ACPTC Proceedings
Combined Central, Eastern and Western Regional Meetings

1985

Edited by

Ann C. Slocum, Central Region
Nora M. MacDonald, Eastern Region
Leslie L. Davis, Western Region

Association of College Professors
of
Textiles and Clothing, Inc.
Published by:

The Association of College Professors of Textiles and Clothing, Inc.
P.O. Box 1360, Monument, CO 80132

1986
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CENTRAL REGION CONFERENCE
October 24-26, 1985

Scheman Center Ames, Iowa

DEVELOPING A GLOBAL PERSPECTIVE

Wednesday, October 23

1:00- 5:00 pm Pre-Conference Workshop, "Function and Aesthetics in Apparel Design, Production and Marketing"
6:00- 8:00 pm ACPTC - 1986 Conference Planning Meeting
7:00- 9:00 pm

Thursday, October 24

8:00-12:00 noon Pre-Conference Workshop
8:00-12:00 noon Registration
9:00- 1:00 pm Tours
A. Farmhouse
B. Iowa State Center Theatre Tour
C. Mayfair Cleaners
10:00-12:00 noon ACPTC - 1985 Council Meeting

1:15 pm Opening General Session
Presiding, Hilda Buckley, ACPTC-CR President, University of Illinois
Welcome and Overview of Conference
Agatha Herepenbecker, Head, Clothing & Textiles Department, Iowa State University
Ruth Deacon, Dean, College of Home Economics, Iowa State University

1:30 pm "Pursuing a Global Perspective: Premises, Probabilities, Possibilities and Planning for Action" Joan Laughlin, 1984 AHEA Foundation/Man Made Fiber Award Recipient, University of Nebraska

2:00 pm Symposium: "The World Marketplace"
Moderator: Carl L. Dyer, University of Tennessee
Ernest Ott, President Jockey International
Kitty Dickerson, Chairperson, Clothing & Textiles, University of Missouri
Pat Hughes, Vice President & Director of Administration, Avtex Fibers

3:30 pm  Beverage Break
4:00 pm  Response from Symposium Speakers
4:30 pm  Report on Futures Committee, Jacquelyn DeJonge, University of Tennessee
5:00-7:30 pm Reception and Paisley Show, Brunnier Gallery
5:30-6:00 pm Committee on 1986 Pre-Conference Workshop
7:30 pm  Banquet
           Presiding, Marilyn DeLong, ACPTC-CR Past President, University of Minnesota
           "Mentoring a Link with the Future", Shirley Baugher, Assistant Dean, Home Economics Extension, University of Minnesota

Friday, October 25

8:30-10:00 am  Concurrent Interest Groups – Leaders
                1. Theory Building – Gloria Williams
                2. Abstract/Research Development – Geitel Winakor
                3. Extension – Norma Deyo Pitts
                4. Undergraduate Curriculum – Nancy Rudd
                5. Graduate Curriculum – Marilyn DeLong
                6. Merchandising Curriculum – Brenda Sternquist
                8. Design Curriculum – Dorothy Behling

10:00 am  Beverage Break

Research Reporting Session I

A-1. Fashion Merchandising and Programming
    Presiding, Mary Frances Drake, University of Tennessee

10:30-10:45 am  "Off-Price Apparel Retailers: Perceptions and Strategies"
                Sara U. Douglas, & Michelle Morganosky, University of Illinois.

10:50-11:05 am  "Level of Importance and Frequency of Use of Clothing and Textiles Curriculum Elements in Apparel Marketing"
                Myrna Beth Garner, & Hilda Mayer Buckley, University of Illinois.

11:10-11:35 am  "Future Directions of Teaching and Research in Textiles and Clothing"
                Patricia Gifford, Sara Butler, & Usha Chowdhary, Miami University, Ohio.
A-2. Historic Costume and Textiles
Presiding, Geitel Winakor, Iowa State University

10:30-10:45 am
"Further Evidence in Support of Systematic Dating of Historic Costumes"
   Kathleen L. Rowold, & Pamela J. Schlick, Indiana University

10:50-11:05 am
"The Importance of Domestic Textile Production as Determined by Nineteenth Century Estate Records of Orange, Alamance, and Durham Counties, North Carolina"
   Laurel Wilson, University of Missouri-Columbia; Lavina Franck, University of North Carolina-Greensboro; Kitty Dickerson, University of Missouri-Columbia

11:10-11:25 am
"Inferring Behavior and Function from an Etowah Fabric Incorporating Feathers"
   Lucy R. Sibley, Ohio State University; Kathryn A. Jakes, University of Georgia; Lewis Larson, West Georgia State College

10:30-11:30 am
A-3. Equipment Demonstration
"Fashion Illustrator Package"
   Gerber Camsco Inc., Beth Cassiday, Mary Carter, Midwestern Representatives

12:00-2:00 pm
Luncheon
   Business Meeting, Hilda Buckley, ACPTC-CR President, Presiding

Research Report Session II
B-1. Textiles
Presiding, Joan Laughlin, University of Nebraska

2:30-2:45 pm
"Degradation in Naturally Aged and Experimentally Aged Degraded Silk"
   Janet Miller, Kansas State University

2:52-3:08 pm
"Pesticide Residue Recovery Rates as a Function of Drying Time, Solvent and Control Conditions"
   Cheryl Popelka, Janis Stone, H.M. Stahr, & Sara Kadolph, Iowa State University

3:15-3:30 pm
"Effectiveness of Laundering in Removal of Methyl Parathion from Successive Contaminations of Fabric"
   Cynthia Jo Goodman, Joan Laughlin, & Roger E. Gold, University of Nebraska-Lincoln

3:37-3:52 pm
"Insecticide Residues on Fabrics Worn into Fields Treated with Non-conventional Application Technology"
   Rinn M. Cloud, Mary Lynn Zimpfer, David Boethel, Jame Yanes, & Stephen Bucco, Louisiana State University
B-2. Social, Cultural, and Psychological Aspects of Clothing and Textiles
Presiding, Geitel Winakor, Iowa State University

2:30- 2:45 pm
"Approach for Quantitatively Measuring the Effectiveness of Adaptive Apparel for Multiple Disabled Clients"
Carolyn Callis, University of Alabama and Maureen Grasso, University of Texas-Austin

2:52- 3:08 pm
"Mastectomy, Clothing and Self-Image"
Betty Feather, University of Missouri-Columbia, & Cathy Lanigan, Hanover Park, Illinois

3:15- 3:30 pm
"The Existence of Fashion Opinion Leadership Among the Elderly"
Nancy L. Cassill, North Texas State University, & Patricia T. Huddleston, University of Tennessee

3:37- 3:52 pm
"From Rio Grande Blanket to Chimayo Curio: The Transitional Period in Northern New Mexican Hispanic Weaving, 1880-1920"
Suzanne Baizerman, University of Minnesota and Museum of International Folk Art, Sante Fe.

2:30- 4:00 pm
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"Fashion Illustration Package"
Gerber Camsco Inc., Beth Cassiday, Mary Carter, Midwestern Representatives.

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Research Poster Session: Social-Psychological Aspects of Clothing; Functional Clothing; Pattern-making and Fitting
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"Attributions for Job Acquisition: Job Skills, Dress, and Luck of Female Job Applicants"
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Eleanor M. Woodson, Texas Tech University

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Juried Educational Resource Exhibit Coordinator, Susan H. Kipp, Eastern Kentucky University

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Donna Albrecht, University of Wisconsin-Stout

"New Half-Scale Body Form"
Eleanor M. Woodson, Texas Tech University

"Experimental Clothing Construction"
Sue Sharp & Anita Stamper, The University of Southern Mississippi

"BUYER: A Computer Simulation to Assess Construction Quality in Ready-to-Wear Garments"
Ruth Marshall, Iowa State University

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Grovalynn Sisler, Jane Swinney, Linda Good, & Carolyn Hoener, Oklahoma State University

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Janis Stone, David Williams, & Karen Johnson, Iowa State University

"The Use of Photography in the Evaluation of Fabric Properties"
Nancy Fair, University of Missouri-Columbia

6:00- 8:00 pm  Dinner On Your Own

8:30-10:30 pm  Reception, MacKay Auditorium
Iowa State Textiles & Clothing Department, Hosts

Saturday, October 26

8:00- 9:00 am  Eye Opener Coffee

8:15- 9:15 am  Theme: "The Changing World"
Concurrent Sessions - "TheChanging World"
Session I
"World Trade in Apparel & Textiles: Issues and Policies." Carl L. Dyer, University of Tennessee
"Global Literacy: A Case for Integrating Cross-Cultural Perspectives." Judy Forney, San Francisco State University
"Occupation and Appearance in Our Changing Society." Sarah Sweat, University of Missouri-Columbia
"Dual Income Families and Clothing Management Tasks." Marilyn Stryker, Kansas State University

Session II
"New Directions in the Textile Business." Gary Emmert, Celanese Fibers Marketing Co.
"According to the Artists: Changing Trends and Influences in Fashion Illustration." Donna Danielson, Iowa State University
"What is History of Costume?" Cynthia R. Jasper and Mary Ellen Roach-Higgins, University of Wisconsin
"Dressing as Means of Communication: A Case Study of Minnesota Quilters." Catherine Cerny, 1984 ACPTC Fellowship Awardee

10:30 am
Brunch
Presiding, Jacquelyn DeJonge, ACPTC-CR President-Elect
"Thinking Globally, Acting Locally." Julia Anderson, Iowa State University

12:30 pm
Conference Meeting of 1986 ACPTC Council

8:00-12:00 noon
Thursday and Friday, Pioneer Room, Iowa State Memorial Union.

1:00-5:00 pm
"Varieties in Vision"
Sharla Jean Haskin, University of Kentucky
"The new electronic interdependence recreates the world in the image of global village" (McLuhan, 1967). This quote, from Marshall McLuhan, was distilled to an expression of only two words that conveyed a multitude of meanings: Global Village. The community of nations, the neighborhood of peoples, the earth as it appears from the space shuttle Columbia or Discovery. And the date that Marshall McLuhan made us aware that telecommunications would shrink geography? 1967. Almost two decades ago.

An array of orbiting satellites now provides reliable communications around the planet. One billion people, worldwide, watched the 1984 Olympics. Mary Lou Retton, Mitch Gaylord, Peter Vidmar, Jim Hartung, and Scott Johnson, the gold medal winners became household names around the globe. In China, video tapes of the 1984 Olympics have replayed on television over 100 times.

The global village has arrived. It is now. Consider the one and one-half billion people from 160 countries who tuned in this July 13th for the Live-Aid concert. Several happenings contributed to our common experiences during those 17 hours. Fourteen telecommunication satellites were used to link JFK with Wembley Stadium. The Soviet Union participated with the contribution of their pop-rock group "Autograph", although the concert was not broadcast in Russia. The term bi-continental (as in bi-national) was added to our vocabulary as Phil Collins entertained 72,000 live in Wembley Stadium, caught a Concorde jet, and played for 100,000 in JFK in Philadelphia.

These were monumental occasions, two times when the residents on Space Ship Earth had simultaneous experiences, with large numbers of people exposed to the same thing at the same time. These happenings marked times when we were made aware of the Global Village.

The global village really commenced some time ago. With no date to etch on the calendar, its birth has been more gradual and pervasive than imagined. The technologies of today and the future include telecommunications, the marriage of the computer, telephone and/or television along with sophisticated transmission systems that move words, voices, images, graphs, and pictures world-wide instantaneously. Laser beams moving signals along microfine fibers. T.V. advertisements show us that it's possible today to transmit a "document" from city X to city Y instantly. One catalogue that I receive in my home lists a home model of this technology for under $2000. The change is in progress, and its results are so subtle that we needed these two common global experiences, Live-Aid and 1984 Olympics, to remind us to rethink our approaches to communication.

We now are living in the global village. Direct broadcast satellites have revolutionized the lives, the standards and the values of many residents of Central America. How? Anything that is beamed to a satellite can be retrieved. A satellite dish can be built from scrap lumber and chicken wire. In San Ignatius, Belize, a resident established a free-lance 4 channel cable company. Using a battery operated satellite dish, he broadcasts to homes in his immediate neighborhood, homes with no running water, homes with no electricity. San Ignatius residents have become
Chicago Cubs fans, and daily watch such gems of American culture as "Dynasty" and "Dallas." More importantly, these "Third World" Central Americans are exposed to the media hype you and I see daily, for toothpaste, Levi's jeans, floor wax, denture cream, McDonald's, and automobiles.

The threats of such invasion into a people, a country, and a culture are many. Of course, the appropriation of American television by South American entrepreneurs is creating a taste for the goods advertised, and the way of life portrayed on satellite American T.V. It may be establishing an expectation that cannot be met, before the country or the economy has the means to meet those expectations. It is a direct invasion of contamination of culture. It raises questions about identity of a country or a people. Now may be the time to preserve rich cultural heritages, before they are lost.

Particularly, the Soviets recognize the threat of direct broadcast into U.S.S.R. The fear is that it may de-stabilize the system. MTV is monitored daily, albeit by a few technicians and information gatherers. The day is soon approaching when a T.V. hacker in the Soviet Union may follow the example of computer hackers in the U.S., and build their own satellite T.V. reception system. The reality is not that it is being done, but that it is inevitable!

Does this mean massive homogenization of culture, of the decorative arts, of clothing? It is possible. The possibility should urge us to capture and record the individuality, the richness and the uniqueness of current civilizations of the world before these are obscured by the melting pot of international communications.

Telecommunications has the potential for enhancing closer cultural and personal relationships. It may permit us to know residents of Taiwan or Australia as intimately as we know those Americans who converse with us on a daily basis; Dan Rather, Bill Cosby, or Johnny Carson. It may permit us to understand the social, political and economic results of our actions, individually and collectively. It may allow us to use the inspirations from other cultures, to open new vistas of creativity. Or it may lead us to one world-wide, hopelessly intertwined, mass society; one that overwhelms everyone, that leads to global conformity, that immobilizes potentially creative people into following the patterns we already see in our bureaucracies.

Global telecommunications has the potential for interchange of humanness. Increased closeness that results from increased communication should come from two-way or three-way or multiple way communication. Comic strip character "Cathy" stands wide-eyed as her best friend Andrea finds the "man-of-her-dreams" through on-line electronic mail via interactive computer conferencing. But if we step back and assess what the past twenty years of one-way television communication has produced, we are disappointed. Nightly viewing of the Vietnam War on the evening news dulled our sensitivity to the horrors of war. The hoped-for compassion from increased closeness has not transpired. What we are able to do is to see the monstrous inhumanity in real-time, as in the cafe massacre of the four U.S. marines in El Salvador, or the Shiite terrorists hijacking of Flight 847, we followed minute by minute this past June or the murder of a cruise passenger by the PLO this month.
This demise of the time-lag in communications, Naisbitt has labeled as the collapse of the information float, the time between sender and receiver in communication as one of the hallmarks of the information society. In Naisbitt's recent publication, The Year Ahead, 1985 (p. 49) the following predictions are made:

"Extraordinary advances in telecommunications technology will permit 24 hour trading; we are moving toward a single unitary global economy... money, after all, is simply information in motion."

Key words for the future: global economy and global portfolio. Last winter, the U.S. dollar was rising powerfully, and domestic interest rates were falling. Perhaps, because of fears that the U.S. economy may be stagnating, the dollar's value dropped against the pound, the yen, the Italian lira, the Deutsch mark and the franc.

A weakening of the dollar is good news for businesses seeking to increase exports, and we in the mid-west, Iowa and Nebraska particularly, greet these signs with the hope that they might signal the beginning of the healing of a disastrous farm economy. We, in this agricultural economy, live in Toffler's the First Wave, the Agrarian Revolution, thus an increase in grain exports might head off threatened foreclosure of our family farms.

And textiles and apparel industries reside in the Second Wave, the Industrial Revolution, simultaneously existing with the Third Wave, the Information Society. A steep decline in the dollar could make imports more expensive while a gradual fall in the dollar would make American products cheaper overseas and trim the monstrous U.S. trade deficit. But gleaning such a narrow perspective of shifts in the value of the dollar is one of the behaviors Naisbitt warns us about in contemplation of our global village. He points out that we are shifting from being an isolated, virtually self-sufficient national economy to being part of an interdependent global economy, and we are giving up part of our role as the world's dominant force and becoming a member of a handful of economically strong countries (p. 57).

Notice what happened in South Africa this September. Resurgence of the Apartheid issue led to unrest, demonstrations, civil disobedience and martial law. Yet the currency remained strong. Citizens of the world cried out for trade embargoes. The currency remained strong. Individuals in the United States asked President Reagan and Congress to impose sanctions against South Africa. The currency remained solid. Then Chase Manhattan Bank quietly announced that they would not renew loans to South Africa when they came due, a decision not based on anti-apartheid politics, but rather instability of the country. Other banks followed suit. The rand sagged, and finally was frozen in September. South Africa's Reserve Bank Director Gerhard de Kock had to embark on international campaign for confidence in the currency, the political stability, and the racial policies of South Africa.

A global economy also means countries become more economically interdependent. There is no need to re-industrialize what has been called the "rust belt." Instead what we need are long range strategies, for by the year 2,000 (15 years from now), Naisbitt forecasts that the Third World will manufacture 30% of the world's goods; and in certain (labor intensive) industries, almost all of them.

Third World work forces and labor intensive industries belong together. Needless to say, apparel production is a labor intensive
industry. Is apparel production a sunset industry? If so, what matters to us?

I suggest you read, if you have not already, Nordquist's article in the Spring 1985 Clothing and Textiles Research Journal. She poses many questions for the members of the Association of College Professors of Textiles and Clothing. Should textiles and clothing professors be as concerned as American industry is? Ought textiles and clothing professors take sides? If so, do textiles and clothing professors support the consumer or the U.S. producer? What are the likely results in the future?

Many questions and of a thought provoking nature. And they are being posed daily - on the national news, the Wall Street Journal, WWD and DRN. We citizens of the United States (and we members of ACPTC) daily hear the issue discussed and debated. Trade will be the issue for the elections of '86 and '88.

At the risk of oversimplification, let's examine the major premises of discussion of international trade in textiles and apparel. Small changes in U.S. exports or imports can have an important impact on the U.S. economy and the economy of other nations. Import penetration of the U.S. apparel market rose to 42.6% in 1984, imports averaged 50% of the domestic production in the third quarter of 1984. Projection for the end of this decade, include that over 60% of the garments sold in retail will be foreign produced. For the first seven months of 1985, total imports of textiles and apparel were 6,209.2 million S.Y.E. Domestic production of cotton apparel fabric has declined significantly (11.5%) and of man-made fibers for apparel by 14%. By the second quarter of 1984, the U.S. moved to the status of importing more cotton (in pounds) than was domestically produced for the apparel market. The same holds true for wool, but, wool imports are now approximately 75% of those available for consumption. We are fast approaching the point when we will import more pounds of man-made fibers annually than we produce domestically (37.6% imported). Imports are displacing domestic output. The total market for apparel in the U.S. remained relatively flat in 1984, (up 0.05%); but, imports grew 23% while domestic output fell over 10%.

What does a nation do when a flood of imports threatens to drown a domestic industry such as textiles and apparel? There are several tools at the legislators' disposal for stemming the import tide: setting tariffs on goods from overseas to reduce their competitive appeal in the U.S. market, or putting direct controls on the amount of goods imported, through quotas. Currently there are about 300 protectionist bills in Congress, among them T.A.T.E., the Textile and Apparel Trade Enforcement bill. The possibilities of new barriers to international trade has aroused cries of "protectionism" and recollections of the Smoot-Hawley Tariff Law of 1930 which has been generally blamed for starting the shut down of trade that helped bring on the Great Depression. Imports are now affecting so many industries; steel, autos, textiles, shoes, agriculture, semi conductors, that calls for protection are coming from diverse economic and geographic sectors of the country.

Historically, trade has functioned to encourage specialization, and specialization leads to greater efficiency in production and larger total output. And the major pressure for trade restriction has come from inefficient industries, while trade protection has been used as a tool to allow emerging industries in developing countries to establish themselves
so they function without protection. And so two positions evolve, those who advocate free-trade among trading nations and those who seek protection for an industry because it is valued for the jobs created, or the product produced, or for the defense of the country, or the creative/aesthetic soul that it feeds. In textiles and apparel, taking a position pro-free trade or pro-protectionism is further compounded by the complexity of the industry. In an oversimplification, one could expect importers and retailers to support free trade policies, while expecting textile producers and apparel manufacturers to be protectionist.

Advocates of free trade say barriers to trade bring on severe economic droughts. In response to the protectionist legislation for the shoe industry, Reagan called protectionism "a crippling cure, far more dangerous than any economic illness." Protectionist measures delay rather than encourage the adaptive steps that businesses should take to improve chances for long-term survival and prosperity. And, based on what happened in 1983 in textile-and-grain trade with China, there is the possibility that protectionist measures could provoke a trade war, a particular concern to agriculture interests. President Reagan stressed "in order to save a few temporary jobs, we will be throwing many other Americans out of work, costing consumers billions of dollars, further weakening the industry and seriously damaging relations with our trading partners."

Protectionists point out the acute nature of the nations textile and apparel trade problems. U.S. exports are not doing well, while the import penetration of the domestic market grows rapidly. For many Americans, this means lost jobs, loss of family income, and the heartache of seeing businesses threatened with shut down. Since 1980, 300,000 jobs have been lost in the textile and apparel industries, 104,000 between August 84 and 85, or 71% of all jobs lost in U.S. manufacturing. Textile suppliers have predicted that the U.S. apparel manufacturers will be an extinct breed by 1992 if imports continue at their current rate.

Foreign governments intervention in their countries' textile and apparel industries have created "gross distortions" in the world market that have not been addressed by U.S. trade policy, insist the protectionists. Therefore, the long term viability of the U.S. textile and apparel industry is threatened, even though it is at least as productive and as efficient as its foreign counterparts. Developing countries have promoted their textile and apparel industries in an effort to increase exports, while severely limiting imports of textile and apparel products. At the same time demand for textile and apparel products decreased in the industrialized nations, resulting in a "massive global capacity surplus."

