information needed without confrontation.

Poor techniques of summarizing and presenting the group response and ensuring common interpretations of the evaluation scales utilized in the exercise.

The instruments used to inform the participants of the material gathered is of major importance. Continued participation of the respondents requires that the documents presented to them summarizing the information must be clear, concise, and easy to read.

Ignoring and not exploring the disagreements. This would cause discouraged dissenters to drop out and an artificial consensus is generated.

Again, this problem can be avoided by providing easy to read explanations of disagreements, so that dissenters are able to explain their points of view, rather than dropping out.

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Underestimating the demanding nature of a Delphi study. Respondents should be recognized as consultants and properly compensated for their time if the Delphi is not an integral part of their job function (pp. 16-17).

Despite some of the problems which can be encountered in conducting a Delphi survey, there are definite arguments for the process. First, the Delphi technique can be useful when individual personality styles might be distracting in a personal setting (Johnson, 1987). Creative individuals, especially those in the fashion industry, can be very opinionated and may not be able to function within a group or panel setting. Also, it would be difficult to arrange a time and place for all experts to meet in one specific place.

Johnson (1987) suggests that there are several criteria that should be met before use of the Delphi method. First, adequate time should be alotted. It usually takes a minimum of 45 days to complete the series of questionnaires and submit the final report. Second, the participants are expected to have excellent analytical skills, and third, there should be high motivation among the participants, so that the participants stay involved through the final questionnaire.

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Example of a Large Delphi Survey

Warnick (1988) describes how the School of Nursing at the University of Wisconsin-Madison used Delphi to identify nursing roles for the future. Several hundred people were involved. The first questionnaire asked people to project the major nursing responsibilities 10 years into the future and to provide a brief example from their own experience that led them to believe this was an important and desirable change. The responses were summarized and included in a second questionnaire. Participants were asked to choose the top seven responsibilities they felt were most important to add or delete from the nursing role. There was adequate space for additional comments. Participants were assured that their response would not be binding and that this was a preliminary vote.

The third questionnaire asked participants to speculate about responsibilities the nurse would have or would give up in 10 years. This questionnaire contained the number of people who voted for and against certain responsibilities. There was also a summary of the comments about each role. Participants were asked to influence the final vote and suggest implications for the future. For those responsibilities on which they wished to comment. they were limited to three short and precise statements. The fourth questionnaire separated the responsibilities listed in the first and second into 18 major categories. The comments from the second and third questionnaires were summarized.

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Potential issues for each major category were also identified. Participants were asked to select the seven most important issues concerned with nursing roles, which would be discussed at an upcoming conference. There was an additional column for respondents to explain their vote or comment on the issue. The last page of the Delphi was allotted for any important issues of role realignment that were missed and should have been considered for the nursing conference.

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CHAPTER III

METHODOLOGY

This study required the input of experts, in order to collect the data necessary for curriculum development. While many interesting methods for collecting data have been explored, no one method met the needs of this investigation. Instead of using one of the methods discussed in Chapter II, a melding of several methods was used.

DACUM, or Developing a Curriculum, used the input of a panel of experts, who assembled at a determined site, and "brainstormed" on the subject to be addressed. Due to time and geographical constraints, it would have been very difficult to assemble such a panel for this study. Also, one of the problems incurred when all participants were present in the same location was one of personalities perhaps biasing the study. By melding Delphi techniques with DACUM theory, a group of panelists was consulted through questionnaires, so that all participants had an equal chance to supply information. Each had the opportunity to see the recommendations of all of the others, without the fear of confrontation. Bias was kept at almost nil by using the consensus techniques found in Delphi methods.

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Characteristics of Participants

There are seven major areas in the fashion industry that routinely employ fashion design graduates. These areas include (s) education, (2) manufacturing, (3) fashion design houses, (4) fashion publications, (5) trade associations, (6) retailing organizations, and (7) commercial pattern companies. Education was eliminated as a sector, as the goal of this investigation was to get input from industry. Trade associations and retailing organizations were grouped together under the heading Trade Organizations. Manufacturers and design houses were grouped together under the heading Manufacturers. The remaining sectors were grouped together under the heading Other, as yearly hires were minimal.

In order to choose appropriate participants for the study, Women's Wear Daily was consulted and job announcements for head designers, design room supervisors and other appropriate job descriptions were tracked to see what qualifications these positions required. Generally, it was found that those in such positions had a minimum of four years experience in the fashion industry, had administrative experience, and had at least a Baccalaureate degree from a fashion design program. All participants in the study had hiring responsibilities, either directly or indirectly.

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Sample Size

Orlich (1979) and others agree that there are no set standards for the percentage of persons in a population who should be surveyed. The use of persons responsible for hiring fashion graduates, in this case, was the target population. Cohen (March, 1992) suggests that the sample mimic as closely as possible the characteristics of the total population (p. 200).

Sample size for a panel of experts has been suggested by several authors. Norton (1985) suggests that the panel be limited to twelve, plus the investigator, who plays a passive role in the discussions. Norton uses such panels routinely for needs assessment in organizational training.

Sutphin and Camp (1990) began their study with forty participants, and used a final sample of twenty-one respondents for their modified Delphi study. These twenty-one were identified as experts in the field under investigation (computer use in vocational education), and were considered an adequate representation of the field as a whole. Adequacy was determined by actually contacting some of the nonrespondents to find the reason that they had refused to participate. Time needed to complete the study was the reason given by most of those contacted.

Three documents were used to develop the target population. First, the Fashion Resource Directory (1990) listed all of the areas except manufacturing which would employ fashion design graduates. The Fashion Resource

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Directory also listed educational institutions and various organizations that would hire fashion merchandising graduates. For the purposes of this study, these areas were not considered. The appropriate sectors were divided into three groups--Journalism, Trade Associations, and Other.

Second, the Thomas Register of American Manufacturers listed all apparel manufacturing companies and fashion houses. There were many thousands of small manufacturing concerns across the United States, so this list was limited to all companies with gross income of over five million dollars. A perusal of a list of smaller companies revealed that small companies usually work on a contract basis (producing sewn products for other designers), and did not hire their own designers. The final list for selection included 122 manufacturers or design houses with gross earnings of five million dollars or more. Included in this list were fourteen publicly held corporations that appear in the top forty (Bobbin, June, 1993) manufacturing companies for 1993.

Third, in order to determine the correct proportion of participants from each sector, job announcements were tracked for thirty days in Women's Wear Daily, the trade paper that lists all available fashion jobs in the United States. It was found that forty percent of the job announcements were from Manufacturing; forty-five percent were from Fashion Design Houses, and the remaining fifteen

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percent were fairly evenly distributed among the remaining categories.

Kaufman and English (1979) describe the Delphi survey technique as a "dramatically different" approach to using a panel of experts instead of large samples because the panel is not assembled together in one location, thus avoiding the problem of majority opinion. It also depends upon each expert seeing the responses of the group, so that the panelists are provided an opportunity to revise responses based upon the group's total reaction (p. 268).

While Delphi surveys have been traditionally used to predict future events based upon a set of givens, this investigator asked participants to identify needs, in order to update academic programs. Using Delphi methods for needs assessment is a different, but logical use of the technique, and should prove to be replicable.

Data Collection

The first step in conducting the needs assessment using Delphi techniques was to identify the experts who served on the panel. Each of the fashion areas discussed above was treated as a separate sector of the fashion industry, so that appropriate proportions of the population could be chosen. For example, it was anticipated that manufacturers and design houses would constitute the largest proportion, according to the number of hires within a specified time period.

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Using the tally of proportions from Women's Wear Daily as a guide, potential participants were contacted from each sector, until the proportions were accurate for each sector. These panelists were sent a letter explaining the Delphi technique and the Round 1 Questionnaire. A sample of the script for initial contact, the letter explaining Delphi survey techniques, and the First-Round Questionnaire are shown in Appendix 1.

It was expected that panelists would respond with lists of skills which they felt were necessary for the adequate training of fashion design students. These lists were tallied for each area, and compared to see if they differed appreciably between types of organization. Since they did not, all skills were listed in one table according to the order of frequency. Otherwise, the table would have listed each sector separately.

Respondents were asked to rank the skills in order of importance, as well as whether they were "required," "preferred," or "not important." The Round 2 Questionnaire was developed from the responses received in Round 1. The letter to panelists and the Round 2 Questionnaire are shown in Appendix 1.

The second round questionnaire was tallied, and all of the skills were placed in descending order. This new list was sent to the panelists, and they were asked to agree or disagree with the ranking. Room was made on the form for

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any disagreement. The letter for Round 3 and a Table of Entry-Level Skills are shown in Appendix 1.

Sample of the Delphi Method

The Delphi method of data collection seems to accommodate applications in a variety of disciplines. For example, Thomas and Gray (1991) used the Delphi method to collect information on entry-level job skills required in electronics manufacturing firms. Thomas and Gray were aware that identifying job skills was crucial to educational institutions, so that the educational institutions could aptly prepare workers. Many studies done had concentrated upon academic skills, but had all but ignored occupational skills.

The Thomas and Gray investigation addressed required and preferred skills in Pennsylvania electronics firms, and also addressed how successful the firms were in finding entry-level skills among their hirees.

The Thomas and Gray study (1991) from which this investigator adapted the Skill Requirements table used in the accompanying exhibits, focused upon a single, technology-intensive industry (electronics manufacturing) in a unique geographical area (Pennsylvania) to pursue their study of entry-level job skills (p. 64). It is shown below as Table 3.1.

