# A survey of students' attitudes and behaviors in a freshman textiles course, and the use of a textile identification packet.

by

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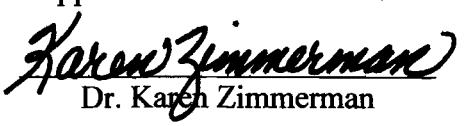

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ABSTRACT

The purposes of this study are to determine if there is a significant change in students' textile-related attitudes and behaviors before and after having taken a basic textiles course, and to determine the effects of a textile identification packet on students' exam scores and final course grades. With regard to the textile identification, the population of this study were students in two sections of the APRL-140 freshman textiles course at UW-Stout during the fall semester 2004.

A survey was developed to determine general demographic data as well as textile-related attitudes and behaviors. Students were asked to respond to these attitude and behavior items using a five point Likert scale at the beginning of the course and again at the end. Section one served as the experimental group and section two served as the control group.

The results of this study showed that there were significant differences in attitudes and behaviors both between the control and experimental groups and among majors. Using both t-

tests and ANOV, significant differences were found based on textile-related careers, quality clothing and enjoyment of fabric stores, among others. The study also showed that there were no significant differences in exam scores or final grades as a result of the textile identification.

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# TABLE OF CONTENTS

# List of Tables

Page

# Chapter One: Introduction

The study of home economics has always been closely tied with the education of women (Blankenship & Moerchen, 1979). Prior to the mid-1800s, a college education was not usually available to women. After completing a minimal grammar school education, one of the only options available to women was marriage.

Women typically learned everything they knew from their mothers (East, 1980). This included cooking and sewing skills. According to Helvenson & Bubolz (1999), home sewing "was considered an essential art and skill for women" (p. 303). Wealthy women established cooking and sewing schools for lower class and minority women to prepare them for jobs in factories (Ferrar, 1964) or in domestic service (East).

In the early part of the twentieth century, educators became concerned that mothers were failing to adequately teach their daughters sewing skills (Ferrar, 1964). "Because these skills had been closely linked with family life in the past, it was assumed that they were necessary to its future maintenance" (p. 9). If these skills could not be taught at home, other instruction must be provided. These concerns were the impetus of the Lake Placid conferences and the beginning of the field of home economics.

Home economics was first referred to as domestic economy, defined as a domestic science that applied "science to the management of the home" (Richards, 2000, p. 81). The course work given to women at the college level varied greatly. It ranged from "sewing, handwork...with a few vague textile lectures (Marlatt, 1911, p. 217), to the identical college courses as men (East, 1980), to nothing (Marlatt). Ferrar (1964) wrote that:

> "Although women were at first offered applied science courses identical to those offered to men, it soon became apparent that applications of science could also be made to the home, and hence that women's education should be differentiated from that of men." (p. 6)

Some of the first true courses in home economics included "cooking and sewing, millinery [and] laundering" (Ferrar, p. 8).

The discipline of clothing and textiles has been an integral part of home economics from its inception. Crooks (1911) wrote:

> "The study of textiles should be used as a basis for all the work in domestic arts that is included under the terms sewing, millinery, and dress-making. These subjects should teach the application of all textile principles, but they usually deal only with the manipulation of material. I hope to show that the study of textiles itself has enough scientific and economic basis to be not an adjunct but a fundamental part of Home Economics..." (p. 223)

Although, it did not become an official part of the subject matter until 1912 (Rudd, 2001).

According to a 1998 study by Albanese, O'Neill and Hines, out of 64 clothing and textile degree programs surveyed at the college-level, 100 percent required a basic textiles course as part of their curriculum. Beginning textile courses typically include units on "fibers, yarns, fabrications, coloration techniques and finishes" (Ogle & Fiore, 2000, p. 76). There is equal emphasis on the performance and aesthetic characteristics of textiles as well as the needs of the consumer (Ogle & Fiore).

A review of the literature did not reveal any studies of textile course student attitudes and behaviors. This showed the need for the current study.

One of the most commonly used tools in a textiles class is a swatch kit. There are many commercial swatch kits available, although some schools, such as UW-Stout, create their own. The commercially available swatch kits contain an average of 125 swatches, each 2" x 2 ½" or 2" x 3" depending upon the kit. Swatches in the kit represent one textile-related concept, whether it be fiber, weave, color, etc. Kits such as the Fabric Science Swatch Kit (Price, Cohen & Johnson, 2005) refer students back to previously examined swatches for illustration of additional concepts.

*Statement of the Problem*

A review of literature shows a lack of research regarding the textile-related attitudes and behaviors of students who have taken a basic textiles course. Likewise, there is a lack of research regarding the effectiveness of swatch kits in relation to students' exam scores and course grades. Therefore, this study will begin to address these two deficiencies by developing a survey to determine differences in textile-related and behaviors of students before and after taking a basic textiles course, and to determine the effect of fabric swatch size and quantity on students' grades.

*Purpose of the Study*

The purposes of this study are to determine if there is a significant change in students' textile-related attitudes and behaviors before and after having taken a basic textiles course, and to determine if exposing students to a larger swatch size, and a smaller quantity of swatches would significantly improve their exam scores and final course grade.

*Objectives of the Study*

1. Describe students' attitudes and behaviors toward textiles using information gathered from a survey instrument.
2. Identify differences in attitudes regarding textiles between the control and experimental groups before and after a textiles class.
3. Identify differences in behaviors regarding textiles between the control and experimental groups before and after a textiles class.
4. Examine differences in attitudes regarding textiles among majors.
5. Examine differences in behaviors regarding textiles among majors.
6. Determine if limiting the quantity of textiles swatches and increasing the size of the swatches would improve students' textile knowledge through analysis of scores on unit tests, laboratory worksheets and final grades.

*Definition of Terms*

*Textile*. "A general term used to refer to fibers, yarns or fabrics or anything made from fibers, yarns or fabrics" (Kadolph & Langford, 2002, p. 412).

*Limitations*

The researcher has identified several limitations in the study. The administration of the study was limited to one academic semester. It was not determined if results are repeatable. The population was limited to two textile class sections which together contained 58 students in a Midwestern university. Furthermore, students were not randomly placed into the control and experimental groups. There was an unequal number of majors between sections.

# Chapter Two: Review of Literature

This chapter will discuss the development of clothing and textile curriculum from its beginnings in the mid-1800s with the rise of the discipline of home economics as an "effort to apply science to the management of the home" (Richards, 2000, p. 81) to the recent shift in education to meeting the needs of the apparel and textile industries (Ogle & Fiore, 2000). Home economics will be defined, its relationship to education for women will be examined, and the associated fields will be identified.

In addition, this chapter will focus on the field of clothing and textiles, by examining some of the trends in curriculum throughout the 20th century and investigating future trends. Finally, the basic textiles course will be explored by describing its necessity, the components of basic curriculum, and the importance of the use of swatch kits in the curriculum.

## *Definition of Home Economics*

Home Economics can be defined as "the study of the individual's relationship with his or her immediate physical and social environments" (Rudd, 1991, p. 24). It is both "an area of study and a group of related occupations" (East, 1980, p.1). According to Frey (2001) the mission of home economics has been "to improve the quality of life for families..." (p. 15).

## *History of Home Economics*

The discipline of Home Economics evolved, in part, from cooking and sewing classes for women and has been "closely tied to the development of education for women" (Blankenship and Moerchen, 1979, p. 2). According to East (1980) and Richards (2000) women felt they could learn all they needed to know from their mothers, or from their husbands after marriage.

*Women in higher education.* Prior to 1862, education for women largely consisted of classes in sewing and cooking held for the poor, minorities and immigrants by well-to-do female philanthropists (East, 1980) and ladies academies for affluent young women (Parsons, 2000). These courses were intended to prepare women for life in service, a vocation, or in the home (East). Although these schools are an important chapter in the history of women in education, there is debate about whether these schools can be considered a part of the development of home economics. Budewig (1964) "maintains that home economics did not develop merely to provide something for females to study" (as cited in Blankenship and Moerchen, 1979, p. 3).

*The Morrill act.* The first schools of home economics have their roots in the Land-grant universities, established by the Morrill Act of 1862 (Richards, 2000). The Morrill Act allocated each state with federal land to be used to for the creation of colleges designed to "promote the education of the agricultural and industrial classes" (East, 1980, p. 43). These colleges made an affordable alternative to the private universities of the time.

Many land-grant colleges were open to the admission of women, but were unsure as to what to teach them since their role in life was so different from mens' (East, 1980). Originally, women were offered the same courses offered to the men (Eppright & Ferguson, 1971). Some argued that women should be taught "industries that directly concern them as women" (Eppright & Ferguson, p. 1). They asked: "If young men are to be educated to fit them for successful, intelligent, and practical farmers and mechanics, is it not as essential that young women should be educated in a manner that will qualify them to properly understand and discharge their duties as wives of farmers and mechanics" (Eppright & Ferguson, p. 4) and that, according to Bane (1955), "women [were to be] educated so that they would have sound judgment and considerable resourcefulness in determining what a good home needs and how to get it" (as cited in Smith,

1995, p. 14). Dodd (1917) wrote: "...every girl needs some special occupational skill beyond her general training for homemaking...only by such reserve skill can a married woman find financial security in reverses of widowhood, desertion, incapacity or incapability of her husband" (as cited in Walters, 1984, p. 13).

*Domestic economy.* In response to these arguments, universities began to include departments of domestic economy, which was a domestic science that "initiated an effort to apply science to the management of the home" (Richards, 2000, p. 81). Their development was based upon the writings of the educator and philosopher, John Dewey, who felt that intelligence was the "ability which enables productive action rather than that state of mind which can remember masses of information" (East, 1980, p. 15). Therefore, home economics "became known as the subject of cooking and sewing" for girls (East, p. 15) and "was often viewed as parallel with education in agriculture and manual arts for boys" (Smith, 1995, p. 14). Curriculum included "the concept of household sanitation, aesthetics, culinary science...sewing, fitting, marking and accounts" (Smith, 1995, p.14).

*Lake Placid conferences.* A conference was held at Lake Placid, New York in 1899 at which, in part, the name Home Economics was given to this developing discipline (Rudd, 1991). Over the next decade, yearly meetings were held to further delineate the field. The Sixth Lake Placid Conference was held in 1904. During this conference, a purpose was defined:

> "Home economics stands for the ideal home like for today unhampered by the traditions of the past. The utilization of all resources of modern science to improve the home life. The freedom of the home from the dominance of things and their due subordination to ideals. The simplicity in material surrounding which will most free the spirit for the most important and permanent interests if the home and society" (Quilling, 1991, p. 253).

*Disciplines in the field.* Home Economics includes the disciplines of family economics, child development, nutrition, housing, health, and textiles and clothing (Blankenship & Moerchen, 1979). "These subject areas have reflected the basic needs of all individuals for food, clothing, shelter, and physical, social, and emotional well-being" (Quilling, 1991, p. 252).

*Clothing and Textiles*

According to Colleen Frey (1991), the field of "textiles and clothing...developed on two separate tracks that did not intersect for almost ninety years" (p. 18). Textiles schools strove to train men for the textiles industry, often for the "supervisory needs of a cotton textile industry" (Buchanan & Cunning, 2004). Meanwhile, land-grant universities developed schools of home economics that included "the study of sewing and the care of clothing in domestic economy...for the purpose of educating women for future domestic roles" (Frey, p. 18).

The field of textiles and clothing became an official part of home economics subject matter in 1912 (Rudd, 2001). Textiles and Clothing includes the areas of "design, history, social/psychological aspects of dress and appearance, textiles, merchandising, marketing and product development" (Meyer & Kadolph, 2005, p. 212).

*1910s through 1940s.* In the years surrounding the two World Wars, textiles and clothing curriculum focused on economics themes of care, repair and storage as well as conservation and remodeling of clothing (Rudd, 1991). According to Rudd, home economics had to respond to the "changing lifestyle that brought women into the labor market" (p. 24).

*1950s and 1960s.* By the 1950s, home economic curriculum at the college and university level had changed focus from preparing women for housekeeping, to preparing them to be "professional home economists such as...teachers of home and family living" (Smith, 1995). Textiles and clothing was a core part of the curriculum.

Research by Frey (2001) has shown that throughout the 1950s, many colleges throughout the United States offered homemaking as the primary career choice for women, while training men for the textile industry. Eppright (1959) felt that home economists needed to "extend our services to men and boys and to reach families of all economics classes" (as cited in Smith, 1995, p. 14), yet at the end of the decade, men were still primarily taking courses in textile sciences, while women were encouraged to take courses in textile design (Frey, 2001).

In the early 1960s, Michigan State University took on the challenge of reorganizing their clothing construction curriculum in order to increase enrollment and improve classroom instruction (Kernaleguen, 1963). The curriculum shifted focus from skills and techniques to the understanding "principles as a foundation for problem solving" (Kernaleguen, p.35). The university's curriculum is based upon the following three principles:

1. Students should gain and understanding of basic principles fundamental to all aspects of clothing construction and an ability to apply them.
2. Students should develop an understanding of processes and techniques of clothing construction and learn to evaluate them for specific end uses.
3. Students should develop an ability to recognize and/or appreciate standards of clothing construction.

It is upon these three principles that the researcher developed her textile identification packet.

*1970s through 2000.* Recently, the field of Textiles and Clothing has witnessed appreciable changes such as the movement of the curriculum towards an industry orientation (Fiore & Ogle, 2000). To reflect the shift in curriculum from home-based to industry based education, "a number of colleges and programs governing textiles and clothing related departments have changed their names from home economics to consumer sciences. Moreover,

the term clothing...has been replaced by the word apparel," the term preferred by industry (Fiore & Ogle, p. 31).

*Current and future trends.* Current trends in textile education include the use of the internet for an online delivery. This type of course delivery is primarily intended for distance education students, or those "for whom the traditional time- and space-confined aspects of university education are difficult" (Ferguson & Buchanan, 2000, p. 25).

Katz (1999) suggests that online course delivery through the internet is a key element for the future development of higher education. A 2001 study showed that 50 percent out of the 142 surveyed schools with degrees in textiles and apparel offer distance education opportunities (Chen, McKinnon & Warsco, 2001).

Schools such as the University of Leeds have developed a computer-based multimedia program called "Introduction to Textiles". In this program, "students who have either no or limited knowledge of textile and clothing manufacture...gain a basic understanding of...textile and clothing production" (Smith, 1998, p. 15).

*Importance of Textiles courses*

The core building block of any apparel degree is a course in basic textiles. As stated in Kadolph and Langford (2002), "a solid understanding of textile components (fibers, yarns, fabrics and finishes), the interrelationships among these components, and their impact on product performance is necessary to fulfill day-to-day responsibilities in the textile, apparel, and furnishings industry" (p. viii).

This statement is supported by a recent survey of 64 college Clothing and Textile degree programs in the United States. The study identified only four courses that were required by all:

basic apparel construction, social, psychological and cultural aspects of dress, history of costumes, and textiles (Albanese, O'Neill & Hines, 1998).

Beginning textile courses typically include units on "fibers, yarns, fabrications, coloration techniques and finishes" (Ogle & Fiore, 2000, p. 76). There is equal emphasis on the performance and aesthetic characteristics of textiles as well as the needs of the consumer (Ogle & Fiore).

Performance and aesthetic characteristics of a textile are dependent upon its fabrication. For example, a textile constructed in a plain weave will be less absorbent, less tear resistant and more easily wrinkled than a similar textile constructed in a twill weave (Kadolph & Langford, 2002).

*Importance of Swatch Kit*

According to Ferguson and Buchanan, (2003) students retain only 5% of information delivered through lecture. Thus, some form of "hands-on" activity is needed. According to East (1980), "hands-on" experience...is important, not merely because it developed useful skills, but because it led to important intellectual and moral traits and to generalized basic insights" (p. 13). "Understanding textiles cannot be achieved only by studying [a] book; it also requires working with fabrics" (Kadolph & Langford, 2002, p. viii). The most commonly used tool is the swatch kit. According to Kadolph & Langford (2002) "...basic textile swatch kits...usually consist of fabric swatches, mounting sheets, and a master list with fabric name/description/fiber content (Kadolph & Langford, p. x).

*Need For More Research*

Overall, there are not a lot of venues available for textile educators to publish. The primary journal is the Clothing and Textile Research Journal (CTRJ) published by the

International Textiles and Apparel Association (ITAA). One of the original objectives of the journal was to promote "the effectiveness of textiles and clothing programs at the college and university level" (Meyer & Kadolph, 2005, p. 209). As cited in Meyer and Kadolph, a study by Mary Lynn Damhorst (1999) found that "only five percent of the manuscripts published by CTRJ focused on teaching and suggested that ITAA members do not 'think that teaching is important enough to do extensive thinking and critical writing about it'" (p. 209).