According to an international trade commission study released in May of this year, some U.S. textile and apparel quotas established under provisions of the multi-fiber arrangement have succeeded in curbing imports, while other quotas have not. The four "biggies", textile and apparel exporting nations, (China), Hong Kong, S. Korea and Taiwan, were able to increase their shipments to the U.S. by 25% between 1982 and '83, partly by using the "flexibility" provision of the MFA, despite being subjected to tighter American quota restrictions under bilateral textile agreements with the U.S. Imports of fibers not covered by the MFA, silk, linen and ramie have soared as much as 667% in the absence of import restraints.
We undoubtedly will hear more about the import and export situation from our esteemed symposium speakers. We know the issues are complex. We recognize that, as a nation we have had a chronic deficit in balance of payments, in part due to 1) rapid growth in productivity of Japan and Western Europe, 2) inflation at home, and selective non-purchase of American goods, 3) growing capital outflows, due in part to the strength of the dollar, 4) economic and military foreign aid and 5) oil prices and OPEC.

But with a global perspective our viewpoint shifts. Yes, we acknowledge solutions to the international trade problem include 1) improvement of selling practices abroad, 2) restricting domestic inflation, 3) redistribution of foreign aid and defense burdens, 4) devaluation of the dollar and 5) increased American productivity.

How legitimate is the expectation for increased American productivity, when we consider that we primarily live in Toeffler's (1980) "Third Wave," the Information Age, having left the industrial age behind. Clayton Yuetter, U.S. trade representative cautions us that import relief is to give price relief and price relief won't save the industry. "We are presiding over the de-industrialization of America, we have to operate in a global marketplace. Instead of drawing a fence around the U.S. and saying we won't compete in the world marketplace, we need to selectively produce what we produce best. We can't guarantee that every business is going to stay in business. Jobs will be lost, but if we imposed tariffs, more jobs would be lost through retaliation."

Naisbitt (1982) states it well. "The United States and the rest of the developed countries of the world are on their way to losing their dominant positions in...textiles...by the year 2000, the third world will manufacturer as much as 30% of the world's goods...for years, U.S. manufacturers have asserted that their products were superior to less expensive imports. But consumers have forced them to give up their rhetoric and face the truth; in many industries (...apparel) the products of developing countries are every bit as good as those made in the industrial world - and they are cheaper" (p. 62). "We have two economies in the U.S. today: A sunrise/economy/industries and a sunset economy/industries" (p. 72).

If you accept these pronouncements of Naisbitt, then you see the American apparel industry as a sunset industry, an industry economically best left to the LDC or third world countries. We, citizens of the global village, live in an increasingly interdependent world.

Consumers are often unaware of the trade-offs being asked of them in a market-place decision between domestically-produced apparel and foreign-produced textiles item. They are not knowledgable about the issues of quality of life for domestic consumers and the economic welfare of the U.S. textile and apparel industries.

Dr. Kitty Dickerson, as we know, has examined consumers views of imported clothing compared to U.S. produced apparel. She concluded that the majority of respondents prefer domestically produced apparel. Citing a CBS News/New York Times poll of 1980, Dickerson pointed out that given a choice between higher unemployment or cheaper foreign goods, consumers feel it is more important to protect U.S. jobs. A majority of her respondents expressed concerns over the effects of imports on the industry and indicated that these views influenced their purchases. From these findings,
Dr. Dickerson recommended the "Made in USA" campaign that led to the "Crafted with Pride in USA" labels (Dickerson, 1983). The industry interest in Made in USA labeling reached fruition with action by Congress with Title III of Public Law 98-417 that amended the Textile Fiber Products Identification Act and Wool Products Labeling Act to include country of origin labeling on domestic and foreign made textile fiber and wool products as well as mail order promotional descriptions.

Does "Made in USA" and Country of Origin make a difference? Did consumers react the way they said they would? In a Wall Street Journal/NBC News poll published October 15, 1985, the "Buy American" campaigns and recent headline news on textile imports apparently haven't changed the way the majority of consumers shop for clothes. While many look to see if the clothes are American-made, most buy because the item fits well and is priced right. Almost 60% of those surveyed said they would pay 10% more for American-made clothes if the style and quality were similar. But discrepancies do exist between what people say they would do and what they actually do.

We have concentrated on international trade in textiles and apparel as we have pursued the global perspective, perhaps because it is so much with us today. Global perspective means language, cultural heritage, preserving what soon may be obscured by mass melding, humanness in a new way. These are not new issues for ACPTC. Let me quote from the Proceedings of an earlier year: "To begin to envisage what our job might be in the kaleidoscopic world, we need to think at many levels...to the basic developmental needs of mankind and to his international problems in the trade of fiber, yarns, fabric and garments." The speaker - Dr. Ruth Ayers, the year 1968.

But it was Pogo who had the answer: "We have met the enemy and they are us."

Our schools are generally doing a poor job of giving students a needed appreciation and awareness of international issues. The President's Commission on Foreign Languages and International Studies, in 1979, reported that the lack of emphasis on international education in this country is "profoundly alarming" and stated: "The problem extends from our elementary schools where instruction in foreign languages and cultures had virtually disappeared to the threatened imminent loss of some of the world's leading centers for advanced training and research."

Colleges of Home Economics and programs in textiles and clothing are concerned primarily with the problems and potential of home economics in their respective states. Yet, we must recognize that these domestic responsibilities are impacted greatly by international issues. We must address these issues just as we deal with other matters affecting textiles and clothing in our respective states.

An administrative colleague put it so well, all universities have the talent. Experience can be gained quickly; but, the element that is almost always lacking is commitment.

Last year at ACPTC-CR, our third highest priority as we established was: ACPTC-CR will develop a data base and network for sharing international aspects of textiles and clothing that will: evaluate current international programming within individual textile and clothing units; survey international experiences (language, teaching, research, study) and interest of members; identify opportunities for international exchange of people, artifacts, technological developments; evaluate textile and
clothing programs to attract international students.

What have you accomplished on your campus during this year to forward this action?

Concluding Thoughts/Questions

Will textiles and apparel be the first of industries to move back to the home, as cottage industries as we all become Toeffler's pro-sumers; "production for use rather than exchange, do-it-for-yourself rather than do-it-for the market" (p. 356)? Toeffler believes that prosumerism is beyond merely hobbyism, this production for use is likely to assume greater economic significance (p. 387).

If so, what will be the impact on textiles and clothing curricula? Does a rebirth in interest in construction and fiber arts seem as probable to you as it does to me? Does your undergraduate curriculum include course work in clothing and culture, in international trade issues? Should it? Or is it too late? What will be the impact on our Cooperative Extension Service programs as the share of foreign produced apparel in the market place increases? Do you concur with me that there has been an upswing in interest in home sewing, for aesthetic rather than economics, and there has been a marked increase in problems with fabrics, finishes and dyes? What does the diminishment of the domestic apparel industries mean for programs that are launching extensive and expensive programs in apparel industries and production?

Have we changed curricula in fashion merchandising to include the impact of imports coupled with the "wear now" attitude of customers? How do we provide "quick response" systems, fashion goods, and cope with 60% of apparel in retail as imported? Can we assist in shortening the long information pipeline? Do we do enough training in inventory management? In market assessment? In domestic sourcing? In wherewithal of international trade?

Our graduate and research programs hold the key to the future of textiles and clothing. We need interdisciplinary approaches similar to the cooperative, interdisciplinary efforts at Michigan State in the late 1940's and early 50's that brought together clothing and textiles and the social sciences, economics, psychology, and sociology. We need to encourage inquiring minds and self-direction in our graduate students, students with a global vision of our field and a sound interdisciplinary base to lead us into the future as citizens of the Global Village.

The challenge of today is to be challenged to greet tomorrow.

References


Datagram. Textile Organon, April 1985, 3-11.


Managing Textiles in the Global Marketplace

Kitty G. Dickerson, University of Missouri-Columbia, MO 65211

We are hearing a great deal about trade concerns this fall. No doubt, President Reagan is hearing far more than he ever wished. Trade issues have become the most complicated political fight of the year. As an early October Time (1985) article put it, "The arguments, though often phrased in economic jargon, involve gut issues: prices and jobs."

We know that textiles is a key sector in trade concerns, but I believe most of us are not completely aware of the extent to which textiles is a key sector--a unique sector--at the global level. After meeting with textile trade leaders in Geneva and learning more about the structures that exist to deal with textile trade, I gained a new appreciation for the textiles sector.

I would like to discuss this unique position that textiles holds in world trade...and how managing textiles in the global marketplace is indeed sticky business. I would like as my contribution to the symposium: (1) to look briefly at the structure that exists for dealing with textiles at the global level, and (2) to reflect on why textiles holds such a unique position.

World textile trade, like all other trade, is coordinated by an international structure, the General Agreement on Tariffs and Trade (GATT) whose headquarters are in Geneva, Switzerland. More than 90 governments are contracting parties to the GATT; more than 80 percent of all world trade comes under the auspices of the GATT. Of particular significance to textile trade, is the fact that about two-thirds of the contracting parties are developing countries.

The GATT is:

"...the only multilateral instrument that lays down agreed rules for international trade." (GATT, 1983)

"...both a code of rules and a forum" (GATT, 1983)... regarding trade problems.

The GATT's aim is:

"...to liberalize world trade, and place it on a secure basis, thereby contributing to economic growth and development and to the welfare of the world's peoples." (GATT, 1983)

Textiles' special position is apparent in the organizational chart of the GATT. No other sector has a comparable structure to that of textiles. For example, the Textiles Surveillance Body reports to the Director General of the GATT; no other sector has a comparable body. Textiles also has a secretariat, known as the Special Projects Division; only agriculture has sectoral representation at that level.

World trade has largely been regulated since 1974 by the Arrangement Regarding International Trade in Textiles--otherwise known as the Multifiber Arrangement or MFA. A GATT publication describes the MFA as follows:
"The arrangement is intended to reconcile the interests of importing and exporting countries in the sensitive and difficult field of textiles by permitting the expansion of trade while avoiding disruption of markets." (1983)

No trade agreement is powerful enough to reconcile those two aspects (underlined by author) of textile trade in a manner agreeable to all parties. In 1985, it is impossible to "permit expansion of trade" without simultaneously disrupting markets. This combination blends together about as harmoniously as oil and water.

The GATT finds itself, as it attempts to deal with textile trade, somewhat in the role of a fire juggler. GATT officials are juggling the demands of the importing countries and the demands of the exporting countries, with GATT's ideal somewhat up in the air.

Determining who can export textiles to whom and who will import textiles from whom has several complex dimensions:

Economic concerns: Which nation's economy shall gain at another's expense? This is further complicated by balancing sectoral interests.

Political concerns: What are the political costs and benefits of opening or restricting a nation's market?

Social concerns: Which nation's workers, and in which sector, shall lose at the expense of others?

All these concerns make textiles a political "hot potato" on the world scene.

At the GATT, two key textiles bodies exist:

a. The Textiles Committee is composed of representatives of all countries participating in the MFA. The Committee normally meets annually to review how the MFA works in overall terms. In renewal years, the Committee meets numerous times.

b. The Textiles Surveillance Body (TSB) supervises the implementation of the MFA. All bilateral agreements and unilateral restraints must be reported to the TSB to be reviewed for conformity with the MFA. For example, if the U.S. claims market disruption in a category area, U.S. representatives may be required to go before the TSB to substantiate the claim. In general, the TSB handles complaints and problems in textile trade falling under the MFA. The group operates on consensus, consequently, its meetings often go through the night until decisions are acceptable to all parties.

Robert Shepherd, U.S. Minister of Textiles, is both the U.S. representative to the Textiles Committee and the U.S. representative to the TSB. Bob, who was my host in Geneva, is in the U.S. Trade Representative's Office in the U.S. mission. Peter Murphy, formerly Chief U.S. Textile Negotiator, heads that office as the U.S. Ambassador to the GATT. Textiles' unique position is apparent once again in that the U.S. does not have comparable ministers for other sectors.
The TSB, consisting of eight members plus a chairman, is composed of a
delicate balance between exporting and importing nations. (These terms are
used at the GATT rather than "developed" and "developing" countries.) In
several cases, more than one nation is represented in a "seat" on the TSB.
For example, the ASEAN nations share a seat. Representation is on a
rotation basis with the delegate at any given time representing the
interests of all. China and Eastern Europe would like also to have
representation, but this would pose problems in maintaining the balance of
importing and exporting interests.

One might ask: "Why textiles?" Why does textiles get such special
treatment? Why is textiles so controversial? So politically volatile? At
the crux of the dilemma is the fact that textiles is such a significant
employer globally. Textiles employs more people worldwide than any
manufacturing sector...and the employment data which show this do not
reflect employment in the cottage industries. As examples of textiles'
importance: (a) In 1984, textiles accounted for 43% of China's total
exports; (b) Textiles is so important to Hong Kong, that it has two trade
divisions: one for textiles and one for all other sectors together; (c) In
the U.S., nearly two million persons rely on textiles for employment--one
person out of ten in manufacturing jobs. In fact, it may be said that the
industry serves the same function in industrialized countries that it does
in the developing countries in the sense that it employs persons who have
virtually no other employment alternatives.

Why has textiles become such a problem? As recently as twenty-five
years ago, only a limited number of textile-producing countries competed
for world markets. The global market has grown very little in recent
years, but the number of nations producing textile products has grown
tremendously. The proliferation of textile-producing nations has occurred
as developing countries have used the industry (particularly apparel
production and textile cottage industries) to move toward economic
development. Conditions in developing countries foster growth,
particularly of apparel production, as a first industry. The combination
of the availability of inexpensive labor and minimal capital requirements
makes apparel production both feasible and attractive to many Third World
countries.

The reason textiles has become such a problem is that too many nations
are competing for a piece of the pie...the world markets. The choicest
pieces of the pie are the markets of the industrialized countries. The
U.S. market is seen as the choicest plum of all. Representatives of many
other countries seem to have the perception of the U.S. market as one with
no consumption limits, composed of consumers with insatiable appetites for
goods. Many see us as rich and prosperous, with the means of absorbing all
they can produce.

The MFA was developed as a global trade agreement to mediate textile
trade, but has it worked? No one seems to like the MFA. We might say it
is the Rodney Dangerfield of trade agreements. The reasons for disliking
the MFA vary, however, according to who the speaker at the time may be.
Opponents of the MFA say that it goes against everything the GATT stands
for. Opponents say the GATT is intended to liberalize world trade--not to
protect markets. They say the GATT is supposed to help developing
countries--not to cut off their shipments. The industrialized countries
would say that the MFA has been ineffective in adequately preventing market
disruption.

Several textile trade leaders had the following to say about the
MFA:

"The MFA has forced countries to deal with issues in the open." (Wirth, 1983)

"GATT is ashamed of the MFA. At the same time, GATT is relieved that the MFA exists. It gives a transparency and a forum to what would be done anyway." (Rafaelli, 1983)

"Textiles has the potential for breaking down the GATT. The developing countries will not continue to accept the treatment of textiles as an exception to what the GATT is all about." (Zutshi, 1983)

Further, the position of the MFA is precarious:

"The MFA hangs by a thread. The balance is fragile." (Salib, 1983)

Our government officials who deliberate textile trade agreements have a difficult task. There is no "right" answer, no "easy" answer, to be found. Textile trade requires careful juggling. We could use the juggler analogy on the national level and have the juggler be President Reagan. In Washington, textile trade interests must be juggled with other sectoral and political interests. Recent conflict over the Textile and Apparel Trade Enforcement Act attests to that. For example, if our country restricts textile imports, and foreign buyers boycott U.S. grain, how can the agricultural groups be kept at bay? In the recent debates on the Trade Enforcement Act, other sectors who feared they would be adversely affected by the backlash from that bill have made their interests known. Pressure from other sectors surely accounted for the loss of co-sponsors in the House by the time the bill came to a vote.

In summary, the global marketplace is brimming with concerns related to textile trade. It is no longer possible to resolve differences so that all the players will go away from the bargaining table happy. One person in Geneva said there was near jungle warfare before renewal of the last MFA. The best we can hope for is that all these concerns be carefully factored into decisions being made, and that we have reasonably amicable agreements that are reasonably bearable to a reasonably large number of the world players. Managing the global marketplace for textiles in 1985 is very sticky business--and, we can be reasonably sure that it is not going to get easier.


I want to thank you for the opportunity to be here today. It's important to those of us in the manmade fiber industry to have a continuing dialogue with the academic world. Your contact with, and education of our young people, is of great importance to all of us for the long term. At this point in time, though, there's some question of whether our industry will be here for the long term.

Our vertical industry—that is, natural and manmade fiber producers, textile mills, apparel and other consumer product makers—is under attack from products made abroad. The two-million people directly employed in our vertical industry are losing jobs at a record rate of 10,000 jobs per month.

As jobs in production plants are lost, support jobs in the local communities are also lost. It seems that it's very easy for many people in the media and government to rationalize what is happening in glib cliches. But for those of us, and I'm one of them, who must deal with these events and their consequences to peoples' lives, let me assure you that glib cliches do a great injustice to our situation.

In April of this year my own company was forced to permanently close our acetate yarn plant in Meadville, Pennsylvania. This plant wasn't closed because it was inefficient; it was closed because acetate yarn has more than 90% of its natural market place in apparel. And with over half of the apparel marketed in the United States now being imported, there's simply no need for the facilities at Meadville. In July, I had a large junk dealer in the Meadville plant to bid on cutting it up for scrap. Now this is a plant that has 38 acres under roof, and employed a thousand people. As we finished the tour, Steve said to me, "This plant should not be closed. There are over a hundred countries in the world that don't have—or ever will get—a plant like this. The fact that you had to shut this plant tells me something bad about our society."

I can almost hear some of you say, why didn't you export more products and keep Meadville open? This is one of the generalizations that was made two years ago by Jeff Arpan and his colleagues in their study at the University of South Carolina. I plan to cover in some detail today why this general thesis won't work. We domestic fiber producers are truly locked in to the vertical industry here in the U.S.

This slide shows what makes up cellulosic and non-cellulosic manmade fibers. It also shows when they were introduced. Cellulosic fibers in the U.S. today all come from wood pulp, and this shows the chemicals used to convert wood fibers into acetate or rayon fibers. The petro-chemical, or non-cellulosic fibers are converted by the intermediates shown here into their respective fiber types: Nylon, Polyester, Acrylic, and Olefin. All fiber producers make products in these different forms: staple, tow, filament yarn and/or textured yarn.

Now let's look at U.S. textile fiber consumption. This slide gives an overall picture of our business. In a way, it's somewhat deceiving. You may look at this and say, "What are you so upset about?" First of all, while the total market had a 16% setback during the last recession,
1978-1982, it still appears to be growing. Secondly, imports are up, but in terms of the total they're only 2% in 1984.

The confusion lies in several areas. First of all, imports were concentrated in the apparel area to which we traditionally sold 40% of our product. The apparel area is now well over half dominated by imports. Secondly, market areas that represent continued growth, for example, the carpet area and fibers and fiber structures that are used to make nonwovens, mask some of the significant penetration of traditional home furnishings and industrial markets by imports. In addition, the fibers used in these growth areas are not the same ones we've been making for traditional markets, and this is playing havoc with our sunk capital investments and our future spending plans. Third, we've never really counted all the imports; for example, we do not measure the fiber in imported automobiles, tires, furniture, etcetera. Our association will soon do this, and imports will jump statistically when we have these data in hand. And fourth, these market statistics do not reveal the sharply-deteriorated fiber pricing situation brought about by the producers' struggle for survival in a shrinking market.

Turning to the export picture, American manmade fiber exports peaked in 1981 at 1.2 billion pounds, over half of which went to the PRC. The large share of PRC purchases was in polyester fibers, an area in which the Chinese will soon be self-sufficient. In most recent years, sales to the PRC have dropped sharply, leaving us with less than half the sales of the 1979-1981 period and no place to go. To drive home the past importance of the PRC to all the major fiber producing countries—that is, the EC, Japan, and the U.S.—I looked at the past 10 years and found that established producers sold 262 million pounds of manmade fiber to the PRC in 1975 and this increased every year to a peak of 1.3 billion pounds in 1981, half of which came from the U.S. Recent years have shown a sharp drop in sales to the PRC not only from the U.S., but from Japan and the EC countries as well, as China moves toward self-sufficiency.

Many of you came here today from important U.S. farm states and you have a serious problem brought on by overproduction measured against domestic demand plus exports of farm products. Many of you and your congressmen see our textile trade bill as a threat to your exports in the future to the Far East. In my judgment, there's no real threat here because you are going to loose that market anyway as things now stand. My basis for saying this is what's happened in cotton already.

Let's take a look at the picture of cotton production in the PRC. For years the Chinese cotton crop averaged 10 million bales a year and our cotton farmers had a major export market in China as well as other countries in Southeast Asia. No longer. The Chinese crop has more than doubled. In fact, estimates for this year call for 27 million bales. As a result our cotton farmers have no market in China or anywhere else in the Far East. The U.S. cotton industry came to this conclusion as recently as a year ago and joined our vertical industry trade bill efforts. The Chinese cotton crop went up because in recent years for the first time they have manmade fertilizer, and they're putting that manmade fertilizer on their wheat, cotton, and soybean fields, and the farm states are going to go through the same problem we've had.
Let's look at what's happening to manmade fiber producing capacity. World manmade fiber producing capacity has increased an average of 3.3% a year for the past 10 years to reach above 42 billion pounds this year. A similar increase is projected for 1986. These numbers exclude olefin fibers. Within this overall increase, though, there are major inconsistencies. First, Western Europe has dropped 28% from its 1977 peak. Secondly, the United States is down 8% from its 1979 peak. Third, Japan is flat. Now the other countries, (which is everybody else), are building plants rapidly, averaging 9% annual increases over the past 10 years. In fact, those countries that have had the most growth, averaged 14% annual increase for the last 10 years, which means they're doubling their capacity every five years, and those countries count for more than 75% of the absolute growth in capacity in the last 10 years. When these facilities are built and operating, no fiber gets into most of these countries. All kinds of nontariff barriers keep us out.