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Table 3.1

Distribution of Responses for Entry-Level Skills and Their Importance at the Time of Employment to Electronics Firms of Various Sizes

Job Skill and Firm Size	Required n	Required %	Preferred n	Preferred %	Not Important n	Not Important %	Rank
Perform job specific vocational skills							
Small	31	77.5	6	15.0	3	7.5	1
Large	37	71.2	13	25.0	2	3.8	2
Follow directions							
Small	37	92.5	3	7.5	-	-	2
Large	50	94.3	3	5.7	-	-	1
Accept responsibility							
Small	23	59.0	16	41.0	-	-	3
Large	32	60.4	21	39.6	-	-	3
Work effectively with others							
Small	29	72.5	11	27.5	-	-	4
Large	43	81.1	10	28.9	-	-	4
Solve problems							
Small	18	45.0	21	52.5	1	2.5	5
Large	28	52.8	23	43.4	2	3.8	5
Learn new skills easily							
Small	17	42.5	22	55.0	1	2.5	6
Large	21	39.6	32	60.4	-	-	7
Communicate orally							
Small	23	57.5	17	42.5	-	-	7
Large	23	43.4	28	52.8	2	3.8	8
Work as a team member							
Small	26	65.0	13	32.5	1	2.5	8
Large	32	60.4	20	37.7	1	1.9	5

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Table 2.7 Continued

Job Skill and Firm Size	Required n	Required %	Preferred n	Preferred %	Not Important n	Not Important %	Rank
Perform mathematical computations							
Small	18	45.0	13	37.5	7	17.5	9
Large	31	58.5	19	35.8	3	5.7	10
Think creatively							
Small	9	22.5	28	70.0	3	7.5	10
Large	15	28.3	32	60.4	6	11.3	9
Organize work assignments							
Small	11	27.5	25	62.5	4	10.0	11
Large	19	35.8	28	52.8	6	11.3	11
Read technical material							
Small	19	47.5	17	42.5	5	10.0	11
Large	27	50.9	24	45.3	2	3.8	12
Communicate in written form							
Small	6	15.0	23	57.5	11	27.5	13
Large	8	15.1	31	58.5	14	26.4	13
Set goals							
Small	6	15.0	26	65.0	8	20.0	14
Large	9	17.0	32	60.4	12	22.6	14
Exhibit leadership							
Small	3	7.5	29	72.5	8	20.0	15
Large	1	1.9	35	66.0	17	32.1	15

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Data Synthesis

While the purpose of the study was to determine entry-level skills for graduates of four-year fashion design programs, the information received in the final round of questionnaires can also be used to prepare a curriculum model that reflects the skills identified by the panel. The skills were included in various courses, and a sample program of study was developed that could serve as a model for minimum requirements for a Baccalaureate graduate in fashion design. Such a model for minimum requirements was not meant to discourage fashion design programs from offering other courses; it was meant only to serve as an illustration of what the fashion industry considered important when interviewing candidates for employment.

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CHAPTER IV
FINDINGS

Identification of Participants

Two main resources were used to collect expert participants for the study. First, the Thomas Register, a twenty-one-volume listing of all manufacturers in the United States was used to find manufacturers and design houses. All companies with a gross of $5 million or more were listed and assigned numbers. Second, the Fashion Resource Directory was used to select participants for the remaining categories in the fashion industry that hire fashion design graduates. These items, too, were assigned numbers. Then, using a table of random numbers, the companies to be contacted were selected by using the last three digits of the five-digit random numbers. Those selected were then contacted by telephone to get specific names and agreement to participate in the study.

Because of repeated mergings, name changes, and refusals, the identification process was repeated several times until thirty-three expert participants had agreed to participate in the study. A confidential list of these participants was submitted to the Chairperson for this project. The final list of respondents included one commercial pattern company, one trade organization, and thirty-one manufacturing companies and design houses.

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Characteristics of Participants

The trade organization was represented by an Office Manager who had graduated from a fashion design program. She had ten years experience, and her expertise was in textiles.

The commercial pattern company participant was with the public relations arm of the company; however, she had graduated from a fashion design program, and she wrote on her questionnaire that she was answering the questions from a designer point of view. She felt qualified to answer the questions because of the unique "business" of the company.

Eighteen of the thirty-one manufacturers would be considered large, and included representatives from jeans, children's wear, women's foundations, and moderate to bridge price women's wear. There was one representative of men's wear, and three companies that manufacture garments for the entire family.

The remainder of the manufacturers represented children's wear, budget, moderate and bridge women's wear, and one outerwear manufacturer. These companies would be considered small.

The Surveys

The Round 1 Questionnaire asked thirty-three participants to identify skills that their companies looked for when interviewing prospective employees. These participants were contacted by telephone, and they agreed

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to complete the Round 1 Questionnaire when it was received. Of the original thirty-three participants, only twenty-four actually responded. However, the skills identified were compiled into a list, and are shown in alphabetical order in Table 4.1.

Some of the participants indicated tasks involved in the skill being designated. However, they were not defined in a way that they could be listed as tasks under the skill.

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Table 4.1
Entry-Level Skills Identified in First Round

1.	Accessories design
2.	Being organized
3.	Color coordination
4.	Communication skills
5.	Computer skills
6.	Costing
7.	Draping skills
8.	Finished illustrations
9.	Flat sketching
10.	Knowledge of fabrics
11.	Knowledge of sewing
12.	Know production methods
13.	Networking
14.	Patternmaking
15.	Portfolio presentation
16.	Product development
17.	Quality control
18.	Storyboard presentations
19.	Team player
20.	Use of industrial machines
21.	Willingness to learn
22.	Write detailed specification sheets

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For Round 2, participants were asked to rank all of the skills in order of importance. The Round 2 list of skills appears as Table 4.2. Twenty-two participants returned the Round 2 questionnaire in ranked order.

Table 4.2
Entry-Level Skills Ranked by Participants in Second Round

	Importance Level of Job Skill						
	Required		Preferred		Not Important		Rank
Job Skill	n	%	n	%	n	%	
Being organized	17	77.2	5	22.8	0	0	1
Communication	18	81.8	4	18.2	0	0	2
Team player	15	68.2	7	31.8	0	0	3
Computer skills	18	81.8	4	18.2	0	0	4
Sewing knowledge	15	68.2	7	31.8	0	0	5
Fabric knowledge	17	77.2	5	22.8	0	0	6
Willing to learn	15	68.2	7	31.8	0	0	7
Flat drawing	13	59.1	9	40.9	0	0	8
Write specs	14	63.8	8	36.4	0	0	9
Storyboards	15	68.2	7	31.8	0	0	10
Networking	3	13.6	16	72.7	3	13.7	11
Production methods	11	49.9	11	50.1	0	0	12
Help company with goals	12	54.5	10	45.5	0	0	13
Quality control	13	59.1	9	40.9	0	0	14
Costing	1	4.5	7	31.8	14	63.6	15
Color coordination	11	50.0	10	45.5	1	4.5	16
Draping	6	27.2	12	54.5	4	18.3	17
Portfolios	1	4.6	3	13.6	18	81.8	18
Accessories design	1	4.6	21	95.4	0	0	19
Finished illustrations	1	4.6	21	95.4	0	0	20

At this point, one of the participants added Merchandising a Line and Color Coordination, and ranked them as Number 7 and 13, respectively. This participant also included tasks for these items. At the time this response

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was received, the original third round had already been mailed to participants, and it was not possible to include them. However, only fourteen participants returned the third round, and it was decided that some way of recouping all or most of the original participants was needed. The individual Committee members overseeing this study were consulted, and it was decided to restructure the third round questionnaire, using tasks for each item, and including a personal letter of appeal to return the questionnaire. It was then possible to use the added skills provided by the one participant, and add tasks to the other items. This investigator provided the tasks for all items except Merchandising a Line, Color Coordination, Color Matching, Knowledge of Fabrics, Market Research and Sourcing. Further, when tasks were added to the skills, it was found that several items in Round 2 could be considered tasks under the new categories, and thus were moved to the appropriate skills.

Even with personal letters of appeal, telling participants that major changes in curriculum were dependent upon expert advice, the responses were very disappointing. It was then necessary to contact participants by telephone. A total of twenty-seven participants out of the original thirty-three were finally contacted and the questionnaire was completed on the telephone.

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One of the first written responses (of the fourteen) for Round 3 suggested that Networking and Willingness to Learn be included in the tasks for Communication Skills and Team Player, respectively. This suggestion was discussed with
other participants as they were contacted, and it was agreed by most to include these as tasks under the respective skills. Another of the first written responses to be received was from the individual who was responsible for the new model for Round 3. Two additional categories, Market Research and Sourcing were added and ranked. As the participants were contacted, they were asked to comment on these items, and agreement was reached on their importance and rank.

Results

Throughout the study, Being Organized, Communication Skills and being a Team Player were ranked as the top three priorities. Technical skills seemed to depend upon the type of company responding. For example, one small company in California stated that its designers had to know Patternmaking, and ranked Patternmaking as Number 1. This same company stated that all designers hired in the future would have to have computer-aided design skills in addition to manual patternmaking skills. A large manufacturer in Georgia, on the other hand, ranked the same item as Number

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17, as it had a separate department that did Patternmaking, and its designers were not required to prepare patterns. Since most of the respondents were contacted by telephone, it was possible to ask why these items were ranked as they were. It was consistently found that small companies required designers to have more diverse skills than designers in large companies, where separate departments handled the various development of design, pattern and fabric.

In tabulating the results, the new rank for each item was determined by the number of participants agreeing with that rank. Tabulation of the Round 3 Questionnaire is shown in Table 4.3. In three cases, the number agreeing seems to be low; however, more participants chose that particular rank for the item than any other. These items are Computer Skills, Knowledge of Sewing and Knowledge of Fabrics.