This problem was emphasized in 1973 when Geital Winakor, then the editor of the Home Economics Research Journal (now the Journal of Family & Consumer Sciences) spoke at the Annual Conference of the Association of College Professors of Textiles and Clothing (ACPTC, now ITAA). She was addressing ACPTC's desire to create their own research journal. In part, her response was as follows: "There does not appear to be a sufficient number of clothing and textiles papers of publishable quality at the present time to sustain a separate research journal in these fields alone" (Winakor, 1973, p. 99).

*Summary*

The field of clothing and textiles has been a part of home economics from its beginning, and has been closely tied with the history of women in college (East, 1980). The clothing and textiles curriculum has evolved to meet both societal and economic changes. The primary shift has been from a home-based to an industry-based education.

Regardless of the curriculum basis, the majority of colleges and universities agree that basic textiles knowledge is a vital part of an education. This knowledge should include an understanding of the fiber content and the construction of a fabric in order to determine its performance and aesthetic characteristics. The most common method used to study textiles is through the use of a fabric swatch kit.

# Chapter Three: Methodology

This chapter will discuss the objectives of the research, the subjects selected for study, the instrumentation developed for this study, and data collection procedures. Additionally, the teaching methodology and the evaluation methods of a basic textiles course will be examined. The development of a textile identification packet used to determine the level of students' textiles knowledge will be described, and the chapter will conclude with data analysis procedures. The objectives of the study are listed below.

*Objectives of the Study*

1. Describe students' attitudes and behaviors toward textiles using information gathered from a survey instrument.
2. Identify differences in attitudes regarding textiles between the control and experimental groups before and after a textiles class.
3. Identify differences in behaviors regarding textiles between the control and experimental groups before and after a textiles class.
4. Examine differences in attitudes regarding textiles among majors.
5. Examine differences in behaviors regarding textiles among majors.
6. Determine if limiting the quantity of textiles swatches and increasing the size of the swatches would improve students' textile knowledge through analysis of scores on unit tests, laboratory worksheets and final grades.

*Subject Selection and Description*

Students in the Apparel Design and Development (ADD), Retail Merchandising and Management (RMM), and Family and Consumer Science Education (FCSE) majors at the University of Wisconsin-Stout (UW-Stout) take a basic textiles course as an underclassman. Students in two sections of the textiles class at UW-Stout during the Fall 2004 semester comprised the groups. APRL-140-001 served as the experimental group, APRL-140-002 served as the control group.

*Assignment to groups*. The Textiles course at UW-Stout was listed under two separate course numbers. Firstly, there was APRL-140 which was intended for ADD and FCSE students. Typically there were two sections of this course each semester. The other course was APRL-145 which was intended for all other students, including RMM; there was usually one section each semester.

Although the course is listed with two separate numbers, these were actually the same course. Both APRL-140 and APRL-145 met in the same lecture, completed the same laboratory manual and laboratory matching assessment, and had the same assignments. The only difference between the two courses was that they met in separate lab sessions.

Students were advised to take the appropriate course required by their major, but tended to enroll in whichever course best fit their schedule. The researcher had no control over who enrolled in which section, since students had enrolled in the Fall 2004 sections of APRL-140 the previous spring. The researcher had to choose the control and experimental groups from pre-existing groups, so could not ensure an equal division of majors in each group, or randomly assign subjects to the groups.

During the Fall 2004 semester, the researcher had three options for the control and experimental groups: two sections of APRL-140 and one section of APRL-145. APRL-140 section one was chosen as the control group and APRL-140 section two as the experimental group due to the shared course number.

*Survey Instrument*

A 33 question survey was developed to determine basic demographic information such as age, sex and major, as well as interests, attitudes and behaviors regarding textiles prior to and after taking the class. The survey was printed on both sides of a legal-sized sheet of paper for ease of completion. The survey is reproduced in Appendix A in letter-size format. The consent form is reproduced in Appendix B.

*Demographics.* The first section of the survey asked about basic demographic information such as age, sex, major and year in school. More specific questions were asked about credits taken, hours per week spent studying, current and previous course work, as well as hobbies and clubs.

*Attitudes.* Students were asked a series of questions intended to gauge their attitudes regarding textiles. Questions included those about careers, textile knowledge and preferences. Responses used the following Likert scale: 1 = strongly disagree, 2 = disagree, 3 = no opinion, 4 = agree, and 5 = strongly agree.

*Behaviors.* Textile related behavior questions included those about purchasing and laundering habits. Responses used the following Likert scale: 1 = never, 2 = rarely, 3 = sometimes, 4 = often, and 5 = always.

*Pilot testing.* The survey was pilot tested during the summer of 2004. The survey was given to ten students of UW-Stout to test for usability of the survey. Due to the limited number

of available students during the summer session, surveys were given to ten students at random. No changes were made to the survey as a result of the pilot test.

*Data collection procedures*. The survey was administered in pretest – post test format. It was first administered at the beginning of the Fall 2004 semester to both sections of the course including section one, the experimental group and section two, the control group. The same survey was administered at the end of the semester to determine if there were any changes in the students' interests, attitudes and behaviors after having taken the textiles course.

*Teaching Methodology*

An introductory textiles 3-semester credit course was required for students in the Apparel Design and Development, Retail Merchandising and Management, and Family and Consumer Sciences Education majors at UW-Stout in 2004. A copy of the course syllabus appears in Appendix C.

*Curriculum.* The curriculum was divided into the following seven units: terminology, natural fibers, man-made fibers, yarns, fabric construction, finishes and color. The fabric construction section included units on weaves, knits and other construction methods.

Students were first lectured on the concepts for a particular unit of the curriculum. Students next completed the appropriate section of the laboratory manual, and a laboratory matching assessment was taken. The unit was concluded by the administration of a unit test used to evaluate students' comprehension.

*Evaluation methods*. Student evaluation included unit tests, a laboratory manual with fabric swatches, laboratory matching assessment and other activities. Table 1 has been provided to illustrate the relationship between the evaluation methods with the curriculum units.

Table 1 Textiles Course Curriculum Units

| Curriculum Unit | Laboratory Manual | Laboratory Matching Assessment | Unit Test |
|---|---|---|---|
| Terminology | Lab 1: Terminology | None | Terminology Quiz |
| Natural Fibers | Lab 2: Natural Fibers | None | Natural Fibers |
| Synthetic and Man-made Fibers | Lab 3: | None | Synthetic and Man-made Fibers |
| Yarns | Lab 4: | Yarns | Yarns |
| | Lab 5: | | |
| Fabric Construction | Lab 6: Plain, Rib and Basket Weave | Plain, Rib and Basket Weave | Weaves and Knits |
| | Lab 7: Other Weaves | Weaves | |
| | | Woven Fabric Names | |
| | Lab 8: Knits | Knits | |
| | Lab 9: Fabric Construction | Fabric Construction | Fabric Construction |
| Finishes | Lab 10: Finishes | None | Color and Finishes |
| Color | Lab 11: Color | None | |

*Laboratory manual worksheets.* The manual included a total of 11 sections, including terminology, natural fibers, synthetic fibers, yarns (two sections), plain, rib and basket weaves, additional weaves, knits, fabric construction, finishes, and color. Each section in the manual contained approximately 10 lab worksheets, which were completed and handed in at the end of

the lab period. The worksheets were scored by the instructor and comprised 35% of the total points possible in the course.

*Laboratory matching assessment.* Students in the control group took a matching assessment at the completion of each section of the laboratory manual. See Table 1. Assessments included yarns, plain, rib and basket weaves, weaves, woven fabric names, knits, fabric construction and finishes. The post tests were intended to measure students' ability to identify specific fabrics. Each post test contained between 23 and 40 fabric swatches 3" x 4" in size.

Students took the assessments during the 2-hour lab session, and after they had completed the assigned section in the laboratory manual. The assessments were handed in as they were completed. The assessments were scored by the instructor and comprised 20% of the total points possible in the course.

*Unit tests.* Evaluation included seven unit tests that included a series of objective questions, as well as a fabric identification portion. Tests were divided into the following units: terminology, natural fibers, synthetic fibers, yarns, weaves and knits, fabric construction, and color and finishes. The unit tests were developed by the instructor and were taken by the students at the completion of each curriculum unit. The objective portion of the tests consisted of a combination of between 50 and 100 multiple-choice, matching and true-false questions. Unit tests comprised 35% of the total points possible in the course.

Five of the unit tests included fabric identification as a part of the test. Various fabric swatches were mounted on an answer sheet, which was developed by the instructor. See Appendix D. Two or three different sets of fabric were randomly assigned to the students so that one student would not have the same fabric swatches as their neighbor Students took these unit tests during the 55 minute lecture period.

Two unit tests on natural fibers and synthetic fibers were objective test items only and did not include a fabric identification portion. Students took these unit tests during the 2-hour lab period.

The objective items in the unit test were scored by computer, and the fabric identification portions were scored by the instructor. After scoring, the fabric identification portion of the unit test was returned to the student.

*Development of Textile Identification Packet*

One objective of this study was to determine if limiting the quantity of textiles swatches students were exposed to and increasing the size of the swatches would improve students' textile knowledge. The hypothesis was that students who were exposed to fewer fabrics, but studied them more frequently and in depth, would have a better understanding of textile concepts than those who were exposed to a great many fabrics for a brief period.

To reach this objective, the instructor developed a textile identification packet to replace the current laboratory matching assessment. The experimental group was to complete the new packet, while the control group completed existing matching assessments.

*Fabric exposure by students*. Students were exposed to many fabrics during the textiles course. When completing the laboratory manual worksheets, students in both the control and experimental groups were supplied with various 2' x 3" numbered fabric swatches that were to be adhered to the appropriate spaces in the manual. Students in the control group were exposed to between twenty-six and forty 3" x 4" swatches in each of the matching assessments.

*Description of textile identification packet.* Students in the experimental group completed a textile identification packet containing 20 fabrics that exemplified the full range of fabric characteristics discussed as part of the curriculum. Sixty-four different fabrics were chosen and

cut into 8" x 10" swatches that were placed in a plastic sheet protector. The larger sample size better exhibited the look, texture, hand and drape of the fabric, as opposed to the traditional 2" x 3" swatches given to the students in their lab manuals or the 3" x 4" fabric sample in the matching assessment.

Twenty fabrics were chosen at randomly from the 64, and placed in a three-ring binder. A list of the fabrics appears in Appendix E. Each student received his or her own binder. Students were not allowed to remove the binders from the classroom or to cut, ravel or otherwise damage the large fabric swatch.

Students were also given worksheets created specifically to accompany the textile identification packet (Appendix F). The worksheet had sections for students to identify yarn type and structure, thread or stitch count, weave or knit type, method of coloring the textile, aesthetic or special purpose finishes, other details about the textile, and the fabric name. Students were given 20 worksheets, each numbered to correspond with the fabrics in their packet. A 2"x 3" swatch of the corresponding was attached to this worksheet to aid in yarn identification.

The experiment took place during the Fall 2004 semester. The experimental textile identification packet was used in conjunction with the curriculum, but replaced the existing matching assessment. When the unit on yarns was discussed, students would study the yarns in their swatch packet and report the information on the worksheet. When the unit on weaves was discussed, students would study the weaves, etcetera.

*Evaluation of textile identification packet.* The textile identification packet was collected from students at the end of the semester. Answer sheets were corrected by the instructor, and returned to the students. The textile identification packet comprised approximately 20% of the total points possible in the experimental group.

*Data Analysis*

Many types of data analysis were used in this study. Cross tabulation, including frequency counts and percentages were used to report demographic data as well as responses to attitude and behavior statements.

Means and standard deviations, as well as dependent groups T-tests were used to analyze attitudes and behaviors. Independent groups T-tests and two way analysis of variance with repeated measures was used to analyze responses between pretest and post test. One way analysis of variance with a Newman-Keuls Multiple Range Test was used to analyze attitudes regarding textiles and textile-related behaviors among the three majors.

# Chapter Four: Results

This chapter will present the results of the survey and a discussion of the results. The demographic findings will be discussed. Attitude and behavior findings were analyzed between the control and experimental groups, then by student major.

To determine if the textile related knowledge of the experimental group was significantly different than that of the control group at the end of the semester, laboratory report results, unit test and final exam scores were examined between the control and experimental groups. Additionally, final exam scores were also compared between majors.

## *Demographics*

Each respondent was asked to complete several demographic questions. The demographics of the control and experimental groups were defined, in part, by major, age, gender, and year in school. The demographic questions were intended to gauge the similarities and differences between and among the groups.

At the beginning of the semester, there were 34 students enrolled in the control group. Two students dropped the course during the semester. Of the 32 remaining students, four did not complete the post test. A total of 28 students were included in the control group.

There were 34 students enrolled in the experimental group. Three students dropped during the course of the semester, leaving 31 students. Of those 31, one student did not complete the post test. Thus, 30 students were included in the experimental group.

*Major.* Students were given six choices for indicating their major. These included Apparel Design and Development (ADD), Art/Art Education, Early Childhood Education, Family and Consumer Sciences Education (FCSE), Human Development and Family Studies, and Retail Merchandising and Management (RMM). Only three majors were selected by the

students (ADD, FCSE and RMM), therefore the remaining majors were not included in the tabulation.

Most of the students in the control group (60.71%) were in the ADD major (n=17), one-quarter (25.00%) of the students were in the RMM major (n=7) and the remainder (14.3%) in the FCSE major (n=4). About half of the students in the experimental group (46.7%) of the students were in the RMM major (n=14), one-third of the students (33.3%) were in the ADD major (n=10), and 20.0% in the FCSE major (n=6).

*Age.* It was expected that there would be a wide range of ages since both classes included non-traditional students. Non-traditional students are defined as those 24 years of age and older.

Most of the students (71.4 – 73.3%) were between 20 and 21 years-old in both the control (n=20) and experimental groups (n=18). About one-fifth of the students (21.4 – 23.3%) were between 18 and 19 years of age and the remainder (3.3 – 7.1%) of the students were between 25 and 32 years of age.

Table 2 Age of Respondents

| | Years of Age | | | | | |
|---|---|---|---|---|---|---|
| | 18 – 19 | | 20 – 22 | | 25 – 32 | |
| | N | % | N | % | n | % |
| Control | 6 | 21.4 | 20 | 71.4 | 2 | 7.1 |
| Experimental | 7 | 23.3 | 22 | 73.3 | 1 | 3.3 |

*Gender.* Students were asked to indicate their gender. Most of the students (96.6%) were female in both the control (n=26) and the experimental groups (n=30). There were two males (3.4%) in the control group. None of the students in the experimental group were male.

*Year in college.* Students self-identified their year in college. The choices included freshman, sophomore, junior and senior. Students in their fifth or sixth year of college were classified as seniors. Over half (53.6%) of students in the control group were sophomores (n=15), over one-third (35.7%) were juniors (n=10) and the remainder (10.7%) were freshmen and seniors (n=3). In the experimental group, most of the students (83.3%) were sophomores (n=12) or juniors (n=13). The remainder of the students (16.7%) were freshmen and seniors (n=5).

*Credits taken during current semester.* Students were asked to indicate how many course credits they were taking during the semester. Many responses changed between the pretest and the post test due to the adding and dropping of courses.

All of the students (100%) were considered to be a full-time student, taking 12 or more credits. Most of the students in the control group (78.6%, n=22) were taking between 14 and 16 credits during the semester. The remainder (21.4%) were taking between 12 and 13 credits (n=4) or between 17 and 18 credits (n=2). No students (0.0%) in the control group were taking more than 18 credits. Most of the students in the experimental group (60.0%, n=18) were taking between 15 and 17 credits. About one-third (30.0%) were taking between 12 and 14 credits (n=9) and the rest (10.0%) were taking between 18 and 20 credits.

Table 3 Number of Credits Taken During Semester

| | Control | Experimental |
|---|---|---|
| | n = 28 | n = 30 |
| | $\bar{x}$ | $\bar{x}$ |
| Pretest | 14.7143 | 15.3333 |
| Post Test | 14.8571 | 15.4000 |

*Course required, elective or retake.* All of the students had textiles as a required course in their major. Most of the students (98.3%) in the control (n=28) and the experimental group (n=29) were taking textiles for the first time. One student in the experimental group (1.7%) indicated that the course was being taken for a second time.