A study that's going to be released next week by the USTR classifies these trade barriers in countries that are major "thorns in our side," in-so-far as import sources are concerned. The classification titles are: 1) tariff and other import charges; 2) quantitative restrictions; 3) import licensing; 4) customs barriers; 5) standards, testing, labeling and certification; 6) government procurement; 7) export subsidies; 8) lack of intellectual property protection; 9) countervailing trade and offsets; 10) service barriers; 11) investment barriers; 12) industry targeting; 13) product R & D subsidies. Most of the countries building fiber facilities are setting up fully vertical textile/apparel industries to create full employment and gain foreign hard currency. Once this structure is in place, we in the U.S. will have a very difficult time doing anything about it. To quote Robert Kuttner in last week's Business Week: "The U.S. can no longer afford to be the world's largest free trade zone while other nations, rich and poor, rely on economic planning."

Let's look next at how the other major developed countries are buying imported textile products. You can see from this slide that Japan and the EC have controlled their apparel imports from lesser developed countries, while ours have increased sharply in the recent years. As the LDC's have brought more plants on stream they've all turned to the United States for a market outlet for their product, and the Reagan Administration has allowed--yes, actually encouraged--this to happen.

This slide shows the same picture for fabric imports. In essence we're the only open market in recent years. Since 1979, Japan and EC have held per capita textile imports even or lower, while ours have tripled. Kuttner in the Business Week article, claims that the United States currently buys 60% of third world textile apparel production.

This slide shows where the U.S. imports come from and how the pattern is changing. You'll notice that in recent years the percent of product coming from the OECD countries has dropped. The Big Three have been about even, and China has grown very sharply, along with other developing countries. The same kind of slide will show you what's happened in the EC. And here's a picture of what's happened in Japan.

Recently I had the opportunity to meet with some people from Japan that are active in their manmade fiber producers' association. They
wanted to know if we thought we were going to pass our trade bill, and we said we were. Then they wanted to know what the impact on our MFA negotiations next year would be, and we said, "If the trade bill passes we don't need the MFA." They said, "What will happen to us?" And I said, "Then you will be the next target for the people you put into business in Southeast Asia." They next wanted to know, "How do you get your government to put in a trade bill like that?"

You probably know that retailers strongly oppose our industries' trade bill. Our study of where a dollar spent for apparel at the retail cash register goes, shows that fiber producers get 6 cents. Big deal! Note that the retailer averages 40 cents. Do you see why we get rather emotional when somebody tells us to improve our productivity? Do you see why we have little sympathy for the retailers' cry of poverty?

It's really a shame that our industry and our downstream customer, the retailer, should be at odds over this import problem. Back in January, when our trade bill was introduced in Congress, a PR event was held in the rotunda of the senate. Pennsylvania Senator John Heinz showed four men's dress shirts that were sold by Sears on Wisconsin Avenue in Washington, D.C. for $18.00 a piece. Three of the shirts were foreign made, and they all had a lower price at Sears than did the U.S. shirt. The point I want to make is that the U.S. shirt cost Sears about $7.50. I don't think that's a poor profit to $18.00.

What is happening to the vertical textile industry in the U.S. is happening to most of our basic production, i.e., shoes, steel, autos, electronics, chemicals, oil, and farm products. We sit here verbalizing our concern about others and playing fair while giving away large chunks of our wealth generating base. The suggestion that we move back to cottage industry as a consequence of our present problems is either an admission of, or an invitation to, defeat in the economic area, in my judgment.

My proposal to help solve the deteriorating business situation in which we find ourselves is two-fold: first, pass the Textile and Apparel Enforcement Act of 1985, and second, put into place a broad-based Crafted-with-Price program with emphasis on Quick Response.

Let's look first at the trade bill, now in the latter stages of congressional action. Some of you may think of this as a protectionist bill. Without debating the MFA, our existing bilaterals and their enforcement or lack of same, let me ask you: When did Americans begin to apologize for protecting what they've got? Particularly after they're lost about half of it?! In a broader vein, we're often thrown sinister references between our trade bill and Smoot Hawley. The facts about Smoot Hawley are these: in 1929, before Smoot Hawley was passed, Americans' GNP was 103 billion dollars, with exports and imports near four billion dollars each. In 1933, three years after Smoot Hawley passed, GNP had dropped to 66 billion with exports and imports in balance, near one and a half billion dollars each. Remember, 65% of all imports were duty free under Smoot Hawley and the average increase in duties levied was only 3%. Those of you who are too young to remember it, check it out. I don't see any relation whatsoever between Smoot Hawley and either the Great Depression or World War II.
The Quick Response concept with the broader Crafted-with-Price program is an effort to take the guesswork and resulting waste out of buying by retailers. As it is, many retailers are unaware of how relatively unprofitable some importing is. A survey earlier this year covering 73 retailers' profitability on imported women's sweaters showed a number of interesting things: first of all, the gross margins for the imports were only 3.8% higher than for domestic sweaters; secondly, the inventory turnover for imports was significantly lower than for domestic goods; third, the retailers financed the imports for 15 weeks longer than the domestic sweaters; fourth, the import orders created an inflexible open-to-buy position, thus limiting the retailers ability to respond to the market; and fifth, given equivalent product and price, 60% of the buyers preferred the domestic sweaters to the imports.

If the vertical American textile industry could deliver new orders to retailers' stores in four to six weeks, rather than the more traditional six to nine months, we would go a long way toward offsetting the very low labor costs in the Far Eastern countries. Our trade bill is designed to give us some breathing room until all facets of the Crafted-with-Price program can be put into place. In this manner we will survive. Thank you.

The World as a Market Place as Seen by an American Apparel Marketer

Ernst Ott, Jockey International, Inc., Kenosha, Wisconsin 53140

The controversy over the Jenkins Bill is something that deeply affects all of us. When I make the comments that you will hear in defense of the American manufacturer, I want you to realize that we are, in particular, my company, marketing globally, and we have developed a very broad global perspective over many years. The comments that I will be making are based on a lot of experience.

In pursuing a global perspective, we, as apparel manufacturers, realize that times are changing. As a member of the apparel manufacturing community I want to comment on the imports issue, and then deal with the possibilities and the potential for the future. I will discuss how we at Jockey International are looking at the global market place, what we have been doing, and what we plan to do in the future.

As you know, the American Apparel Manufacturers Association (AAMA) has sponsored and is supporting the Jenkins Bill. The advocates of the so-called "unrestricted free trade" call this a protectionist bill which, among other effects, will hurt the consumer, will increase prices, cause retaliation by the affected countries, and hurt our international relations. Also, they claim the apparel/textile industry already is one of the best protected in this country.

I want to stress that the AAMA is not looking for restrictions because of our outdated or overpriced products or manufacturing facilities in the U.S.A., as the import lobby claims. But, we cannot ignore the fact that the apparel and textile industry is one of the largest employers in our country, and we are facing already some large scale closings of factories. Most of the people being put out of work are in
areas where they cannot find other employment. We are not talking of labor that is overpriced or too expensive. Wages in the apparel and textile industry are not in that category. The main reason we are somewhat more expensive than our partners overseas that are exporting to the U.S.A., is because the government and congress imposed minimum wage laws. It is somewhat ironic that on the one hand our government is imposing wage laws on American manufacturers, yet on the other hand, it in a way sacrifices our labor to overseas manufacturers.

There are those who say we are not competitive. It is true we all can stand some modernization and improvement in our manufacturing factories. But, if we are allowed to compete on the same level with the same conditions as the overseas manufacturers in the third world, we would be one of the most competitive, because their prices very often are not dictated by actual cost but by subsidies and government incentives.

It is interesting to know that the importers' lobby and I refer to a large extent also to the retailers, claims that if the Jenkins Bill were to become law, it would force many of them out of business. They would have to close and lose their jobs. But they don't seem to be interested in what happens to the American worker in our factories.

Now, let's look at the suffering consumer who would have to pay higher prices for goods bought from the American manufacturer. A recent survey by the Wall Street Journal has shown that the American consumer wants quality and fashion, but s/he's also very much aware of the loss of jobs. And, if the American manufacturer can offer the same goods at a slightly higher price but with equal quality, the American consumer would buy the American product.

As far as the so-called retaliation by the exporting countries is concerned, I think we are being somewhat naive. We have been retaliated against, or more accurately put, shut out of their markets for years. Just talk to the American businessman who has tried to export apparel to China, Taiwan, Korea, India, Africa, or the Latin American countries. What about our government's promise to push for access to their markets? It's a noble gesture, but it's almost too late, too little. Aside from that, that threat or promise simply won't work. Many of those countries don't have the dollars to buy our goods and those that do, don't want the American industry to jeopardize their own industries. That's why they have established restrictions in their countries. That's why we at Jockey decided very early to go to licensing arrangements. In many of these countries, we have established operations within their borders because there was no way to export our goods to Latin America or into the countries I have mentioned before.

Now certain politicians and importers say that if we don't buy their textiles, they won't buy our wheat and other agricultural products. Is that really true or are there other factors involved as well? Let's take, for example, a look at the European economic community (EEC). Just this month, the EEC launched a major counter-offensive against the U.S. Agriculture Department's export enhancement program by raising their subsidies and export refunds to the Mediterranean countries in order to, and I quote, "protect its commercial interests in the traditional European markets." Many of you are probably also familiar with the
restrictions imposed by the EEC against the U.S. quota on wheat imports
with only one purpose, to protect their own markets.

China is an example. We do business with China. I've been to China
several times, and I know China pretty well. China claims that the
reason they have cancelled some wheat orders is because of our restric-
tions in textiles and apparel. The fact is, as some Chinese people will
tell you off the record, the Chinese have had an excellent harvest and
they did not need all the wheat they originally planned. As a matter of
fact, China is becoming a net exporter of grain.

Let's get closer to home. How would this affect you as a faculty?
Have you thought about the implications, if it were to come to a de-
industrialization of the apparel and textile industry in this country.
How many of you would still be teaching apparel design, apparel manufac-
turing? Maybe some of you would have to learn Chinese. There wouldn't
be that many factories around nor jobs for your students.

At this point, I would also like to clarify the position of the
AAMA. The AAMA wants nothing more than sharing, on an equitable basis,
of the U.S. market potential. There is a definite need for imports that
is recognized by all of us in the industry. Even we manufacturers go
off-shore for certain needs. We have to, to remain competitive.

However, our first objective is to produce in the U.S.A. whatever we
can produce competitively, and to protect our own labor force. Retailers
and manufacturers have to work together. The recent statement by a
multibillion dollar retailer reflects the views and the sentiment of many
American apparel manufacturers. He said:

Given the opportunity to buy domestically, we'll buy domes-
tically, but we need to strike a balance between the
ability of American resources to produce goods competitive-
ly and our ability to protect American jobs.

Pursuing a global perspective is today a key factor for survival in
the textile/apparel world. Retailers were among the first to go overseas
and look for off-shore sourcing. They were searching for new product
ideas, greater flexibility, and higher profit margins. Often their U.S.
traditional suppliers were not able to satisfy these requirements. Very
soon U.S. manufacturers too, in self-defense or even desperation had to
look for less expensive labor sources and went off-shore.

What does the future hold for global sourcing? Many international
companies in the apparel business bet on a modified renewal of the M.F.A.
with certain redistribution of quotas. The big four producers, Hong
Kong, Korea, Taiwan, and China, will probably be limited somewhat in the
quotas that they're holding today. Other countries will emerge as
suppliers. It will be a merry-go-round, on a much larger scale. The
Mediterranean countries will be taking on greater importance. And the
Caribbean basin initiative that our government has started, now makes
this area more attractive to manufacturers, particularly as an "807
operation." For those of you that are not familiar with 807, it means
that a manufacturer can knit goods in the U.S., finish them, cut them,
and then ship them to a lower labor cost country. When the goods come
back in, you only pay the duty on the difference of the added value.

Our own company, Jockey International, recently established an 807-
factory in Jamaica, to supplement our needs for certain underwear items.
We also maintain a company in Hong Kong which functions as a buying office for both our European and Canadian Licensees as well as for our own needs, mainly the sportswear area. However, at this time, we produce about 95% of our total underwear requirements in the U.S.A., and about 70% of our sportswear requirements.

Foreign apparel brands have found the U.S.A. an important market and have increased their direct selling efforts. Not only French and Italian designers, but names like Adidas, Benetton, Mondi, Speedo, Wacoal ... to name just a few, are as well known here as Levi, Wrangler, Jockey or Ralph Lauren and Calvin Klein in their respective countries. New names are constantly appearing on the market scene as new fashions arise or technical developments are made.

We have talked a lot about sourcing and imports, but let's not forget the global marketing efforts of our industry. In general, the American apparel makers have not been too internationally minded. When you consider that we have approximately 5,000 makers and sellers, less than 5% really have a substantial international operation. To successfully compete outside the United States, you have to approach the task with the same investment and commitment that you do in the U.S.A., plus a considerable amount of extra effort. Those that have done that have reaped extraordinary rewards.

We at Jockey have rather early in our company's history developed a global perspective and pursued it with total commitment. Today, our products are sold all over the world in more than 100 countries and Jockey is one of the most important brands in the underwear and the sportswear areas in many of these countries. This is the reason why today the brand has become a household word. We manufacture in 34 countries, mainly through licensing operations. We maintain offices and subsidiaries in South America, particularly in Brazil, in Hong Kong, and in Europe where we coordinate our licensee efforts.

We have to be very close to the market, to the trends, and keep our finger on the pulse of market developments. It is also a two way street. We observe many of the foreign developments and we bring them to the U.S. They become of benefit to the American apparel manufacturers here.

Similar success stories can be told about Levi, Wrangler, Lee, and so forth. However, there are many more companies that can develop a broader perspective when it comes to international and global commitments.

I agree with Joan Laughlin's comments regarding the subject that we touched on, and also about the deficiency in our schooling. Our students have a dismal knowledge of geography, of world economy or linguistic skills—all important elements to successfully compete internationally. When interviewing college graduates for job openings in our international operations, I am often appalled by their lack of usable knowledge and the emphasis here is on usable. If we want to become more competitive, not only product-wise, but as competent businessmen, we have to prepare our students in colleges for this task. The challenge, ladies and gentlemen is right here at our doorsteps. Thank you.

I'm an attorney, not a retailer or an importer, but we represent the textile and apparel group of the American Association of Exporters and Importers. We count among our members Sears, Penneys, K-Mart, and a number of other major retailers. These retailers are also among the largest apparel importers, and they are on the front line of the battle in Washington today over textile trade. Although I don't speak for retailers, I believe my remarks will accurately reflect their views.

As you know we are in the midst of an intense and highly political struggle over the future of international textile trade. The MFA is up for renewal next year and discussions regarding MFA renewal have begun. We also face the possibility of legislation which would severely constrain textile and apparel exports and completely change the nature of U.S. textile trade.

Retailers are reluctant participants in this struggle. By nature they are not political and they do not view themselves as being in opposition to their suppliers in the U.S. textile and apparel industry. For example Willkiam Andres, formerly chairman of Dayton Hudson, has said . . . retailers need and want healthy textile and apparel producing industries in this country. Helping to sustain productive and profitable textile and apparel industries is . . . in the very best interests of the nation as a whole, of our customers, and of our own retail companies. We are their best customers and we intend to keep it that way.

Retailers view their job as being the customers' purchasing agent. Success depends on finding merchandise that appeals to consumers at a price they can afford to pay. Retailers favor more open international markets because the merchandise they buy overseas stretches the budget of America's low and middle income families and helps control inflation.

The retailers' preference for domestically produced merchandise where available in competitive style, quantity, and price, is not just rhetoric. Domestic purchases have a number of advantages over imports from the retailers' perspective. Among the most important is control over product. It's much easier to visit a manufacturing plant in Tennessee than one in Thailand. It's also easier to do business with American manufacturers. Obviously both parties are speaking English, and cultural differences do not have to be overcome. Domestic manufacturing also provides a shorter lead time. I was once told that K-Mart had a lead time of 12 to 15 months between development and delivery of a product. Obviously, if they can cut that down they limit the risk somewhat of changed styles or misdirection.

Finally, there's the issue of money. Import sales are typically handled by placing a letter of credit at the time of an order. These funds are held and perform no useful function for the importer-retailer. On the other hand, domestic purchases can be done on a credit basis.
Why do importers and retailers import? For two principle reasons, variety and value. Variety, the modern retail establishment could not exist without it. It is impossible to imagine a Bloomingdales in Mao's China or in 19th Century rural America. Bloomingdales needs fashion conscious consumers who in a sense overbuy, impulse buy, not just replace something that's worn out.

While variety is the driving force of retail sales, value is the key consideration. Retailing is among the most competitive of industries; people are looking for the best merchandise at a price. Mr. Ott eluded to markups in merchandising, but it's important to recognize that retailer's return on sales is in the range of 3 1/2 to 5 1/2%, which is below that for manufacturing in general and in the same range or slightly below textile mill manufacturing. Price competition is not new in retailing. It should not be seen as a new phenomenon in textile and apparel. Just as some textile plants have gone out of business so have retail operators: Grants, E.J. Korvettes, Robert Hall. If I were to ask a textile mill manufacturer to name three comparable manufacturers of textiles that went out of business, I think they'd have a difficult time.

Our firm also represents a number of foreign suppliers. Some people think that suppliers are pushing their merchandise onto the U.S. market. That is a real misunderstanding of how the market operates. The U.S. apparel market is not a supply-push market in terms of overseas product. It is demand-pull. The retailer needs product, he looks domestically, is not satisfied, and goes overseas to see if he can find a better product. This is a very typical situation. It's not like Bangladesh woke up a year and a half ago and decided "hey, let's have a textile industry." They had an industry and retailers, looking for new sources of supply in a market which is inhibited by quotas, went to Bangladesh, saw that there was a viable manufacturing industry for export, placed orders, and Bangladesh has grown dramatically as a supplier.

Imports are essential for the variety and value which they provide. Retailers see their business seriously threatened by the increasing over-regulation of the U.S. textile and apparel trade. Imports of textiles and apparel are already subject to duty rates that are four and a half times the average for U.S. manufacturers generally. The MFA allows the regulation of imports outside the normal GATT structure. It enables an importing country to establish quotas unilaterally without providing compensation. In the GATT framework if an important country feels that its industry is being harmed by imports, it can impose quotas but it is obligated to provide compensation. The United States doesn't honor this very often but that is supposedly the GATT system. In the MFA system a quota can also be directed at specific countries, whereas in the GATT system, it's supposed to be directed at trade generally.

Under this system the United States government has in place today over 600 quotas. Also unlike any other product, textiles and apparel are excluded from certain preferences which exist in terms of U.S. import trade. For example, there's a program called the Generalized System of Preferences which allows products from developing countries to enter duty free into the United States. Textiles and apparel are specifically excluded under the statute. Similarly under the Caribbean Basin
Initiative textiles and apparel are specifically excluded from the duty free treatment which the CBI provides.

Particularly since 1981, when the MFA was last renewed, retailers have seen an intensification of restrictions on their ability to do business in the import area. At the time the MFA was renewed, President Reagan's Chief of Staff Jim Baker, wrote a letter to Congressman Campbell which pledged that U.S. imports would be related to growth of the domestic textile and apparel markets. The administration has, since 1981, in many respects, been trying to catch up with this pledge, whatever it means. It didn't say it was going to be the same growth rate, it said it would be related to. Following this, the United States forced renegotiation of agreements with Hong Kong, Korea, and Taiwan cutting back the growth which previously existed in the range of 6% and 7% to in the range of 1½% to 1¾%. Subsequently there was an attempt to negotiate an agreement with China which also contained restrictive provisions, though not as restrictive as with Hong Kong, Korea, or Taiwan. But when the United States unilaterally imposed quotas on 33 products in China to try to force an agreement, the Chinese retaliated against agricultural products and the U.S. lost 500 million dollars in agricultural sales.

At that time the United States provided about 60% of Chinese imports of agricultural products. The current figure is about 20%. Not only was there a significant decline in exports to China of agricultural products, but the U.S. market position has been displaced by other suppliers. In the future when demand for agricultural products increases in China, as their standard of living increases, the U.S. will not be in the same favored position to take advantage of that market.

Finally the United States and the Chinese did agree to a bilateral agreement. Immediately thereafter a case was brought against Chinese apparel by a domestic textile and apparel industry claiming that the industry was being subsidized. To avoid dealing with this issue the United States government negotiated with the domestic industry new criteria for taking action against textile imports. They created a system including a "presumption" of market disruption, so that the growth of imports of itself would create a presumption of market disruption. Prior to that the United States had taken these unilateral actions, referred to as CALLS, at an increasing rate. In 1981 there were about 18 actions taken, 1982, 30 some, in 1983 before these new criteria were established the United States took about 70 of these actions, in the next month they took 33. They took over 100 actions in 1984, and over 100 actions already this year. So the United States has unilaterally imposed quotas on 400 categories of products in the last four years. This sends retailers scurrying all over the place because they set their market strategy up, and all of a sudden they're told they can't enter that product because quotas are being imposed. So they're spreading out their sourcing, moving into new sources which are not controlled, which is a costly way of doing business.

The most recent and most severe threat to retailers in this area is the Textile and Apparel Trade Enforcement Act which is currently pending before Congress. We're hearing, in all likelihood it will be vetoed by the President. This is a really terrible piece of legislation. Basically it establishes quotas on all textile and apparel products from
all sources and that includes Hong Kong, Korea, Taiwan, China, Bangladesh, Nepal, Ethiopia, you name it. If there's exports there's a quota on them. The most pernicious aspect is that these quotas would be imposed across the board at a time when these countries don't have any industries to speak of. Those industries will never develop.

The legislation would also cut back imports from 12 countries, which are referred to as the major suppliers, including Thailand, Singapore, Brazil, Indonesia, Japan among others, by an average of one-third. Interestingly enough the bill excludes the European Community and Canada. The European Community is the chief factor in any growth that is occurring in imports at this time, but it's excluded. Congressman Gibbons, who's chairman of the Ways and Means Trade sub-committee, in a letter to President Reagan noted that around Asia this is referred to as the "white man's" bill. The bill will also establish an import licensing scheme which would be extremely costly, and would create chaos from the import perspective. It would also be extremely harmful to other aspects of the U.S. economy and U.S. trade interests. You'll remember that the comments of the delegates in Geneva referred to the MFA as being perhaps distasteful, but necessary for the survival of the GATT. If this textile bill were enacted there would not be an MFA and I fear there would not be a GATT and I don't want to overstate that.