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Table 4.3
Ranked Order of Job Skills after Round 3. N = 27

Job Skill	Per Cent Disagree	Per Cent Agree	Rank
Being organized Being on time Working independently on projects Making sure deadlines are met Making sure there is a paper trail for all responsibilities	7.5	92.5	1
Communication skills Ability to get a point across Work effectively with co-workers Networking	11.2	88.8	2
Team player Willing to work on projects outside job description Willingness to learn Contributing to company's goals Helping others in company to meet deadlines	7.5	92.5	3
Patternmaking How to develop a sloper How to manipulate a sloper Designing garments with a sloper Grading	70.4	29.6	4
Market research Researching trends in style, color, fabric and trimmings Researching sellers in retail sector Researching major competitors	22.3	77.7	5
Computer skills Computer-aided design Patternmaking QR (quick return)	37.0	63.0	6
Knowledge of sewing Production assembly sequence Industry machine capabilities Finishing	70.4	29.6	7

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Table 4.3 Continued

Job Skill	Per Cent Disagree	Per Cent Agree	Rank
Knowledge of fabrics Style number Fiber content Width Price Colors Delivery dates Characteristics of fabrics	70.4	29.6	8
Sourcing Finding fabric and trimming suppliers Finding manufacturers for all phases of production	22.3	77.7	9
Merchandising a line Styles to offer Colors to offer Number of pieces in each color Balanced color groupings	44.5	55.5	10
Write detailed spec sheets Fabric information Trimming information Interfacing information Garment dimensions	40.8	59.2	11
Flat sketching Sketch units on spec sheets Sketch units on storyboards	26.0	74.0	12
Color coordination Selecting balanced color groupings Selecting coordinating novelty fabrics Selecting colors for coordinating fabrics	22.3	77.7	13
Storyboard presentation Sketch garments for current line Include swatches of fabrics to be used Include trims to be used Present to administrators for approval	22.3	77.7	14

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Table 4.3 continued

Job Skill	Per Cent Disagree	Per Cent Agree	Rank
Costing Check dimensions of samples Check stock against original spec sheets Check labor and material costs	22.3	77.7	15
Color matching Check lab dips against original color requested How to make comments for dyer to follow Recoloring prints and plaids to work with color story	22.3	77.7	16
Draping How to use a dress form to develop new designs How to make a pattern from a drape	22.3	77.7	17
Portfolio presentations How to prepare a portfolio for prospective employer	18.6	81.4	18
Accessories design Choose accessories for the line Design accessories for the line	33.4	66.6	19
Finished illustrations Prepare finished illustrations Distribute to samplehands and patternmakers Distribute to advertisers or buyers	22.3	77.7	20

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CHAPTER V

DISCUSSIONS AND CONCLUSIONS

Skills and Their Ranks

The needs assessment revealed that employers are most interested in organizational skills, communication skills, and being a team player. This is surprising, as this investigator assumed that technical skills would be among the top ranked items. In a fashion design program, these skills may be addressed in the classroom in various ways; however, they are not defined as such, and are not aggressively taught or emphasized.

Some of the participants stated that all of the listed skills were important and that they had difficulty in ranking some of the items. A majority agreed, however, that the top three items were most lacking in new employees. Since the purpose of the study was to identify what skills might be needed in a fashion design curriculum, participants agreed that these non-technical skills were most important.

Discussion

Entry-level skills in their ranked order, and the reasons that they are ranked in this sequence are discussed below.

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Organizational Skills

One of the criteria seen consistently in job announcements, and again when interviewing participants, was the phrase "being organized." It was listed first in job announcements, and it was mentioned first by participants. Organization is perceived to mean that the employee must be very careful and meticulous, must be able to handle more than one thing at a time, and must be able to get the work out when it is needed. In the case of designers, organization also would include keeping track of tools and equipment, and the ability to meet deadlines.

Communication Skills

Communication skills, as one participant put it, is "being able to effectively verbalize an idea, concept, or project with clear and concise terms," and these skills are "essential to the creative process and working with other staff members." Another participant described communication skills as "the ability to get a point across," and to successfully carry through an idea. For example, the designer sketches a new design, and must be able to sketch well enough and in enough detail that the patternmaker is able to take the drawing and draft the first pattern for it. The samplemaker would then receive the sketch and the pattern, from which the first sample would be sewn. A lack

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of communication at this point would lead to a poorly executed garment, not representing what the designer intended. Communication skills would also be necessary to carry the design through to production. Once the first pattern and first sample are completed, the designer would be required to convince the executives of the company that the design should be included in the season's line. Good communication skills, then, are necessary at every phase of production.

Networking is another way in which communication skills would be valuable. Networking includes being personable, friendly and cooperative and making essential business contacts with the right people. This can be accomplished by joining clubs, organizations, and being visible. Reading trade periodicals and keeping track of jobs and job descriptions would also help make successful employees.

Team Player

Being a team player can often mean the difference between one applicant who applies for a job and the one who lands the job. Participants mentioned "willingness to learn" as an essential task. This was described as "taking direction from an authority or superior employee who either needs your help or needs you to follow through on projects or goals."

Also mentioned under Team Player was the willingness to "sacrifice free time to put in and devote quality time to

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the company's goals." This would also include helping others in the company to meet deadlines, which is part of meeting the company's goals.

Patternmaking Skills

The fourth item ranked in the needs assessment was Patternmaking. One participant said that a new designer in her department "didn't have a clue" as to how to develop a sloper--the body-fitting pattern used to develop all designs in flat patternmaking. This skill was placed at fourth by a low percentage of the participants, but the rank was chosen fourth more often than any other rank. The reason for the diversity in rank was due to the size of the companies responding. Generally, small companies require designers to complete the first pattern, and sometimes even the first sample. Large companies have a separate department where the first patterns are executed.

One of the complaints from both small and large companies was that many of their new designers were unable to measure for and complete a sloper. One hypothesis is that many schools work with slopers from commercial pattern companies, so that students don't learn how they are developed. Development of slopers is basic information that should be a part of every patternmaking class.

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Market Research

Market Research entails looking at trends in fashion to see what styles are selling, the most popular colors for the season, the types of fabrics being used, and the types of trims favored. A market researcher would check stores to see what is actually selling, and check major competitors to see what is being re-ordered. Information such as this helps designers to focus on their target market and develop styles that will fit into this market. Participants thought that these skills are probably not aggressively taught in the classroom. Students would get exposure in a casual way by reading fashion magazines and trade periodicals; however, participants felt that a more formal inclusion in classroom study would be of value.

Computer Skills

Sixty-three percent of the participants chose computer skills as the sixth most desired skill for fashion design applicants. Several participants stated that computer-aided design would be a required skill by all new hires.

Until recently, many fashion design programs had computer-aided design equipment available, but it was treated more as an interesting curiosity, rather than a serious part of the curriculum. With more and more manufacturers converting to computer-aided design--some even totally computerized manufacturing, it is imperative that

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computer-aided design become an integral part of the fashion design program.

Knowledge of Sewing

Most participants agreed that designers in their companies were not responsible for sewing their designs. However, in order for a designer to interpret drawings into actual garments, it is important for that designer to understand construction techniques. The Knowledge of Sewing category included the tasks of knowing production assembly techniques, knowing the capability of the various machines used in industry, and how garments are finished. Participants agreed that most designers are not responsible for sewing functions, but a designer who knows sewing techniques will be a much more valuable employee. Also, a designer who knows sewing techniques can sketch much more accurate drawings of their designs, so that they include construction details easily read by the patternmaker.

Knowledge of Fabrics

A designer who chooses an inappropriate fabric for a design can have devastating results. It is therefore essential that designers know the different types/properties of fabrics and fibers and what is suitable/functional for certain silhouettes or garments. Many modern fabrics are made exclusively of chemicals. Designers should stay

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abreast of new technology in fabrics, and to make use of them in their designs. Even natural fibers are being manipulated these days to produce better and stronger fabrics with properties not possible just a few years ago. Participants acknowledged that designers needed to stay aware of new technology in fabrics.

Sourcing

Participants agreed that some experience in sourcing would be valuable, and placed this skill in about the middle of the rankings. A check of job descriptions in Women's Wear Daily confirmed that many employers list sourcing as a job skill for several types of manufacturing positions.

To this investigator's knowledge, most schools do not have a course where students must find wholesale resources for various items needed for the construction of a garment.

Merchandising a Line

Participants agreed that designers need to be aware of the skills and duties of the merchandiser. Merchandising a line includes:

Styles to offer. Basic styles, trends, various lengths, and silhouettes.

Color. Selecting a balanced color grouping for base fabrics.

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Novelty fabrics. Selecting coordinating novelty fabrics, soft fabrics, and prints.

Coordinating fabrics. Selecting colors for coordinating fabrics.

"Accessory styles." Includes coordinating blouses, vests, and shorts.

Styles. Determining which styles to offer in each fabric.

Colors. Determining which styles to offer in each color.

Numbers. Determining how many pieces of each style to cut in each color.

Participants stated that designers should be aware that in some cases, isolated designs may not sell, whereas a group of garments in related colors and styles that can be interchanged may sell quite well.

Write Detailed Specification Sheets

Specification sheets give all production information necessary to produce a garment, including a flat sketch of the design. While participants said that specification sheets are the responsibility of the production department, designers should be aware of what information is contained on them, and how the information affects the company. The information includes:

Fabric information. Style number, fiber content, width, price, colors available, and delivery dates.

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Trimming information. Style number, fiber content, width, price, colors, zippers and their lengths, buttons--their number and the size, and delivery dates.

Interfacing information. Style number, fiber content, whether interfacing is fusable or not, width, price, colors, and delivery dates.

Garment dimensions. Size range, fit style (fitted, semi-fitted, loose, over-sized).

Flat Sketching

Almost all participants agreed that flat sketching was far more important than finished illustrations. Since many fashion design programs stress finished illustration drawing and personal style, a new emphasis on flat sketching is needed in order for designers to produce readable sketches from which the patternmaker and samplehand can work.

Color Coordination

Color coordination was discussed thoroughly under Merchandising a Line. However, many times the designer is responsible for choosing the season's colors and fabrics before the merchandiser is involved. New hires would not often be given the responsibility of this skill, and thus was not considered of utmost importance as an entry-level skill.

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Storyboard Presentation

Storyboard presentation is a very important part of designing a line of clothing. The storyboard is produced at several different phases of production. For example, the first storyboard may contain only the colors being considered for the line. Another storyboard will have various pieces being considered for the line, and include actual swatches of the fabrics to be used. A final storyboard containing sketches of the garments to be produced, fabric swatches, trims, buttons, etc., will be completed and submitted for final approval before production begins.

Participants agreed that not many new graduates have had the experience of making storyboards as part of their studies. It is a visual way of communicating, and the better the storyboards look, the more likely the administrators of a company will agree to produce the garments sketched on them.

Costing

Costing is part of producing detailed specification sheets. Participants pointed out that costing is usually the responsibility of the production department; however, designers needed to be aware of costing problems, in order to design profitable garments. Information on costing is found on the detailed specification sheet.