*Previous freshman level apparel courses.* Students were asked to indicate which of the existing freshman level apparel courses they had previously taken whether at UW-Stout or another college. The choices were as follows: Introduction to Apparel Design and Development, Apparel Construction, Pattern Development and Apparel Line Development. All four of these courses were required for all Apparel Design and Development majors; students in the Family and Consumer Sciences Education major were required to take Apparel Construction. Additionally, a student may have chosen more than one response, so may be represented multiple times.

Of the 21 students in the control group responding, six students had previously taken Introduction to Apparel Design and Development and five had taken Apparel Construction. Of the 24 students in the experimental group, four students had previously taken Introduction to Apparel Design and Development, seven had taken Apparel Construction, and one each for Pattern Development and Apparel Line Development.

*Current freshman level apparel courses.* Students were asked to indicate the freshman level apparel classes they were currently taking in addition to textiles including: Introduction to Apparel Design and Development, Apparel Construction, Pattern Development and Apparel Line Development. In the control group, 11 students were taking Introduction to Apparel Design and Development, 12 were enrolled in Apparel Construction and two were enrolled in Pattern

Development. In the experimental group, eight students were enrolled in Introduction to Apparel Design and Development and seven were taking Apparel Construction.

*Student Attitudes Between Control and Experimental Groups*

Students responded to a series of statements designed to gauge the attitudes prior to and after completing the freshman textiles course at UW-Stout. Responses used the following Likert scale: 1 = strongly disagree, 2 = disagree, 3 = no opinion, 4 = agree, and 5 = strongly agree. For complete results, see Appendix G.

*Pretest attitude ranking.* At the beginning of the semester, students were asked to indicate their attitudes toward apparel and textiles. Results are reported in Table 4.

The top three highest ranked attitudes in the control group were as follows: "I enjoy going to fabric stores" ($\bar{x}$ = 4.29), "I plan to pursue a career involving textiles" ($\bar{x}$ = 4.25), and "Texture of apparel and fabric is important to me" ($\bar{x}$ = 4.18). Students in the experimental group ranked the following items in the top two: "Ease of clothing care is important to me" ($\bar{x}$ = 4.20) and "Texture of apparel and fabric is important to me" ($\bar{x}$ = 3.97). A third place tie included the items "I plan to pursue a career involving textiles" and "I am willing to spend more money on quality clothing" ($\bar{x}$ = 3.83 each). Both groups responded least positively to "I currently know a good deal about textiles" (control, $\bar{x}$ = 2.18, experimental, $\bar{x}$ =2.33).

Table 4 Pretest Attitude Ranking

| Item # | Item | | $\bar{x}$ | Rank |
|---|---|---|---|---|
| 15 | I plan to pursue a career | Control | 4.25 | 2 |
| | involving textiles. | Experimental | 3.83 | 3 & 4 |
| 16 | I currently know a good deal | Control | 2.18 | 10 |
| | about textiles. | Experimental | 2.33 | 10 |
| 17 | Ease of clothing care is | Control | 3.82 | 4 |
| | important to me. | Experimental | 4.20 | 1 |
| 18 | I prefer natural fibers to | Control | 3.32 | 8 |
| | synthetic fibers. | Experimental | 3.30 | 8 & 9 |
| 19 | I am aware of the use of | Control | 3.50 | 7 |
| | textiles in other products. | Experimental | 3.33 | 7 |
| 20 | I know what to look for in | Control | 3.29 | 9 |
| | quality clothing/fabrics. | Experimental | 3.30 | 8 & 9 |
| 21 | I am willing to spend more | Control | 3.68 | 6 |
| | money on quality clothing. | Experimental | 3.83 | 3 & 4 |
| 22 | I am willing to spend more | Control | 3.71 | 5 |
| | time shopping... | Experimental | 3.57 | 6 |
| 23 | I enjoy going to fabric | Control | 4.29 | 1 |
| | stores. | Experimental | 3.77 | 5 |
| 24 | Texture of apparel and | Control | 4.18 | 3 |
| | fabric is important to me. | Experimental | 3.97 | 2 |

*Post test attitudes ranking.* At the end of the semester, students were asked to indicate their attitudes toward apparel and textiles. Results are reported in Table 5. Students in the control group responded most positively to the same items as in the pretest, although rankings have changed. The top three items include: "Texture of apparel and fabric is important to me" ($\bar{x}$ = 4.21), "I enjoy going to fabric stores" ($\bar{x}$ = 4.18), and "I plan to pursue a career involving textiles" ($\bar{x}$ = 4.14). Students in the experimental ranked the following items as the top three: "I know what to look for in quality clothing/fabrics" ($\bar{x}$ = 4.21), "Ease of clothing care is important to me" ($\bar{x}$ = 4.17), and "I am aware of the use of textiles in other products" ($\bar{x}$ = 4.13). The item "I plan to pursue a career involving textiles", dropped from third place to seventh in ranking.

Both groups responded least positively to the item "I prefer natural fibers to synthetic fibers" (control, $\bar{x}$ = 3.25, experimental, $\bar{x}$ =3.27). The item "I enjoy going to fabric stores" had the widest gap in rank between the control group (#2) and the experimental group (#9).

Table 5 Post Test Attitude Ranking

| Item # | Item | | $\bar{x}$ | Rank |
|---|---|---|---|---|
| 15 | I plan to pursue a career | Control | 4.14 | 3 |
| | involving textiles. | Experimental | 3.87 | 7 & 8 |
| 16 | I currently know a good | Control | 3.75 | 9 |
| | deal about textiles. | Experimental | 3.87 | 7 & 8 |
| 17 | Ease of clothing care is | Control | 4.11 | 4 & 5 |
| | important to me. | Experimental | 4.17 | 2 |
| 18 | I prefer natural fibers to | Control | 3.25 | 10 |
| | synthetic fibers. | Experimental | 3.27 | 10 |
| 19 | I am aware of the use of | Control | 3.96 | 7 & 8 |
| | textiles in other products. | Experimental | 4.13 | 3 |
| 20 | I know what to look for in | Control | 4.11 | 4 & 5 |
| | quality clothing/fabrics. | Experimental | 4.27 | 1 |
| 21 | I am willing to spend more | Control | 3.96 | 7 & 8 |
| | money on quality clothing. | Experimental | 3.90 | 6 |
| 22 | I am willing to spend more | Control | 4.04 | 6 |
| | time shopping... | Experimental | 3.97 | 5 |
| 23 | I enjoy going to fabric | Control | 4.18 | 2 |
| | stores. | Experimental | 3.70 | 9 |
| 24 | Texture of apparel and | Control | 4.21 | 1 |
| | fabric is important to me. | Experimental | 4.03 | 4 |

*Significant Differences in Attitudes Between Control and Experimental Groups*

Research Objective number 2 was intended to determine if there were significant differences in attitudes between control and experimental groups. Results are reported in Table 6. Using T tests, significant differences at the .05 level were found in two of the pretest attitude items: "Ease of clothing care is important to me" with $\bar{x}$ =3.83 in the control group, and $\bar{x}$ =4.20 in the experimental group. "I enjoy going to fabric stores" was also significant at the .05 level with $\bar{x}$ =4.29 in the control group, and $\bar{x}$ =3.77 in the experimental group.

Trends at the .10 level were found on two of the attitude items. A trend in the pretest was found on "I plan to pursue of a career involving textiles" with $\bar{x}$ =4.25 in the control group, and $\bar{x}$ =3.83 in the experimental group. A trend in the post test was found on "I enjoy going to fabric stores" with $\bar{x}$ =4.18 in the control group, and $\bar{x}$ =3.70 in the experimental group.

Table 6 Significant Differences in Attitudes from Pretest to Post Test

| Item | | Control n = 28 | Experimental n = 30 | T | Significant Difference |
|---|---|---|---|---|---|
| | | $\bar{x}$ | $\bar{x}$ | | |
| I plan to pursue a career | Pretest | 4.25 | 3.83 | 1.688 | .097 |
| involving textiles. | Post Test | 4.14 | 3.87 | 1.043 | .302 |
| I currently know a good deal | Pretest | 2.18 | 2.33 | -.708 | .482 |
| about textiles. | Post Test | 3.75 | 3.87 | -.813 | .420 |
| Ease of clothing care is | Pretest | 3.82 | 4.20 | -2.078 | .042 |
| important to me. | Post Test | 4.11 | 4.17 | -.340 | .735 |
| I prefer natural fibers to | Pretest | 3.32 | 3.30 | .098 | .922 |
| synthetic fibers. | Post Test | 3.25 | 3.27 | -.103 | .918 |
| I am aware of the use of | Pretest | 3.50 | 3.33 | .612 | .543 |
| textiles in other products. | Post Test | 3.96 | 4.13 | -1.267 | .210 |
| I know what to look for in | Pretest | 3.29 | 3.30 | -.059 | .953 |
| quality clothing/fabrics. | Post Test | 4.11 | 4.27 | -1.191 | .239 |
| I am willing to spend more | Pretest | 3.68 | 3.83 | -.678 | .501 |
| money on quality clothing. | Post Test | 3.96 | 3.90 | .336 | .738 |
| I am willing to spend more | Pretest | 3.71 | 3.57 | .672 | .504 |
| time shopping… | Post Test | 4.04 | 3.97 | .348 | .729 |
| I enjoy going to fabric stores. | Pretest | 4.29 | 3.77 | 2.154 | .036 |
| | Post Test | 4.18 | 3.70 | 1.776 | .082 |
| Texture of apparel and fabric | Pretest | 4.18 | 3.97 | 1.160 | .251 |
| is important to me. | Post Test | 4.21 | 4.03 | 1.017 | .314 |

*Student Behaviors Between Control and Experimental Groups*

Students responded to a series of statements designed to gauge the behaviors of the control and experimental groups prior to and after completing the freshman textiles course at UW-Stout. Responses used the following Likert scale: 1 = never, 2 = rarely, 3 = sometimes, 4 = often, and 5 = always. For complete results, see Appendix H.

*Pretest behavior ranking.* At the beginning of the semester, students were asked to indicate their behaviors toward apparel and textiles. Results are reported in Table 7.

Students in the control group and experimental groups responded most positively to the same top three items. They were as follows: "I separate my clothing when laundering" (control, $\bar{x} = 4.63$, experimental, $\bar{x} = 4.67$), "I pay attention to other people's clothing" (control, $\bar{x} = 4.41$, experimental, $\bar{x} = 4.17$), and "I follow the care label" (control, $\bar{x} = 3.89$, experimental, $\bar{x} = 4.17$). Both groups responded least positively to "I read sewing or craft magazines" (control, $\bar{x} = 1.59$, experimental, $\bar{x} = 1.60$).

Table 7 Pretest Behavior Ranking

| Item # | Item | | $\bar{x}$ | Rank |
|---|---|---|---|---|
| 25 | I check for fiber content | Control | 2.37 | 7 |
| | when purchasing clothing. | Experimental | 2.73 | 7 |
| 26 | I examine the fabric when | Control | 3.37 | 5 |
| | purchasing clothing. | Experimental | 3.53 | 5 |
| 27 | I check the care label when | Control | 3.26 | 6 |
| | purchasing clothing. | Experimental | 3.43 | 6 |
| 28 | I follow the care label | Control | 3.89 | 3 |
| | when laundering clothing. | Experimental | 4.17 | 2 & 3 |
| 29 | I separate my clothing | Control | 4.63 | 1 |
| | when laundering, | Experimental | 4.67 | 1 |
| 30 | I use proper stain removal | Control | 3.82 | 4 |
| | techniques... | Experimental | 3.70 | 4 |
| 31 | I watch sewing/quilting | Control | 1.85 | 8 |
| | shows on TV. | Experimental | 1.70 | 8 |
| 32 | I read sewing or craft | Control | 1.59 | 9 |
| | magazines. | Experimental | 1.60 | 9 |
| 33 | I pay attention to other | Control | 4.41 | 2 |
| | people's clothing. | Experimental | 4.17 | 2 & 3 |

*Post test behavior ranking.* At the end of the semester, students were asked to indicate their behaviors toward apparel and textiles. Results are reported in Table 8.

Students in the control group ranked the following statements as the top three: "I pay attention to other people's clothing" ( $\bar{x}$ = 4.44), "I separate my clothing when laundering" ( $\bar{x}$ = 4.41), and "I examine the fabric when purchasing clothing" ( $\bar{x}$ = 3.85). Students in the experimental ranked the following statements as the top three: "I separate my clothing when laundering" ( $\bar{x}$ = 4.63), "I pay attention to other people's clothing" ( $\bar{x}$ = 4.17), "I follow the care label when laundering clothing" and "I use proper stain removal techniques" ( $\bar{x}$ = 4.10).

Table 8 Post Test Behavior Ranking

| Item # | Item | | $\bar{x}$ | Rank |
|---|---|---|---|---|
| 25 | I check for fiber content | Control | 3.19 | 7 |
| | when purchasing clothing. | Experimental | 3.17 | 7 |
| 26 | I examine the fabric when | Control | 3.85 | 3 & 4 |
| | purchasing clothing. | Experimental | 3.80 | 5 |
| 27 | I check the care label when | Control | 3.44 | 6 |
| | purchasing clothing. | Experimental | 3.40 | 6 |
| 28 | I follow the care label | Control | 3.85 | 3 & 4 |
| | when laundering clothing. | Experimental | 4.10 | 3 & 4 |
| 29 | I separate my clothing | Control | 4.41 | 2 |
| | when laundering, | Experimental | 4.63 | 1 |
| 30 | I use proper stain removal | Control | 3.74 | 5 |
| | techniques... | Experimental | 4.10 | 3 & 4 |
| 31 | I watch sewing/quilting | Control | 1.96 | 8 & 9 |
| | shows on TV. | Experimental | 1.67 | 9 |
| 32 | I read sewing or craft | Control | 1.96 | 8 & 9 |
| | magazines. | Experimental | 1.77 | 8 |
| 33 | I pay attention to other | Control | 4.44 | 1 |
| | people's clothing. | Experimental | 4.17 | 2 |

*Significant Differences in Behaviors Between Control and Experimental Groups*

Research Objective number 3 was intended to determine if there were significant differences in behaviors between control and experimental groups. T tests were performed, but no significant differences were found.

Table 9 Significant Differences in Behaviors from Pretest to Post Test

| Question | | Control N = 28 | Experimental N = 30 | T | Significant Difference |
|---|---|---|---|---|---|
| | | $\bar{x}$ | $\bar{x}$ | | |
| I check for fiber content when | Pretest | 2.36 | 2.73 | -1.316 | .194 |
| purchasing clothing. | Post Test | 3.19 | 3.17 | .072 | .943 |
| I examine the fabric when | Pretest | 3.32 | 3.53 | -.894 | .375 |
| purchasing clothing. | Post Test | 3.85 | 3.80 | .209 | .835 |
| I check the care label when | Pretest | 3.25 | 3.43 | -.640 | .525 |
| purchasing clothing. | Post Test | 3.44 | 3.40 | .166 | .869 |
| I follow the care label when | Pretest | 3.89 | 4.17 | -1.220 | .228 |
| laundering clothing. | Post Test | 3.85 | 4.10 | -1.224 | .226 |
| I separate my clothing when | Pretest | 4.64 | 4.67 | -.126 | .900 |
| laundering, | Post Test | 4.41 | 4.63 | -1.097 | .279 |
| I use proper stain removal | Pretest | 3.71 | 3.70 | .052 | .959 |
| techniques... | Post Test | 3.74 | 4.10 | -1.424 | .161 |
| I watch sewing/quilting shows | Pretest | 1.82 | 1.70 | .531 | .597 |
| on TV. | Post Test | 1.96 | 1.67 | 1.091 | .280 |
| I read sewing or craft | Pretest | 1.57 | 1.60 | -.120 | .905 |
| magazines. | Post Test | 1.96 | 1.77 | .731 | .468 |
| I pay attention to other | Pretest | 4.39 | 4.17 | .903 | .370 |
| people's clothing. | Post Test | 4.44 | 4.17 | 1.446 | .154 |

*Student Attitudes among Majors*

Student attitudes among the Apparel Design and Development, Family and Consumer Science and Retail Merchandising and Management majors were compared. The results follow:

*Pretest attitudes.* A one-way analysis of variance was done to determine differences among the three majors on pretest attitudes. Results appear in Table 10. Significant differences

were found at the .05 level with the following items: "I plan to pursue a career involving textiles" (ADD $\bar{x}$ =4.37, FCSE $\bar{x}$ =3.90, RMM $\bar{x}$ =3.67), "I currently know a good deal about textiles" (ADD $\bar{x}$ =2.52, FCSE $\bar{x}$ =1.80, RMM $\bar{x}$ =2.14) and "I am aware of the use of textiles in products other than apparel" (ADD $\bar{x}$ =3.78, FCSE $\bar{x}$ =3.40, RMM $\bar{x}$ =2.95).