Retailers recognize that the U.S. textile and apparel industry is in a highly competitive environment with imports. They believe however, that the impact of imports has been grossly overstated and have urged a second look at the need for import legislation. Let me give you a few examples. There's been a great deal of talk about the death knell of this industry being caused by imports and they talk about the loss of employment between 1980 and 1984 in the textile and apparel industries. When you break it down, imports increased most in 1983 and 1984. U.S. employment declined during the 1980-82 periods. As a matter-of-fact it declined by about 200,000 during that period and during the period of 1983-84 it grew by more than 30,000. Between 1982 and 1984 U.S. mill production increased by 14.9 percent, not exactly a dying industry.

As the numbers suggest, the chief cause of employment declines in the textile and apparel industries is really not imports. The real cause of the decline is productivity. Between 1974 and 1984 the domestic woven fabric sector grew by almost a billion square yards. Employment declined by 80,000 workers, almost one-quarter. Between 1980 and '84 output per worker increased by 28%. We sympathize with individual cases where jobs are lost. We should recognize though that it's not distinctly the case for the textile and apparel sector. Progress requires change, change results inevitably in some dislocation. In fact we produce a lot more jobs in the United States than we lose, more than we have lost. If you think about job losses, the textile and apparel wage structure is such that if a new job is found it would probably be as good a job if not a better job. I see this problem as being more severe, for example, in the steel industry where they're loosing $20 an hour jobs. If they find a five, six, or seven dollar an hour job, their standard of living declines substantially. In the textile mill and the apparel sector the wage rates are in the five, six or seven dollar range. Although a lost job is a
lost job, if a new job is found the dislocation will not be a severe as for a steel worker.

Retailers think that the key to success of the domestic textile and apparel industries is to develop a market as opposed to a manufacturing, orientation. The industries' ability to enhance what Kurt Salmon and Associates referred to as "total productivity" of their operations, will determine whether they are successful or whether they fail.

Kurt Salmon held what they called a worldwide sourcing breakfast last March and they analyzed the future of the textile and apparel industries. In contrast to the view that this industry is disappearing they said:

A more responsive supply system in the U.S., based upon closer understanding and cooperation with retailers, could well see domestic manufacturing supplying 55% of the market - and this would leave 35% for imports from other parts of the world.

The MFA was designed to allow for orderly adjustment, it was not designed to guarantee market shares. There's no industry in this country that has a guaranteed market share, but essentially that's what the legislation that we're opposed to would create.

The idea of total productivity is a very interesting one. Again Kurt Salmon said:

The survivors will be those companies who successfully adopt a marketing orientation . . . They will be innovators and . . . specialists, more internationally oriented than the textile companies of today . . . The current emphasis on productivity must not be lost but it must be harnessed towards the total productivity of the textile apparel system . . . . The expanding use of data processing, telecommunications, micro-processors, and robotics will enable us to shorten the lead times of U.S. supply system, thereby making it more difficult for imports to compete.

We see a future in this market for the domestic industry and we feel that the legislation which is being proposed represents a dangerous direction for trade generally. I'd like to finish my remarks by quoting from a legislator in favor of textile legislation. This legislator said, "the textile industry does not seek favors. But it does ask, Mr. President, that the additional burden of ever increasing imports not be added to its other troubles. The industry seeks a chance to adjust, to work out its problems, so that once again it can stand strong against all competition from whatever source." Now we agree with those remarks. Unfortunately the remarks were made on February 27, 1966, over 28 years ago, with the senator pledging support for the original legislation regulating textile and apparel products which is section 204 of the Agricultural Act of 1956. We think that 30 years of very special protection is enough and we look to the MFA as now starting the process of real adjustment. We look forward to a renewal of the MFA but with a termination date set. We look for a return to the original principles of the MFA which allowed for growth, which allowed for flexibility between products, and we also look for progressive liberalization of the MFA away from products which are currently being restricted.
Future Plans Require Action Steps Today

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One of my favorite books on looking toward the future is entitled: Looking Ahead 50 Years by Roger Babson. The interesting thing about this book is that it was copyrighted in 1942. Babson talks about textile manufacturing as follows:

When the first celophane rain-coat was made, the textile industry entered a new era. Both the making of the yarn and the weaving of the cloth were eliminated. The goods were made as paper is made. During the next 50 years most of our clothes will be made this way. The weaving process will largely be eliminated. The entire suit or dress will be turned out on great presses like those now folding and mailing our color-illustrated magazines.

Well, as you're quite aware, we've not progressed to paper or non-woven clothes, but interesting things are happening in this area. A glove that was produced completely on the non-woven melt blown equipment at The University of Tennessee is just a beginning indication of what kinds of things can be done with pre-fabricated apparel.

Will we be ready for the opportunities that may lie ahead for us in the field of textiles and apparel? Will we be ready to lead graduates from our institutions into the future?

The November 1985 issue of Science talks about 25 discoveries which could change our lives. Among these are composite materials, replacement genes, physics in nine dimensions, ultra small micro chips, commuting to space, bio-chemical control of behavior, substitute body parts, 21st Century software. As I was reading this recently, I could not help but wonder where textiles and apparel will fit into these new areas of technology.

Stronger fibers whose strength and stiffness is unmatched by conventional construction materials are being developed. These composites are now replacing materials in such critical applications as the aircraft and space shuttle. They're made of fibers of carbon or aramid. The possibilities for advancement in this area should be a part of our futuristic thinking. When the first housing is built on the moon, it will probably be designed around these lightweight but very strong composite materials. Another application is in the medical field. The improved bone and joint replacements will also use these textile composites.

A clear understanding of the way we act from bio-chemistry and the innovations going on in this field may help us address behavior related to apparel in new and exciting dimensions. Think of the applications for marketing strategies and merchandising which could be applied from being on top of developments in these areas. Marcian Hoff, the inventor of the micro-processor, once imagined someone in 1905 exclaiming "You know the electric motor is a wonderful thing." Every home should have one." This conjures up visions of a big motor in the attic running everything in the house by belts. But, it didn't happen that way. In today's typical home there are more than 50 electric motors, all invisible. The proposed Memex, a home machine which could store the contents of a 5000 volume library and allow you to perform creative research with ease, will arrive; and it will be in the walls of our
house, woven into the fabric of our clothing. It will affect our lives in, once again, an invisible manner...not by a "monster" computer housed in the attic. The use of a computer chip in clothing - can you imagine the implications?

Exactly what will happen in the future is impossible to predict. How are we being prepared in our field to take advantage of the opportunities in the future? Science must always be ready to halt and switch its objectives at short notice. But, to make this possible, the tools of science must be versatile and flexible. Are we ready to take advantage of unexpected opportunities? Are we preparing those in our field to have sound disciplinary bases, strong theoretical frameworks, excellent research skills and the ability to communicate these ideas to others? Will we be ready to move ahead into the exciting opportunities that await us?

We've made an excellent first step in our futures activities. As you are aware, they have evolved through a process of member participation. There were many themes and ideas that emerged from the series of regional and sub-regional conferences that followed the original ACPTC Futures Conference held in Minneapolis in 1983. Once these themes and ideas from the members were summarized, the committee and ACPTC officers attended a futures retreat last April and worked to categorize and synthesize member-derived ideas into three focussed missions.

The ACPTC Futures Committee has prepared from the input of you, the members, the following focussed mission areas with plans of action. The mission centers around three areas: research, theoretical development, and dissemination.

First let's consider research. We recognize research as the necessary element to advance the knowledge base of the field, and as a means for the field to gain and sustain life and recognition. The advancement of research is crucial to the academic classroom as well as to the global scholarly community. Therefore, the organization should establish ways to facilitate research and the exchange of research-related information.

The area of theoretical development relates to the need for the field to develop its own theoretical base. The Futures Committee felt this could be facilitated by defining the discipline and developing formal theoretical statements based upon research.

The third area, dissemination, is encountered by all of us as we interact with students, professionals and the public. Sometimes we think we are getting across the message, and at times we are aware of our limitation. ACPTC is committed to advancing this area by addressing its own organizational structure and facilitating a forum for sharing of ideas.

Action plans were established for each of the mission areas. The plans detail what, who, and when, and are based upon ideas generated from the membership in regional and sub-regional meetings.

In the area of theoretical development, ACPTC will:

A. Address the definition and uniqueness of the discipline, as well as the interconnections among its content areas, by encouraging oral and written position papers on purpose and mission to establish a philosophical foundation for the field.

B. Conduct workshops on definitional structures within textiles and apparel to bound theoretical development.
In the area of research, ACPTC will:

A. Explore non-traditional formats for research presentation (e.g., juried design presentations, use of discussants, audience participation).

B. Develop mentoring support systems, wherein an informal network of reviewers could be developed to provide feedback to new researchers.

C. Develop student research sessions for conferences, including the possibility of a travel research award, in order to foster academic leadership.

D. Discover means for integrating research with 1) the knowledge base and 2) industry and consumers through conference presentations with discussants addressing both basic and applied implications. In this way, the theoretical linkages among research presentations as well as the real-world applications may be integrated.

E. Promote conference presentations on the state-of-the-art in content and methodology. Reviews of existing knowledge are critical to the continued growth of the knowledge base as well as to the identification of emergent research problems.

F. Promote the use of such mechanisms as USDA-CRIS to share research information.

G. Investigate mechanisms (e.g., subject-matter retreats) to promote cooperative, intercampus research. The rationale behind this actions statement is that different campuses provide diverse resources for conducting research.

H. Develop calls for papers on innovative and diverse methodologies, in order to recognize the unique diversity present in Textiles and Apparel.

In the area of dissemination, ACPTC will:

A. Study the organization's structure and membership categories, in order to develop a membership-profile data bank, modify membership categories accordingly, and consider the feasibility of increasing the publicity function of ACPTC. Identify means for recognizing members and stakeholders.

B. Establish a National Teaching Resource Committee charged with aiding the exchange of teaching materials and intercampus programs.

C. Establish a task force to clarify sub-disciplines within Textiles and Apparel, so as to develop a structure for the possibility of corresponding subject-matter sections.

D. Establish an ad hoc committee to study the feasibility/desirability of public policy involvement.

E. Study the possibility of establishing an advisory council comprised of stakeholders (e.g., industry and consumer representatives).

F. Promote global or international perspectives in the field through newsletter contributions on developments in international trade, cross-cultural marketing, and legislation.

G. Plan an international conference and provide means for internationalizing curriculum as appropriate.

This is an ambitious plan of action, and its success depends upon the membership involvement. That means everyone of you!
In an article for the Harvard Business Review, Collins and Scott declared that "Everyone who makes it has a mentor." Mentoring is one of the more intriguing topics to have emerged in the last few years. The concept of mentoring has become popular in management, administration, and climbing the corporate ladder . . . especially for women attempting to break organizational barriers in administration. Estler identified three critical factors in the organizational screening process leading to higher managerial positions: competence, compatibility, and mentorship.

For those of us who have had one, a mentor can occasionally seem a little bit like God—which is altogether appropriate because in Greek mythology the original mentor was, in fact, a divine persona. The goddess Athena, in the role of mentor, advised and helped Odysseus and his son Telemachus at critical moments. Mentor was a loyal trustee and a faithful counselor. If you are really interested in the specific characteristics of Mentor, return to Homer's Odyssey.

"Mentor" is one of the most misused words in the literature. Almost all informal teaching relationships have become labeled as mentoring relationships. Some form of mentoring may also be an important vehicle by which adults learn in our society. Mentoring relationships develop between students and teachers in formal adult education settings ranging from adult basic education to advanced professional training. The extent to which mentoring fosters learning, psychosocial development or career advancement is not clear. Studies reach inconsistent conclusions and have yet to be brought together and systematically examined for common findings, trends, or generalizations. One of our problems in doing so is perhaps the varied definitions of mentoring.

The patron system describes, on a continuum, several supporting and helping relationships. Odysseus entrusted his house and son Telemachus to Mentor when he set off on the ten year journey of the Trojan wars. On one occasion, the advice of Mentor saved Telemachus from death. The relationship between young Telemachus and the wise, loving Mentor is an example of several relationships in history: Socrates and Plato, Freud and Jung, Lorenzo de Medici and Michelangelo, Haydn and Beethoven, Boas and Mead, and the list goes on.

From the legacy of famous mentoring relationships comes the sense of mentoring as a powerful, influential, active, and emotional interaction between an older and younger person; a relationship in which the older member is trusted, experienced, and loving in the guidance of the younger person. The mentor helps shape the growth and development of the protege.

Mentoring is a complex relationship—a parenting relationship with all the complexities that parenting can exhibit. It is dependent and independent; it is a nurturing role as well as a teaching role. The relationship takes a lot of time and energy. Mentors rarely have more than one protege at a time. They rarely have more than two to three proteges in their lifetime.
Mentors are instrumental because they generate power in three important ways. They may allow the protege to forgo normal channels and hence to accomplish things that otherwise might go undone, or if done, a good deal more slowly. Mentors can provide a form of "reflected glory" by indicating to others that the person has resources greater than their own working for them. And, on a personal level, the mentor gives emotional support in the role of confidant and friend.

For the mentor, the situation is not one of unmitigated selflessness. There are a number of benefits accruing to the mentor as well. The mentor's own base of support may be broadened and deepened through the presence of the loyal protege who spreads the word. What better way to spread your philosophy and power than through another person? How many people have chosen to have children so that the extension of themselves may be experienced?

I examined the extension of Socratic philosophy through mentoring by taking a look at the historical relationships from Socrates through Alexander the Great. Socrates, who lived from 469 through 399 B.C., took Plato as a student the last ten years of his life when Plato was 30. Aristotle studies with Plato for 20 years. In 343, he tutored Alexander the Great. Alexander studied with Aristotle from the age of 13 to 20, for seven years. Four men extended a philosophy through 146 years of history. And of course, the extension of Socrates, Plato, and Aristotle did not end with Alexander the Great. As far as I am concerned, that is an awesome extension of self through relationship.

Sponsors are not teachers per se, but they spot you and they take interest in you. The role is less active then that of a mentor—they open doors and promote you to the powers that be in the organization, but they do not assume a personal teaching role in your own development. Some have differentiated between mentoring and sponsoring as the difference in investment in a person and the organization. The mentor invests in an individual's development; the sponsor invests foremost in the development of the organization through the sponsoring of competent people.

A friend that I went through graduate school with went to industry when I chose to go to the University of Minnesota. She called me one day after her arrival at her job saying, "Shirley, I have been assigned a mentor—tell me what they are supposed to do for me." I thought of all kinds of visions I could paint for Kathy with her assigned mentor! But, I finally told her that she had indeed been assigned a system guide. System guides work as you enter the system. They know the system and give advice and guidance on the rules and culture of the organization. The relationship is short-term and somewhat passive. As your own tenure in the system lengthens, they end the relationship with you.

Peer Pals are professionals that are at the same level in development and share information and strategies. They give mutual support for mutual benefit. It is a concept of helping others while helping oneself. Two faculty members, two department heads, or two deans (yes, deans do talk with each other!) coming together to problem solve with one another is a form of peer pal support.

Within the patron system, sponsors and mentors are the risk takers. They risk what they see in you is good and they extend themselves through
Janet Hagberg in *Real Power* discusses mentoring and our ability to give through that relationship. She strongly believes that mentoring only happens at stage four of personal development. Only when we have reached the developmental stage of self reflection can we begin to reach outside of ourselves to coach others.

Mentoring relationships look attractive. Most of what we know about mentoring comes from the business world and from male models. Marianne LaFrance, from Boston College, has identified some problems for women and mentoring.

Mentors are discriminating. The process is selective and exclusive. The predominance of men in the higher management, administrative, and faculty ranks continues to exclude women from mentoring relationships. Consider the consequences when a male superior, William Agee, does select a female protege. Mary Cunningham lost a job from Bendix Corporation. There is a shortage of women in influential positions to mentor and teach a number of females. And, LaFrance's research indicates that women faculty even fear influence on protege's. Among college professors, she did not find one female professor who reported initiating a mentoring relationship, whereas 17% of the male professors reported doing so. The women professors indicated that they were uncomfortable with the idea of having influenced their mentees and several pointed out that they had made a conscious decision to avoid influencing their students too much. This is cause for some concern; to repudiate the power that comes with mentoring is to break faith with those women who would well use the advantage.

Two weeks ago, I was doing a workshop on mentoring for a group of private industry and government leaders. The reaction and questions from the participants were telling. The men affirmed the power and positive influence of mentors in their lives; the women asked if the relationship would foster jealousy within the organization.

In *The Managerial Woman*, Hennig and Jardim suggested that sponsoring relationships are essential early in careers and that mentoring relationships are vital in mid-career. "At this stage she has to begin to look for a coach, a godfather or godmother, a mentor ... who can teach her, support her, advise her, critique her." According to Roche, nine out of every ten women who identified a mentor formed that relationship in the sixth to tenth year of their career. Since that is the period in which women decide to pursue a career rather than to work, it is a time when we formalize career paths. Mentors, like wished for fathers and mothers, guide us in how we present, position, and connect ourselves as we formalize that path. The patron system is a networking system. Understanding the system helps us "move beyond the hoopla" and to identify the types of relationships we need to receive and give in the future.

All of us have been coached at some time or another. Someone has held our hand as we made hard decisions. And perhaps we have held another's hand as they made decisions. It is a rare gift to be parented and sponsored through our organizations. In *Hope for the Flowers*, Stripe climbed and climbed among the caterpillars, ignoring the butterfly trying to give him a message on how to grow. Finally, Stripe heard the
butterfly and understood that he must mature and then learn to fly—he could not climb to the top, but he could fly to the top. Perhaps mentoring is learning and teaching the art of flying.


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Some of you old-timers may recall the era in which I grew up. As a long-time 4-H member in Iowa, every three years we concentrated on clothing so I learned basic construction as taught in the '30s. At Iowa State College (which it was then), I had a professor who was very precise and particular, the garment had to be very carefully finished, even overcasting seams with even stitches. As a Home Demonstration Agent, in an Iowa county when we were still recovering from the Depression, we taught women to turn shirt collars and cuffs and then provided patterns for aprons to reuse the fabric. Reweaving fabrics was another activity—especially when there were holes in tweeds. It was an achievement when the patch did not show at all.

Why do I relate all of this? Partly to remind you where we were 50 years ago in our teaching. And partly to remind you that you are still adapting to the needs of today's families as you observe them.

It has been especially interesting to me to review the content of your program for your Annual Meeting. There is a great deal of variety—opening with a global perspective, consideration of the world market place, interest groups that should cover everyone's area, and coming back
this morning to concurrent sessions regarding the changing world. It has made me more sharply aware of where you are in your field.

Specifically, I wish to address: First, some characteristics of international programs, and second, identification of some opportunities for you as members of ACPTC.

Let us look at some specific questions: Why should we be interested in thinking globally and acting locally? Will it make much difference to the U.S. and to us in textiles and clothing? Should any of us be actively involved in an international dimension? If we answer, yes, Where and how might we begin or expand present efforts?

As we have listened and discussed these past three days, we have learned that there is a combination of factors to be considered in international programming—economic, political, humanitarian. These factors do not stand alone. You have discussed the competing positions of foreign and domestic policy, opportunities for integrating cross-cultural perspectives. It becomes evident that many factors need to interface.

As faculty, you are oriented to the introduction of change whether it be as resident teachers, extension specialists or researchers. You have learned your lessons quite well through your academic preparation, in-service training and experience. It is rewarding when you can identify specific instances where changes have been adopted as a result of your efforts that help individuals or families move towards their goals. However, when we participate in international programs that implement change, we must be alert to the differences in culture as we recommend adaptations to their present methods and ways of doing things. Their margins of error, especially economically, are much narrower than in the U.S. When families are already at a subsistence level, if we make mistakes in programs that we recommend, the people may be worse off. Unfortunately, there are a number of examples that can be documented where consultants from the western world, including the U.S., have not been adequately oriented to what is culturally important. Dorothy Lee, cultural anthropologist who was a visiting faculty member for several years at ISU, reminded us that if any of us are involved, we need to ask ourselves the question, "Will we possibly destroy something more important than the good that we anticipated?"

There are roles for women and men in development. As I have observed in WID (Women in Development) programs in Guatemala, Jamaica, and Yucatan, it is evident that women bear the major responsibility for agricultural production, food processing, clothing the family, and general family welfare. In some countries, 60-80% of the labor involved in food production is by women. Therefore, the exclusion of women in the development planning process had had a negative effect upon them by further diminishing many of their functions and status in relation to men. Because women are responsible for feeding their families, they are particularly concerned about production of food or garden crops, chickens, rabbits, goats, pigs. When men in our country in food production have introduced mechanization and trained the men in agriculture to produce cash crops, resources that women have had from food production to support their family's needs have been severely curtailed. In many instances, the additional cash income received by the men has not been available to the women to improve the nutrition of their children, to clothe their
families, to provide better housing, or increase the educational opportunities for their children, though these are still the responsibilities of women.

You who are home economists have particularly good background and experience to help families maximize their available resources that improve quality of life. You and the families with whom you work can relate readily to the concerns for increased quantity and quality of food and potable water that will improve the health of children, provide better clothing and improved housing. Additional resources will still be needed for education—especially for girls and women where the illiteracy rate worldwide is at least two times that of boys and men. The education provided for girls is better than it was for their mothers, but not as good as that provided for their brothers.

Women should be involved in the development process to help planners be aware of contributions of all family members with particular attention to the roles of women and children to economic growth. As the quality of life is enhanced so is the productive capacity of people.

This week, several have reemphasized that we need to be involved with other countries because it is economically advantageous. Foreign nations are both sources of goods and resources which we consume, and markets for the goods we produce. However, one factor that strongly affects the production and consumption of goods is the rapid population growth in many developing countries in the world. There are sharp consequences of this explosive growth and its relationship to economic, humanitarian, and political factors.