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Color Matching

Color matching was chosen by participants as only slightly important, placing it fifth from the bottom on the list of twenty skills. This is a skill that almost has to be learned on the job, as it entails working with the converter (the person or company that dyes or prints for the manufacturer). Color matching could be considered a communication skill, as the skill requires the designer to relay to the converter how the color must be changed to make it comply with the specifications.

Draping

Draping is a skill whereby designers use a dress form to drape fabric into a garment. Seventy-seven percent of the participants put this skill near the bottom of required skills, placing it fourth from the bottom of the list of twenty skills. While design houses producing one-of-a-kind custom garments still use draping, most participants agreed that patternmaking and computer-aided design skills are by far more important.

Until recently, Draping was given the same importance in fashion design classes as patternmaking. Because its use is becoming more and more limited in the manufacturing process, it is recommended that Draping be de-emphasized.

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Portfolio Presentations

In discussing portfolio presentations with participants, it was agreed that, while the portfolio is usually the first thing that an employer sees when interviewing a prospective employee, it quickly becomes unimportant after being hired. Flat drawings in the portfolio would make the portfolio much more important to prospective employers.

Accessories Design

Most participants found Accessories Design unimportant, and ranked it nineteenth out of twenty skills. It is this investigator's feeling that Accessories Design should be an elective subject in fashion design courses. Several participants stated that when their companies required accessories, they went to Europe to seek them, as accessories is not a stressed subject in fashion design programs in the United States. Judith Lieber, a famous handbag designer known by the investigator chooses all of her new employees from her native Hungary, and stated that Americans "did not have the patience to put one hundred-plus pieces together to make a handbag," so she chose all of her workers from Hungary.

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Finished Illustrations

Finished illustrations was the lowest ranking item in the needs assessment. Several participants said that their companies did not required finished illustrations. They opted instead to have photographs done of the line, or to call in a professional illustrator after the line was completed. There was a time in the near past when fashion designers did nothing but sketch; indeed, some of the biggest names in the industry still only sketch. However, all participants agreed that flat sketching and other skills were far more important for a designer than finished illustrations.

Conclusions

First, something should be said about the difficulty of obtaining information using any type of survey method. The material gathered for this study was important, and this researcher is very grateful to those who participated. However, a much more extensive survey should be conducted, and those in industry need to understand that by cooperating with academic researchers, they will ultimately gain because the graduates they receive will be better trained.

At the same time that the business world is being asked to cooperate more fully with academe, scholars should take steps to make it known how their research is going to be used. It is suspected that much of the skepticism shown by

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potential participants is due to the fact that they seldom see the results of their efforts being put into action.

Participants determined that interpersonal skills and being a team player were the top three skills most needed by entry-level applicants. Next were the technical skills needed by designers, followed by desired skills that would make the applicant most desirable. Finally, those skills that bridge other phases of production, or skills that were deemed unimportant were delegated to the last third of the list.

In determining entry-level skills, participants made it clear that it is important for those responsible for designing courses make sure that the material covered is as up-to-date as possible, that practical skills be based upon the latest technology, and the classes be taught by people who have a thorough understanding of the fashion industry. It is no longer possible to teach home sewing techniques and expect them to fulfill the needs of industry. Further, it may be necessary to adjust the number of liberal arts courses required in the Baccalaureate core, so that students have the time to explore all of the relevant courses in their major to help them to be successful.

Participants stated that all schools offering fashion design curricula should review their programs closesly, to make sure that students are receiving current information from the fashion industry, and that instructors have the

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knowledge necessary to prepare students for their careers. Fashion Design should be treated as a separate department within an institution, or should be a part of a Vocational Education department or a Professional Studies department. It can no longer be an attachment to a department that does not understand this complex, dynamic part of American society.

Recommendations

This study revealed a list of skills, and tasks involved in each skill. The skills are listed in the order of importance. While the number of participants was small, it is felt that the results of the study are important enough that other studies should be done, perhaps to determine to what extent the identified needs are being met by new employees.

Using the results of this study as a base, investigators could contact fashion programs to survey whether the skills are being addressed in their programs. It would also be important to know how the skills are being taught, and the types of tests used to verify that the skills have been learned.

A sample program and suggested ways of incorporating skills into the classroom is addressed in the next chapter.

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CHAPTER VI

SAMPLE BACCALAUREATE PROGRAM FOR FASHION DESIGN

In analyzing the needs assessment to determine entry-level skills for fashion design graduates, it was necessary to determine in what types of classes the skills could be taught. It was also necessary to "fit" all of the skills into a four-year, one hundred, twenty-hour Baccalaureate program to conform to a liberal arts college curriculum. Table 6.1 shows one solution, and includes a typical General Education core of courses found in many liberal arts colleges. It will be noted that the spring semester of the student's fourth year is limited to ten semester hours. This will allow the student to spend extra time working on the Senior Collection, which in many schools is the culminating course certifying the student for graduation, and takes many hours to complete.

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Table 6.1.

Sample Baccalaureate Program for Fashion Design

FIRST YEAR			
English Composition I	3	English Composition II	3
Art Appreciation	3	Drawing II	3
Beginning Clothing Construction	3	Advanced Clothing Construction	3
Fashion Fundamentals	3	Art Survey	3
Drawing I	3	College Algebra	3
College Orientation	1		15
	16		
SECOND YEAR			
Science	5	2-Dimensional Design	3
Fashion Drawing	5	Patternmaking II	3
Patternmaking I	3	Fashion Industry Overview	3
Computer Literacy	3	Western History I	3
	16	Social Science	3
			15
THIRD YEAR			
Color Theory	3	Production Design Practicum	3
Textiles I	3	Visual Merchandising	3
Draping	3	History of Costume I	3
Computer-Aided Design	3	Fashion in Society	3
Merchandising for Designers	3	Fashion Show Production	3
Communications	3	Machine Knit Design	3
	18		18
FOURTH YEAR			
Tailoring	5	Upper Level Humanities	3
Senior Portfolio	3	Design Collection	5
History of Costume II	3	Field Trip	2
Elective	1		10
	12		

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Entry-level skills and how they can be incorporated into a fashion design program are discussed below.

Organizational Skills

A number of classes can incorporate organizational skills in various ways. For example,

Clothing Construction Classes. Most fashion design programs offer at least two clothing construction classes, beginning and advanced. Some also offer an intermediate clothing construction class. These classes could be used to demonstrate organization by requiring the students to have all materials for projects assembled by a certain date and time, to have necessary tools and equipment available, and to have projects completed and submitted by a certain date. Since deadlines in the fashion industry can determine whether a company stays healthy or not, the instructor must enforce deadlines to help students understand the importance of submitting work when it is required.

Organization can also be demonstrated in patternmaking and draping classes by requiring students to complete a specific number of projects by a certain date. Students tend to stay focused if they know that they cannot delay projects for some reason.

Communication Skills

Communication skills can be incorporated into a fashion design program in several ways. For example, a fashion designer must be able to sketch well enough that the

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patternmaker and samplehand can understand the design concept.

Flat Sketching. A fashion drawing class could be used to teach students how to do flat sketching, sometimes called mechanicals, which show all of the construction details of a garment. At the present time, many fashion drawing classes stress finished illustrations and drawing style rather than technical drawing. A flat sketch or mechanical is just what the name infers; a drawing of a flat garment that shows seams, topstitching, trims, buttons, buttonholes, etc. This drawing might be repeated several times, on the specification sheets, the storyboards, the color storyboard, and possibly the trend storyboard.

Fashion Communication. This course may be found under titles such as Fashion Advertising, Graphic Design, or Product Development. In this course, students would experience different ways of advertising products, from newspaper advertising layouts to informational meetings with news and television media.

Networking. There are a number of trade associations that allow students to participate. These associations often hold seminars and career days, where students can meet with representatives of industry to learn first-hand how to go about getting a job, and what is entailed in various job descriptions. Some also have a newsletter containing job

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announcements, so that graduating students can apply for positions. Students should be encouraged to join one of the trade associations, and routinely read trade newspapers such as Women's Wear Daily and W.

Team Player

Being a team player can be practiced in many classroom situations. For example, tasks or projects can be assigned to small groups. A deadline for completion should be an integral part of requirements for the project or task. When the group has finished its project, it is expected that it would help another group complete its project before the deadline. Failure to complete the project on time would mean a lowered grade; failure to help another group could also mean a lowered grade.

It is very important for the students to understand that their role playing is preparation for real-life situations, and should be taken very seriously.

Patternmaking

Patternmaking skills should be thoroughly covered in the classroom by making sure that students understand how to develop a sloper, and how it is manipulated. Some schools reviewed do not teach sloper development; they instead start with a sloper from a commercial pattern company. This does the student a disservice, because of they don't know how to develop a sloper, they are not aware enough of the process to develop new slopers as they are required by their employer.

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Market Research

In the classroom, market research can be studied in a fashion fundamentals class, an industry overview class, or a production practicum class. The instructor could assign students to research particular markets, such as children's wear or adolescent clothing. Students would observe members of the target market by keeping a journal of trends, observing what is purchased and what is actually worn. Reading trade magazines is also useful because students can follow what manufacturers are offering in their lines.

Computer Skills

A strong background in patternmaking is necessary for a student to be successful in a computer-aided design class. Also, most liberal arts curricula require one or two courses in basic computer skills. Patternmaking and basic computer information systems classes will adequately prepare the student for a computer-aided design class, and should be required prerequisites for computer-aided design.

Knowledge of Sewing

Most fashion design programs include at least beginning and advanced sewing classes. An intermediate class would be desirable, especially when students have had little previous experience with sewing machines and sewing techniques. While most designers will not have sewing responsibilities in the workplace, the more a designer knows about sewing, the more accurately the garment can be interpreted on paper for the patternmaker and samplehand.

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Knowledge of Fabrics

Using appropriate fabrics for the end use can be practiced in the classroom by designing construction courses that introduce students to suitable construction techniques for various types of fabrics. For example, the techniques used for sewing knits cannot be used for sewing luxury fabrics. By designing projects using various types of fabrics, the student will have the experience of handling fabrics that must be manipulated in different ways to produce well-made garments.