Very highly significant differences were found at the .001 level for the items "I am willing to spend more money on quality clothing" (ADD $\bar{x}$ =4.11, FCSE $\bar{x}$ =2.90, RMM $\bar{x}$ =3.71), "I am willing to spend more time shopping" (ADD $\bar{x}$ =4.04, FCSE $\bar{x}$ =2.80, RMM $\bar{x}$ =3.52) and "I enjoy going to fabric stores" (ADD $\bar{x}$ =4.52, FCSE $\bar{x}$ =3.57, RMM $\bar{x}$ =3.60).

A highly significant difference at the .01 level was found on the item "Texture of apparel and fabric is important to me". Average responses are ADD $\bar{x}$ =4.37, FCSE $\bar{x}$ =3.90, RMM $\bar{x}$ =3.67.

Using Newman-Keuls Multiple Range tests, there were four cases in which the ADD majors scored higher than FCSE and RMM majors on pretest attitudes items. These items included: "I currently know a good deal about textiles", "I know what to look for in quality clothing/fabrics", "I enjoy going to fabric stores" and "Texture of apparel and fabric is important to me". In four cases, items "I currently know a good deal about textiles", "I know what to look for in quality clothing/fabrics", "I am willing to spend more money on quality clothing" and "Texture of apparel and fabric is important to me", the RMM majors scored significantly higher than FCSE on pretest attitudes.

Table 10 Significant Differences in Attitudes among Majors during the Pretest

| | | ADD | FCSE | RMM | | |
|---|---|---|---|---|---|---|
| Item | | N =27 | n =10 | n =21 | F | Sig Level |
| I plan to pursue a career | $\bar{x}$ | 4.37 | 3.90 | 3.67 | 3.638 | .05 |
| involving textiles. | SD | .884 | .568 | 1.065 | | |
| I currently know a good | $\bar{x}$ | 2.52bc | 1.80 | 2.14b | 3.315 | .05 |
| deal about textiles. | SD | .975 | .422 | .655 | | |
| Ease of clothing care is | $\bar{x}$ | 4.00 | 3.80 | 4.14 | .792 | |
| important to me. | SD | .877 | .632 | .478 | | |
| I prefer natural fibers to | $\bar{x}$ | 3.41 | 3.40 | 3.14 | .678 | |
| synthetic fibers. | SD | .747 | .843 | .910 | | |
| I am aware of other uses | $\bar{x}$ | 3.78 | 3.40 | 2.95 | 4.098 | .05 |
| of textiles... | SD | .892 | 1.174 | 1.024 | | |
| I know what to look for | $\bar{x}$ | 3.52bc | 2.70 | 3.29b | 3.119 | close |
| in quality clothing. | SD | .893 | .949 | .845 | | |
| I am willing to spend | $\bar{x}$ | 4.11b | 2.90 | 3.71b | 9.297 | .001 |
| more money... | SD | .577 | 1.197 | .717 | | |
| I am willing to spend | $\bar{x}$ | 4.04 | 2.80 | 3.52 | 11.470 | .001 |
| more time shopping... | SD | .587 | .789 | .814 | | |
| I enjoy going to fabric | $\bar{x}$ | 4.52bc | 3.57 | 3.60 | 9.122 | .001 |
| stores. | SD | .802 | .699 | .926 | | |
| Texture of apparel is | $\bar{x}$ | 4.33bc | 3.60 | 3.95b | 5.148 | .01 |
| important to me. | SD | .679 | .516 | .669 | | |

*Using Newman-Keuls Multiple Range Test, means with subscripts are significantly different at $p \leq 0.05$; "a", with Apparel Design and Development, "b", with Family and Consumer Science Education, and "c", with Retail Merchandising and Management.

*Post test attitudes*. A one-way analysis of variance was done to determine differences among the three majors on pretest attitudes. Results appear in Table 11.

A significant difference was found at the .05 level with the item "I am willing to spend more time shopping" (ADD $\bar{x}$ =4.22, FCSE $\bar{x}$ =3.50, RMM $\bar{x}$ =3.95). Very highly significant differences were found at the .001 level for the items "I am willing to spend more money on quality clothing" (ADD $\bar{x}$ =4.19, FCSE $\bar{x}$ =3.20, RMM $\bar{x}$ =3.95) and "I enjoy going to fabric stores" (ADD $\bar{x}$ =4.48, FCSE $\bar{x}$ =3.90, RMM $\bar{x}$ =3.24). A highly significant difference at the .01 level was found on the item "Texture of apparel and fabric is important to me" (ADD $\bar{x}$ =4.33, FCSE $\bar{x}$ =3.60, RMM $\bar{x}$ =4.10).

Using Newman-Keuls Multiple Range tests, there were four cases in which the ADD majors scored higher than FCSE and RMM majors on post test attitudes items. These items included: "I am willing to spend more money on quality clothing", "I am willing to spend more time shopping for quality clothing", "I enjoy going to fabric stores" and "Texture of apparel and fabric is important to me", the ADD majors scored higher than FCSE and RMM majors. In two items "I am willing to spend more money on quality clothing" and "I am willing to spend more time shopping for quality clothing", the RMM majors scored significantly higher than FCSE. On one item "I enjoy going to fabric stores", the FCSE majors scored significantly higher than the RMM majors.

Table 11 Significant Differences in Attitudes among Majors during the Post Test

| | | ADD | FCSE | RMM | | |
|---|---|---|---|---|---|---|
| Item | | n =27 | n =10 | n =21 | F | Sig Level |
| I plan to pursue a | $\bar{x}$ | 4.26 | 3.80 | 3.76 | 1.715 | |
| career... | SD | 1.059 | .789 | .995 | | |
| I currently know a | $\bar{x}$ | 3.89 | 3.70 | 3.76 | .560 | |
| good deal... | SD | .641 | .483 | .436 | | |
| Ease of clothing care | $\bar{x}$ | 4.15 | 4.00 | 4.19 | .280 | |
| is important to me. | SD | .662 | .667 | .680 | | |
| I prefer natural fibers | $\bar{x}$ | 3.26 | 3.30 | 3.24 | .034 | |
| to synthetic fibers. | SD | .656 | .483 | 3.625 | | |
| I am aware of the | $\bar{x}$ | 4.11 | 3.80 | 4.10 | 1.502 | |
| use of textiles... | SD | .641 | .422 | .301 | | |
| I know what to look | $\bar{x}$ | 4.26 | 4.20 | 4.10 | .601 | |
| for... | SD | .526 | .632 | .436 | | |
| I am willing to spend | $\bar{x}$ | 4.19bc | 3.20 | 3.95b | 8.626 | .001 |
| more money... | SD | .557 | .919 | .590 | | |
| I am willing to spend | $\bar{x}$ | 4.22bc | 3.50 | 3.95b | 3.796 | .05 |
| more time... | SD | .506 | 1.080 | .740 | | |
| I enjoy going to | $\bar{x}$ | 4.48bc | 3.90c | 3.24 | 11.057 | .001 |
| fabric stores. | SD | .802 | .568 | 1.136 | | |
| Texture of apparel is | $\bar{x}$ | 4.33bc | 3.60 | 4.10 | 4.886 | .01 |
| important to me. | SD | .620 | .699 | 6.25 | | |

*Using Newman-Keuls Multiple Range Test, means with subscripts are significantly different at $p \leq 0.05$; "a", with Apparel Design and Development, "b", with Family and Consumer Science Education, and "c", with Retail Merchandising and Management.

*Student Behaviors among Majors*

Student behaviors among the Apparel Design and Development, Family and Consumer Science and Retail Merchandising and Management majors were compared. The results are listed below.

*Pretest behaviors.* A significant difference was found at the .05 level with the item "I pay attention to other people's clothing" (ADD $\bar{x}$ =4.59, FCSE $\bar{x}$ =3.60, RMM $\bar{x}$ =4.19). A very highly significant difference was found at the .001 level for the item "I watch sewing/quilting shows on TV" (ADD $\bar{x}$ =1.81, FCSE $\bar{x}$ =2.50, RMM $\bar{x}$ =1.33).

In one behavior item "I pay attention to other people's clothing", the ADD majors scored higher than FCSE and RMM majors on the pretest. In the same item, the RMM majors scored significantly higher than FCSE. On one item "I watch sewing and quilting shows on TV", the FCSE majors scored significantly higher than the ADD and RMM majors. Pretest behavior results appear in Table 12.

*Post test behaviors.* A significant difference was found at the .05 level with the item "I examine the fabric when purchasing clothing" (ADD $\bar{x}$ =4.12, FCSE $\bar{x}$ =3.30, RMM $\bar{x}$ =3.71). A very highly significant difference was found at the .001 level for the item "I watch sewing/quilting shows on TV" (ADD $\bar{x}$ =1.85, FCSE $\bar{x}$ =2.70, RMM $\bar{x}$ =1.33). Highly significant differences at the .01 level were found for the items "I read sewing or craft magazines" (ADD $\bar{x}$ =1.92, FCSE $\bar{x}$ =2.60, RMM $\bar{x}$ =1.43) and "I pay attention to other people's clothing" (ADD $\bar{x}$ =4.62, FCSE $\bar{x}$ =3.90, RMM $\bar{x}$ =4.10).

In two behavior items "I examine the fabric when purchasing clothing" and "I pay attention to other people's clothing", the ADD majors scored significantly higher than FCSE and RMM majors on the post test. In one item "I examine the fabric when purchasing clothing", the

RMM majors scored significantly higher than FCSE. On two items "I watch sewing/quilting shows on TV" and "I read sewing or craft magazines", the FCSE majors scored significantly higher than the ADD and RMM majors. Post test behavior results appear in Table 13.

Table 12 Significant Differences in Behaviors among Majors during the Pretest

| | | ADD | FCSE | RMM | | |
|---|---|---|---|---|---|---|
| Item | | n =27 | n =10 | n =21 | F | Sig Level |
| I check for fiber content when purchasing clothing. | $\bar{x}$ | 2.89 | 2.20 | 2.29 | 2.547 | Close |
| | SD | 1.086 | .789 | 1.146 | | |
| I examine the fabric when purchasing clothing. | $\bar{x}$ | 3.48 | 2.90 | 3.62 | 2.344 | |
| | SD | .893 | .738 | .921 | | |
| I check the care label when purchasing clothing. | $\bar{x}$ | 3.22 | 3.20 | 3.57 | .712 | |
| | SD | 1.188 | .919 | 1.028 | | |
| I follow the care label when laundering clothing. | $\bar{x}$ | 3.85 | 3.90 | 4.33 | 2.086 | |
| | SD | .907 | .994 | .658 | | |
| I separate my clothing when laundering, | $\bar{x}$ | 4.81 | 4.50 | 4.52 | 1.277 | |
| | SD | .483 | .707 | .928 | | |
| I use proper stain removal techniques… | $\bar{x}$ | 3.59 | 3.40 | 4.00 | 1.446 | |
| | SD | 1.118 | 1.265 | .775 | | |
| I watch sewing/quilting shows on TV. | $\bar{x}$ | 1.81 | 2.50ac | 1.33 | 7.760 | .001 |
| | SD | .736 | 1.080 | .658 | | |
| I read sewing or craft magazines. | $\bar{x}$ | 1.67 | 1.80 | 1.38 | .936 | |
| | SD | .832 | .919 | .973 | | |
| I pay attention to other people's clothing. | $\bar{x}$ | 4.59bc | 3.60 | 4.19b | 4.627 | .05 |
| | SD | .572 | 1.174 | 1.078 | | |

*Using Newman-Keuls Multiple Range Test, means with subscripts are significantly different at $p \leq 0.05$; "a", with Apparel Design and Development, "b", with Family and Consumer Science Education, and "c", with Retail Merchandising and Management.

Table 13 Significant Differences in Behaviors among Majors during the Post Test

| | | ADD | FCSE | RMM | | |
|---|---|---|---|---|---|---|
| Item | | n =27 | n =10 | n =21 | F | Sig Level |
| I check for fiber content… | $\bar{x}$ | 3.38bc | 2.60 | 3.19 | 2.516 | .090 close |
| | SD | .941 | .843 | .981 | | |
| I examine the fabric when purchasing… | $\bar{x}$ | 4.12bc | 3.30 | 3.71b | 3.266 | .05 |
| | SD | 9.09 | .949 | .845 | | |
| I check the care label when purchasing… | $\bar{x}$ | 3.54 | 3.20 | 3.38 | .432 | |
| | SD | 1.029 | 1.033 | .973 | | |
| I follow the care label when laundering… | $\bar{x}$ | 3.92 | 3.80 | 4.14 | .814 | |
| | SD | .744 | .919 | .727 | | |
| I separate my clothing… | $\bar{x}$ | 4.69 | 4.20 | 4.48 | 1.630 | |
| | SD | .549 | 1.033 | .814 | | |
| I use proper stain removal techniques… | $\bar{x}$ | 3.81 | 4.30 | 3.90 | .997 | |
| | SD | 1.021 | 1.059 | .768 | | |
| I watch sewing/quilting shows… | $\bar{x}$ | 1.85 | 2.70ac | 1.33 | 7.445 | .001 |
| | SD | .925 | 1.252 | .730 | | |
| I read sewing or craft magazines. | $\bar{x}$ | 1.92 | 2.60ac | 1.43 | 5.406 | .01 |
| | SD | .977 | 1.075 | .811 | | |
| I pay attention to other people's clothing. | $\bar{x}$ | 4.62bc | 3.90 | 4.10 | 5.502 | .01 |
| | SD | .496 | .738 | .831 | | |

*Using Newman-Keuls Multiple Range Test, means with subscripts are significantly different at $p \leq 0.05$; "a", with Apparel Design and Development, "b", with Family and Consumer Science Education, and "c", with Retail Merchandising and Management.

*Laboratory and Exam Scores between Control and Experimental Groups*

Laboratory, unit and final exam scores, as well as final course grades between the control and experimental groups were examined to determine the effect of the textile identification packet on student knowledge, as established in research objective #6. The laboratory results are reported in Table 14, and the unit exam grades in Table 15.

Table 14 Laboratory Manual Scores between the Control and Experimental Groups

| Lab | Possible Points | Control n=30 | Experimental n=32 |
|---|---|---|---|
| | | $\bar{x}$ | $\bar{x}$ |
| Lab 1 | 10 | 9.30 | 9.21 |
| Lab 2 | 45 | 42.03 | 42.85 |
| Lab 3 | 48 | 44.74 | 44.52 |
| Lab 4 | 33 | 30.48 | 29.50 |
| Lab 5 | 43 | 36.77 | 36.89 |
| Lab 6 | 25 | 23.24 | 23.21 |
| Lab 7 | 40 | 33.44 | 34.29 |
| Lab 8 | 23 | 20.61 | 20.29 |
| Lab 9 | 50 | 45.15 | 44.97 |
| Lab 10 | 51 | 45.58 | 45.50 |
| Lab11 | 22 | 20.41 | 19.89 |

*Unit test* scores. The unit test scores were compared between the control and experimental groups. The terminology quiz and the unit tests on natural fibers and synthetic fibers were not included in this comparison because the fabric identification packet did not test knowledge on these curriculum units.

Table 15 Unit Exam Scores between the Control and Experimental Groups

| Unit Exams | Possible Points | Control n=30 | Experimental n=32 |
|---|---|---|---|
| | | $\bar{x}$ | $\bar{x}$ |
| Yarns | 50 | 41.42 | 41.42 |
| Weaves & Knits | 63 | 44.64 | 44.42 |
| Fabric Construction | 52 | 39.48 | 42.74 |

T-tests were performed to determine if there were significant differences in the final exam grades and final course grades between the control and experimental groups. No significant differences were found. The written portion of final exam appears in Appendix I, and the fabric identification portion of the final exam appears in Appendix J.