Because I have had several experiences that have sharpened my own understanding, I want to share some of my observations. In 1973, I went to Taiwan for an intensive two months in-service training in population education/family planning. Then, in 1974, I made my first trip to the Philippines as a consultant for the American Home Economics Association Population Education/Family Planning Program. At that time, the average number of children per family in the Philippines was seven. Three years later, when I returned, the average had decreased to four. That is an amazing adjustment in such a short period. Why were they so successful? Because Extension agents and community development workers had been helping families to see that if they had fewer children with the same limited resources they could provide more food, better clothing, better housing, and better education for their children. By Extension and community development workers cooperating with Maternal and Child Health, families could secure needed services from the local clinics for limiting or spacing their children. Previously, sanction had been secured from both the Ministries of Agriculture and Health.

In Thailand, when we were field testing modules including prototype lessons that emphasized management of resources, it was never a question of whether the women wanted to participate, but rather, how. When working in this field, one learns early on that any population education/family planning program must be humane, non-coercive, and sensitive to the rights and dignity of individuals.

Population growth affects everyone—men as well as women, but it is the women that carry the heavy burden. All of us need to understand that. And men must not be the primary decision makers for women in this
critical area. Both men and women must be involved in the practices which allow families to make choices which are in their best interests. Both research and experience show us that couples opt for smaller families when they see that their children live, when basic education is expanded—especially for girls, when the status of women is enhanced, when there is more equitable distribution of the benefits of economic growth.

Even with reduction in fertility rates, it is likely that global population will rise from almost 4.8B today to almost 10B by the year 2050. The huge increase will be almost totally accounted for in the developing nations. Mr. A. W. Clausen, President of the World Bank, recently stated that "for the poorest countries, development may not be possible at all unless slower population growth can be achieved soon. In the better-off developing countries, continuing high fertility, especially among poor people, could prolong indefinitely the long wait for development to improve immeasurably the quality of their lives." Growth at 3%/year means that in 70 years population grows 8-fold; at 1%, it doubles. One then asks, what impact will such increases have on the existing social fabric?

How does rapid population growth hamper development: a) larger investments are needed just to maintain current capital/person, b) a precarious balance between natural resources and people is threatened, c) almost unmanageable urban economic and social problems are created.

Although food production/capital worldwide has increased in the last decade, countries in Africa have found that their population growth has exceeded the food available. For example, Kenya with the highest birth rate in the world (approximately 4%) will have its population doubled in 16 years.

Because of our compassion as well as our resources in the western world, for the past three decades we have provided intervention that significantly lowered the death rate in many countries in the developing world through health measures, establishment of health clinics, training of health workers. At that time, we did not anticipate the consequences—an increase in population through fewer deaths of infants and children under five and more elderly in the population but with a continuing high birth rate. As a result, developing countries find themselves with more people who have even more limited resources/person. Then when famine strikes as in Ethiopia, there is neither food, clothing, nor housing available for the people—especially those in rural areas.

If some of this discussion is difficult for you to relate to this conference, let me give you an example from a Population Education/Family Planning Workshop on our campus several years ago. All the participants were students from Third World countries. The assignment was to develop a project where population education/family planning could be integrated into the subject matter that the student chose. Most selected food and nutrition since that relationship is so obvious. The young Ethiopian woman chose clothing. She sat by herself for the better part of two days and then went over to discuss her problem with Carolyn Kundel. The student's decision was to draft a simple pattern for a child's shirt and shorts that any homemaker could complete with very limited skill. Where was the population education/family planning in the
project? We did not know either until she reported. To set the background for us, she described her audience was to be young mothers in a group setting. Posters that she had developed illustrated poorly clothed children versus those wearing clothes from her patterns. Each mother was to make one set of clothing for each child. As those with fewer children completed their work, she provided lessons on child care. In the meantime, those who had more children had to secure more fabric and keep on sewing. "I'm not going to mention family planning until they all finish. Then I will say, 'Do you see what difference this makes in your time and your money that you could otherwise have to spend on food, housing, and education for your children?'" She went on to report, "They are not stupid. They will understand. Then we can help them secure the services they need."

I want to spend a few minutes discussing opportunities for members of ACPTC. Let us go back to the questions first addressed--Why should we be involved? What is in it for us? What have we to gain? Will it make much difference? Should any of us be involved?

Speakers at the conference have helped us to be aware that we are in a world of increasing interdependence. As responsible educators, we need to determine, "What can we do that will increase international understanding among ourselves as well as among our peers and students?" Any suggestions are not necessarily additions to, but perhaps a modification of programs in existence—a broadening of the base of current programs. I recognize that a number of you are already involved in varying degrees depending upon your own interests and experience. Specific opportunities and direct involvement will vary a great deal whether these be in government or non-government activities which involve international participation.

1. **Become better informed.** If you are going to consider yourselves U.S. and world citizens as well as educators, then you should read more than professional journals to provide a broad range of coverage on the issues that were presented and discussed these past three days. Reading a variety of the print media such as the Des Moines Register, Wall Street Journal, The Nation, World Press Review will provide a diversity of opinions. For example, during the period when the U.S. was considering withdrawing from UNESCO if you read only the Wall Street Journal, you would probably be convinced that we should have withdrawn from the organization 31 December 1984. Many of us who had access to other points of view assessed that decision very differently if we read World Press Review as well as our local newspaper or Women's Wear Daily.

2. **Find opportunities personally and professionally to increase contacts with international professions and visitors.** You can personally host them. When you do, ask them questions that will help identify and compare observations and experiences such as: How do you see our technology—do you see some of it helping humans and some that does not? Why? What do you see in our culture that you want to avoid transferring? Why?

Can such dialogue help you gain some understanding of cultural diversity? Will it help you to be more receptive to new insights, more socially conscious, and give two sets of eyes to see yourselves instead of the limited one that most of us presently have? Can you avoid snap
judgements and try to determine why people behave and do the things they do? There are legitimate reasons for short handled hoes and brooms.

Those of us on campuses have easy access to persons that can expand our horizons but that does not mean that we use those resources well. Contacts with these persons forces us to alter some of our previous perceptions. As professionals, we need to be at least as informed and knowledgeable as many of our peers in other disciplines.

3. Participate in Partners of the Americas program with your sister state. In Iowa, this is Yucatan. Kansas relates to Paraguay, Minnesota to Uruguay, etc. If this is a new area for you, you could first join a team to participate in program review and help to prepare simple proposals. With some experience, you could take a leadership role in Women in Development programs. In fact, women finally may have some advantage in being selected as a team member.

If you participate, you can report your experiences back to your peers and to your students. Central America, South America, and the Caribbean are not far away so the monetary costs are not great. Merida is only 45 minutes from New Orleans, but it is a different world. Going there forces one to cope with language, and discover how very tiring it is to try to function without it. One quickly becomes aware of a very different cultural orientation, and historical background. Observing the very limited resources and the impact that has on families makes one aware of the complexities involved and generates more thoughtful solutions. We talk about people pulling themselves up by their bootstraps, but when they are standing in them it is very difficult. We need to feel that. Those of you who have had intensive experiences like living in a village or community for a period of time are never quite the same again. When our eyes and ears are used we have a sense of immediacy.

4. Learn another language or improve the one or more that you have. This skill opens up immeasurable opportunities. Any of us who have experienced inadequacy in language must realize that we may misunderstand as well as miss important nuances.

5. Consider exchange or enrichment programs whether in teaching or research.

6. Find an organization with which you are compatible and volunteer your services. I personally would not trade my experiences with Operations Crossroads Africa and the American Friends Service Committee. Living in a community for a concentrated period of time is not like traveling through—useful though those observations may be.

How might you as faculty members strengthen undergraduate and graduate intercultural understanding? As you become more sensitive, you can make significant contributions. In order to discern what most appropriately applies to programs or projects in which you might take part, a number of experiences can help: a) being receptive to insights regarding cultural mores as you listen to and advise undergraduate and graduate students. b) increasing your awareness through international seminars. c) teaching in a manner that will help students identify and compare their beliefs and experiences with those of others in formal and non-formal programs in order to increase their tolerance and understanding. d) being involved in research that relates to the quality of life and directs attention to different cultural practices and beliefs.
Possible activities for involvement include:

1. **Field trips.** Many of you are already actively involved in conducting these. Recently, Mary Littrell took her students on a trip to Mexico. The students had been carefully prepared. However, one of our ISU graduates, Elizabeth Cuellar, who was a former extension worker in Iowa, is on the staff at the University of Mexico as Director of International Programs and Museum Services. Mrs. Cuellar was able to arrange visits to specific communities that significantly enriched their experiences. There is no question that both faculty and students gained insights across cultures beyond what they read and discussed preceding their trip. They could see first hand the need for management of scarce resources.

2. **Dialogue with foreign nationals.** You can expose U.S. students to different cultures by setting up specific dialogue with foreign nationals whether it is in class or club meetings. Seek assistance from your Foreign Student Advisers. They can assist you in identifying stereotypes that you might miss.

3. **Participation in overseas programs.** Encourage participation of students in overseas programs that are university or college related or other viable study programs abroad. Ask your students to check with your Foreign Student Office to confirm the legitimacy of the programs.

4. **UNESCO Co-Action Programme.** Encourage student clubs to participate in Co-Action. This is a program where all the dimes or dollars go towards projects that communities in the developing world have identified as needs that support activities they have already begun. Therefore, there is very little risk factor. Needs may vary from seeds for kitchen gardens, books/supplies for school programs, sewing machines for schools or women's centers, Potable Water for All by 2000. All the overhead is absorbed by UNESCO. Every penny goes directly to the project selected in their own currency via Paris. Follow-up correspondence, both from the people in the community and the Paris office, make the contacts meaningful. Let me give you an example.

   **Malawi. Self Reliance for Handicapped Young Women.** Disabled people generally have a hard struggle to establish themselves as independent members of society, and disabled girls face particular problems. They tend to receive less vocational training than boys and, therefore, find it even more difficult to become self sufficient. Conscious of this, the Malawi Council for the Handicapped has been running home economics courses for disabled girls. The blind girls are usually sponsored by the Royal Commonwealth Society for the Blind, which presents each girl with a sewing machine at the end of the course. To complement this, and to make it easier for the girls to start up their own cottage industries, the Council seeks help to provide each girl with two bales of cloth when she returns to her home. The total request is only $3,000.

5. **Teaching foreign nationals.** As we work with these students, remember: a) English may not be their first language; b) Requirements for students who have been educated in English in the British system may need to be adjusted or waived. Most of these students write better than U.S. students. c) Their science background is probably limited; d) They may have considerable skill in construction; e) They are used to essay examinations, not multiple choice; f) Their value patterns may be very
Recognizing all of this does not indicate that you are using a double standard if you make some exceptions to your regular procedures.

As teaching faculty, we should have as one of our major purposes to encourage the international students to adapt their courses to circumstances in their home country based upon the needs of families as they see them. Further, we should assist foreign nationals to consider processes they should consider using in transmitting information when they return to their countries.

In summary, the emphasis of this conference represents a growing interest and concern that provides thoughtful backdrop for dialogue as each of you performs roles in modifying curriculum, in adapting Plans of Work in Extension or in research emphasis.

All of us have experienced the insight of children. Listen to what one has to say that provides a world view and certainly insights for educators. This poem was part of a program that involved one million children under 14 years of age and from 57 countries who participated in a UNESCO competition in 1980.

Odina E. Batnag, 13 years, Philippines
"I'm but a small voice"
I am but a small voice
I have but a small dream
The fragrance of a flower
In the unpolluted air.

I am but a small voice,
I have but a small dream
To smile upon the sun
Be free to dance and sing
Be free to sing my song everywhere.

Come young citizens of the world,
We are one, we are one,
Come young citizens of the world,
We are one, we are one,
We have one hope
We have one dream
And with one voice we sing.

Peace, give us peace,
Prosperity, prosperity
And love for all mankind.
Peace, give us peace,
Prosperity, prosperity
And love for all mankind.

I am but a small voice,
I have but a small dream
To smile upon the sun,
Be free to dance and sing,
Be free to sing my song to everyone.
Sing peace,  
Peace, give us peace,  
Prosperity, prosperity  
And love for all mankind  
Peace, give us peace,  
Prosperity, prosperity  
And love for all mankind.

References:


Approximately 15 people were present at this session. Williams expected (1) to engage participants in thinking about theory building, (2) to highlight the ways in which theory development enters research and teaching, (3) to identify issues involved in theory development and accompanying methodology, and (4) to engage participants in activities associated with developing theory in a selected aspect of clothing and human action (behavior).

Because research approaches predominantly used in the area of study are empirical-analytic, the mode of theory building/development warrants consideration from the point of view of logical positivism as a philosophy of science. Definitions of theory abound in the literature, but B. Cohen's (Developing Sociological Knowledge, p. 171) was used: "A theory is a set of interrelated universal statements . . . some of which are definitions, and some of which are relationships assumed to be true, together with a syntax, a set of rules for manipulating the statements to arrive at new statements."

Theory functions in many ways in the development and evaluation of knowledge. Among these: (1) it provides a frame of reference for collecting and analyzing observations; it guides research investigators, (2) it generates explanations and predictions, and (3) it systematizes ideas and helps uncover hidden assumptions and inconsistencies. Theory cannot be separated from the research/methods used to create knowledge and must meet certain criteria or standards in use.

Elements of a theory were considered. First concepts were examined. A concept occurs in thought, is labeled by a word (term) and is an indicator or reference of some phenomenon. A term may be nominally as well as operationally defined. Differences in terms may label the same conceptualizations; the same terms may indicate different conceptualizations; the consistency and relevance of nominal and operational definitions may not be taken into account.

Concepts in relation to other concepts is a second element to be considered in theory building. To enter into theoretical schemes variability of a concept must be taken into account. The relationship between two variables may be found to correlate positively, negatively, or not at all (a relationship of association), or one may be found to be the cause of the other. More complex relations may be found, given certain kinds of conditions. The reliance on null hypotheses does not provide clear-cut relations between variables necessary for theory building.

Examples of theory-in-process were presented from W. Burr (Theory Construction and the Sociology of the Family). Williams added a prior presentation "Toward a Theory of Clothing Deprivation" and the method followed to organize conceptual and operational definitions, statements of existence, and relations with idea concepts.

Little discussion occurred. Williams called attention to several references and to the post-conference workshop planned for the 1986 national meeting in Houston.
Choosing abstracts for presentation is much different from reviewing papers for a research journal. Choosing abstracts is much trickier. There is less there to evaluate and many more to evaluate at one time. This year 55 abstracts were submitted. Three were rejected for failure to follow instructions; 20 were selected for presentation. That's a score of about 2 in 5—rather stiff odds.

Some improvements were made in the instructions for submission this year, so most of the submitted abstracts looked good, were properly prepared, and contained few errors. It was interesting that the proportion of abstracts chosen from the leading institutions was relatively low this year. Chances of being chosen were fairly distributed among a variety of institutions of various sizes. The number of merchandising abstracts chosen was low, reflecting relatively poor quality of such research plus limited expertise of our committee in judging these.

All abstracts were reviewed by at least three reviewers. Most were reviewed by four. Reviewers did not review abstracts submitted from their own institutions. Each judge assigned a numerical score and a rating for presentation to each abstract. Reviewers differed in how they used the score sheets.

Because the judges used the scales so differently, judges' scores were converted to mean zero, standard deviation one. For the Presentability scale, the categories were scored one to four, and converted also to mean zero, standard deviation one.

Next, the scores were plotted for each abstract on a scatter diagram. If the numerical and presentability scores for an abstract are similar, its dot lies close to the diagonal line. There were only two serious outliers—one abstract was rated high on presentability, but had a low numerical score, and one abstract was rated in the reverse way.

Advice to authors of abstracts is to write as concisely as possible, and to cover all basic points, at least briefly. You do not have much space—do not waste a word of it!

Two resolutions were generated from the general discussion. Lois Dickey made the motion, seconded by Anna Creekmore, that more time slots be allotted to research reports in the Annual Meeting program and the vote in affirmation of the motion was unanimous. Pat Zbikowski made the motion that format changes be considered for the Clothing and Textiles Research Journal including the use of camera-ready copy, more papers per issue, and less "slick" format. The motion was seconded and unanimously passed.
Extension Interest Group
Lois Gotwals, Recorder, Purdue University, West Lafayette, IN 47907
Norma Pitts, Leader, The Ohio State University

The Extension Interest Group met October 25, 1985, during ACPTC-CR with Norma Deyo Pitts chairing the meeting. The twenty-one persons present were Extension Clothing Specialists.

Visibility for Extension Programs was the main topic of discussion. The need to substantiate program efforts is critical especially in states that summarize clothing and textile activities under other topics in the NARS report (Extension's National Accomplishment Report). Suggestions from the group for becoming more visible were: identify future program thrusts (see discussion below), participate in the ASTM project (discussed below), write more regional publications when the content is appropriate, become more involved in cooperative research projects, use subject related instead of activity related terminology (wardrobe selection instead of fashion show), and use key words on the clothing NARS reports. Extension Specialists were also asked to send the Federal Clothing Specialist, Velda Rankin, copies of their Clothing NARS report, impact evaluation summaries, and other programming items.

ASTM-USDA Extension Interface Project. This project involves the collection of consumer questions and comments relating to the unsatisfactory textile products, improvements needed, and other consumer needs related to textiles and apparel, including care. This project is a means for input for ASTM standards development, and states were encouraged to participate. Two reporting formats were sent in the North Central Region newsletter, NETWORK. The group decided to pilot the forms through January, and to send the completed forms to Normal Pitts by February 15. Specialists can compile the data if desired, but Norma asked that raw data be sent as well. The collection of data will be continued throughout 1986. A preliminary report will be given to the ASTM D-13 committee in March, and the topic will be discussed at the April ECOP meeting for clothing and textile specialists.

Future Thrusts: In preparation for the ECOP workshop, specialists were asked to consider five common issues or areas for future program thrusts. A task group of Marilyn Stryker, chairman, Ruth Gulbrandson, and Marilyn Burns will correspond with specialists before the ECOP meeting and compile the issues for discussion at the national meeting.

Apparel Sizing and Standards: ASTM is revising the existing apparel standards because of the need for more consistent sizing in children's wear. Some measuring of children has been completed; however, more may be needed. The specialists discussed their involvement with the project and decided that if asked, they would be willing to identify people who would be trained to measure children.

Other Topics: Other items discussed were the NCR election process for clothing and textile chairman and the national workshop for Extension Clothing Specialists to be held in Raleigh, North Carolina, April 1986.
The main objective of the session was to examine specific trends and issues in undergraduate education in Textiles and Clothing, and make specific recommendations for further action. Results from two research studies and comments from two summer workshops were presented (Rudd, 1981; Rudd, Lapitsky, Kim). The 14 participants then broke into discussion groups. The first study assessed programs of Textiles and Clothing in 4-year institutions by examining 1) curriculum offerings, organizational structure, enrollment, and program emphases, and 2) perceptions of educators regarding the "state of the art" and future issues or concerns. Responses were received from 98 of 197 schools in the chosen population, as identified from 1980 AHEA data on home economics degree-granting institutions. Particular findings of interest were: student enrollment over a 5 year period, program areas at each institution, "core" offerings, extent of other offerings, curriculum changes over a 5 year period, and employment areas in which students are hired. The second study focused on Textiles and Clothing programs in 35 institutions. Program sheets were examined; course offerings were categorized and compared to the data from the previous study. Findings indicated a greater number of "core" offerings, or those courses offered by more than half of all schools. The percentage of schools offering these courses is as follows: textiles (100%), historic costume (91%), design (82%), beginning construction (77%), social psychological/cultural aspects of clothing (71%), flat pattern (71%), fashion merchandising (65%), tailoring (57%), fashion analysis (57%), and draping (51%).

A comparison of the studies suggests trends in undergraduate curriculum and provides the basis for some thought-provoking questions. Discussion focused on 1) courses—subject matter which is indispensable to training graduates as seen by educators and by industry/retail spokespeople, and specifically the role and extent of clothing construction, 2) overall professional preparation—what competencies make a difference, how to nurture interpersonal and analytical skills, how to prepare students to market themselves, 3) consumer orientation—how does our curriculum respond to needs and issues, what role can we play with business and industry, what global applications do we have, and 4) our biggest challenge in the future—can we be all things to all people, what new placement opportunities exist, how do we let go of some traditional offerings as we add new subject matter. Participants were interested in continuing the discussion and examination of undergraduate curriculum, perhaps at a retreat sometime in the future. Summaries of findings and discussion items were mailed to participants after the conference.

Graduate Curriculum Interest Group
Marilyn DeLong, Leader/Recorder, University of Minnesota, St. Paul, MN 55108

Three questions were addressed: 1) What is our focus for graduate education? 2) What should be the future direction for graduate study? 3) Are there ways we can collaborate?

The close relation of graduate education, sound research and dissemination of results was noted. Concern was expressed as to whether we were preparing students for the job market, especially merchandising. We need more faculty in the merchandising area who can teach and address needed research. We need to focus on a global perspective.

Issues include changing needs of education, as evidenced by the number of schools examining and revising offerings; we need to integrate research into our undergraduate curriculum to facilitate the transition between undergraduate and graduate education. How can we strengthen the theoretical and research components of our programs?

We need to define our needs and develop graduate programs with those needs in mind. In terms of the present, we would like to find out where students are finding jobs and follow their progress. We need to encourage sharing program information and information about our students. International students have special educational needs to address.

Information on graduate programs was also received from the following: M.S. Sontag, Michigan State University; J. Laughlin, University of Nebraska; H. Buckley, University of Illinois; H. Schrank, Purdue University; A. Rewerts, University of Texas; A. Huepenbecker, Iowa State University.

Merchandising Curriculum Interest Group
Karen Cummings, Recorder, Michigan State University
E. Lansing, MI 48824
Brenda Sternquist, Leader, Michigan State University

Session participants were given a handout listing a variety of subjects found in merchandising curricula. The structure of merchandising programs was discussed to determine the essential components around which individual programs can be developed. The core components of a merchandising program identified were: merchandise planning and control, communication, consumer behavior, computer science, accounting, economics, marketing and management.

Some workshop participants felt that being tied to a product knowledge is a crucial part of the program's uniqueness and helps to distinguish the area from business programs. Others felt that perhaps this anchor was needed in the beginning but since the merchandising area is already unique from what business offers it is not needed.

Program specialization can be important in recruiting better quality students. Specialization may also help the field become more competitive on a national level. If this is to be the case, faculty will need to find and develop specialization expertise. Human resource management, small business management and international merchandising were identified as some possible areas of specialization.