Sourcing

To this investigator's knowledge, schools don't usually offer a course that requires students to find wholesale resources for completing their garments. A course in production design would help students to become acquainted with finding wholesale organizations, some of whom may be coaxed into supplying the school for various projects.

Merchandising a Line

The merchandiser is the person who makes the decision as to what pieces and in what styles will be offered at market, what colors will be used, the number of pieces in each design, and how the pieces will be displayed to tempt buyers. It is the merchandiser who shows the garments to their best advantage. A course in Merchandising and

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Marketing for the Designer can help students become aware of the importance of showing the garments in the best way to make them attractive, first to store buyers, and ultimately to the consumer. Students will be shown that in some cases, isolated designs may not sell. But a group of garments in related colors and styles that can be interchanged may sell where one garment may not. All design students should be required to take at least one course in merchandising and marketing. Better yet, design students should consider taking several marketing courses to better understand the consumer. Marketing courses are offered in business department curricula, and can be taken as electives.

Write Detailed Specification Sheets

Specification sheets give all production information necessary to produce a garment, including a flat sketch of the design. It should be the practice of instructors for construction, patternmaking and draping classes to have the students keep detailed records of their work on specification sheets. Also, most design curricula require the senior student to produce a complete line of garments for their final project. The specification sheet should be a part of this activity.

Most design curricula have fashion drawing classes. The specification sheet, accompanied by flat sketches, should be an integral part of the fashion drawing class as well.

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The specification sheet contains information on the amount of fabric needed for each unit, and all other construction items needed, such as interfacing, trims, buttons, etc. The sheet also asks for labor costs, any outside labor needed for pleating, special finishes, and for prints or dyes needed. Students need to realize that, while a design may be excellent, it may become too costly to manufacture. Keeping specification sheets will help the student understand the cost of manufacturing the design.

Flat Sketching

Flat sketching should be stressed in the Fashion Drawing class, as opposed to finished illustrations. Flat sketching is needed at several phases of production, and will, in the end, serve most designers better than concentration on finished illustrations. As several participants pointed out, finished illustrations are usually done by someone contracted to do only that; it is more important for the designer to be able to produce readable sketches from which the patternmaker and samplehand can work.

Color Coordination

Color coordination includes selecting balanced color groupings for the season's line, selecting coordinating novelty fabrics, and selecting an overall color story for the line. This skill can be practiced in many of the classes taken by fashion design students. For example, most schools require the fashion design student to take a number

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of art classes, one of them being Color Theory. In Color Theory, students learn how colors are formed, tinted and shaded.

Students can also practice color coordination in their fashion drawing classes, and in construction classes, by being required to produce coordinated ensembles instead of unrelated pieces.

Storyboard Presentation

Storyboard presentation is a very important part of designing a line of clothing. The storyboard is produced at several different phases of production. For example, the first storyboard may contain only the colors being considered for the line. Another storyboard will have various pieces being considered for the line, and include actual swatches of the fabrics to be used. A final storyboard containing sketches of the garments to be produced, fabrics swatches, trims, buttons, will be completed and submitted for final approval before production begins.

Students can practice doing storyboards in a Fashion Fundamentals class, for the Apparel Production Practicum, and for the final project in Senior Collection. It has been the experience of this investigator that some students doing internships for manufacturers or design houses will have the duty of producing storyboards. It is good practice to have

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students experience doing storyboards in the classroom, so that they are prepared to produce them for employers.

Costing

Costing is part of producing detailed specification sheets, and can be a separate position in a company. Those involved in costing as part of a job description are in a large way responsible for the company's profits. Costing can be experienced in the same classes as stated above for writing detailed specification sheets.

Color Matching

While difficult to work into a classroom setting, students can be made aware of the problems created when the converter cannot match the actual colors required by the designer. Most students must work with colors available at the local fabric shops, and are not able to order slight changes. However, if the school has a textile laboratory, students can experiment in some cases with dyes and printing techniques. This would be an area where a Textiles course would be valuable.

Draping

Draping is a skill whereby students use a dress form to drape fabric into a garment. Seventy-seven percent of the participants put this skill near the bottom of required skills. While design houses producing one-of-a-kind custom garments still use draping, most participants agreed that patternmaking and computer-aided design skills are by far more important. Draping is taught in most fashion design

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curricula; however, due to its placement in the needs assessment by experts from industry, it is strongly recommended that Draping be offered as an elective rather than a required course.

Portfolio Presentations

The portfolio is required by most prospective employers as part of the resume when being interviewed. However, it was placed in the needs assessment as third from the bottom of the list of skills. Some schools offer portfolio design as a separate class, offered in the senior year of study. It appears that, while it may be the first thing the prospective employer sees, it becomes unimportant after employment. Because the portfolio is a visual demonstration of the student's talent, this investigator feels that such a class should be retained. Perhaps the portfolio could be strengthened by adding flat sketching and specification sheets, so that the prospective employer knows that the applicant has had these skills covered in the classroom.

Accessories Design

As mentioned earlier, Accessories Design ranked next to last in the needs assessment. It is this investigator's feeling that Accessories Design be made an elective subject available to students who request it, but that it no longer be required of all fashion design students.

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Accessories design courses usually cover various types of hatmaking, jewelry, gloves, scarves, and sometimes shoes. Students wishing to specialize in accessories would do well to investigate graduate courses specializing in these areas, or to attend a semester in a European school specializing in show design.

Finished Illustrations

Is a student shows particular talent for illustration, that talent should be encouraged; however, the average student would be better served by learning flat sketching techniques. Flat sketches are also possible in the computer particularly in one of the drawing programs available. Finished illustration as a skill ranked as least important of all of the skills listed.

As can be seen from the suggested courses and skills above, it would be possible to incorporate the skills revealed in the needs assessment in a variety of classes. Keeping aware of organization, communication and team playing skills will help the instructor find many new ways to work these skills into lesson plans, thus better preparing the students for their first job.

Even as it declines, fashion-related jobs comprise the majority of manufacturing jobs in this country. It is the responsibility of those who train graduates for this industry to see to it that they are the best in the world, so that the industry in the United States can again be at the forefront.

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APPENDIX 1

INSTRUMENTS

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Columbia College

10TH AND ROGERS
COLUMBIA, MISSOURI 65216
314-875-8700

Participant's Name
Organization
Street Address
City, State, Zip Code

Dear Panelist:

Thank you for agreeing to be a part of my study on entry-level skills for fashion design graduates.

The Round 1 Questionnaire is enclosed. Please use as much space as is necessary in order to list all of the skills you feel are required by graduates of Baccalaureate programs in fashion design.

While all of your comments will be anonymous, I will need your name and address for my files, so that I can keep track of everyone. Please feel free to make any comments you wish.

When the questionnaire has been completed, please forward it to me in the enclosed envelope. I will send the second round as soon as possible.

Thank you so much for your continued participation.

Very truly yours,

G. P. Jones, Head
Fashion Department
300 St. Clair Hall

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ROUND 1 QUESTIONNAIRE
ENTRY-LEVEL SKILLS FOR FASHION DESIGN MAJORS

Your Name_____Title_____

Address_____

_____

What curriculum topics should be incorporated into a program which graduates fashion design graduates with Baccalaureate degrees?

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Columbia College

10TH AND ROGERS
COLUMBIA, MISSOURI 65216
314-875-8700

Participant's Name
Street Address
City, State, Zip Code

Dear Participant:

Thank you for returning the Round 1 Questionnaire concerning entry-level skills for fashion design graduates.

Enclosed is a table which lists all of the entry-level skills which were anonymously identified by participants in the first round questionnaire. The skills are arranged in the approximate order, according to the number of times panelists identified the skills.

Please mark each skill "required," "preferred," or "not important." Then, please number (rank) the skills in order of importance. Number one will be the most important skill; the highest number will be the least important. If there are certain skills which are not on the list, please add them and rank them. Your comments about any of the skills listed are welcome.

After the questionnaire has been completed, please return it in the enclosed envelope. The revised list in ranked order will be returned to you as soon as possible.

Thank you for your continued participation.

Very truly yours,

G. P. Jones, Head
Fashion Department
300 St. Clair Hall

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The following skills were identified by participants in the First Round. Please mark each skill Required, Preferred, or Not Important. Then, please rank the skills in the order of importance, Number 1 being the most important and Number 22 the least important. Then, return this questionnaire in the enclosed stamped, addressed envelope.

	Importance Level of Job Skill			
Job Skill	Required	Preferred	Not Important	Rank
Being organized				
Team Player				
Willingness to learn				
Computer skills				
Patternmaking				
Write detailed specifications				
Flat sketching				
Costing				
Know production methods				
Draping				
Knowledge of sewing				
Knowledge of fabrics				
Use of industrial machines				
Networking				
Storyboard presentations				
Communication skills				
Color coordination				
Portfolio presentation				
Accessories design				
Product development				
Finished illustrations				
Quality control				

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Columbia College

10TH AND ROGERS
COLUMBIA, MISSOURI 65216
314-875-8700

Participant's Name
Street Address
City, State, Zip Code

Dear Participant:

Thank you for returning the Round 2 Questionnaire and ranking the entry-level skills. The Round 3 Questionnaire is enclosed. It shows the skills in "required," "preferred," and "not important" order, as well as the rank of importance, from the highest to the lowest. "N" stands for the number of participants choosing that order; "%" stands for the percentage of the participants choosing that skill.

On the back of the tabulation, there is a form which asks you to agree or disagree with the order of the list. If you agree, simply check that line and return the tabulation in the enclosed envelope. If you do not agree, please state your disagreement, and your rationale for it. Then, return the tabulation in the enclosed envelope. As stated previously, all of your comments will remain anonymous.

I appreciate your participation in this study. It will be of great value in planning future offerings in our fashion design program.

Very truly yours,

G. P. Jones, Head
Fashion Department
300 St. Clair Hall

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Below is the ranked list of skills as received in the Round 2 Questionnaire. Please review the list to see if you agree. If you do not agree, please complete the comments section on the back of the sheet. Please return this questionnaire in the enclosed stamped, addressed envelope.