Table 16 Significant Differences in the Final Exam and Final Course Grade between the Control and Experimental Groups

| Question | Possible Points | Control N = 28 | Experimental n = 30 | T | Significant Difference |
|---|---|---|---|---|---|
| | | $\bar{x}$ | $\bar{x}$ | | |
| Final Exam Written Test | 92 | 69.68 | 69.33 | .155 | .878 |
| Final Exam Fabric ID | 25 | 17.054 | 16.633 | .596 | .553 |
| Final Grade in Course | | 83.7332 | 84.3650 | -.470 | .640 |

*Final Exam Scores among Majors*

Using a one way analysis of variance, scores from the final exam and final course grades between majors were examined. No significant differences were found.

Table 17 Significant Differences in the Final Exam and Final Course Grades between Majors

| | | ADD | FCSE | RMM | | |
|---|---|---|---|---|---|---|
| Item | | n =27 | n =10 | n =21 | F | Sig Level |
| Written Final | X | 71.11 | 65.40 | 39.38 | 1.721 | |
| | SD | 8.257 | 9.594 | 7.775 | | |
| Fabric ID Final | X | 17.407 | 15.150 | 16.905 | 2.792 | .070 |
| | SD | 2.7944 | 2.3100 | 2.4167 | | Close |
| Final Course Grade | X | 84.4052 | 83.4270 | 83.9716 | .144 | |
| | SD | 4.80422 | 5.97737 | 5.20660 | | |

*Discussion*

Due to the lack of research regarding students' textile-related attitudes and behaviors, textile identification, swatch kits or related activities, the researcher was unable to compare results to any existing findings. However, the remainder of this chapter will discuss the reasons why the researcher did not feel that the experiment was a success. These reasons include the make up of the control and experimental groups, the teaching methodology, and the work habits of the students. Additionally, there will be a discussion on the needs for changes to the survey instrument.

*Control and experimental groups*. In a true experiment, the control and experimental subjects should have been randomly assigned to the groups. This experiment did not meet this criterion because the students were not randomly assigned to the two groups. The two groups should have been randomly assigned to be the experimental and control groups. Furthermore. The majors should be equally distributed between the experimental and control groups.

During the Fall 2004 semester, the researcher had three options for the control and experimental groups: two sections of APRL-140 and one section of APRL-145. She chose APRL-140 section one as the control group and APRL-140 section two as the experimental group due to the shared course number.

As shown in the survey data, 75% of the students in the control group were ADD or FCSE majors (n=21) and 25% were RMM (n=7). In the experimental group, nearly one-half of the students were RMM (n=14) and the remainder were ADD and FCSE (n=16). These numbers did not reflect the equal division of majors that the experiment required.

*Teaching methodology*. The textile identification packet was created to replace the laboratory matching assessment that was part of the existing curriculum. The researcher was given permission to use this packet for research purposes, but did not have the luxury of adapting or eliminating other parts of the existing curriculum.

Students in the experimental groups were asked to complete the textile identification packet during the laboratory period, after they had completed the assigned section in the laboratory manual. The packet was to be collected at the end of the semester, after the entire packet was completed. This differed from the control group who was expected to turn in the matching assessment at the end of the laboratory session. Because the textile identification

packet was collected at the end of the semester, students did not receive regular feedback on their progress, nor did they know if they were correctly identifying the fabric swatches.

Students were not permitted to remove the textile identification packet from the classroom, so were limited in available time in which to complete the packet. This perhaps resulted in too large of a workload for students to successfully complete in the allotted time.

*Student work habits.* Students in the experimental group did not make use of the textile identification packet as intended. Since the packet was due at the end of the semester, many students felt no motivation to complete the packet in a timely manner, so left class after completing the standard coursework and did not take time to work on the experimental packet in class. This caused a rush to complete the packet at the end of the semester and resulted in guesswork rather than diligent examination.

Since students were not allowed to take the swatch binders outside of the classroom, they used the smaller fabric swatch to identify the fabrics in the packet. This made it impossible to determine if a larger fabric swatch size would have made a significant difference in response to the research objectives.

# Chapter Five: Summary, Conclusions and Recommendations

This chapter will summarize the findings of this study and draw conclusions from the data. Finally, recommendations for further research will be presented.

## *Summary*

The objectives of the study were as follows:

1. Describe students' attitudes and behaviors toward textiles using information gathered from a survey instrument.
2. Identify differences in attitudes regarding textiles between the control and experimental groups before and after a textiles class.
3. Identify differences in behaviors regarding textiles between the control and experimental groups before and after a textiles class.
4. Examine differences in attitudes regarding textiles among majors.
5. Examine differences in behaviors regarding textiles among majors.
6. Determine if limiting the quantity of textiles swatches and increasing the size of the swatches would improve students' textile knowledge through analysis of scores on unit tests, laboratory worksheets and final grades.

The population of this study were students in two sections of the APRL-140 freshman textiles course at UW-Stout during the fall semester 2004. Section one served as the experimental group and section two served as the control group.

The curriculum of the freshman textiles course was divided into seven units: terminology, natural fibers, man-made fibers, yarns, fabric construction, finishes and color. Each unit in the curriculum had a corresponding lecture, a section in the laboratory manual, and one or more laboratory matching assessments. Each unit was concluded by an exam.

A survey was developed by the researcher during summer 2004. It was pilot tested by 10 students from UW-Stout chosen at random. No changes were made to the survey as a result of the pilot test.

The survey was divided into three sections. Section one of the survey included 14 general demographic questions including age, gender, major and year in school. Section two of the survey included ten items regarding students' attitudes toward textiles. Students were asked to respond to these attitude items using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Section three of the survey included nine textile-related behaviors. Students were asked to respond to these behavior items using a Likert scale ranging from 1 (never) to 5 (always). The survey was administered in pretest/post test form during fall semester 2004.

The data obtained from the surveys was analyzed by the Computer User Support Services at UW-Stout. Frequency counts and percentages were tabulated for the demographic section of the survey. For parts two, attitudes, and three, behaviors, the mean, standard deviation, and rank order were computed. T-tests, ANOV and Student-Newman-Keuls Multiple Range Test were conducted as well.

An objective of the study was to determine if the size and quantity of fabric swatches to which students were exposed made a difference in exam scores and final course grades. To meet this objective, the researcher developed a textile identification packet to replace the laboratory matching assessment that was part of the existing curriculum.

The textile identification packet contained 20 swatches randomly chosen from a possible 64 fabrics selected to be representative of many different textiles concepts and examples. Students would refer to each swatch multiple times, learning new concepts and reinforcing those already introduced. This packet was intended for use by the experimental group as an alternative to the laboratory matching assessment. The matching assessment would be completed by the control group.

Swatches in the textile identification packet were cut to 8" x 10" in contrast to the 2" x 3" swatches in the laboratory manual and the 3" x 4" swatches in the laboratory matching assessment. The quantity of swatches in the packet was set at 20. This was in contrast to the 178 swatches in the laboratory manual and the 26 - 40 swatches in the laboratory matching assessment.

The majority of the students (96.6%) were female and between 20 and 22 years of age (72.41%), and sophomores or juniors. Of the three majors represented, 53.45% were in Apparel Design and Development (n=31), 29.31% in Retail Merchandising and Management (n=17) and 17.24% in Family and Consumer Science Education (n=10).

*Conclusions*

This section contains a discussion of the findings pertaining to the research objectives. The objective will be restated and the results summarized. Conclusions based on the result will be drawn.

*Objective 1. Describe students' attitudes and behaviors toward textiles using information gathered from a survey instrument.* The top three pretest attitude items for the control group were as follows: "I enjoy going to fabric stores" ($\bar{x}$ = 4.29), "I plan to pursue a career involving textiles" ($\bar{x}$ = 4.25), and "Texture of apparel and fabric is important to me" ($\bar{x}$ = 4.18). The items had an average rating of 4.24, between agree and strongly agree on the Likert scale.

Students in the experimental group ranked the following pretest attitudes items in the top two: "Ease of clothing care is important to me" ($\bar{x}$ = 4.20) and "Texture of apparel and fabric is important to me" ($\bar{x}$ = 3.97). A third place tie included the items "I plan to pursue a career involving textiles" and "I am willing to spend more money on quality clothing" ($\bar{x}$ = 3.83 each). The items had an average rating of 3.96, corresponding to agree on the Likert scale.

The top three post test attitude items for the control group were as follows: "Texture of apparel and fabric is important to me" ($\bar{x}$ = 4.21), "I enjoy going to fabric stores" ($\bar{x}$ = 4.18), and "I plan to pursue a career involving textiles" ($\bar{x}$ = 4.14). The items had an average rating of 4.18, between agree and strongly agree on the Likert scale.

Students in the experimental ranked the following post test attitude items as the top three: "I know what to look for in quality clothing/fabrics" ($\bar{x}$ = 4.21), "Ease of clothing care is important to me" ($\bar{x}$ = 4.17), and "I am aware of the use of textiles in other products" ($\bar{x}$ = 4.13). The items had an average rating of 4.17, between agree and strongly agree on the Likert scale.

Table 18 Top Three Attitudes Between Control and Experimental Groups from Pretest to Post Test

| | Rank | Control | Experimental |
|---|---|---|---|
| Pretest | 1 | I enjoy going to fabric stores. $\bar{x}$ =4.29 | Ease of clothing care is important to me. $\bar{x}$ =4.20 |
| | 2 | I plan to pursue a career involving textiles. $\bar{x}$ =4.25 | Texture of apparel and fabric is important to me. $\bar{x}$ =3.97 |
| | 3 | Texture of apparel and fabric is important to me. $\bar{x}$ =4.18 | I plan to pursue a career involving textiles. I am willing to spend more money on quality clothing. $\bar{x}$ =3.83 |
| Post Test | 1 | Texture of apparel and fabric is important to me. $\bar{x}$ =4.21 | I know what to look for in quality clothing/fabrics. $\bar{x}$ =4.27 |
| | 2 | I enjoy going to fabric stores. $\bar{x}$ =4.18 | Ease of clothing care is important to me. $\bar{x}$ =4.17 |
| | 3 | I plan to pursue a career involving textiles. $\bar{x}$ =4.14 | I am aware of the use of textiles in other products. $\bar{x}$ =4.13 |

Students in the control group and experimental groups responded most positively to the same three pretest behavior items. These were as follows: "I separate my clothing when laundering" (control, $\bar{x}$ = 4.63, experimental, $\bar{x}$ = 4.67), "I pay attention to other people's clothing" (control, $\bar{x}$ = 4.41, experimental, $\bar{x}$ = 4.17), and "I follow the care label" (control, $\bar{x}$ = 3.89, experimental, $\bar{x}$ = 4.17).

Students in the control group ranked the following post test behavior items as the top three: "I pay attention to other people's clothing" ($\bar{x}$ = 4.44), "I separate my clothing when laundering" ($\bar{x}$ = 4.41), and "I examine the fabric when purchasing clothing" ($\bar{x}$ = 3.85). The items had an average rating of 4.23, between agree and strongly agree on the Likert scale.

Students in the experimental ranked the following post test statements as the top three: "I separate my clothing when laundering" ($\bar{x}$ = 4.63), "I pay attention to other people's clothing" ($\bar{x}$ = 4.17), "I follow the care label when laundering clothing" and "I use proper stain removal techniques" ($\bar{x}$ = 4.10). The items had an average rating of 4.44, between agree and strongly agree on the Likert scale.

Table 19 Top Three Behaviors Between Control and Experimental Groups from Pretest to Post Test

| | Rank | Control | Experimental |
|---|---|---|---|
| Pretest | 1 | I separate my clothing when laundering clothing. $\bar{x}$ =4.63 | I separate my clothing when laundering clothing. $\bar{x}$ =4.67 |
| | 2 | I pay attention to other people's clothing. $\bar{x}$ =4.41 | I pay attention to other people's clothing. $\bar{x}$ =4.17 |
| | 3 | I follow the care label when laundering clothing. $\bar{x}$ =3.89 | I follow the care label when laundering clothing. $\bar{x}$ =4.17 |
| Post Test | 1 | I pay attention to other people's clothing. $\bar{x}$ =4.44 | I separate my clothing when laundering clothing. $\bar{x}$ =4.63 |
| | 2 | I separate my clothing when laundering clothing. $\bar{x}$ =4.41 | I pay attention to other people's clothing. $\bar{x}$ =4.17 |
| | 3 | I follow the care label when laundering clothing. I examine the fabric when purchasing clothing. $\bar{x}$ =3.85 | I follow the care label when laundering clothing. I use proper stain removal techniques... $\bar{x}$ =4.10 |

The researcher looked for a significant increase in both attitudes and behaviors from pretest to post test. When comparing the attitudes of control group students from the pretest to post test, only three of the items had an increase in average response. Item #24 "Texture of apparel and fabric is important to me" increased in rank from 3 to 1. Item #16 "I currently know a good deal about textiles" rose in rank from 10 to 9. Most importantly, item #20 "I know what to look for in quality clothing/fabrics" jumped in rank from 9 to a tie for 4.

For the experimental group, there were 4 items that rose in rank. Item #22 "I am willing to spend more time shopping for quality clothing" increased in rank from 6 to 5. Item #19 "I am aware of the use of textiles products other than apparel" rose in rank from 7 to 3. Item # 16 "I currently know a good deal about textiles" rose from 10 to a tie for 7. The biggest increase occurred with item #20 "I know what to look for in quality clothing/fabrics" with a shift from a tie for 8 to 1.

For the behaviors from pretest to post test, there was no appreciable increase in any items for either the control or experimental group. In the control group, item #26 "I examine the fabric when purchasing clothing" rose in rank from 5 to a tie for 3. In the experimental group, item #32 "I read sewing or craft magazines" increased in rank from 9 to 8.

Overall, there was not a substantial increase in student attitudes or behaviors, although the large increase in attitude item #20 may warrant further research.

*Objective 2. Identify differences in attitudes regarding textiles between the control and experimental groups before and after a textiles class.* T-tests found significant differences at the .05 level for two pretest attitude items: Ease of clothing care" (control $\bar{x}$ = 3.82, experimental $\bar{x}$ =4.20) and enjoyment of fabric stores (control $\bar{x}$ = 4.29, experimental $\bar{x}$ =3.77). Trends were found at the .10 level for pretest attitude item regarding careers involving textiles" (control $\bar{x}$ =4.25, experimental $\bar{x}$ =3.83) and post test item regarding enjoyment of fabric stores (control $\bar{x}$ =4.18, experimental $\bar{x}$ =3.70).

*Objective 3 Identify differences in behaviors regarding textiles between the control and experimental groups before and after a textiles class.* No significant differences were found in student behaviors.

*Objective 4. Examine differences in attitudes regarding textiles among majors.* Using an analysis of variance, significant differences in attitudes were found for the following pretest and post test items. The level of significance will be stated and the average response given.

*Pretest attitude items.* Very highly significant findings at the .001 level were found for pretest attitude item regarding spending money for quality clothing (ADD $\bar{x}$ =4.11, FCSE $\bar{x}$ =2.90, RMM $\bar{x}$ =3.71), enjoyment of fabric stores" (ADD $\bar{x}$ =4.52, FCSE $\bar{x}$ =3.57, RMM $\bar{x}$ =3.60), and spending time shopping for quality clothing (ADD $\bar{x}$ =4.04, FCSE $\bar{x}$ =2.80, RMM $\bar{x}$ =3.52).

A highly significant difference at the .01 level was found on pretest item concerning texture of apparel and fabric. Average responses are ADD $\bar{x}$ =4.37, FCSE $\bar{x}$ =3.90, RMM $\bar{x}$ =3.67.

Significant differences were found at the .05 level with the following pretest attitude items: careers involving textiles (ADD $\bar{x}$ =4.37, FCSE $\bar{x}$ =3.90, RMM $\bar{x}$ =3.67), textile

knowledge (ADD $\bar{x}$ =2.52, FCSE $\bar{x}$ =1.80, RMM $\bar{x}$ =2.14) and awareness of the use of textiles..." (ADD $\bar{x}$ =3.78, FCSE $\bar{x}$ =3.40, RMM $\bar{x}$ =2.95).

Using Newman-Keuls Multiple Range tests, the ADD majors scored higher than FCSE and RMM majors on four pretest attitude items "I currently know a good deal about textiles", "I know what to look for in quality clothing/fabrics", "I enjoy going to fabric stores" and "Texture of apparel and fabric is important to me". In four cases, the RMM majors scored significantly higher than FCSE on pretest attitude items "I currently know a good deal about textiles", "I know what to look for in quality clothing/fabrics", "I am willing to spend more money on quality clothing" and "Texture of apparel and fabric is important to me.