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Several subject areas were identified for a second level of priority: non-textile product knowledge, textiles, apparel production and distribution, social/psychological aspects of clothing and human resource management.

Participants asked that for the next ACPTC meeting a pre-conference workshop be given in the human resource management area. Dr. Sternquist asked the participants to identify issues for future merchandising special interest sessions.

Clothing Curriculum Interest Group
Lucille Terry, Recorder, Bowling Green State University,
Bowling Green, OH 43403
Ruth Marshall, Leader, Iowa State University

The Interest Group "Clothing Curriculum" consisted of a panel discussion by Kitty Dickerson, University of Missouri-Columbia; Ruth Marshall, Iowa State University; and Lynn Sisler, Oklahoma State University, followed by an open discussion moderated by Lucy Terry, Bowling Green State University.

Dr. Terry stated that the major goals of the session were to heighten awareness of the issues and concerns centered around clothing construction within the curriculum and to encourage networking.

Dr. Dickerson presented issues relative to clothing construction in the curriculum from an administrator's viewpoint. Particular points were: 1) clothing construction courses are very labor intensive, 2) are costly in resources, and 3) are "soft" in that although there are large numbers of majors, the program is not strong in generating student credit hours and since most teachers have heavy teaching and advising loads little time is left for conducting research. Thus, the investment is great but productivity of both SCH's and research is low. 4) Also, new faculty members have different expectations thrust upon them and must do research in order to get tenured. Possible options to overcoming some of these issues include: 1) decreasing the number of required construction courses, 2) deleting programs of lesser strength, 3) extending offerings through cooperative arrangements with other schools in the area and through FIT, and 4) doubling up sections and/or offering them alternate terms or years.

Dr. Marshall spoke from a faculty members viewpoint. She stressed three major issues. 1) We need to enhance the professional focus of the construction courses by depersonalizing them, i.e., lessening the emphasis on constructing garments for self, using half scale, or simply changing some of our wording. 2) We need to develop or determine appropriate theory bases or conceptual frameworks for the clothing construction area. Most research has related to the technical problem-solving approaches. We need to move beyond that if we are to survive. 3) We need to provide graduate level experiences in construction which are theory and research based rather than emphasis on more advanced techniques. Also, to bring this off better we need to get more of the research in clothing construction published in our journals.
Dr. Sisler identified an alternate form of teaching construction courses used at Oklahoma State which has attempted to overcome some of the issues. They utilize seven self-instructional one-credit hour modules for the construction classes. Further, the modules have been depersonalized by requiring a technique notebook rather than completed garments in most modules. Emphasis is placed more on techniques than on a finished product. She admitted that there are still problems such as record keeping, updating and revising the materials, lack of ability to drop or add modules during a semester, and possibilities of cheating.

Design Curriculum Interest Group
Dorothy Behling, Leader/Recorder, Bowling Green State University, Bowling Green, OH 43403

Approximately forty people attended the interest session on design curriculum. The curriculum at a number of universities was described and discussed, including those at The University of Nebraska (Rob Hellestad), University of Minnesota (Margaret Grindere), Cornell (Susan Watkins), University of Texas (Ardis Rewerts), Iowa State (Jane Farrel-Beck), as well as those at Texas Tech. and Minnesota School of Art and Design.

A variety of approaches for teaching construction techniques in design programs were discussed. Some of the participants favored an approach in which construction skills are addressed as they are needed. The importance of designing for a specific market was emphasized, and the demand today for "stylists" as opposed to traditional designers. However, several of the participants pointed out that we need the designers who are also artists and creators of the new. The problem of giving the students experiences outside the mid-western university setting was also discussed and the participants described a variety of outside activities which had been designed to compensate for this.

A number of the participants in this session expressed an interest in repeating the format at some time in the future. There was not enough time to deal with all the issues.

Off-Price Apparel Retailers: Perceptions and Strategies
Sara Douglas and Michelle Morganosky
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Various concepts such as wheel of retailing, retail life cycle, and ecological systems analysis have been utilized to help explain transformations of retail institutions. Recently retailers and consumers have been confronted with a "new" retail institutional form. This new type of retail institution, known as the off-price store, is predominately a low-end strategy store usually featuring lower prices, fewer services and less than ideal locations in comparison to traditional department stores. The uniqueness of the off-price store, however, lies in its emphasis on name brand apparel similar to that which traditional department stores normally carry.
Off price stores are the fastest growing type of retail institution. Nationally off-price sales currently account for approximately 6% of all apparel and footwear sales. Although in 1985 decelerated growth occurred in this industry, most analysts predict continued growth, with market share expanding to between 10 and 20% by 1990. Support for this prediction results from data that some segments of the apparel market already are beyond 10% market share. Children's wear, currently at 13%, is such an example (Lagnado, 1985).

In order to better understand the phenomenon of off-price retailing, this study examines off-price retailers' perceptions of their businesses. Specifically, strategies and customer markets were investigated for differences between men's, women's, children's, family, and accessory off-price stores. In addition, comparisons were made between stores owned by manufacturing firms (factory outlets) and those owned by retail companies. It was hypothesized that retailers' perceptions and strategies would differ significantly by type of off-price store. A questionnaire was mailed to presidents of all (267) apparel and accessory stores listed in Goldstein's The Underground Shopper's Guide to Off-Price Shopping (1984) during November, 1984. One hundred thirty-three off-price retailers returned the questionnaire yielding a 50% response rate.

Results of t-tests, analysis of variance, and post-hoc comparisons revealed that retailers' perceptions and strategies differ significantly by type of off-price store. Overall, retailers of men's off-price apparel were significantly more likely to agree that they carry only first quality merchandise, while they were more likely to disagree that they carry seconds or irregulars. Retailers of children's off-price merchandise were less likely to use jobbers or diverters to obtain goods. Retailers associated with off-price stores carrying apparel for the entire family were less likely to use brand-names in their advertisements. Accessory off-pricers differed significantly from non-accessory stores in their use of irregulars, imports, and manufacturers' overruns. When manufacturer-owned stores were compared with retailer-owned stores, it was found that the latter carried more imports, had the latest fashions, carried more first quality merchandise, and arranged merchandise more attractively and conveniently. Manufacturer-owned stores, on the other hand, were more likely to carry irregulars and seconds, and to be patronized by outshoppers.

These data could be helpful to traditional retailers as well as to off-price retailers. Strategic planning involving such areas as price, customer service, personnel, product assortment, and promotion can be facilitated. Consumers should be aware that differences occur among off-price stores that can be partially attributed to merchandise orientation (men's, children's, etc.) and partially to manufacturer versus retailer store ownership.


Level of Importance and Frequency of Use of Clothing and Textiles Curriculum Elements in Apparel Marketing

Myrna Beth Garner, Illinois State University, Normal, IL 61761
Hilda Mayer Buckley, Illinois State University

The purpose of this study was to determine which elements of clothing and textiles curriculum content in home economics units at the baccalaureate level were considered needed for competence in the occupational field of apparel marketing, specifically related to retail merchandising. The concern was that the amount of information available had escalated. Decisions needed to be made concerning which information should be de-emphasized or eliminated to make room for information considered important and used in the occupational field.

Clothing and textiles program content was identified by reviewing catalogs of home economics units with large apparel marketing programs. A forced-choice questionnaire was developed around 120 curriculum elements and 16 suggested support courses outside of apparel were identified as being the content of clothing and textiles programs. The elements were divided into eight content area blocks to facilitate data analysis. Content area blocks were: textiles; clothing construction; fashion merchandising; social science aspects of apparel, including historic costume; apparel design and selection, including accessories; professional preparedness; textiles and apparel industry and economics; and support courses outside of apparel.

Three sample groups were surveyed. The employer group consisted of 400 Illinois apparel retailers randomly selected from a Dun and Bradstreet list. There were 134 usable responses. The graduate group consisted of 197 graduates of apparel-related programs at the University of Illinois; there were 97 usable responses. The educator group consisted of 270 randomly selected members of the Association of College Professors of Textiles and Clothing; 185 usable responses were obtained from this group.

The ratings on level of importance and frequency of use of individual elements were rigorously examined for concurrence among the sample groups, and for discrimination between the groups, through the use of the SPSS program, Discriminant. Discriminant analysis was used to identify curriculum content elements. Even though there were measurable differences in the mean responses of each of the three groups on many elements, the group ratings tended to move up and down in tandem from one element to the next, with the graduate ratings falling between the faculty and the retailer ratings on most elements. A significance level of \( p < .001 \) was used throughout the study.

Overall, 45 (33%) of the 136 elements were highly recommended for inclusion in a required curriculum for students seeking merchandising careers within the apparel marketing field; and 33 (24%) elements were suggested for removal, or de-emphasis where time restraints exist. The remaining 58 (43%) elements were suggested as candidates for priority over the list recommended for de-emphasis. Flexibility within curriculum was encouraged, after high priority elements are addressed, to meet individual student needs and interests.
The results of this study could impact heavily on curriculum content decisions and advisement of students in clothing and textiles programs, and could provide accountability rationale for clothing and textiles programs within home economics units.

Future Directions of Teaching and Research in Textiles and Clothing
Patricia Gifford, Sara Butler and Usha Chowdhary
Miami University, Oxford, OH 45056

Recent ACPTC activities devoted to dialogue about the future are indicative of concerns among clothing and textile professionals regarding future direction of the field. Discussions concerning the direction of the mother field of home economics have also included the role of Clothing and Textiles as a specialty area. Issues raised by home economists have included the increase of highly specialized areas such as fashion merchandising. Fashion merchandising majors are now available in approximately 75% of all clothing and textiles programs (Rudd, 1981). The role of research in encouraging specialization and the resulting "fit" between highly specialized areas and traditional philosophy of home economics have also been areas of concern.

Thus far, the majority of literature concerning future directions of both clothing and textiles and home economics has been of a philosophical nature. Little empirical evidence is available regarding opinions of professionals in the field. Without an assessment of attitudes of clothing and textiles faculty regarding such issues as the place of fashion merchandising in home economics, content of the programs and relative importance of teaching and research, philosophizing about future action plans may be academic. This research was designed to provide an empirical dimension to the continuing discussions about the future of teaching and research in clothing and textiles. The objectives of this research were: 1) To assess the opinions of clothing and textiles professionals regarding academic location, focus and content of fashion merchandising programs. 2) To measure opinions of clothing and textiles professionals concerning relative importance of teaching and research. 3) To determine focus areas and external sources of funding for research in clothing and textiles.

A random sample of 200 respondents, drawn from the membership of ACPTC, received mailed surveys. Objectives one and two were addressed through a scale on which subjects responded on a strongly agree to strongly disagree continuum to items concerning fashion merchandising and teaching and research. Objective three was accomplished by question responses to a checklist of research topics and to an open-ended question concerning funding sources. One hundred forty-six questionnaires were returned, reflecting a 73% response rate.

Findings revealed a majority of respondents favoring fashion merchandising located in Home Economics, however over one-fifth agreed that fashion merchandising should be located in business. A large majority agreed that fashion merchandising should be a four year program. Focusing fashion merchandising programs on selling and the profit motive was preferred by more respondents than focusing on satisfying consumer needs.
Interestingly, this appears to be in some conflict with the mission of home economics. Approximately one-half agreed that basic clothing construction should be a part of a fashion merchandising curriculum, however slightly more than half agreed that a ready-to-wear evaluation course was an appropriate substitute. Research was believed to be important by a large majority of the respondents, although only half were actually engaged in research. Less than one-third agreed that research is an important criterion in tenure decisions. Socio-psychological aspects of clothing and consumer behavior were areas of research interest cited most often. A limited number of respondents used external funding. These findings are considered to be an initial step in providing the empirical data needed to implement future action plans.


Further Evidence in Support of Systematic Dating of Historic Costumes
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Scientists from fields such as archeology and biology have developed nonintuitive methods that aid in the classification and dating of artifacts. Although costume historians continue to be intrigued with the prospect of such a method, only limited attention has been shown to the development and testing of systematic costume dating techniques. The few attempts made to develop such approaches have exhibited weaknesses that have not been corrected. One of the most recently developed methods, in the form of an algorithm (Schlick, 1980), also demonstrated some flaws. However, the apparent success of the preliminary testing of the algorithm (Rowold and Schlick, 1983) presented support for the proposition that nonintuitive approaches to classifying historic artifacts could provide an accurate and expedient technique for dating costumes.

The present research provides further testing of the Schlick dating algorithm for 19th century ladies' dresses, employing a larger sample of subjects and a larger sample of costumes. Two separate procedures were designed to further demonstrate dating accuracy and to enhance the empirical utility of the algorithm, rendering it increasingly reliable and valid.

The first procedure involved 45 subjects (university junior and senior fashion merchandising majors) each of whom used the algorithm to date ten ladies' dresses. The second procedure involved two subjects (historic costume professionals) each of whom used the algorithm to date ladies' dresses from four major midwestern costume collections (total of 91 dresses). In both procedures, the subjects examined the sample costumes in collection workrooms and used the one page algorithm and accompanying directions to date the costumes (Rowold and Schlick, 1983). Accuracy of the date obtained by the subjects using the algorithm

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Subjects' Date was determined by comparing it to the date assigned to the costume in the collection records ("Criterion Date").

Degree of absolute accuracy and acceptable accuracy within ±5 years was determined using frequency and percentage statistics. Further, by examining the erroneous answers, it was possible to determine which portions of the algorithm led to unacceptable dates. In procedure one 79% of the 45 subjects' dates were accurate, with an additional 12% accurate within ±5 years, for a total of 91% acceptably accurate dates. Of the remaining 9% unacceptable dates, 78% of the error was caused by misjudging the shoulder width, and 20% of the error was caused by misjudging the grainline of the fabric. In procedure two, a total of 74% of the two subjects' analyses of the 91 garments were acceptably accurate. Of the remaining 26% unacceptable dates, 54% of the error was caused by misjudging the shoulder width and 31% of the error was caused by misjudging the fabric grainline.

The data gathered through these two tests of the Schlick algorithm provide further support that nonintuitive costume dating devices can be beneficial in collection management. However, further research is necessary to enhance the empirical utility of this sort of dating device. Research implementing primary resources is currently being conducted in an attempt to modify the portion of the algorithm that affects the greatest degree of error.


The Importance of Domestic Textile Production as Determined by Nineteenth Century Records of Orange, Alamance, and Durham Counties, North Carolina

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Though textiles were important in the material culture of North Carolina piedmont settlers (Johnson, 1937) little was known about the history of handweaving there. Studies have been done of the extant textiles in the North Carolina mountains (Hall, 1912) and of piedmont industrial growth (Tuttle, 1974). Although no systematic study had been done to document the importance of handweaving in either home textile production or in commercial production before the advent of the textile mills, it was assumed that handweaving was important because of the number of extant piedmont artifacts. Prior to this research, it was unknown when industrially produced textiles supplanted home production.

The purpose of this study was to ascertain the prevalence of domestic textile production in selected areas of the North Carolina Piedmont and to determine when industrially produced textiles supplanted the home industry.
Nineteenth century estate records of Orange, Alamance, and Durham counties were searched for references to weaving and spinning. Estate record files included sales accounts, estate inventories, widows' support allotments, court testimony, bills to the estate, and other documents. Data recorded for each file were the name of the descendant, date of death, the category of information, and spinning or weaving items found.

Data were sorted by decade, sex, and item to determine the prevalence and kinds of handweaving and spinning done by those leaving estate records. To ascertain when industries were established, contemporary business directories and newspapers were searched for names and addresses of spinning and weaving mills in the three study counties and adjoining counties.

Data collected from estate records show that in nineteenth century Orange, Alamance, and Durham counties, 41% of the population had looms and 71% had spinning wheels. When the data were analyzed by decade they showed that hand spinning reached its peak in the 1830's after which the number of spinning wheels gradually diminished through the remainder of the nineteenth century. Spinning mills were established in the area from the early thirties, so more effect on home spinning was expected. There was an increase in the number of hand looms from 1800 until the 1850's when numbers declined because of the establishment of weaving mills during the fifties.

Though domestic textile production did not disappear immediately upon the advent of industrialization in the study counties, commercially produced goods did take the place of textiles produced by families. This has implications for developing nations as they move from home production to textile industrialization.


Inferring Behavior and Function from an Etowah Fabric Incorporating Feathers

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Little is known about the prehistoric textiles of Southeastern North America, so examination of any fabric evidence recovered from the area offers an opportunity to add to our knowledge of the cultural use of fabrics in the New World. The Etowah Mounds site in Northwest Georgia is considered one of the more important centers of Mississippian culture in North America. Its occupation spans the period of A.D. 800-1600. A
partially mineralized fabric incorporating feathers and other fine fibrous materials embedded in a clay matrix has been recovered from Etowah's Mound C. The fragment is unusual because of the raw materials used in its manufacture and its structure. It represents a series of decisions having to do with procurement, production, and use of intricate fabric.

The purpose of the research project was to infer human behavior and fabric function from direct fabric evidence obtained by compositional analyses and provenience data of an Etowah fabric incorporating feathers (Cat. #1145, Burial 103, Mound C). Two postulates undergirded the project: 1) a fabric is the result of a series of interrelated choices/decisions; and 2) a fabric is a record of three sets of behavior involving manufacture, use/function, and discard or burial.

Compositional analyses including X-ray diffraction, energy dispersion analysis of X-rays, and scanning electron microscopy were used to identify the chemical and physical structures of the fibrous materials. Yarn and fabrication structures were identified by microscopy and visual examination. Burial site data were compiled from excavation records of the state archeologist. A map of interrelated choices necessary to produce the fragment was developed. The three classes of evidence were compiled, compared with standard references, and analyzed. Behavior and function information was derived by studying results and by plotting interrelated decisions necessary to produce the fabric.

The results indicated that the clay-encrusted fragment contains two layers of fabric with yarns incorporating a mixture of feathers, hair, and fiber yarns surrounding core yarns. Widespread presence of copper within the fibers indicates their incipient mineralization. The burial was that of an adult male, 25-28 years of age, and included a rich assortment of grave goods. The data suggest a valued feather mantle or kilt used in ceremonies to demonstrate high political or religious status for the wearer.

Degradation in Naturally Aged and Experimentally Degraded Silk
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Many museums, historical societies and universities own valuable historic silk costumes and textiles whose preservation is threatened by degradation. In order to develop effective methods for preserving silk, it is necessary to determine why some silk fabrics deteriorate while others endure. This research characterized the physical and chemical degradation that has occurred in naturally aged silk, and studied variables and conditions known to degrade silk.

Fifty-four undyed, historic silks, 10 to 400 years of age, were analyzed and the physical morphology and chemical composition compared to that of new silk to determine the extent of degradation. New silk was subjected to 12 chemical, heat, and light treatments that simulated manufacture, care and use, and the damage was assessed. Cocoon silks, new, 15-20 and 40 years old, were analyzed to determine the degradation resulting from natural environmental conditions. Methods of evaluation included breaking strength tests, dilute solution viscometry, amino acid
analysis, microscopy, photoacoustical infrared spectrophotometry, and neutron activation analysis.

Among historic silk fabrics, significant differences (p < .05) in tenacity were found between weighted and unweighted fabrics and among different age groups. Greater strength losses with greater age were noted, but losses were not linear with age. Significant decreases in elongation were related to weighting, and significant drops in viscosity were related to increasing age. Amino acid analysis results suggested that light and oxidation played major roles in aging degradation of silk. Great variability in tenacity, elongation, viscosity, and amino acid analysis reflected the different histories of the silk fabrics.

New silk experimental treatments caused significant losses of tenacity. Xenon light exposure, 40 AFUs, 80 AFUs, and 1.0N NaOH produced strength losses of 20% or greater. Increases in elongation were caused by 0.5N H₂SO₄ and 1.0N H₂O₂, whereas 0.75N and 1.0N NaOH and 40 and 80 AFUs xenon light caused significant decreases. In viscosity tests, NaOH, boiling water, and xenon light treatments caused significant decreases in viscosity. Amino acid analysis showed that experimental treatments attacked the amorphous regions of fibroin producing significant losses of long side-chain amino acid residues. The severity of light degradation was revealed by significant increases in glycine, alanine, and serine; significant decreases of seven amino acids; and significant increases in NH₃. Photoacoustical infrared subtraction analysis showed different modes of degradation in fibroin by acid, alkali, and light.

Viscosity differences between new and 15-20 year old and new and 40 year old cocoons were highly significant (p < 0.003 and p < 0.001). Although chemical degradation had occurred, fiber deterioration was not serious, nor were there any significant amino acid differences among cocoon silks of different ages.

This research suggests that silk degradation may be initiated by manufacturing processes and exacerbated by light and oxidation over time. It emphasizes the importance of protecting silk from light exposure.

Pesticide Residue Recovery Rates as a Function of Drying Time, Solvent and Control Conditions

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The aim of research concerning laundering of pesticide contaminated clothing is to remove all of the pesticide residue from the fabric. Previous research has established the amount of pesticide removed by the extraction solvent is not equal to the amount applied; the procedure does not explain what happens to the quantity of pesticide not recovered by solvent extraction. Explanations given for the amount of pesticide not quantitatively recovered by extraction included pesticide remaining in the fabric, transferring to adjacent surfaces, or evaporating. A methodology that accounts for 100% of the residue is needed.

The objectives of the research were to establish a methodology that would control for possible sources of pesticide loss by evaporation, establish maximum recovery rates for the pesticide, fonofos, and produce
results having a high degree of accuracy and precision. The major hypothesis examined was: There is no difference in the quantity of fonofos recovered with regards to: (a) duration of the agitation period; (b) volume of solvent; (c) type of solvent; (d) drying period between the application of pesticide and initiation of the extraction process.

The optimum solvent extraction rate was established by three experimental procedures. Experiment one variables were drying time (0.5 hr and 18.0 hr) and solvent (methanol, ethyl acetate, and iso-octane). Experiment two variables were agitation period (30 min and 60 min) and volume of solvent (50 ml and 100 ml). Experiment three used four treatments to determine if pesticide evaporated during the drying period. Treatments included fabric specimens contaminated and air dried for 18 hr in a vent hood, fabric specimens contaminated and stored in separate sealed glass flasks for 18 hr, glass filter pads contaminated and dried in the hood for 18 hr, and flasks containing 200 ml ethyl acetate receiving fonofos and sealed. Supporting surfaces were rinsed with acetone after contaminated specimens were removed for extraction. The rinse was analyzed for fonofos.