	Importance Level of Job Skill						
	Required		Preferred		Not Important		
Job Skill	n	%	n	%	n	%	Rank
Being organized	17	77.2	5	22.8	0	0	1
Communication skills	18	81.8	4	18.2	0	0	2
Team player	15	68.2	7	31.8	0	0	3
Computer skills	18	81.8	4	18.2	0	0	4
Sewing knowledge	15	68.2	7	31.8	0	0	5
Fabric knowledge	17	77.2	5	22.8	0	0	6
Willingness to learn	15	68.2	7	31.8	0	0	7
Flat drawing skills	13	59.1	9	40.9	0	0	8
Write detailed specifications	14	63.8	8	36.4	0	0	9
Storyboard presentations	15	68.2	7	31.8	0	0	10
Networking	3	13.6	16	72.7	3	13.7	11
Production methods	11	49.9	11	50.1	0	0	12
Help company with goals	12	54.5	10	45.5	0	0	13
Quality control	13	59.1	9	40.9	0	0	14
Costing	1	4.5	7	31.8	14	63.6	15
Color coordination	11	50.0	10	45.5	1	4.5	16
Draping	6	27.2	12	54.5	4	18.3	17
Portfolio presentations	1	4.6	3	13.6	18	81.8	18
Accessories design	1	4.6	21	95.4	0	0	19
Finished illustrations	1	4.6	21	95.4	0	0	20

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To: G. P. Jones

___ I have reviewed the tabulation of Entry-Level Skills, and agree with it.

___ I have reviewed the tabulation of Entry-Level Skills, and wish to comment.

THANK YOU FOR YOUR PARTICIPATION!!

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The following table represents the ranked order of skills as designated by the majority of the participants who responded to the last round. This table asks you to agree to the order of the skill and to the tasks included in each skill. Please check between 1 and 5 to the extent that you agree or disagree. If you do not agree, please write the number where the skill should be listed. Please feel free to make any comments you wish on the back of this page, or add tasks that should be included in the skill.

Job Skill	Agree			Disagree		Current Rank	Your Rank
Being organized Being on time Working independently on projects Making sure deadlines are met Making sure there is a paper trail for all responsibilities	1	2	3	4	5	1	
Communication skills Ability to get a point across Work effectively with co-workers	1	2	3	4	5	2	
Team player Willing to work on projects outside of job description Contributing to company's goals Helping others in company to meet deadlines	1	2	3	4	5	3	
Computer skills Computer-aided design Patternmaking	1	2	3	4	5	4	
Knowledge of sewing Production assembly sequence Industry machine capabilities Finishing	1	2	3	4	5	5	
Knowledge of fabrics Style number Fiber content Width Price Colors Delivery dates	1	2	3	4	5	6	
Merchandising a line Styles to offer Colors to offer Number of pieces in each color Balanced color groupings	1	2	3	4	5	7	
Patternmaking How to develop a sloper How to manipulate a sloper Designing new garments with a sloper Grading	1	2	3	4	5	8	
Networking Join trade organizations Stay abreast of new trends	1	2	3	4	5	9	
Willingness to learn Work with co-workers and superiors to become a more valuable employee	1	2	3	4	5	10	

Job Skill	Agree			Disagree		Rank	Rank
Write detailed specification sheets Fabric information Trimming information Interfacing information Garment dimensions	1	2	3	4	5	11	
Flat sketching Sketch units on specification sheets Sketch units on storyboards	1	2	3	4	5	12	
Color coordination Selecting balanced color groupings Selecting coordinating novelty fabrics Selecting colors for coordinating fabrics	1	2	3	4	5	13	
Storyboard presentation Sketch garments for the current line Include swatches of fabrics to be used Include trims to be used Present to administrators for approval	1	2	3	4	5	14	
Costing Check dimensions of samples Check stock against original spec sheets Check labor and material costs	1	2	3	4	5	15	
Color matching Check lab dips against original color requested How to make comments for dyer to follow Recoloring prints and plaids to work with color story	1	2	3	4	5	16	
Draping How to use a dress form to develop new designs How to make a pattern from a drape	1	2	3	4	5	17	
Portfolio presentations How to prepare portfolio for prospective employer	1	2	3	4	5	18	
Accessories design Choose accessories for the line Design accessories for the line	1	2	3	4	5	19	
Finished illustrations Prepare finished illustrations for the line Distribute to samplehands or patternmakers Distribute to advertisers or buyers	1	2	3	4	5	20	

Thank you for your participation in this study. Please return this table in the enclosed envelope.

NAME_____ TITLE_____

COMPANY_____

ADDRESS_____

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APPENDIX 2

SLOPER

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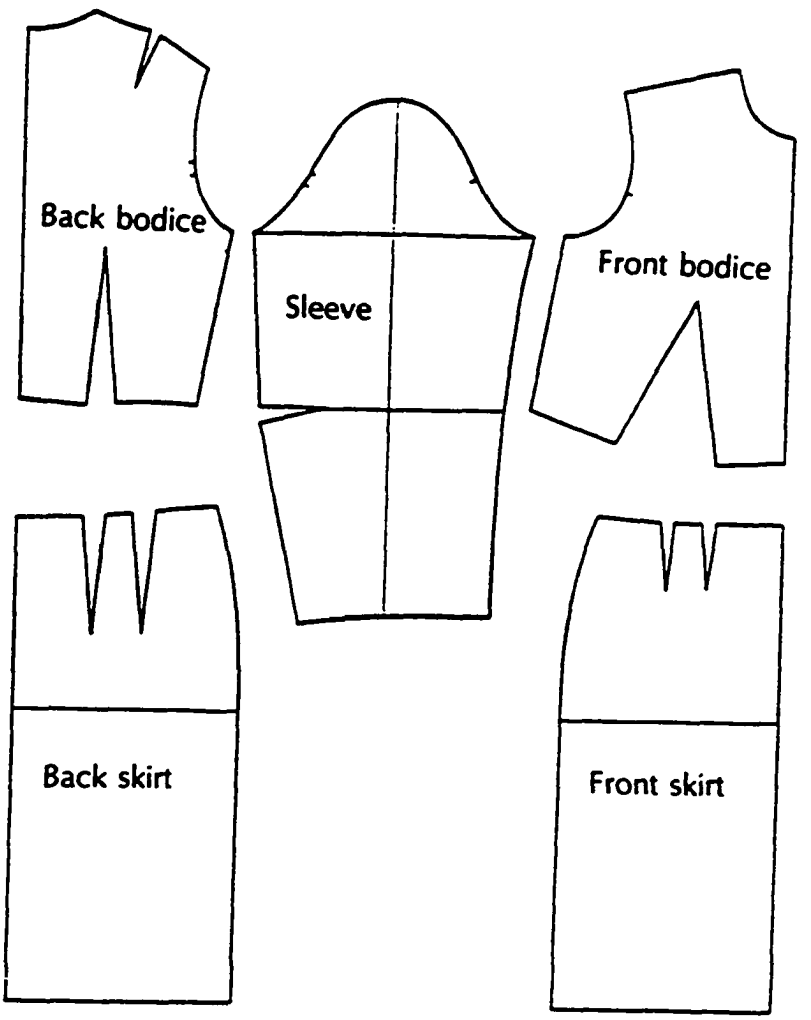

Example of a body sloper.
These pieces are used to create all garments in women's wear manufacturing.

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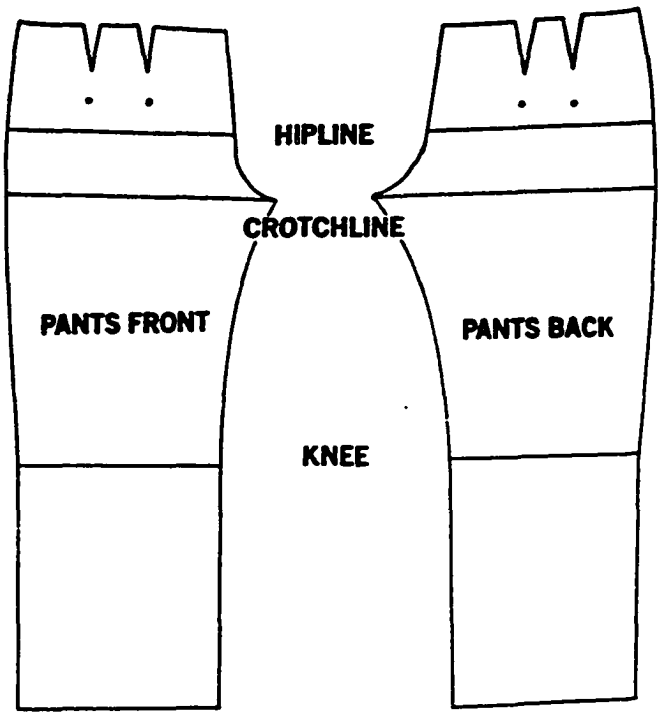

Example of basic pants sloper
used for all women's wear pants styles

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SIUC HSC FORM A

REQUEST FOR APPROVAL OF RESEARCH ACTIVITIES INVOLVING HUMAN SUBJECTS

This approval is valid for one (1) year from the approval date. Researcher's must request a renewal to continue the research after that date. This approval form must be included in all Master's theses/research papers and Doctoral dissertations involving human subjects to be submitted to the Graduate School.

PROJECT TITLE: AN ASSESSMENT DETERMINING NEEDED ENTRY-LEVEL SKILLS FOR FASHION DESIGN BACCALAUREATE GRADUATES

CERTIFICATION STATEMENT:

In making this application, I(we) certify that I(we) have read and understand the University's policies and procedures governing research activities involving human subjects, and that I(we) shall comply with the letter and spirit of those policies. I(we) further acknowledge my(our) obligation to (1) accept responsibility for the research described, including work by students under my(our) direction, (2) obtain written approval from the Human Subjects Committee of any changes from the originally approved protocol **BEFORE** making those changes, (3) retain signed informed consent forms, in a secure location separate from the data, for at least **three** years after the completion of the research, and (4) report immediately all adverse effects of the study on the subjects to the Chairperson of the Human Subjects Committee, Carbondale, Illinois, (618) 453-4533, and to the Director of the Office of Research Development and Administration, Southern Illinois University at Carbondale, (618) 453-4531.