*Post test attitude items.* Very highly significant findings at the .001 level were found for post test attitude item spending money on quality clothing (ADD $\bar{x}$ =4.19, FCSE $\bar{x}$ =3.20, RMM $\bar{x}$ =3.95) and enjoyment of fabric stores" (ADD $\bar{x}$ =4.48, FCSE $\bar{x}$ =3.90, RMM $\bar{x}$ =3.24). A highly significant difference at the .01 level was found on the item concerning texture of apparel and fabric (ADD $\bar{x}$ =4.33, FCSE $\bar{x}$ =3.60, RMM $\bar{x}$ =4.10). A significant difference was found at the .05 level with the item regarding willingness to spend more time shopping" (ADD $\bar{x}$ =4.22, FCSE $\bar{x}$ =3.50, RMM $\bar{x}$ =3.95).

Using Newman-Keuls Multiple Range tests, the ADD majors scored higher than FCSE and RMM majors on four post test attitude items "I am willing to spend more money on quality clothing", "I am willing to spend more time shopping for quality clothing", "I enjoy going to fabric stores" and "Texture of apparel and fabric is important to me". In two items "I am willing to spend more money on quality clothing" and "I am willing to spend more time shopping for quality clothing", the RMM majors scored significantly higher than FCSE. On one item "I enjoy going to fabric stores", the FCSE majors scored significantly higher than the RMM majors.

*Objective 5. Examine differences in behaviors regarding textiles among majors.* Using an analysis of variance, significant differences in attitudes were found for the following pretest and post test items. The level of significance will be stated and the average response given.

*Pretest behavior items.* Very highly significant findings at the .001 level were found for pretest behavior item concerning sewing shows on TV" (ADD $\bar{x}$ =1.81, FCSE $\bar{x}$ =2.50, RMM $\bar{x}$ =1.33). Significant differences were found at the .05 level for pretest behavior item regarding other people's clothing (ADD $\bar{x}$ =4.59, FCSE $\bar{x}$ =3.60, RMM $\bar{x}$ =4.19).

In one behavior item "I pay attention to other people's clothing", the ADD majors scored higher than FCSE and RMM majors on the pretest. In the same item, the RMM majors scored significantly higher than FCSE. On one item "I watch sewing and quilting shows on TV", the FCSE majors scored significantly higher than the ADD and RMM majors.

*Post test behavior items.* Very highly significant findings at the .001 level were found for post test behavior item concerning sewing shows on TV (ADD $\bar{x}$ =1.85, FCSE $\bar{x}$ =2.70, RMM $\bar{x}$ =1.33). Highly significant findings at the .01 level were found for post test behavior items regarding sewing or craft magazines (ADD $\bar{x}$ =1.92, FCSE $\bar{x}$ =2.60, RMM $\bar{x}$ =1.43) and other people's clothing (ADD $\bar{x}$ =4.62, FCSE $\bar{x}$ =3.90, RMM $\bar{x}$ =4.10). Significant differences were found at the .05 level for item regarding the examination of fabric (ADD $\bar{x}$ =4.12, FCSE $\bar{x}$ =3.30, RMM $\bar{x}$ =3.71).

In two behavior items "I examine the fabric when purchasing clothing" and "I pay attention to other people's clothing", the ADD majors scored significantly higher than FCSE and RMM majors on the post test. In one item "I examine the fabric when purchasing clothing", the RMM majors scored significantly higher than FCSE. On two items "I watch sewing/quilting

shows on TV" and "I read sewing or craft magazines", the FCSE majors scored significantly higher than the ADD and RMM majors.

Although the items regarding sewing television programs and magazines were found to be highly or very highly significant, the responses were averaged to be between never and rarely on the Likert scale for both the pretest and post test, so did not significantly improve as a result of the study. Item #33, "other people's clothing" found results to be between often and always on the Likert scale for both pretest and post test so did not significantly improve as a result of the study.

*Objective 6. Determine if limiting the quantity of textiles swatches and increasing the size of the swatches would improve students' textile knowledge through analysis of scores on unit tests, laboratory worksheets and final grades.*

This objective was to determine if limiting the quantity of textiles swatches and increasing the size of the swatches would improve students' textile knowledge. Scores on unit tests, laboratory worksheets and final grades were analyzed, and the results are as follows:

Comparison of the unit test scores found that overall, the control group scored slightly higher on the unit tests than the experimental group. However, students in the experimental group received a higher average final grade ($\bar{x}$ =84.37) than students in the control group ($\bar{x}$ =83.73). The differences were not significant, and could not verify the validity of the experiment. The data shows that the final objective of determining if the increasing the size and reducing the quantity of fabric swatches would increase students' textile knowledge was not met.

*Recommendations*

This section will suggest further research regarding both the investigation of student textile-related attitudes and behaviors, and the development and use of the textile identification

packet. The section will begin with suggesting a change in the composition of the control and experimental groups. The groups should be evenly divided by major, with students randomly assigned to each group.

The researcher could rewrite the survey to focus on and expand upon the attitudes and behaviors that were significantly different.

The research could limit the study to differences in textile-related attitudes and behaviors among majors since overall, these were of a higher level of significance.

In creating the packets, the quantity of the samples could be increased from 20. Any number of samples could be used.

Since one of the objectives of the study was to determine if the size of the fabric swatch was significant, students in both the control and experimental groups could be exposed to identical fabrics, with the experimental groups receiving a larger swatch size than the control group.

Worksheets in the textile identification packet should be graded consistently throughout the semester. This will provide two results. Students will receive regular feedback on their progress and accuracy of their responses and secondly, students will be motivated to complete the packet in a timely manner.

While the review of literature stresses the importance of a swatch kit in a textiles curriculum, there is no research as to its effectiveness. This is a topic that is open for much research.

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Appendix A: Survey Instrument

**ID Number**_____

# Demographics

*Please complete the following information about yourself.*

1. **Age** _____ 2. **Sex** Male Female

3. **Major**
_____Apparel Design and Development
_____Art/Art Education
_____Early Childhood Education
_____Family and Consumer Sciences Education
_____Human Development and Family Studies
_____Retail Merchandising and Management

4. **Year in School** Freshman Sophomore Junior Senior

5. **How many credits are you taking this semester?** _____

6. **Is this course** REQUIRED **or** ELECTIVE?

7. **Is this course a retake?** YES NO

8. **How many hours per week outside of class do you anticipate spending on this course?**
_____0 – 4 _____5-9 _____10-15 _____more than 15

9. **Have you previously taken any of the following classes (or equivalents)?**
_____APRL 101 Introduction to Apparel Design and Development
_____APRL 166 Apparel Construction
_____APRL 180 Pattern Development
_____APRL 185 Apparel Line Development

10. **Are you currently taking any of the following classes?**
_____APRL 101 Introduction to Apparel Design and Development
_____APRL 166 Apparel Construction
_____APRL 180 Pattern Development
_____APRL 185 Apparel Line Development

11. **I have a hobby that involves fibers.** (Check any that apply.)
_____Felting
_____Spinning
_____Other (specify)_____

12. **I have a hobby that involves yarns or floss.** (Check any that apply.)
_____Crochet
_____Cross-stitch
_____Knitting
_____Macramé
_____Needlepoint
_____Weaving
_____Other (specify)_____

13. **I have a hobby that involves fabrics.** (Check any that apply.)
_____Sewing (clothing or costume)
_____Quilting or Appliqué
_____Other (specify)_____

14. **Now or in the past, I belonged to a club or group that works with textiles OR have taken classes using textiles.** YES NO

If yes, please specify_____

## Attitudes

*Please response to the questions below using the following rating scale.*

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Strongly Disagree | Disagree | No Opinion | Agree | Strongly Agree |

15._____I plan to pursue a career involving textiles.

16._____I currently know a good deal about textiles.

17._____Ease of clothing care (laundering) is important to me.

18._____I prefer natural fibers (cotton and wool) to synthetic fibers (polyester and nylon).

19._____I am aware of the use of fibers and/or textiles in products other than apparel and interiors.

20._____I know what to look for in quality clothing/fabrics.

21._____I am willing to spend more money on quality clothing/fabrics.

22._____I am willing to spend more time shopping for quality clothing/fabrics.

23._____I enjoy going to fabric stores.

24._____Texture of apparel and fabric is important to me.

## Behaviors

*Please response to the questions below using the following rating scale.*

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Never | Rarely | Sometimes | Often | Always |

**25.**_____I check for fiber content when purchasing clothing.

**26.**_____I examine the fabric when purchasing clothing.

**27.**_____I check the care label when purchasing clothing.

**28.**_____I follow the care label when laundering clothing.

**29.**_____I separate my clothing when laundering.

**30.**_____I use proper stain removal techniques when laundering clothing.

**31.**_____I watch sewing and/or quilting shows on TV.

**32.**_____I read sewing or craft magazines.

**33.**_____I pay attention to what clothing other people are wearing.

Appendix B: Consent Form

# Consent to Participate in UW-Stout Approved Research

**Title:** Development of a Hands-on Textiles Teaching Tool

**Investigator:** Melissa Frank
HMEC 314
(715) 232-2476
frankm@uwstout.edu

**Research Sponsor:** Dr. Donna M. Albrecht
HMEC 330
(715) 232-2405
albrechtd@uwstout.edu

**Description:** This research is intended to assist in the development of a hands-on method of textile identification and evaluation that is an alternative to the Post Tests that are currently part of curriculum. It is the investigator's hypothesis that students who are exposed to fewer fabrics, but study them more in depth, will have a better grasp of textile concepts than those who are exposed to many fabrics for a brief period.

**Risks and Benefits:** No risks are expected. Benefits include a greater understanding of and a positive attitude toward textiles.

**Time Commitment and Payment:** The investigator expects that all research can be completed within the times scheduled for the textiles lecture and lab. This does not include time spent on study or class assignments. If more time is needed to complete the research other than that already scheduled, the investigator will schedule additional hours. Students will not receive compensation for their participation.

**Confidentiality:** Your name will not be included on any documents. We do not believe that you can be identified from any of this information. This informed consent will not be kept with any of the other documents completed with this project.

**Right to Withdraw:** Your participation in this study is entirely voluntary. You may choose not to participate without any adverse consequences to you. Should you choose to participate and later wish to withdraw from the study, you may discontinue your participation at this time without incurring adverse consequences. *Students will however complete all work assigned to the particular section in which they are enrolled, regardless of whether or not their scores/grades are included in the research.*

**IRB Approval:** This study has been reviewed and approved by The University of Wisconsin-Stout's Institutional Review Board (IRB). The IRB has determined that this study meets the ethical obligations required by federal law and University policies. If you have any questions, concerns, or reports regarding your rights as a research subject, please contact:

Laura McCullough, IRB Chair
(715) 232-2536
mcculloughl@uwstout.edu

Sue Foxwell, Director, Research Services
IRB Administrator
152 VOCR (715) 232-2477
foxwells@uwstout.edu

**Statement of Consent:** By signing this consent form you agree to participate in the development of a hands-on textiles teaching tool.

Signature Date

Appendix C: Syllabus of the Textiles Class at the University of Wisconsin – Stout

# Textiles Fall 2004

**MASS LECTURE:** Monday and Wednesday, 9:05 – 10:00 a.m., HMEC 208

**APRL 140-001 Lab** Thursday, 12:20 - 2:20 p.m., HMEC 377

**APRL 140-002 Lab** Friday, 10:10 a.m. - 12:10 p.m., HMEC 377

**APRL 145-001 Lab** Friday, 8:00 - 10:00 a.m., HMEC 377

Instructor: Melissa Frank

Office: HMEC 369

Phone: x 2476

E-mail: frankm@uwstout.edu

Office Hours: Monday through Thursday, 10:10 a.m. – 12:00 p.m., other times by appointment

**TEXT:** Textiles (9th edition), Kadolph and Langford

**LABORATORY MANUAL:** Everything You Always Wanted to Know About Textiles and More! Rita Christoffersen, UW-Stout bookstore

**LABORATORY EQUIPMENT:** You are **REQUIRED** to supply your own:

| | | |
|---|---|---|
| 1. | Lab Manual (University Bookstore) | $6.75 |
| 2. | Magnifier (University Bookstore) | $8.00 |
| 3. | Scotch Tape (both regular and double-stick are recommended) | |
| 4. | Scissors | |

**COURSE DESCRIPTION:** Textiles is a course that has many applications, both professionally and personally. A large part of our income is spent on apparel, household or even industrial textile products. Also, textile knowledge is important for many professions: interior design and decorating, apparel design, manufacture and product development, and consumer education, to name a few. In this course, you will learn the contribution that fiber, yarn construction, fabric type and color and finishes make to the final textile product. Emphasis is on information needed to select the most appropriate textiles for specific end uses, and how to best care for these products during their useful life.

**COURSE OBJECTIVES:** This course is designed to give you a thorough understanding of basic textiles, with emphasis on fabric selection, use and care. By the end of the course, you should be able to:

1. Predict fabric performance based on fiber characteristics, yarn structure, fabric structure, and color and finishing processes.
2. Categorize fiber families and identify characteristics of fibers and fiber groupings.
3. Describe the yarn characteristics and explain the contribution each yarn type makes to fabric appearance and performance.
4. Identify the various fabric structures and explain the contribution each type makes to fabric appearance and performance.
5. Recognize the characteristics of finishes and the contributions each type makes to fabric appearance and performance.
6. Relate the method of color and design application to the performance of textile products.
7. Demonstrate ability to select textiles for various uses.
8. Apply knowledge of legislation to labeling of textile products.
9. Recommend appropriate products and procedures to be used in caring for textile products.
10. Predict performance of fabrics through analysis of fibers, yarns, fabric construction, color application and finishes.
11. Recognize the changing nature of textiles and the need for awareness of new developments.

**GRADING:** Grades will be determined by a percentage of total available points.

| | | | |
|---|---|---|---|
| A | 92.5 and above | C | 72.50 |
| A- | 90 | C- | 70 |
| B+ | 87.5 | D+ | 67.5 |
| B | 82.5 | D | 62.5 |
| B- | 80 | D- | 60 |
| C+ | 77.5 | F | 0 |

**STUDENT RIGHTS AND RESPONSIBILITIES**

1. Academic honesty is expected as discussed in the Academic Misconduct Disciplinary Procedures. Academic misconduct includes, but is not limited to: cheating on an exam; submitting an assignment as one's own work when **a part or all of the assignment is the work of another;** stealing exams or course materials; submitting work previously presented in another course; knowingly and intentionally assisting another student in any of the above.

   Any student who engages in any type of academic misconduct during this course will, at a **minimum**, receive a failing grade on that homework, assignment, project, or exam; may receive a failing grade for the course; or depending on the gravity of the academic misconduct, other University sanctions may be sought as well.
2. Students are expected to attend class ON TIME and prepared to begin work. This includes having all materials ready.
3. Unit tests and the final exam must be taken at the scheduled time unless a written medical excuse is presented to the instructor.
4. Students with special needs or accommodations should inform the instructor immediately.

**ATTENDANCE:** Students are required to attend the lecture and laboratory sections. You are expected to be present and on time in order to gain a better understanding of topics under consideration and to contribute to the learning environment. The responsibility for assignments and class activities carried on during any absence rests with the student. Excused absences require notification to the instructor **by the end of** the individual's lab time. Students with an unexcused absence will **NOT** be allowed to complete missed assignments.

**LAB MAKE UP PROCEDURES:**

1. Make up will be allowed for **excused** absences ONLY.
2. Excused absences require notification to the instructor **by the end of** the individual's lab time.
3. Excusing an absence lies solely with the instructor.
4. All missed labs and post tests are due within two weeks.
5. Make-up work will be completed during the normal lab period.