The 100% cotton denim specimens used for the experiments were randomized. Each specimen was contaminated with 0.5 ml fonofos emulsified concentrate dispensed with a precision pipette. Specimens dried for the period of time specified in each experiment. The solvent from each of the two extraction periods was stored separately for gas chromatographic (GC) analysis. Each experiment was replicated three times. The residue extracted from each specimen was based on the mean of three GC injections. The results were analyzed by the analysis of variance statistical procedure. The significance level was set at \( p < .05 \).

Significantly better results were obtained with 100 ml solvent, with ethyl acetate, and with 60 min agitation period. The drying time was significant with 83% of the fonofos extracted after 0.5 hr and with 70% extracted after 18 hr. Control specimens sealed in a flask for 18 hr and glass wool filter pad specimens air dried for 18 hr both yielded a 99% fonofos extraction. No fonofos residue was detected in the acetone rinse of the supporting surfaces.

No more than 1% fonofos was lost by evaporation from the glass wool under the same drying conditions as the fabric specimens or from the fabric specimen, sealed in a flask immediately after contamination. The implication is that some phenomenon is occurring during air drying that interferes with the fonofos extraction from this cotton fabric. Glass wool filter pads could be added to existing controls to aid in determining if pesticide is lost by evaporation during drying.

Effectiveness of Laundering in Removal of Methyl Parathion From Successive Contamination of Fabric
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Many have studied the effect of laundering procedures in lowering pesticide residues in contaminated clothing. To date, researchers have examined single applications of pesticide to fabric and made
recommendations that clothing be laundered daily. It is unknown whether successive wearings and contamination present a hazard.

The purpose of this study was two-fold: 1) to determine build-up of methyl parathion on fabrics contaminated daily for up to five days, and effectiveness of laundry in lowering pesticide residue from repeated contamination of fabrics and 2) to measure the contamination of water used in laundering process. In a 2 x 2 x 5 x 2 design, two fabrics (100% cotton and 50/50% cotton/polyester) of two finishes (unfinished and fluorocarbon soil repellent) were contaminated with 0.2 mls of 1.25% active ingredient methyl parathion (EC) for 1, 2, 3, 4, and 5 days. One half the samples were laundered daily before recontamination. The other half were recontaminated and laundered on the 5th day. Contaminated fabrics were spotted (.225 ml) with a pre-wash product and then laundered at 49°C (120°F) with a heavy duty liquid detergent in distilled water for 12 minutes followed by 5 and 3 minute rinses. All waste waters were collected. Methyl parathion residues were extracted in acetone and analyzed on a Varian Vista 6000 gas chromatograph with an electron capture detector. Data were analyzed using a factorial experiment analysis of variance. An arc sine conversion of the percentage of methyl parathion residue remaining after laundering was performed prior to statistical analysis.

Initial methyl parathion soiling increased over the five day period with each additional contamination with pesticide (but no laundry). The soil repellent finish was effective in lowering sorption of pesticide through two launderings, after which the fluorocarbon finish no longer functioned to depress initial contamination. In fabrics laundered daily, there was no difference in post laundering contamination.

There were significant differences in reducing pesticide residue in laundered fabric attributable to the fiber content of the fabric, to the functional finish and to the interaction effects of fiber content and fabric finish. The soil repellent finish had imparted a low free energy to the fabric surface to assist in diminution of soiling; but this same mechanism had reduced the ability of water plus surfactant to penetrate the fabric and release the pesticide soil.

Soiling had increased across the five days with no laundering such that the washing process was not as effective in flushing out the methyl parathion residues. The wash water was particularly heavy with contaminants, and the methyl parathion in the waste waters increased over each successive day of contamination. However, if the specimens were laundered daily, only a main effect of wash/rinse 1/rinse 2 was observed, with significant differences in parts per million (ppm) in the wash water, and the rinse water but no significant differences in the ppm in the first and second rinse.

Given pesticide levels in the fabric, and the wash and rinse waters, the recommendation to launder protective clothing daily is supported. Pesticide soil builds up with each successive contamination (with no laundering) so that the fabrics and water used in washing the fabric are highly contaminated. Laundering daily produces lowered levels of pesticide soil in the fabric and lowered ppm pesticide in waste waters.
Insecticide Residues on Fabrics Worn Into Fields Treated With Non-Conventional Application Technology

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Extensive use of pesticides on agricultural crops in the United States has caused concern for the effects of these hazardous chemicals on individuals who come in contact with them. In pesticide exposure studies, agricultural workers can be divided into two groups: those who mix, load, and apply pesticides, and those who work in the field after pesticides have been applied. Much research regarding pesticide exposure has focused on individuals in the first group. Little is known about the exposure of farmers and other workers to pesticides in treated fields or the contamination of their clothing incurred by entering these fields.

In Louisiana, large acreage is devoted to the growing of soybeans which are subjected to aerial application of insecticides. Recent research has been conducted on non-conventional application technology involving aerial ultra-low-volume (ULV)-oil spray techniques using vegetable oil as a carrier. The ULV-oil applications are expected to offer advantages over conventional water-based spray methods including better persistence of the insecticide. The purpose of this research was to determine differences in residue pickup of fabrics varying in fiber content and surface finish when worn into fields treated with conventional and non-conventional spray methods.

Experimental soybean fields were sprayed using three insecticide treatments in a randomized block design with four replications. The treatments involved use of permethrin mixed in 1) water, 2) soybean oil, and 3) a mixture of water and soybean oil. Fabrics used were top weight print cloth of three fiber contents: 100% cotton, 50% cotton/50% polyester, and 100% polyester. Specimens of the blended fabric treated with either a durable press or soil release finish were also tested.

Two inch squares of the five fabric/finish test materials were sewn into patchwork squares in a random arrangement involving three replications of each. The patchwork squares were pinned to trouser legs of individuals from the Entomology Department at L.S.U. who entered fields to inspect effectiveness of three aerial treatments. These individuals entered fields on the day of spraying and again two days later. Insecticide residues were extracted from fabric specimens using hexane and were analyzed using gas chromatography. Data were analyzed using analysis of variance and Duncan's multiple range test.

Results of the study indicate that significantly higher residue levels were obtained from fabric worn into oil-sprayed fields than from those worn into water-sprayed fields. The presence of functional finishes on the blend fabric did not cause significant differences in levels of residue obtained as compared to unfinished blend specimens. When compared from all field treatments, 100% cotton specimens had significantly higher residues than blend specimens but 100% polyester specimens were not significantly different from either of the other two fabrics. Further analyses indicated that a significant interaction occurred between fabric and treatment. The blend fabric picked up more...
residue from the water-based treatment than either the cotton or the polyester, breaking away from the overall trends. As expected, significantly higher residues were obtained on the day of spraying than were obtained after two days.

The results suggest that new application technology may increase the risk of pesticide exposure for workers who enter treated fields. However, delaying entry into the field for two days or more significantly reduces exposure levels regardless of application technology.

Approach for Quantitatively Measuring the Effectiveness of Adaptive Apparel for Multiple Disabled Clients
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The long-range goal of this research is to develop an approach for quantitatively measuring: 1) the effectiveness of adaptive apparel for institutionalized, multiple disabled clients and 2) client satisfaction with adaptive apparel. Effectiveness of adaptive apparel was assessed through quantification of the following dependent variables: independence in dressing/undressing, ease in dressing/undressing, time on task, and neatness. The instrumentation has been evaluated using six multiple disabled female clients.

Independence in dressing was measured by the number of verbal requests and/or physical assists needed by subjects to complete each task. Ease of task was rated on a three-point scale from little or no difficulty (1) to extreme difficulty (3). The amount of time subjects required in completing each task was recorded. Garment appearance was rated on a five-point scale from extremely neat (1) to extremely messy (5). Client satisfaction with adaptive apparel was determined by subjects' selection of non-adaptive or adaptive apparel over the three-week period following data collection on dressing skills.

A pretest-posttest experimental design was used. The sample consisted of six female subjects selected from the population of multiple disabled clients at Austin State School. Four of the six subjects were randomly assigned to the experimental group. Subsequent to needs assessment, garments were designed and constructed to meet individual needs. Tutorial sessions were conducted to improve the clients' abilities to use adaptive apparel during which all non-adaptive apparel was removed from their closets. Two control subjects, who received no adaptive apparel, attended tutorial sessions on independent living skills other than dressing skills. Before and after the six-week tutorial sessions, all subjects were evaluated on the dependent variables by three evaluators—a nurse, an occupational therapist, and a textiles and clothing specialist. Average ratings were computed.

Results of one-way analyses of covariance revealed no significant differences between groups on the dependent variables with the exception of number of physical assists in putting on a dress. Contrary to expectation, the control group required fewer physical assists in putting on a dress than the experimental group ($F = 42.62, p < .01$). In the experimental group, improvement in independence of dressing skills, as measured...
by the number of verbal requests required for subjects to complete the
dressing task, was demonstrated from pretesting to posttesting using
pairwise t tests (t = 3.33, P ≤ .05). Appearance ratings improved from
pretesting to posttesting (t = 3.33, p ≤ .04). Two of the subjects
elected to wear the adaptive apparel, rather than the non-adaptive
apparel, 100% of the time. The other subjects elected to wear the adap­
tive apparel a majority of the time (71% and 60%). In the control group,
no significant changes in dressing skills nor in appearance were
observed.

Time on task was the most difficult variable to quantify. No guide­
lines exist to suggest how long each task should take. In the event the
client was incapable of or uninterested in completing the task, the
researchers determined when to terminate the observation. This contrib­
uted to measurement error. Overall, however, the instrumentation proved
to be effective in quantifying the dependent variables. Procedures
outlined for data collection were successful.

The procedure and instruments cited in this project provide an
approach for quantitatively evaluating the effectiveness of adaptive
apparel in improving daily living skills of institutionalized multiple
disabled clients. With refinement, this quantitative approach would be
of value to clothing researchers and to staff in institutional settings
in documenting the importance of adaptive apparel for selected clients.
Ultimately, adaptive apparel needs of these clients could be elevated to
a higher priority status.

Mastectomy, Clothing and Self-Image
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In Western society, breasts are a primary symbol of femininity,
motherhood and sexuality. Breast cancer, therefore, threatens not only
life for some women, but the core of one's self-image. At the present
rate, 9% or one out of every 11 women in the United States will develop
breast cancer sometime during her lifetime. Advancing age is highly
correlated with increasing breast cancer incidence. Since incidence
rises with age and more American women are living longer, the total
number of women with breast cancer can be expected to continue to
increase.

Clothing problems of forty postmastectomy patients were investigated
by surveying a post-operative support group. Specifically the research­
ers studied: use and satisfaction with prostheses, use of reconstruction
surgery, changes in lifestyle and feelings toward oneself, and identifi­
cation of related clothing problems, as well as relationships among these
variables.

The characteristics of the sample compared favorably with national
statistics. Twenty-one women or 52 percent in this study were employed
outside the home; nationally in 1980, approximately one-half of all adult
women worked outside the home. Fifteen percent of the women in this
sample had breast reconstruction; the national figures estimate approxi­
mately 110,000 mastectomies and 20,000 reconstructions annually or 18%.
The age at surgery of the sample indicated a range of 30-74 years, median age at 52, and 62% over 50 years. National figures estimate that 66% are over age 50 at surgery.

Eighty-five percent of the women who had not had breast reconstruction wore a prothesis and the majority (67.5%) noted their satisfaction with the prothesis as good to excellent. Fifteen percent had breast reconstruction and 12% more were considering reconstruction. Seventy-two percent indicated their lifestyle had not been affected by the surgery. In response to the question: "Has having breast surgery affected the way you feel about yourself as a woman? Comments", 55% expressed explicit negative feelings. Fifty percent indicated there were clothing styles they no longer felt comfortable wearing. Problem garments for mastectomies included swimsuits, sundresses, night wear. Problem designs included open or low necklines, sleeveless and some sleeve types. The survey occurred during August when summer garments would be worn.

Chi-square analysis indicated significant relationships occurred between age at surgery and reconstruction (p = 0.06) and between feelings toward self and reconstruction (p = 0.03). Relationships that were not significant included brands of prostheses and satisfaction in fit (p = 0.33), change in lifestyle and use of clothing (p = 0.185), and feelings toward oneself and use of clothing (p = 0.14).

Implications from this study indicate that mastectomies were generally satisfied with available prostheses, but that feelings involved with self-wholeness prompted reconstruction surgery. Women who were most likely to have reconstruction surgery were characterized as young, employed outside the home, and less confident about their post-operative appearance.


Using mass market theory as a framework, the purposes of this study were: 1) to determine if fashion leadership existed in the over 55 segment, 2) to develop a demographic and psychographic profile of elderly fashion leaders, and 3) to identify sources of fashion information used by the elderly.

The survey research method was used with a sample size of 40, ages 55-85, from Knoxville, Tennessee. Respondents completed a five page self-administered questionnaire consisting of a fashion opinion leadership section, an information sources section, and a demographic section.

Statistical procedures were performed using the Statistical Analysis System (SAS) computer program. The data were analyzed using descriptive frequency statistics and analysis of variance. A p < .05 level of significance was used.

Analysis of variance results indicated that fashion leaders do exist within the elderly population, with 28% of this group being fashion leaders. Fashion leadership and income were found to have a negative relationship; those with lower incomes were more likely to be fashion leaders. Fashion leaders were less likely to have worked outside of the home. Important sources of fashion information were fashion magazines, visiting stores, watching television, and listening to radio.

Because the elderly represent a sizable untapped market, understanding characteristics of elderly fashion leaders will assist retailers in developing marketing strategies to meet the needs of this changing consumer group. It has been found that acceptance of products by fashion leaders increases the likelihood of acceptance by the majority of the general population. Therefore, results of this study will aid retailers in more effectively targeting products, promotions, and services to the elderly consumer, increasing consumer satisfaction.

From Rio Grande Blanket to Chimayo Curio: The Transitional Period In Northern New Mexican Hispanic Weaving, 1880-1920 Susanne Baizerman, University of Minnesota, St. Paul, MN 55108

In the study of Northern New Mexican Hispanic weaving, there has been scant attention paid to the transition between 19th Century classic, Rio-Grande-style weaving, based on Saltillo-derived design systems, and 20th century Chimayo-style weaving, so popular on the tourist market. This research, undertaken to study this transition, has importance because it will: 1) add to knowledge of traditional Hispanic crafts; 2) provide comparative data for those investigating Navajo weaving traditions; and 3) contribute to multidisciplinary research on tourist art worldwide, as discussed by Graburn (1976).

The craft traditions of the Hispanic people of Northern New Mexico were brought from Spain via Mexico at the time of colonization in the 17th Century. Weaving reached the peak of technical excellence in the mid-19th Century when the "Rio-Grande-style weaving," simplified versions of the famed Saltillo serapes, were circulated along extensive trade routes to Mexico and the Far West. For a variety of reasons, Hispanic weaving, and particularly its marketing, declined in the late 19th Century. However, at the turn-of-the-century, Hispanic weaving was
tapped as a resource to supply the growing Anglo-American tourist market with a curio suggestive of Native American (chiefly Navajo) textile crafts and of the Southwest in general. Because raw materials and finished goods flowed in and out of the traditional weaving center of Chimayo, NM, this textile came to be known as "Chimayo-style weaving." Anglo entrepreneurial efforts have usually been credited with the change in weaving styles.

To examine this transitional period and accompanying changes in greater detail, research based on ethnographic and historic methods were used. Oral histories of living weavers and observation of current marketing practices were coupled with a survey of relevant Hispanic and Anglo documents and study of selected examples of turn-of-the-century textiles.

Results of this study have generated a more refined picture of the complex interaction between Hispanic and Anglo cultures which developed to meet market demands. Historic documents revealed the roles of the Anglo entrepreneurs. They: 1) were familiar with the functional needs and aesthetic ideals of Anglo-American consumers; 2) were linked to the raw materials and equipment needed for increased production; 3) instituted certain marketing practices such as standardized sizes; and 4) developed marketing outlets for the products. Interviews and other documents pointed out how Hispanic entrepreneurs adopted these strategies and utilized them with the social and economic organization of rural weavers which they commanded.

Conclusions suggest a historic bias which favors crediting Anglo ingenuity (clearly operant in the case of Navajo weaving and Anglo traders, at the expense of the very real contribution made by Hispanics themselves. These results contrast with Briggs (1980) study of Hispanic woodcarvers where Anglo input played a different, more directive role.

This study of the transitional period has deeper implications for a larger study being conducted by this researcher. This larger study examines the roles that Anglos have played in the 20th Century with respect to weaving and its potential as an economic resource.


Attributions for Job Acquisition: Job Skills, Dress, and Luck of Female Job Applicants
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In previous research on dress and job acquisition, subjects rated characteristics of stimulus persons wearing varied professional attire. The body of research does not provide insight on the importance of dress as compared to other characteristics such as education, work experience,
and resume that a person brings to a job interview. The purpose of this research was to investigate how attributions of causality about job acquisition within a middle management business setting are associated with success or failure in acquiring the job and with career dress, job skills, and model. Causal attribution theory served as a conceptual framework. The theory focuses on the thought processes individuals use in answering the question: What caused the behavior?

Hypotheses were developed to test the importance of 1) job skills (work experience, educational background, overall qualifications), 2) dress (grooming, appropriateness of clothing, overall appearance), and 3) luck (connections, luck, being at the right place at the right time) for job acquisition. It was hypothesized that the importance of the nine factors would not differ for job applicants who varied in a) dress, b) resume, c) model, and d) success in job acquisition.

A panel of ten businessmen assisted in selection of two similar female models from a total of five photographed candidates and also evaluated appropriateness of dress and resume stimuli for middle management job applicants in the Midwest. Four stimulus pictures, developed on the basis of principal components analysis and ANOVA of panel ratings, included two models dressed in highly and minimally appropriate business dress. Two resumes represented high and minimal levels of job skills for middle management.

In the final phase of data collection, 160 management level Midwest businessmen viewed two photographs and two resumes and were advised of the applicants' success or lack of success at acquiring positions in marketing. Subjects responded to the question, "How important were the following factors for her acquiring (or not acquiring) the job?" by rating the importance of the nine job skills, dress and luck factors on a seven-point Likert scale. A $2 \times 2 \times 2 \times 2$ (Resume X Dress X Model X Success at Job Acquisition) design was used for analysis of each of the nine attribution factors. Because of an incomplete block design, a special analysis, consisting of three error terms, was developed for the data.

Businessmen's ratings for the importance of dress were lower than the ratings for job skills but higher than the ratings for the importance of luck. Therefore, hypotheses were not supported. When a highly appropriate resume was presented, job skills accounted for success. Poor job skills accounted for failure in conjunction with a minimal resume. Dress did not affect the ratings of the importance of job skills for job acquisition. Both levels of dress were considered more important in explaining success than in accounting for failure in job acquisition. Luck was considered important as an explanatory factor when applicants' success at acquiring a job was not logically matched with their levels of job skills or dress. The findings have implications for variables to be included in future research on job acquisition and contribute to a research base for senior level "professional preparation" seminars offered in many Colleges of Home Economics.
The purpose of this study was to show that clothing is a variable affecting interpersonal distance. Interpersonal distance has been shown to vary as a function of age, sex, race, relationship, and stigma. Wolfgang and Wolfgang (1971) explored distance maintained from groups with varying degrees of acceptance and found that negatively valued characteristics tended to increase distance. Analogously, clothing styles have varying degrees of acceptance with fashionable apparel being accepted by a substantial group of people at a given time, in a given place. Wearing out-of-date clothing is a highly visible and negatively valued state which could put the wearer in an unfavorable position in social relationships. Therefore, two hypotheses were proposed. 1) Clothing is a variable which influences interpersonal distance. 2) Clothing which reflects current fashion will result in closer interpersonal distances than clothing which is out-of-date.

The population chosen for study, adult females, ages 17 to 30, was assumed to have a well-developed sense of comfortable interpersonal distance. A sample of 59 undergraduate females participated in this study.

A repeated measures design utilized drawings of five female figures varying only in design of the jeans drawn on each figure. Five pages of a test booklet were randomly arranged. Each page contained a figure drawing with instructions to draw a stick figure located at a distance from the other person at which the subject would feel most comfortable. On the following page, five figure drawings were arranged randomly in a row. Subjects were asked to rank the figures from most to least fashionable.

Distance between heads of figures was analyzed for relationships between distance and clothing fashionability as determined by subject's ranking of the experimental figures. Hotelling's multivariate test, $F = 6.75$ (4,55), $p > .01$, indicated that clothing fashionability was a factor in interpersonal distance, confirming hypothesis one. Distance from each experimental figure ranked from most to least fashionable was: 1st (1.91); 2nd (1.76); 3rd (2.17); 4th (2.25); 5th (2.61). Distance from the two most fashionable figures did not follow the hypothesized direction. A comparison indicated mean distances from these two figures did not differ significantly. To test hypotheses two, distances from the two most fashionable figures were compared with distances from the two least fashionable figures. This test yielded a significant $t$-value of $-3.86$, $p > .01$, indicating that distance from the two most fashionable figures was significantly less than distance from the two least fashionable, confirming hypothesis two.

According to research, nonverbal cues such as interpersonal distance may reflect underlying attitudes. Increased proximity is associated with a more positive attitude toward a person (Wolfgang & Wolfgang, 1971). Johnson, Nagasawa, and Peters (1977) found that fashionable clothing resulted in perceptions of greater sociability than did unfashionable clothing. Whereas some characteristics which might be negatively valued
are not easily amenable to change (i.e., race, sex, age, physical handicaps), clothing which people wear is under their control. Interpersonal distance in social interaction is modifiable through clothing manipulations. Skills of dressing in acceptable clothing styles can be learned. As a person develops skill in dressing appropriately, more positive interactions with others are likely to result.