Genevieve P. Jones Genevieve P Jones — 9/12/93

RESEARCHER(S) or PROJECT DIRECTORS — DATE

Please print or type out name below signature

William Coscarelli — 9/17/93

RESEARCHER'S ADVISOR (required for all student projects) — DATE

Please print or type out name below signature

The request submitted by the above researcher(s) was approved by the SIUC Human Subjects Committee.

Robert C Roothe — 9/22/93

CHAIRPERSON, SOUTHERN ILLINOIS UNIVERSITY HUMAN SUBJECTS COMMITTEE — DATE

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FORM B

SCREENING QUESTIONS

Please type all information or print neatly using black ink.

STUDY IS PART OF: a) Thesis/Research Paper_____ b) Dissertation_x_ c) Faculty Research_____
d) Undergraduate Project_____ e) Pilot Study_____ f) Other (specify)_____

NAME: JONES (LAST) GENEVIEVE (FIRST) P. (MIDDLE INITIAL) (314) 875-7572 (PHONE NUMBER)

MAILING ADDRESS: 3361 Crestview Drive (STREET) (APT #)
Columbia (CITY) Missouri (STATE) 65203 (ZIP CODE)

PROJECT TITLE: AN ASSESSMENT DETERMINING NEEDED ENTRY-LEVEL SKILLS FOR FASHION DESIGN BACCALAUREATE GRADUATES

ADVISOR'S NAME (for student projects): William Coscarelli

DEPARTMENT: Curriculum and Instruction **PHONE #:** (618) 453-4217

Estimate the following:

Average time required for an individual subject's participation. 1-1/2 - 2 (min/(hrs) per days/weeks)

Number and approximate age of volunteers (subjects) to be involved in this study. 33 (Number) 40 (Age)

Approximate date when research subjects will first be contacted **(must be after anticipated approval date).** 9/27/93

Approximate ending date for involvement of research subjects 11/93

The following questions are designed to help you and the HSC decide into which review level category your research study falls.

ANSWER ALL QUESTIONS. CIRCLE THE APPROPRIATE ANSWER:

1. Is this research designed to study normal educational practices, **AND** is this research being conducted in an established educational setting? YES (NO)

2. Does this research consist solely of giving published/standardized tests (cognitive, diagnostic, aptitude, achievement, attitudes, personalities, etc.). YES (NO)

3. Does this research involve the collection or study of existing data, documents, records, pathological or diagnostic specimens where a) the sources are publicly available, or b) the existing data is recorded in such a manner that the subject will remain anonymous? YES (NO)

4. Does the research:
   a. allow subject to remain anonymous? (YES) NO
   b. ensure that subjects are free from criminal or civil liability or damage their financial standing, employability, or reputation? (YES) NO
   c. involve respondents who are elected or appointed public officials? YES (NO)

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If you answered "yes" to any of the questions 1 thru 4, your research study probably falls under Category I review. Complete the following questions.

5. Does this study involve deception (i.e., giving false or misleading information to subjects or withholding information)? YES (NO)

6. Will the procedures cause any degree of discomfort, harassment, invasion of privacy, risk of physical injury, or threat to the dignity of subjects, or be otherwise potentially harmful to subjects? YES (NO)

7. If the project will NOT be conducted in a established educational setting, is it specifically designed to involve subjects listed below : N/A

   Minors (less than 18 years of age)? YES (NO)
   Prisoners? YES (NO)
   Mentally retarded persons? YES (NO)
   Mentally disabled persons (neurological, psychiatric, or related disability that may diminish mental capacity)? YES (NO)
   Persons in a residential program (e.g., hospital, developmental center, group home, etc.)? YES (NO)
   Clients of service units who are solicited for participation in research ? (e.g., counseling center, clinic, etc.)? YES (NO)

If you answered "no" to all the questions 5-7, your research protocol falls under Category I review. Complete Form C. If you answered "yes" to any of questions 5-7, your research protocol falls under Category II or III review. Complete Form D.

Category I - Submit the **original copy (1)** of FORM A and **three copies (3)** of the following: FORM B, FORM C, any materials that will be used during the research study (i.e., questionnaires, surveys, cover letter, informed consent document or script (refer to note below), etc.).

Category II - Submit the **original copy (1)** of FORM A and **seven copies (7)** of the following: FORM B, FORM D, any materials that will be used during the research study (i.e., questionnaires, surveys, cover letter used to recruit subjects, informed consent document, etc.).

Category III - The researcher will be notified by the HSC Secretary regarding the number of copies needed.

AUDIO/VIDEOTAPING: If you will audio or videotape, the informed consent form must be signed by the subject or authorized representative.

NOTE: Potential subjects **must** be offered a copy of an informed consent document/cover letter/script which describes the study and the subject's rights. This applies for all levels of research.

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FORM C

Category I Review Sheet

The following questions pertain to potential risks to subjects. For questions where your response requires an explanation, please do so on the reverse side. Cite the question number and explain how you will minimize risk to the subjects.

1. What is the purpose of this study? To determine what employers in various sectors of the fashion industry consider needed skills for entry-level positions which would be filled by fashion design Baccalaureate graduates.

2. What source(s) will be used to identify potential subjects? Random selection from the Fashion Resources Directory and the Thomas Register of American Manufacturers

3.	If subjects will not be identified from public sources, will signed approval to recruit subjects, conduct the study, or use existing data be obtained from the designated authority prior to conducting the research?	NA (YES)	NO (Explain)
4.	Is there a pre-existing professional relationship between the researcher and subject (e.g., teacher-student, counselor-client).	YES(Explain)	(NO)
5.	For research in a classroom or service delivery setting, will the research require any activity that is not part of the normal class or service delivery?	(NA) YES(Explain)	NO
6.	Will informed consent form/cover letter be provided to participants in research activities that are not part of normal class or service delivery?	NA (YES)	NO(Explain)
7.	If subjects are minors, will parental consent be obtained for participation in research activities that are not part of normal class or service delivery?	(NA) YES	NO(Explain)
8.	Will subjects be told that participation is voluntary and they are free to withdraw at any time?	(YES)	NO(Explain)
9.	Will subjects receive compensation for participating in the research, e.g., money, extra credit toward grades?	YES(Explain)	(NO)
10.	If extra course credit will be given, will students who choose not to participate in the research have alternative opportunities to earn credit?	(NA) YES	NO(Explain)
11.	Will the data be recorded in such a way that the individual subjects cannot be linked to the data?	(YES)	NO(Explain)
12.	At the completion of the study, will you destroy or erase any materials (i.e., data sheets, audio/video tapes) that identify individual subjects?	NA (YES)	NO(Explain)

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13. Describe procedures in detail. Provide THREE (3) copies of what subjects will be told or will read prior to their involvement in the study, e.g., cover letter, informed consent form, handout, or verbal or phone script. What exactly will be done to the subjects? What measures will be taken?

Potential participants will first be contacted by telephone to request their participation (script attached). If they are agreeable, they will be sent the First Round Questionnaire with a cover letter describing what is expected. The participants will list skills that they expect entry-level fashion design Baccalaureate graduates to have. Rounds 2 and 3 will be tables of skills which will be designated "required," "preferred," or "not important.", and ranked in the order of importance. Copies of all cover letters and the tables are attached.

Use the space provided below to provide an explanation for any of the questions 3-12. Provide the appropriate question number for the explanation.

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COVER LETTER CHECKLIST FOR SURVEYS

To aid in constructing cover letter document, a checklist has been developed to include the required elements of the document. For further information contact the SIUC Human Subjects Secretary, Sharon Walters at (618) 453-4533

Does your cover letter document/instruction to the subjects/phone script document include **ALL** the following **REQUIRED** elements? (YES) NO

1. A statement regarding your affiliation with Southern Illinois University at Carbondale. (YES) NO

2. An explanation/description of the purpose of the study in terms the potential subjects can readily understand. (YES) NO

   The description should include:

   A. A brief statement concerning the criterion for subject selection. (YES) NO

   B. The amount of time required for the subject to participate in the project. (YES) NO

3. A statement concerning the voluntary nature of the study **or** a statement such as "Completion and return of this survey indicates voluntary consent to participate in this study." (YES) NO

4. A statement describing the extent, if any, to which confidentiality of records identifying the subjects will be maintained. **NOTE**: "confidentiality will be maintained" is not acceptable. (If a coding system will be used you need to describe it and explain the purpose for keeping the list). **NOTE**: Anonymity should be promised only if subjects do not provide their names **and** there is no information that will link the research with the subject. (YES) NO

5. An explanation of whom to contact for answers to questions about the research. Students should include the name, title, address, and telephone number of the faculty member who is supervising the project. (YES) NO

6. A statement similar to, "This project has been reviewed and approved by the SIUC Human Subjects Committee. Questions concerning your rights as a participant in this research may be addressed to the Committee Chairperson, Office of Research Development and Administration, Southern Illinois University, Carbondale, IL 62901-4709, (618) 453-4533." (YES) NO

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INFORMED CONSENT CHECKLIST

To aid in constructing informed consent documents, a checklist has been developed as a convenient way to ensure that all needed information is included. For further information, contact the SIUC Human Subjects Committee Secretary at the Office of Research Development and Administration, 453-4533. NOTE: A copy of the consent form must be made available to each subject.