## COURSE OUTLINE

**I. Terminology**

**II. Fibers**

A. Classification by Origin
   1. Natural
   2. Manufactured
   3. Synthetic

B. Specific Fibers
   1. Properties
   2. Identification
   3. Modifications
   4. Trade Names
   5. Special Care Procedures
   6. Environmental Concerns

C. Labeling Regulations and Legal Requirements

**III. Yarns**

A. Processing
   1. Filament
   2. Spun
   3. Blends

B. Classifications
   1. Degree of Twist
   2. Direction of Twist
   3. Fiber Length
   4. Spinning Operations
   5. Fancy and Complex
   6. Textured – Bulk and Stretch

**IV. Fabric Construction**

A. Classification of Fabrics
   1. Wovens
   2. Knits
   3. Other Fabrics Made from Yarns
   4. Fabrics from Solutions
   5. Fiber Assemblies
   6. Multi-component Fabrics

B. Specific Fabric Structures
   1. Influence of Fabric Structure on Performance
   2. Identification
   3. Fabrics Names

**V. Finishes**
- A. Influence of Finish on Fabric Characteristics
  - 1. Aesthetics
  - 2. Performance
- B. Identification
- C. End Uses

**VI. Color**
- A. Colorants
- B. Stage of Color Design and Application
  - 1. Solution
  - 2. Fiber
  - 3. Yarn
  - 4. Fabric
  - 5. Garments
- C. Influence on Performance

**VII. Fabric Care**
- A. Laundering
  - 1. Detergency
  - 2. Products
  - 3. Procedures
- B. Dry Cleaning
- C. Wet Cleaning
- D. Care Labeling

Appendix D: Unit Test Fabric Identification

**Name**_____ **Section#**_____

## Fabric Identification 1 — 9 points

***WARP YARNS*** *(Circle the best answer in each row.)*

SPUN MULTIFILAMENT MONOFILAMENT

SINGLE PLIED CABLE FANCY CORE

***FILLING YARNS*** *(Circle the best answer in each row.)*

SPUN MULTIFILAMENT MONOFILAMENT

SINGLE PLIED CABLE FANCY CORE

***WEAVE*** *(Fill in the blanks.)*

What is the weave type?_____

Is the fabric WARP FACED or FILLING FACED?_____

***DYEING and PRINTING*** *(Fill in the blanks.)*

The fabric is a blend of COTTON and POLYESTER. How was it colored?_____

If you had not been told the fiber content, how else might you have answered?_____

***FABRIC NAME***

Knowing the above, name the fabric._____

**Name**_____ **Section#**_____

## Fabric Identification 2 — 6 points

***WARP YARNS*** *(Circle the best answer in each row.)*

SPUN MULTIFILAMENT MONOFILAMENT

SINGLE PLIED CABLE FANCY CORE

***FILLING YARNS*** *(Circle the best answer in each row.)*

SPUN MULTIFILAMENT MONOFILAMENT

SINGLE PLIED CABLE FANCY CORE

***WEAVE*** *(Fill in the blanks.)*

What is the weave type?_____

***DYEING and PRINTING*** *(Fill in the blanks.)*

How was the fabric colored? Be specific._____

**Name**_____ **Section#**_____

## Fabric Identification 3 — 8 points

This is a knit fabric; yarns only travel in one direction. Which is it?_____

***YARNS*** *(Circle the best answer in each row.)*

| | | | | |
|---|---|---|---|---|
| SPUN | MULTIFILAMENT | | MONOFILAMENT | |
| SINGLE | PLIED | CABLE | FANCY | CORE |

***KNIT*** *(Fill in the blanks.)*

In terms of wales and courses, what do you see on the face?_____

What do you see on the back?_____

What is the knit type?_____

***DYEING and PRINTING*** *(Fill in the blanks.)*

Name two possible ways this fabric may have been colored?_____

_____

**Name**_____ **Section#**_____

## Fabric Identification 4 — 8 points

You should notice two different yarns in the warp direction. Identify them both.

***GREEN WARP YARNS*** *(Circle the best answer in each row.)*

SPUN MULTIFILAMENT MONOFILAMENT

SINGLE PLIED CABLE FANCY CORE

***GOLD WARP YARNS*** *(Circle the best answer.)*

SPUN MULTIFILAMENT MONOFILAMENT

SINGLE PLIED CABLE FANCY CORE

***FILLING YARNS*** *(Circle the best answer.)*

SPUN MULTIFILAMENT MONOFILAMENT

SINGLE PLIED CABLE FANCY CORE

***FABRIC CONSTRUCTION*** *(Fill in the blanks.)*

What type of fabric construction is this?_____

***DYEING and PRINTING*** *(Fill in the blanks.)*

How was this fabric most likely colored?_____

# Appendix E: List of Fabrics Included in Textile Identification Packet

1. Yarn-dyed modified cord weave
2. Yarn-dyed fancy weave
3. Yarn-dyed extra yarn figured on plain weave base
4. Piece-dyed pile weave, pinwale corduroy
5. Yarn-dyed plain weave gingham, suede finish
6. Fiber-dyed warp-faced twill weave
7. Yarn-dyed plain weave gingham, embossed finish
8. Piece-dyed pile weave, wide wale corduroy
9. Yarn-dyed four-yarn double weave, matelesse
10. Printed acid etched with plain weave base
11. Yarn-dyed warp-faced satin weave
12. Piece –dyed warp-faced satin weave, suede and embroidered finish
13. Piece –dyed warp-faced satin weave, embossed finish
14. Piece-dyed interlock knit, embossed finish
15. Crepe weave fabric with printed filling yarns
16. Yarn and fiber-dyed small-figured weave
17. Cross-dyed plain weave
18. Yarn-dyed extra-yarn figured rub weave
19. Yarn-dyed large-figured weave
20. Space-dyed raschel knit
21. Printed extra-yarn figured

22. Printed pile weave, pinwale corduroy
23. Yarn-dyed plain weave gingham
24. Piece-dyed double weave, matlesse
25. Printed plain weave gauze
26. Fiber and yarn-dyed crepe weave
27. Piece-dyed figured weave, brocade
28. Piece-dyed crepe weave
29. Yarn-dyed plain weave, iridescent
30. Piece-dyed plain weave, metallic print percale
31. Printed plain weave, crepe
32. Plain weave base flocked all-over pile
33. Piece-dyed satin weave warp-faced sateen
34. Extra-yarn figured on plain weave base
35. Acid-etched velvet on plain weave base
36. Warp-faced satin weave with napped back
37. Piece-dyed right hand twill gabardine with washed finish
38. Piece-dyed left hand twill gabardine with both washed and napped finish
39. Yarn-dyed small figured weave
40. Piece-dyed raschel knit
41. Cross-dyed satin weave, iridescent, flocked
42. Fiber-dyed twill weave, napped tweed
43. Piece-dyed, left-hand twill weave, denim with washed finished
44. Piece-dyed twill weave, herringbone

45. Yarn-dyed extra-yarn figured on plain weave base, clipped metallic yarns
46. Piece-dyed half basket weave
47. Yarn-dyed, five yarn double cloth, pique
48. Piece-dyed warp-faced satin weave, flocked
49. Piece-dyed interlock knit, metallic print
50. Piece-dyed pile weave, wide wale corduroy, napped finish
51. Piece-dyed rib knit
52. Piece-dyed tricot knit, brushed
53. Solution-dyed plain weave
54. Piece-dyed figured weave, damask
55. Yarn-dyed jersey knit with metallic yarns
56. Yarn-dyed figured weave
57. Yarn-dyed large figured weave, brocade
58. Yarn-dyed twill weave
59. Piece-dyed plain weave, embossed finish
60. Bleached figured weave, printed
61. Metallic heat transfer printed tricot knit
62. Piece-dyed crepe weave bonded to a tricot knit
63. Yarn-dyed figured weave, sized
64. Piece-dyed pile weave, crushed velvet

Appendix F: Worksheet Developed for the Textile Identification Packet

**Fiber Content**_____ **Sample #**_____

## Fibers/Yarns Fill in the blank and/or circle the appropriate choices.

### WARP YARN

Mount sample.

**Fiber/Yarn Type**
Staple (spun)
Monofilament
Multifilament (textured?)

**Degree of Twist**_____

**Yarn Type (#)**
Single _____ Ply _____
Cable _____ Fancy _____
Core _____

**Direction of Ply** S Z
**Direction of Final Twist** S Z

### FILLING YARN

Mount sample.

**Fiber/Yarn Type**
Staple (spun)
Monofilament
Multifilament (textured?)

**Degree of Twist**_____

**Yarn Type (#)**
Single _____ Ply _____
Cable _____ Fancy _____
Core _____

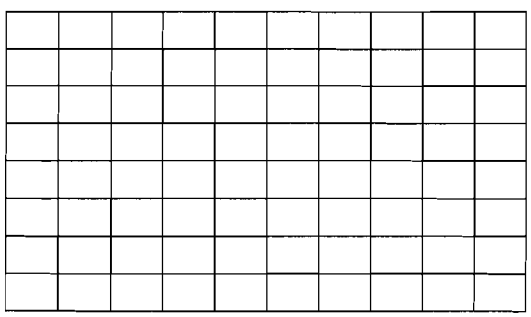
**Direction of Ply** S Z
**Direction of Final Twist** S Z

## Weave

**Thread Count** _____x_____

**Type of Weave**_____

**Float Pattern**_____



## Knit

Wales per Inch_____

Jersey Rib Double

Pile Tricot Raschel

## Color

Fiber Yarn Space Piece Union Cross Roller/Screen Print Heat Transfer

Indirect Print_____ Direct Print

## Finishes

Aesthetic_____

Special Purpose_____

## Other Details

**Basket Weave:** Half Basket Full Basket

**Twill Weave:** Left-hand Right-hand
Warp-faced Filling-faced
Reclining Regular Steep
Herringbone

**Satin Weave:** Warp-faced Filling-faced

**Double Weave:** Number of Sets of Yarn_____

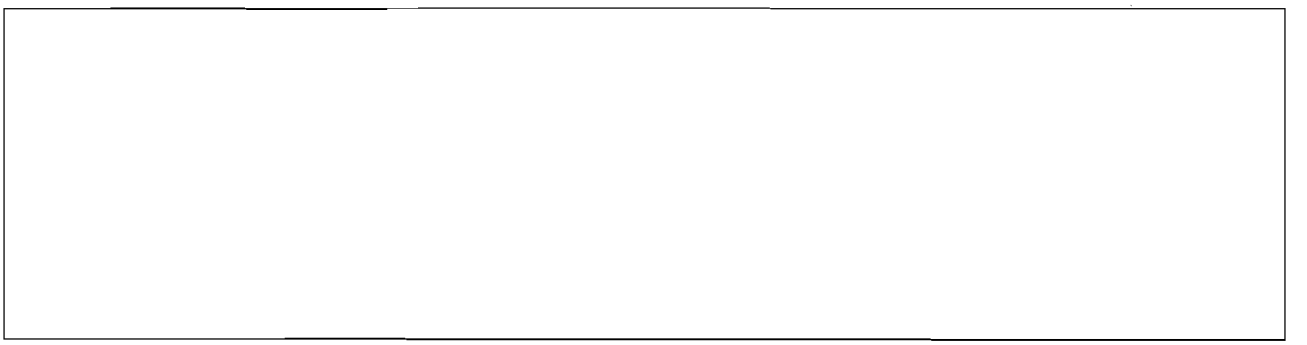
**Pile Weave:** Extra Warp Yarns Extra Filling Yarns

Corduroy: Wales per inch_____

**Layered Fabric:** Top layer_____

Middle layer_____

Bottom layer_____



**Fabric Name**_____

| Attitude Item | | | Strongly Disagree | | Disagree | | No Opinion | | Agree | | Strongly Agree | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | n | % | n | % | n | % | n | % | n | % |
| Careers Involving Textiles | Pretest | Control | 1 | 3.6 | 0 | 0.0 | 1 | 3.6 | 15 | 53.6 | 11 | 39.2 |
| | | Experimental | 1 | 3.3 | 2 | 6.7 | 6 | 20.0 | 13 | 43.3 | 8 | 26.7 |
| | Post Test | Control | 2 | 7.1 | 0 | 0.0 | 2 | 7.1 | 12 | 42.9 | 12 | 42.9 |
| | | Experimental | 1 | 3.3 | 2 | 6.7 | 3 | 10.0 | 18 | 60.0 | 6 | 20.0 |
| Current Textiles | Pretest | Control | 6 | 21.4 | 12 | 42.9 | 9 | 32.1 | 1 | 3.6 | 0 | 0.0 |
| Knowledge | | Experimental | 2 | 6.7 | 21 | 70.0 | 2 | 6.7 | 5 | 16.6 | 0 | 0.0 |
| | Post Test | Control | 0 | 0.0 | 1 | 3.6 | 5 | 17.9 | 22 | 78.5 | 0 | 0.0 |
| | | Experimental | 0 | 0.0 | 0 | 0.0 | 7 | 23.3 | 20 | 66.7 | 3 | 10.0 |
| Ease of Clothing Care | Pretest | Control | 1 | 3.6 | 0 | 0.0 | 6 | 21.4 | 17 | 60.7 | 4 | 14.3 |
| | | Experimental | 0 | 0.0 | 0 | 0.0 | 2 | 6.7 | 20 | 66.7 | 8 | 26.6 |
| | Post Test | Control | 0 | 0.0 | 0 | 0.0 | 4 | 14.3 | 17 | 60.7 | 7 | 25.0 |
| | | Experimental | 0 | 0.0 | 1 | 3.3 | 2 | 6.7 | 18 | 60.0 | 9 | 30.0 |
| Natural Fiber Preference | Pretest | Control | 0 | 0.0 | 1 | 3.6 | 19 | 67.9 | 6 | 21.4 | 2 | 7.1 |
| | | Experimental | 1 | 3.3 | 4 | 13.4 | 43 | 43.3 | 9 | 30.0 | 3 | 10.0 |
| | Post Test | Control | 0 | 0.0 | 0 | 0.0 | 22 | 78.5 | 5 | 17.9 | 1 | 3.6 |
| | | Experimental | 0 | 0.0 | 3 | 10.0 | 17 | 56.7 | 9 | 30.0 | 1 | 3.3 |
| Use of Fibers and Textiles | Pretest | Control | 0 | 0.0 | 4 | 14.3 | 8 | 28.6 | 14 | 50.0 | 2 | 7.1 |
| | | Experimental | 2 | 6.7 | 8 | 26.6 | 2 | 6.7 | 14 | 46.7 | 4 | 13.4 |
| | Post Test | Control | 0 | 0.0 | 1 | 3.6 | 2 | 7.1 | 22 | 78.5 | 3 | 10.7 |
| | | Experimental | 0 | 0.0 | 0 | 0.0 | 1 | 3.3 | 24 | 80.0 | 5 | 16.7 |

| Attitude Item | | | Strongly Disagree | | Disagree | | No Opinion | | Agree | | Strongly Agree | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | n | % | n | % | n | % | n | % | n | % |
| Quality Clothing and | Pretest | Control | 1 | 3.6 | 5 | 17.8 | 7 | 25.0 | 15 | 53.6 | 0 | 0.0 |
| Fabrics | | Experimental | 0 | 0.0 | 8 | 26.7 | 7 | 23.3 | 13 | 43.3 | 2 | 6.7 |
| | Post Test | Control | 0 | 0.0 | 0 | 0.0 | 2 | 7.1 | 21 | 75.0 | 5 | 17.9 |
| | | Experimental | 0 | 0.0 | 0 | 0.0 | 1 | 3.3 | 20 | 66.7 | 9 | 30.0 |
| Money Spent on Quality | Pretest | Control | 1 | 3.6 | 2 | 7.1 | 5 | 17.8 | 17 | 60.7 | 3 | 10.7 |
| Clothing | | Experimental | 0 | 0.0 | 3 | 10.0 | 4 | 13.3 | 18 | 60.0 | 5 | 16.6 |
| | Post Test | Control | 0 | 0.0 | 1 | 3.6 | 4 | 14.3 | 18 | 64.3 | 5 | 17.8 |
| | | Experimental | 0 | 0.0 | 1 | 3.3 | 7 | 23.3 | 16 | 53.3 | 6 | 20.0 |
| Time Spent Shopping for | Pretest | Control | 0 | 0.0 | 3 | 10.7 | 6 | 21.4 | 15 | 53.6 | 4 | 14.3 |
| Quality Clothing | | Experimental | 0 | 0.0 | 4 | 13.3 | 7 | 23.3 | 17 | 56.7 | 2 | 6.7 |
| | Post Test | Control | 0 | 0.0 | 1 | 3.6 | 2 | 7.1 | 20 | 71.4 | 5 | 17.8 |
| | | Experimental | 0 | 0.0 | 2 | 6.7 | 5 | 16.6 | 15 | 50.0 | 8 | 26.6 |
| Fabric Stores | Pretest | Control | 0 | 0.0 | 1 | 3.6 | 3 | 10.7 | 11 | 39.3 | 13 | 46.4 |
| | | Experimental | 1 | 3.3 | 2 | 6.7 | 7 | 23.3 | 13 | 43.3 | 7 | 23.3 |
| | Post Test | Control | 0 | 0.0 | 1 | 3.6 | 4 | 14.3 | 12 | 42.9 | 11 | 39.3 |
| | | Experimental | 1 | 3.3 | 5 | 16.6 | 6 | 20.0 | 8 | 26.6 | 10 | 33.3 |
| Fabric Texture | Pretest | Control | 0 | 0.0 | 0 | 0.0 | 4 | 14.3 | 15 | 53.6 | 9 | 32.1 |
| | | Experimental | 0 | 0.0 | 0 | 0.0 | 8 | 26.6 | 15 | 50.0 | 7 | 23.3 |
| | Post Test | Control | 0 | 0.0 | 0 | 0.0 | 2 | 7.1 | 18 | 64.3 | 8 | 28.6 |
| | | Experimental | 0 | 0.0 | 1 | 3.3 | 5 | 16.7 | 16 | 53.3 | 8 | 26.6 |