Yes	No		I. Basic Elements
X		1.	A statement regarding your affiliation with Southern Illinois University, Carbondale.
X		2.	A statement that the study involves research, and an explanation of the purposes of the research.
X		3.	A description of the procedures to be followed, and the expected duration of the subject's participation.
N/A		4.	A statement of the criteria for subject selection, and, if applicable, a statement regarding extra course credit or monetary payments.
N/A		5.	A statement that participation is voluntary; refusal to participate will involve no penalty or loss of benefits, and the subject may discontinue participation at any time without penalty.
X		6.	A statement describing the extent to which confidentiality of records identifying the subject will be maintained, and the precise means of maintaining confidentiality. Describe whatever coding system will be used to identify subjects.
X		7.	A statement of whom to contact for answers to pertinent questions about the research, including name, address, and phone number. Students should include the name, address, and phone number of the faculty member who is supervising the research.
X		8.	A statement similar to, "This project has been reviewed and approved by the SIUC Human Subjects Committee. Questions concerning your rights as a participant in this research may be addressed to the Committee Chairperson, Office of Research Development and Administration, Southern Illinois University, Carbondale, IL 62901-4709. Phone: (618) 453-4533."
N/A		9.	If children are to participate in the research, provision must be made to inform and secure the consent of the parent or guardian, as well as the assent of the child.
N/A		10.	If participants are to be audio or videotaped, include a statement describing the recording procedures, indicate how confidentiality will be maintained, and what will happen to the tapes upon completion of the study. Note: if audio or videotaping is employed, the informed consent form must be signed by the subject, indicating their approval for the audio/videotaping. Refer to number 1 on page 13.

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SCRIPT FOR INITIAL CONTACT

My name is Genevieve Jones. I'm Head of the Fashion Department at Columbia College in Columbia, Missouri. I'm conducting a needs assessment in conjunction with the College of Education at Southern Illinois University to determine entry-level skills for graduates of Baccalaureate Fashion Design programs.

I am compiling a small group of individuals from various sectors of the fashion industry who would be willing to participate in defining what skills employers are looking for when they hire entry-level people. This would entail having experts who have hiring responsibilities, either directly or indirectly, list what skills they look for when interviewing candidates for various fashion design related positions.

We would first ask the panel of experts to list skills they seek in potential hires. These skills would be compiled from all members of the panel, and made into a table. The table would then be sent to all members of the panel, and members would designate beside each skill whether it is "required," "preferred," or "not important." Participants would then be asked to number the skills from 1 to ? in the order of importance, and return the table to us for tabulation. A similar table will be compiled, listing skills in the order of importance, and panel members would be asked to agree or disagree with the list. Space for comments, suggestions, or disagreements will be made on both tables.

The information will be used to update Fashion Design curriculum and instruction on the Columbia College campus. We anticipate publication of the information, with the intent of bringing other Fashion Design programs into line with what is actually needed in industry. Because we anticipate publication and a possible Federal grant to conduct on-site observation some time in the future, we have asked the approval of the Human Subjects Committee at Southern Illinois University to conduct this study. If you agree to participate as an expert panelist, further information concerning review and approval by the Human Subjects Committee will be forthcoming in the first-round letter.

Your participation is very important to us, and we guarantee your anonymity.

Do you feel that you will be able to aid us in this study?

If yes, get name and address of participant, along with title and company name. Also identify from what sector (manufacturing, journalism, etc.)

Sample of script for first telephone contact.

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COLUMBIA COLLEGE LETTERHEAD

Participant's Name
Company
Street Address
City, State, Zip Code

Dear Participant:

Thank you for agreeing to participate in our needs assessment to determine entry-level skills for Baccalaureate graduates of Fashion Design programs.

As was discussed in our telephone conversation, we hope to upgrade the Fashion Design program at Columbia College, and to serve as a model for other programs. Your participation is essential to the success of this endeavor.

The First-Round Questionnaire is enclosed. It should take one-half hour or less for you to complete. The questionnaire asks you to list the skills which you feel are required by entry-level graduates of fashion design programs.

Your name and address are requested on the form only to keep track of who has responded, and from what sector of the industry. Your responses will be kept strictly confidential.

If you have questions regarding the questionnaire, you may contact me or Dr. William Coscarelli at the addresses below.

This project has been reviewed and approved by the Human Subjects Committee at Southern Illinois University. Questions concerning your rights as a participant in this research may be addressed to the Committee Chairperson, Office of Research Development and Administration, Southern Illinois University, Carbondale, Illinois 62901-4709, (618) 453-4533.

Again, thank you for agreeing to participate.

Very truly yours,

G. P. Jones, Head
Fashion Department
300 St. Clair Hall
(314) 875-7572

Dr. William Coscarelli
Department of Curriculum and Instruction
College of Education
Southern Illinois University
Carbondale, Illinois 62901
(618) 452-4217

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ROUND 1 QUESTIONNAIRE

Your Name_____Company_____

Title_____

Address_____

_____Telephone ( )_____

Please Note: The above information is requested only to keep track of respondents. Your responses will be kept strictly confidential.

Check one: Manufacturing ( ) Design Studio ( ) Trade Organization ( ) Journalism ( )

Commercial Pattern Company ( )

What curriculum topics should be incorporated into a program which graduates fashion design students with Baccalaureate degrees? For example, if you were to list "specing" as a skill, list "specing," and the major components included in that skill.

Use as much space as needed. Please return the list in the enclosed envelope to:

G. P. Jones, Head
Fashion Department
Columbia College
1001 Rogers
Columbia, Missouri 65203

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Columbia College

10TH AND ROGERS
COLUMBIA, MISSOURI 65216
314-875-8700

Participant's Name
Street Address
City, State, Zip Code

Dear Participant:

Thank you for returning the Round 1 Questionnaire concerning entry-level skills for fashion design graduates.

Enclosed is a table which lists all of the entry-level skills which were anonymously identified by participants in the first round questionnaire. The skills are arranged in the approximate order, according to the number of times panelists identified the skills.

Please mark each skill "required," "preferred," or "not important." Then, please number (rank) the skills in order of importance. Number one will be the most important skill; the highest number will be the least important. If there are certain skills which are not on the list, please add them and rank them. Your comments about any of the skills listed are welcome.

After the questionnaire has been completed, please return it in the enclosed envelope. The revised list in ranked order will be returned to you as soon as possible.

Thank you for your continued participation.

Very truly yours,

G. P. Jones, Head
Fashion Department
300 St. Clair Hall

Sample of Round 2 Letter

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ENTRY-LEVEL SKILLS
FOR BACCALAUREATE GRADUATES OF FASHION DESIGN PROGRAMS

	Importance Level of Job Skills			
Job Skill	Required	Preferred	Not Important	Rank
Knowledge of sewing				
Patternmaking skills				
Draping skills				
Knowledge of fabric				
Flat drawing skills				
Computer literacy				
Preparation of garment specifications				
Costing				
Production methods				
Quality control				
Communication skills				
Team player				
Help company with its goals				
Networking with people and organizations in the industry				
Storyboard presentations				
Accessories design				
Finished illustrations				

Hypothetical Table of Entry-Level Job Skills
Adapted from Thomas and Gray (1991).

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BACK OF ROUND 2 QUESTIONNAIRE

Are there any skills which you feel are required, but not listed? If Yes, please list and rank them in the order you think they are necessary.

Comments, disagreements.

Thank you for your continued participation. Please return the table to:

G. P. Jones, Head
Fashion Department
Columbia College
1001 Rogers
Columbia, Missouri 65216

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Columbia College

10TH AND ROGERS
COLUMBIA, MISSOURI 65216
314-875-8700

Participant's Name
Street Address
City, State, Zip Code

Dear Participant:

Thank you for returning the Round 2 Questionnaire and ranking the entry-level skills. The Round 3 Questionnaire is enclosed. It shows the skills in "required," "preferred," and "not important" order, as well as the rank of importance, from the highest to the lowest. "N" stands for the number of participants choosing that order; "%" stands for the percentage of the participants choosing that skill.

On the back of the tabulation, there is a form which asks you to agree or disagree with the order of the list. If you agree, simply check that line and return the tabulation in the enclosed envelope. If you do not agree, please state your disagreement, and your rationale for it. Then, return the tabulation in the enclosed envelope. As stated previously, all of your comments will remain anonymous.

I appreciate your participation in this study. It will be of great value in planning future offerings in our fashion design program.

Very truly yours,

G. P. Jones, Head
Fashion Department
300 St. Clair Hall

Sample of Round 3 Letter to Panelists

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ROUND 3 QUESTIONNAIRE--ENTRY LEVEL SKILLS FOR BACCALAUREATE GRADUATES OF FASHION DESIGN PROGRAMS

Job Skill	Importance Level of Job Skills: Required n	Required %	Preferred n	Preferred %	Not Important n	Not Important %	Rank
Knowledge of design	50	83.3	10	16.7	0	0.0	1
Knowledge of industry	57	94.9	3	5.1	0	0.0	2
Communication skills	54	89.9	3	4.9	3	5.2	3
Working with other staff members	52	86.6	5	8.3	3	5.2	4
Knowledge of color	58	96.6	2	3.3	0	0.0	5
Knowledge of fabric	53	88.2	5	8.3	2	3.3	6
Accepting responsibility for quality	55	91.6	2	3.3	3	4.9	7
Helping company with goals	58	96.6	2	3.3	0	0.0	8
Networking with people and organizations in the industry	47	78.3	10	16.7	3	4.9	9
Knowledge of computer-aided design	56	93.2	4	6.6	0	0.0	10
Specifications	49	81.6	8	13.3	3	4.9	11
Storyboard presentations	51	84.9	7	11.6	2	3.3	12
Costing	36	59.9	11	18.3	13	21.6	13
Patternmaking	56	93.2	4	6.6	0	0.0	14
Draping	56	93.2	4	6.6	0	0.0	15
Tailoring	46	76.6	10	16.7	4	6.6	16
Production methods	39	64.9	10	16.7	11	18.3	17
Finished illustrations	4	6.6	10	16.6	46	76.6	18
Flat drawings	43	71.6	11	18.3	6	9.9	19
Willing to learn	50	83.3	10	16.7	0	0.0	20

Hypothetical Round 3 tabulation of Job Skill Importance. Adapted from Thomas and Gray, July, 1991, pp. 67-9. N = 60.

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To: G. P. Jones

___ I have reviewed the tabulation of Entry-Level Skills, and agree with it.

___ I have reviewed the tabulation of Entry-Level Skills, and wish to comment.

THANK YOU FOR YOUR PARTICIPATION!!

Sample of Round 3 Approval Sheet

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VITA

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An Assessment Determining Needed Entry-Level Skills for Fashion Design Baccalaureate Graduates

Major Professor: Dr. William Coscarelli

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