| Behavior Item | | | Never | | Rarely | | Sometimes | | Often | | Always | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | n | % | n | % | n | % | n | % | n | % |
| Fiber Content | Pretest | Control | 7 | 25.9 | 8 | 29.6 | 7 | 25.9 | 5 | 18.5 | 0 | 0.0 |
| | | Experimental | 4 | 13.3 | 9 | 30.0 | 10 | 33.3 | 5 | 16.6 | 2 | 6.7 |
| | Post Test | Control | 0 | 0.0 | 6 | 22.2 | 11 | 40.7 | 9 | 33.3 | 1 | 3.7 |
| | | Experimental | 2 | 6.7 | 6 | 20.0 | 10 | 33.3 | 9 | 30.0 | 3 | 10.0 |
| Fabric Examination When | Pretest | Control | 0 | 0.0 | 5 | 18.5 | 9 | 33.3 | 11 | 40.7 | 2 | 7.4 |
| Purchasing Clothing | | Experimental | 0 | 0.0 | 4 | 13.3 | 10 | 33.3 | 12 | 40.0 | 4 | 13.3 |
| | Post Test | Control | 0 | 0.0 | 1 | 3.7 | 9 | 33.3 | 10 | 37.0 | 7 | 25.9 |
| | | Experimental | 0 | 0.0 | 3 | 10.0 | 9 | 30.0 | 9 | 30.0 | 9 | 30.0 |
| Clothing Care Label | Pretest | Control | 1 | 3.7 | 7 | 25.9 | 6 | 22.2 | 10 | 37.0 | 3 | 11.1 |
| | | Experimental | 1 | 3.3 | 6 | 20.0 | 7 | 23.3 | 11 | 36.7 | 5 | 16.6 |
| | Post Test | Control | 0 | 0.0 | 4 | 14.8 | 10 | 37.0 | 10 | 37.0 | 3 | 11.1 |
| | | Experimental | 1 | 3.3 | 6 | 20.0 | 8 | 26.6 | 10 | 33.3 | 5 | 16.6 |
| Following the Care Label | Pretest | Control | 0 | 0.0 | 1 | 3.7 | 8 | 29.6 | 11 | 40.7 | 7 | 25.9 |
| | | Experimental | 0 | 0.0 | 2 | 6.7 | 3 | 10.0 | 13 | 43.3 | 12 | 40.0 |
| | Post Test | Control | 0 | 0.0 | 1 | 3.7 | 7 | 25.9 | 14 | 51.9 | 5 | 18.5 |
| | | Experimental | 0 | 0.0 | 1 | 3.3 | 4 | 13.3 | 16 | 53.3 | 9 | 30.0 |
| Clothing Separation When | Pretest | Control | 0 | 0.0 | 1 | 3.7 | 2 | 7.4 | 3 | 11.1 | 21 | 77.8 |
| Laundering | | Experimental | 0 | 0.0 | 1 | 3.3 | 0 | 0.0 | 7 | 23.3 | 22 | 73.3 |
| | Post Test | Control | 0 | 0.0 | 2 | 7.4 | 2 | 7.4 | 6 | 22.2 | 17 | 63.0 |
| | | Experimental | 0 | 0.0 | 0 | 0.0 | 1 | 3.3 | 7 | 23.3 | 22 | 73.3 |

| Behavior Item | | | Never | | Rarely | | Sometimes | | Often | | Always | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | n | % | n | % | n | % | n | % | n | % |
| Stain Removal Techniques | Pretest | Control | 0 | 0.0 | 1 | 3.7 | 10 | 37.0 | 9 | 33.3 | 7 | 25.9 |
| When Laundering | | Experimental | 2 | 6.7 | 1 | 3.3 | 8 | 26.6 | 12 | 40.0 | 7 | 23.3 |
| | Post Test | Control | 1 | 3.7 | 2 | 7.4 | 8 | 29.6 | 8 | 29.6 | 8 | 29.6 |
| | | Experimental | 0 | 0.0 | 0 | 0.0 | 7 | 23.3 | 13 | 43.3 | 10 | 33.3 |
| Textile Related Television | Pretest | Control | 12 | 44.4 | 9 | 33.3 | 4 | 14.8 | 2 | 7.4 | 0 | 0.0 |
| Programs | | Experimental | 15 | 50.0 | 9 | 30.0 | 6 | 20.0 | 0 | 0.0 | 0 | 0.0 |
| | Post Test | Control | 9 | 33.3 | 12 | 44.4 | 4 | 14.8 | 2 | 7.4 | 0 | 0.0 |
| | | Experimental | 19 | 63.3 | 6 | 20.0 | 3 | 10.0 | 0 | 0.0 | 2 | 6.7 |
| Textile Related Magazines | Pretest | Control | 16 | 59.3 | 6 | 22.2 | 8 | 18.5 | 0 | 0.0 | 0 | 0.0 |
| | | Experimental | 19 | 63.3 | 7 | 23.3 | 2 | 6.7 | 1 | 3.3 | 1 | 3.3 |
| | Post Test | Control | 10 | 37.0 | 10 | 37.0 | 5 | 18.5 | 2 | 7.4 | 0 | 0.0 |
| | | Experimental | 16 | 53.3 | 9 | 30.0 | 2 | 6.7 | 2 | 6.7 | 1 | 3.3 |
| Other People's Clothing | Pretest | Control | 0 | 0.0 | 0 | 0.0 | 5 | 18.5 | 6 | 22.2 | 16 | 59.3 |
| | | Experimental | 1 | 3.3 | 2 | 6.7 | 3 | 10.0 | 9 | 30.0 | 15 | 50.0 |
| | Post Test | Control | 0 | 0.0 | 0 | 0.0 | 2 | 7.4 | 11 | 40.7 | 14 | 51.9 |
| | | Experimental | 0 | 0.0 | 1 | 3.3 | 4 | 13.4 | 14 | 46.7 | 11 | 63.7 |

Appendix I: Final Examination Written Test

# FINAL EXAM

**DIRECTIONS:** Place your complete name and identification number on the answer sheet and darken the corresponding circles. Use a soft lead pencil (#2) only. **DO NOT WRITE ON THE TEST BOOKLET.**

**MATCHING:** Match the items in the column on the right with the items on the left. Blacken the appropriate space on the answer sheet.

Match the following surface coatings with the items they are characteristically used on:

| | | | |
|---|---|---|---|
| 1. | Chintz draperies | a. | Rubberized |
| 2. | Insulated draperies | b. | Glazed |
| 3. | Drapery headings, hat frames, belting | c. | Latex |
| 4. | Waterproof rainwear | d. | Foam |
| 5. | Loose weave upholstery fabric | e. | Permanent sizing |

Match the following finish types with their uses or effects:

| | | | |
|---|---|---|---|
| 6. | Used for linings to reflect heat | a. | Relaxation control |
| 7. | Closes all fabric pores so moisture cannot enter | b. | Static control |
| 8. | Increases resilience | c. | Metallic |
| 9. | Decreases tendency of fabric to cling | d. | Waterproof |
| 10. | Increases dimensional stability in laundering | e. | Durable press |

Match the following dye stages with their typical uses:

| | | | |
|---|---|---|---|
| 11. | Wool tweeds | a. | Solution dye |
| 12. | Acetate bedspread | b. | Fiber dye |
| 13. | Hosiery | c. | Yarn dye |
| 14. | Gingham | d. | Piece dye |
| 15. | Solid color cotton sheets | e. | Garment dye |

Match the following fabric types with the most probable dyeing method.

| | | | |
|---|---|---|---|
| 16. | Navy blue, 100% wool fabric | a. | Cross dye |
| 17. | Solid color polyester/cotton blend | b. | Piece dye |
| 18. | Checked fabric of rayon and acetate | c. | Union dye |
| 19. | Heather effect on wool/acrylic blend | | |

Match the following printing methods with the best description:

| | | | |
|---|---|---|---|
| 20. | Hand process that uses wax as a resist | a. | Heat transfer |
| 21. | Fabric is piece-dyed, then some color is removed | b. | Tie and dye |
| 22. | Fabric is wrapped tightly in place, then piece dyed | c. | Discharge print |
| 23. | Designs are printed on both sides of the fabric | d. | Batik |
| 24. | Design is printed on paper, then applied to fabric surface | e. | Duplex print |

Match the detergent ingredient with its most important function:

| | | | |
|---|---|---|---|
| 25. | Surfactant | a. | Increases visible reflectance of light |
| 26. | Builder | b. | Removes stains, whitens fabric |
| 27. | Brightener | c. | Improves wetting ability of water |
| 28. | Bleach | d. | Ties up water hardness minerals |

Match the cleaning product with the best descriptive statement:

| | | | |
|---|---|---|---|
| 29. | Light duty detergent | a. | Used for all-purpose family laundry |
| 30. | Heavy duty detergent | b. | Produces insoluble scum in hard water |
| 31. | Soap | c. | Best for washing wools, washable silks |
| 32. | Chlorine bleach | d. | Helps remove protein soils and stains |
| 33. | Enzymatic presoak product | e. | Disinfects |

Match the following cleaning methods with their characteristics:

| | | | |
|---|---|---|---|
| 34. | Better for removing waterborne soils | a. | Washing |
| 35. | Less expensive method | | |
| 36. | Better for cleaning most wools | b. | Dry cleaning |
| 37. | Uses organic solvents as the major soil removing agent | | |
| 38. | Better for the environment | | |
| 39. | Better for removing oily soils | | |

**MULTIPLE CHOICE:** Select the one best answer to the following questions

40. Organdy is produced by:
    a. glazing
    b. parchmentizing
    c. carbonizing
    d. etching
    e. singeing

41. Which of the following fabrics has a napped surface?
    a. flannel
    b. gabardine
    c. velveteen
    d. poplin
    e. sateen

42. Which finish gives a wood-grain appearance to a ribbed weave fabric?
    a. cire'
    b. parachmentizing
    c. matelasse
    d. latex
    e. moire'

43. In which of the following methods would you expect a dark background to be deepest and most durable?
    a. direct roller printing
    b. discharge printing
    c. heat transfer printing
    d. screen printing

44. Which is the most nearly correct statement concerning the stages of dyeing
    a. It is to the producer's advantage to dye as early in the production process as possible
    b. Producers tend to dye the fabric or product in the latest production phase possible
    c. It makes no difference to the producer at what production stage dyeing is done

45. An advantage of solution dyeing is:
    a. It is the cheapest method
    b. the greatest variety of designs can be achieved in this way
    c. It is the most resistant to color loss and change
    d. It is the most versatile in terms of color choice

46. The technique used to produce variegated colored yarns for random color effect is:
    a. warp printing
    b. heat transfer printing
    c. stock dyeing
    d. space dyeing
    e. duplex printing

47. One way to distinguish an indirect print from a direct print is that the indirect print will:
    a. have a woven in design
    b. have a hazy appearance
    c. be the same depth of color on the face and back of the fabric
    d. have a sharper design and deeper color on the face than on the back of the fabric

48. In selecting upholstery fabric for a sofa expected to get heavy wear, which coloring method would produce a fabrics with the best resistance to color loss through abrasion?
    a. Roller print
    b. Yarn-dyed
    c. Screen print
    d. Heat-transfer print

49. Which of the following finishes is often given to linen tablecloths?
    a. Beetling
    b. Acid etching
    c. Glazing
    d. Napping
    e. Soil release

**Multiple true-false:** Black out the A space for all answers that make a true statement and B for all responses that make a false statement.

Mothproof finishes should be used on the following garments:
50. A mohair sweater
51. A polyester blouse
52. A felt hat
53. A silk dress

Which of the following are generally considered permanent finishes;
54. Mercerizing
55. Parchmentizing
56. Scotchgard soil resistant finish
57. Simple calendaring
58. Durable press

When comparing catalog descriptions of 2 similar plaid shirts, you discover one is gingham and the other is a printed plaid pattern. You would expect:
59. The printed shirt will retain its color longer
60 The printed fabric will be the same depth of color on both sides
61. The design will probably be exactly on grain in the roller printed shirt
62. The roller printed shirt will probably be more expensive
63. The gingham shirt will probably be higher quality fabric.

When comparing two summer shirts from a catalog, you find that one is a seersucker fabric and one has an embossed design that resembles seersucker. You would expect that:
64. The seersucker fabric will keep its design permanently.
65. The embossed fabric will keep its design permanently.
66. The shirt of the embossed fabric is probably a better quality.
67. The smooth stripes of the embossed will be darker than the crinkled stripes.

When comparing two dotted swiss curtains, you notice one has a woven-in dot and the other is a flocked dot. You would expect:
68. The curtain with woven in dots will be more expensive.
69. The flocked dots will tend to be more durable
70. Both curtains will have a sheer, lightweight background fabric

Which of the following fabrics are yarn-dyed?
71. Calico
72. Denim
73. Oxford
74. Hopsacking
75. Gingham

Match the color problem with the best definition.

| | | | |
|---|---|---|---|
| 76. | Design elements do not line up on the fabric | A. | Crocking |
| 77. | White undergarments turn blue when worn under dark jeans | B. | Frosting |
| 78. | Cross-dyed garments lighten in areas of wear | C. | Fume fading |
| 79. | Blue acetate blouse turns pinkish in color | D. | Migration |
| 80. | White garments turn pink when laundered with red | E. | Out of register |

If you needed to disinfect clothing during laundering, which of the following products/conditions would be effective?

81. Heavy duty detergent
82. Chlorine bleach
83. Hot water wash
84. Light duty detergent
85. All-fabric bleach

Some recommended laundry procedures are:

86. Remove durable press garments from the dryer as soon as they are dried
87. Dry wool garments in the dryer to make them soft and fluffy
88. Cleaning the lint trap is not necessary.
89. Wash in cold water for most effective cleaning

U.S. regulations required the following regarding care labels:

90. Care labels must be permanently attached to garments
91. Care labels must state any methods that should not be used in caring for the garment.
92. For washable garments, it must state only the washing method, temperature and drying method.

Appendix J: Final Examination Fabric Identification

**Name**_____

## Fibers/Yarns

### WARP YARN

Mount sample.

**Fiber/Yarn Type**
Staple (spun)
Monofilament
Multifilament

**Degree of Twist**
Low Napping Medium
High Crepe

**Yarn Type (#)**
Single _____
Ply _____
Cable _____
Fancy _____
Core _____

**Direction of Ply** S Z
**Direction of Final Twist** S Z

### FILLING YARN

Mount sample.

**Fiber/Yarn Type**
Staple (spun)
Monofilament
Multifilament

**Degree of Twist**
Low Napping Medium
High Crepe

**Yarn Type (#)**
Single _____
Ply _____
Cable _____
Fancy _____
Core _____

**Direction of Ply** S Z
**Direction of Final Twist** S Z

## Weave

**Float Pattern** _____x_____

**Type of Weave**_____

## Knit

Filling Knit
Jersey Rib Double Pile Other?

Warp Knit
Tricot Raschel Pile Other?

## Color

Solution Fiber Yarn Space Piece Union Cross

Direct Print: Roller/Screen Print Heat Transfer

Indirect Print: Discharge Resist

## Finishes

Name any obvious aesthetic finish. There may not be an answer.

## Other Details

**Basket Weave:** Half Basket Full Basket

**Twill Weave:** Left-hand Right-hand

Warp-faced Filling-faced

Reclining Regular Steep

Herringbone

**Satin Weave:** Warp-faced Filling-faced

**Double Weave:** Number of Sets of Yarn_____

**Pile Weave:** Extra Warp Yarns Extra Filling Yarns

Corduroy: Wales per inch_____

**Layered Fabric:** Top layer_____

Middle layer_____

Bottom layer_____

| Any other details you've noticed in the fabric? |
| --- |
| |

**Fabric Name**_____