Male Fashion Innovators: Sex-Role Type
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Changes in male roles and lifestyle in recent years have brought about increased interest in appearance and apparel for men. The purpose of this study was to investigate relationships between sex-role types and male fashion innovativeness. Rogers' (1962) model of adopter classifications in the diffusion process was used to provide the theoretical basis. Evidence that fashion innovators can be identified has been presented by such researchers as King and Ring (1975). Areas of sex-role typing and role androgyny have been investigated by Bem (1974).

Characteristics of an androgynous individual allow for greater freedom of choice than for sex-typed individuals. The individual remains sensitive to change and engages in whatever behavior seems most effective at the moment, regardless of behavior stereotype as appropriate for one sex or the other. Androgynous individuals adapt well to change and accept change more readily than sex-typed individuals; innovators also adapt well to and accept change. It was hypothesized that male fashion innovators will more often be typed as androgynous by their Bem Sex-Role Inventory (BSRI) scores than will non-innovators.

The nature of the study was ex post factor research. The Male Fashion Innovativeness Scale (MFIS) was developed by the researcher. The BSRI was used to identify sex-role types (masculine, near-masculine, androgynous, near-feminine, feminine). Schrank and Sugawara (1981) focused on a group of college males and females, and measured fashion leadership and sex-role androgyny. The present study involved post-college males in career paths. Subjects (N = 290) included men from three levels of management and sales, randomly selected from an insurance firm in a southeastern city.

Measures were placed in envelopes and hand-delivered to the subjects at the office; 226 (78%) were returned of which 201 were usable. Based on distribution of scores on the MFIS, three groups were identified: innovators (5.97%, n = 12), non-innovators (72.13%, n = 145), and laggards (21.9%, n = 44); the laggards were excluded in testing the
hypothesis. Statistical analysis included t tests, correlation, and type III sums of squares regression. The hypothesized relationship between innovativeness and androgyny was not accepted, since there was a significant relationship between innovativeness and the masculine sex-role type. Masculine characteristics of being independent, individualistic, assertive, having leadership ability, and being willing to take risks (Bem, 1974) may be more important in identifying innovators than androgynous characteristics that allow males and females freedom of choice across situations. The findings support the relevance of diffusion theory in identifying innovators and provides manufacturers, retailers, and researchers with information about the male fashion consumer. Male fashion innovators will become increasingly important as interest in men's appearance and apparel continues to grow.


King, C.W., & Ring, L.J. (1975). The 1975 Toronto male fashion research project: A descriptive overview (Paper No. 526). Krannert Graduate School of Industrial Administration, Purdue University.


Evaluation of a Thermal Protective Life Preserver
For Cold Water Immersion
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This research was conducted to evaluate a prototype thermal protective life preserver for cold water immersion previously designed for the Federal Aviation Administration (FAA). All over-water flights are required to carry flotation devices for passengers and crew. Currently used flotation devices are not designed to provide thermal protection despite the temperature of 47% of the ocean waters being less than 20°C. If an accident occurs in water below 18°C, thermal protection is needed if victims are to survive long enough for rescue efforts to be successful. The specific objectives of this study were to: 1) assess the thermal response of subjects wearing the prototype and a currently used flotation device, and 2) estimate predicted survival time for subjects wearing the prototype life preserver and a currently used flotation device.

A single-chamber jacket-style air bladder with a center front zipper closure was designed to meet FAA specifications for self-righting, buoyancy, donning time, universal sizing, thermal protection. A laboratory experiment with ten male subjects was conducted. Two
subjects, each wearing either the prototype or the currently used flotation device, were immersed in 55°F water for two hours at the FAA survival tank facility. Rectal temperature, heart rate, and electrocardiogram were continuously measured. A team of FAA support personnel assisted with data recording and ensured the subjects' safety.

A cooling rate for each subject in each design was determined by least-squares regression. Eight out of ten subjects showed a lower cooling rate while wearing the prototype over the currently used flotation device. Mean cooling rate for subjects wearing the prototype life preserver was 1.15°C/hr., and 1.72°C/hr. for the same subjects wearing the currently used flotation device. Differences were statistically significant at the p < .05 level. Cooling rate data were used to predict survival time (number of hours to reach a lethal rectal temperature). For both rectal temperatures specified, mean predicted survival time was longer for subjects wearing the prototype life preserver than when the same subjects wore the currently used flotation device.

Differences in heart rate data were also shown to be statistically significant at the p < .05 level. After 20 minutes of immersion, subjects wearing the prototype experienced lower heart rates than when they wore the currently used flotation device. Differences were more pronounced as time progressed. Thus, the prototype was shown to provide enhanced thermal protection over the currently used life preserver under the specified test conditions.

Development of a Computerized Device for Body Measuring
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The key to individualized apparel fit in the 1980's and beyond is to utilize the capacity of the computer in producing and storing basic fitting shell information for use by the individual or the apparel entrepreneur. With the increased use of laser beam cutting, individualized sizing may apply even in large manufacturing enterprises. Great strides have been made in computerizing mass production techniques with systems such as CAD/CAM. However, the emphasis is on greater efficiency in production of traditional sizes. Government apparel sizing standards have not been updated since 1972, resulting in a sizing system which fits fewer and fewer people as the population mean age grows older each year. With aging, body measurements become more diverse, making a system of individualized sizing more and more attractive.

The purpose of the research was to develop a method of measuring the body by which coordinates could be entered into the computer, resulting in a pattern for a basic fitting shell for an individual. The objectives were: 1) to design a measuring device for the body which could be expanded or contracted both horizontally and vertically to fit various body sizes, 2. to apply horizontal numbering sequences and vertical numbering sequences on the measuring device which correspond with the spacing on a printer and which can be read and recorded in coordinate numbers, 3. to produce a computer program utilizing the body measurement data plus ease allowances and dart computations to print coordinates for a pattern for the individual basic shell.
In order to measure the body in coordinates, a device named the Body Graph was formed from computer printout strips. Girth measurements reading in two directions from center front met and were attached at center back with Velcro. Vertical measurements were recorded from the vertical strips at center front and center back. Movable Velcro tabs held the strips in place. Additional horizontal and vertical tapes were utilized in establishing the measurements for the sleeve and for other desired points on the body. A computer program was devised to arrange the coordinate information for the printer, to add desired ease, and to compensate for darts from the shoulder and for waist fitting darts. The resulting pattern produced by the printer was composed of points which could be connected to outline the individualized basic pattern.

Basic pattern blocks produced from measurements using the Body Graph were developed for 19 students during Spring semester, 1985. During May 1985 a pilot study using the Body Graph was conducted with five women ranging in age from 65 to 75. Forty-four measurements were used for the computer program. The resulting fitting shells worn by the participants were evaluated for fit by two clothing professionals, one a research associate at a textile research center and the other a college instructor with wide experience in the clothing field. A rating scale from 1 (poor) to 10 (excellent) was used to evaluate the accuracy of the Body Graph in producing a basic shell with good fit for the individual. The mean scores as determined separately by the two evaluators were: sleeve 9.4, 9.6; skirt front and back 9.5, 9.5; and bodice front and back 9.2, 9.0.

The implications of the study are: 1) it is possible to produce computerized basic patterns for individuals, 2) computer equipment affordable for the home or for small businesses is adequate for producing basic patterns, and 3) computerized individual measurements can be available to manufacturers and can be utilized in revision of sizing standards in the future.

Computerized Pattern Drafting for the Asymmetrical or Unusually-Sized Figure

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Ready-to-wear manufacturers and pattern designers have not been keen to serve the deformed or unusually-sized population as a viable market segment because of the high cost of individual variations. The ready-to-wear and pattern-making industries use a basic sloper which assumes body symmetry. A pattern is drafted for one side of the body, fitting the opposite side with the mirror image of the same draft. Asymmetric or deformed individuals have difficulty obtaining satisfactory fit since their bodies are not the same on both sides. Unusually-sized individuals also have difficulty locating apparel to accommodate large or small figure specifications. Persons with an unusual or asymmetrical figure must either be content with ill-fitting garments or secure a tailor/dressmaker with pattern drafting skills. Thus, a real need exists to develop a method by which individualized patterns can be quickly and economically developed.
Computerized pattern drafting was proposed to fill this need. The purpose of this study was to investigate computer simulation and modeling techniques as an efficient means of generating basic pattern blocks (bodice, sleeve, skirt and pant) to accommodate unusual figures. The research questions were: 1) Can computer models be developed that can effectively deal with real-life body variations? and 2) Will computer drafted solutions accurately duplicate manual efforts?

Expanding on the mirror image concept, a computer was programmed to draft patterns with measurements obtained from body quarters. At the terminal, users answered a series of questions requesting necessary measurements for each body quarter (or half if the user has a symmetrical figure). Mathematical computations and ease requirements essential for drafting were calculated on the computer. Each pattern segment was drawn on paper by a digital plotter.

The procedure was evaluated on a sample of flat pattern design students and adult women with unusual figure problems. A variety of symmetrical, asymmetrical and over-sized figure types were represented. Critical body measurements were obtained and two patterns were drafted for each subject: a computer draft and manual draft. When compared, computerized patterns duplicated manually drafted patterns to within 1/16 to 1/8 inch. Discrepancies between the computer and manually drafted patterns were attributed to the computer's high degree of accuracy when calculating measurements necessary for pattern drafting. When manually drafting with an L-square, these calculations are rounded up to the nearest 1/8 inch. The computer technique handles a range of real-life body variations with the computer draft having a higher degree of accuracy.

Individualized computer pattern drafting may be one solution to apparel problems faced by irregularly-sized, elderly and physically deformed persons in our population. In the flat pattern design classroom, computerized pattern drafting accommodates all figure variations and quickly provides individualized drafts thereby eliminating time-consuming alterations on commercial patterns. Additionally, apparel students are introduced to computer graphics as an exciting and personal component of apparel technology. Computer simulation workshops could help the seamstress entrepreneur secure individualized slopers without complex pattern drafting knowledge. A seamstress could be instructed in the flat pattern method to create style and garment variations from a basic sloper. Combining computer technology with professional efforts may result in adequate and attractive apparel for overlooked segments of the population.

The Adaptation of Microcomputers to Apparel Production For Students and Small Industries
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Many larger companies in the apparel industry are using computers for grading, marker-making and pattern reproduction. However, the equipment involved, such as the Gerber system, is extremely expensive.
Although small manufacturers and students could also benefit from the use of computer-aided design (CAD) systems, the cost makes it difficult or impossible for small businesses and colleges to purchase the equipment.

We are exploring the use of microcomputers to accomplish the same tasks as larger computer systems. Our goals are: 1) to expose students to the CAD system in order to prepare them for jobs in industry; and 2) to examine the feasibility of the use of microcomputers by apparel manufacturers as an alternative to more costly systems. The equipment— including AUTOCAD software, a Texas Instruments' color monitor and central processing unit, a Sumagraphics digitizer pad and a Houston Instruments' plotter—requires an investment of only one tenth of the cost of the larger systems.

Our five areas of concentration involve: 1) performing design variations by computer in order to create new, seasonal apparel lines with a minimum of work; 2) inputting patterns and scaling them to size by computer; 3) pattern grading; 4) marker-making; and 5) using the computer as a tool in functional apparel design.

AUTOCAD's graphics capabilities include drawing lines and geometric figures, tracing, generating text and producing a variety of colors, linetypes and patterns. Other functions allow drawings to be moved, saved, reduced and enlarged for detail work.

The system's drawing functions can be used to create patterns and design illustrations. Drawings can be made freehand or traced from illustrations placed on the digitizer pad. These can be saved as blocks and recalled for future use, either alone or in combination with other blocks or illustrations.

The AUTOCAD system is a useful tool in functional and fashion design, because it allows the user to experiment with various combinations of design features without making sketches by hand. Garment components and pattern pieces can be saved and rearranged or updated from season to season. Because of the system's ability to pinpoint exact measurements, patterns can be precisely drawn and graded. Once the pattern piece is created, it can be accurately traced and either enlarged or reduced. Marker-making is simplified when performed on the monitor. Pattern pieces can be duplicated and easily moved around on the designated fabric area to assure maximal utilization of cloth. The entire layout can be reviewed in a glance and modified until it is satisfactory.

Similar microcomputer systems can be readily acquired and inexpensively purchased by other colleges in order to expose students to computerized design equipment. Because it affords the user the opportunity to develop new applications, it has unlimited potential for the apparel industry. In addition, AUTOCAD is easily and quickly mastered: Being user-friendly, it provides menus for and assistance with every function. Students can increase their marketability in the apparel industry as a result of hands-on practice with the AUTOCAD system.
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Students in the Apparel Production Management course compiled this manual to be used in similar courses at the college/university level. These materials can also be used in workshops for managers in the apparel industry. Topics focus on management information specific to apparel production and are geared to those seeking management positions in the apparel industry, or those already in sewn products manufacturing.

The manual, divided into nine chapters, is introduced with chapters on production and operations management and research conducted to identify problems faced by apparel production managers. Subsequent chapters deal with these concerns. The table of contents appears as follows:

1. Introduction to Production and Operations Management
2. Apparel Production Managers' Concerns: A Research Study
3. Human Resource Management
4. Financial Planning in the Apparel Industry
5. Materials Resource Management
6. Quality Control: A Constant Concern
7. Apparel Production Technology
8. Apparel Imports

Each chapter, excluding the research study (chapter 2), is introduced with a brief summary of the topic to be covered, followed by an extensive reference list on the subject. This list is subdivided into specific categories. For example, chapter six on quality control has references dealing with quality circles, quality specifications for materials suppliers, technological advances in quality control, processes of quality control in the apparel industry, and books specific to quality control functions.

References included in the manual represent recent literature in each topic area. Indices used for accumulating the list include Business Periodicals Index, Textile Technology Digest and Personnel Management Abstracts dating back to the 1980 volumes, as well as Books in Print 1984. In addition to the indices, issues of Bobbin and Apparel World from 1980 were searched for pertinent articles.

Video Tapes of Apparel Production Techniques
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The recent focus on apparel mass production by many clothing and textiles departments has created a need for new illustrative material and teaching resources. Video taping in various manufacturing plants allows very realistic representation of production processes to be brought to the classroom for indepth study and observation.

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Objectives of the project are: 1) to develop video tapes that would show the procedures involved in apparel manufacturing from design concept to finished product, 2) to provide an accessible resource for studying individual segments of the manufacturing process that are relevant to specific topics in related courses, 3) to illustrate the relationship between production processes, product components, equipment capability, product quality, and costs of mass production, and 4) to prepare students for more meaningful experiences when visiting manufacturing plants on study tours, field trips, or as an internship.

Video taping has been completed in three apparel manufacturing plants and the tapes are being edited and scripted. The first tape shows production of better quality children's apparel from design concept to finished product. Voice over along with the original plant sounds creates a very educational and realistic soundtrack. Work is underway on tapes from the two other manufacturers and short segments featuring quality analysis and very specific processes. Each of the manufacturers has a very specific target market and product line which gives different perspectives. Teaching materials produced by this project have been used extensively in Apparel Production Management and Sewn Products Analysis classes. Relevant segments could also be used in textiles, clothing construction, fashion industries, fashion design, flat pattern and draping.

Development of these tapes was made possible with grants from the University and Home Ec Instructional Development Funds.

Custom Sewing Workrooms
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The entrepreneur spirit is prevalent across the United States as more women are establishing small businesses. Many entrepreneurs in our audience have established custom sewing workrooms either for the alteration of apparel and dressmaking or for the production of curtains, draperies and fabric window shades. Some of these entrepreneurs have requested information from the Indiana Cooperative Extension Service on the type and arrangement of equipment for efficient workrooms.

A slide presentation was produced on Efficient Sewing Workrooms to meet the needs of entrepreneurs who are investigating methods and ideas which increase the efficiency of their workroom and decrease the fatigue of the operator. Slides also present ideas and information for those entrepreneurs who have not realized that the workroom could be a factor in operator fatigue or production efficiency.

The slide presentation is organized in segments covering work areas or centers for cutting, machine sewing, hand sewing, pressing, fitting, and recordkeeping. Each segment, except fitting, presents information needed for curtain/drapery workrooms as well as those used for alterations or dressmaking. For example, in the cutting segment appropriate table sizes are given for each type of workroom. When discussing curtain and drapery workrooms, extra cradles and reels for unrolling fabric are discussed. The pressing segment discusses space for using and storing
dressmaker pressing equipment as well as tracks for iron cords and ceiling hooks which make curtain/drapery workrooms more efficient. At least five custom workrooms were photographed for the slides.

The slide presentation has been used with entrepreneurs in Sewing For Profit seminars; however, it would also be informative for apparel technology and interior design students. Even though apparel technology students are trained for large apparel operations, some of them operate or own small shops. Interior design students may also be asked to manage a custom workroom after graduation. The slide presentation has been used in Indiana to present information and to stimulate ideas; therefore, it often stimulates further discussion as participants share items and arrangements which work for them. Eventually, we hope to produce an accompanying publication on the topic because very little information is available to clientele.

Beginning Business Videos
Lois M. Gotwals, Purdue University, West Lafayette, IN 47907

Due to the slowing of the economy, interest in establishing a business has increased in Indiana. Women are establishing home based businesses because they have extra time and energy, often due to the empty nest syndrome, or because they need flexible working conditions due to family responsibilities. In order to capitalize on their homemaking skills many are starting dressmaking, alteration, and tailoring businesses and custom workrooms for the creation of curtains, draperies and fabric window shades. While these entrepreneurs have some sewing ability, they often lack business information. To meet this need, the Indiana Cooperative Extension Service has produced beginning business video tapes which cover the following five business related topics: securing a loan, recordkeeping, pricing, factors to consider before starting a business, and communications as a marketing tool.

Most of the video segments were produced on location with professionals in banking, accounting, and marketing interacting with successful entrepreneurs. Segments are presented in various ways—sometimes a "real life" situation between a business professional and an entrepreneur is simulated, but more often the professional presents some information and the entrepreneur discusses how the business technique is used. The use of a "talking head" is kept at a minimum so that viewers interest is maintained throughout each segment.

Tapes are available to Indiana Extension Agents for use with small groups or for loan to clientele who view the tapes on their personal video tape machines. When used with small groups, tapes are effective toward the end of a discussion. For example, when teaching the writing of a business plan, the tape can be used to show an entrepreneur presenting her plan to a banker and asking for a loan. Thus, it gives clientele the opportunity to view a "real life" situation and to study the poise of the entrepreneur, her presentation, and the banker's reactions and questions.

Segments on recordkeeping covers information needed by a sole proprietor operating on a cash basis. The format involves a woman who
queries her neighbor, an experienced business operator, about her record-keeping techniques. The neighbor is eager to talk because she happens to be preparing an Extension talk on recordkeeping. This segment gives "would be" entrepreneurs information on creating a simple bookkeeping system, why records are important, and how records can be instrumental in future business decisions.

The pricing segment uses a local mime troop with "voice-over" to discuss setting pricing goals and actual pricing methods. Demand for a product, competition, presentation of the product, and advertising are discussed. "Before You Start: Consider" discusses factors for assessing one's personal characteristics and former experiences before starting a business. In this segment a professional dressmaker shares why she started a business, her background, and experiences. "Communications As A Marketing Tool" discusses marketing techniques and how a business can use print and broadcast media to reach a larger number of clientele. Two entrepreneurs discuss their marketing techniques in this segment.

Video tapes and study guides will be useful to other Extension Services because many of them have current program thrusts involving the establishment of a sewing business. Teaching faculty will find tapes useful in marketing and apparel technology classes which involve business ownership or management.

Pattern Grading Manual
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The Pattern Grading Manual is used to assist in teaching a two credit sophomore/junior course, Grading Apparel Patterns. There are about 30 pages of worksheets for grading basic and stylized patterns via two methods, use of the computer (edge changes) and the shifting method. The lab manual, 10 pages, has grading charts for various types, i.e., toddlers, children, boys, men, misses, and women. Within the adult male and female grades are charts for the different grades (i.e., female; 1", 1½", and 2" grade - male; 1", 2" and 4" or small, medium, large and extra large grade).

Each of the worksheets in the lab manual is completed before the actual pattern is graded. The worksheet is then used as a guide. There are additional worksheets on similar, but slightly different problems/challenges.

The merit of the lab manual is that it encompasses two methods of grading. The advantage of the first method (edge changes), is that it is the method used to set up the charts for grading patterns via a computer. Even though the University of Wisconsin-Stout does not have a computer to grade patterns, the worksheets prepare the student for such, hence contributing toward better training and preparation for that experience on the job.

The second method of grading (shifting), is done via a grading machine or with a grid. Worksheets are also included. Of course, the shifting method is still used to check the accuracy of a pattern graded via the computer, hence the continued need to learn this method.
Experimental Clothing Construction
Sue Sharp and Anita Stamper
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Experimental Clothing Construction is the laboratory component of a course entitled "Evaluating Apparel Construction," which is offered for clothing merchandising students at the University of Southern Mississippi. The courses and lab are designed to develop evaluative skills. While lectures and text emphasize structure, terminology, elements of cost, and standards of quality, the laboratory stresses problem definition and statement, research design, data collection and analysis, and written and oral communication of research results.

An introduction to very basic elements of generating and disseminating information thus forms the basis for the laboratory. The subject matter, clothing construction, is the vehicle by which students learn problem-solving skills. For example, students may be asked to construct miniature garments identical in all respects except grainline placement or fabric selection. Their grade for the assignment will be derived from their ability to explain the effects of the independent variable on the dependent variable, in this case garment drape, not from the quality of their construction skills.

Construction assignments cover fabric grainline, seams and darts, pockets, necklines, sleeves, waistlines, closures, interfacings and linings, and hems. All assignments begin with a problem statement and end with students' presentations of experiment results. Patterns and detailed guidesheets facilitate the construction process so students' energies are concentrated on analysis and conclusion.


Buyer: A Computer Simulation to Assess Construction Quality
In Ready-to-Wear Garments
Ruth Marshall, Iowa State University, Ames, IA 50011

BUYER is a computer simulation designed for use in an entry-level, basic clothing construction course at Iowa State University. The course is required for all majors in the Textiles and Clothing Department (fashion merchandising, apparel design and patternmaking, and related science) and in Home Economics Education.

BUYER simulates for students a buying trip in which their role is to choose the number of garments to purchase for their department in an imaginary retail store on the basis of quality of item construction. They are told that price, style, and color are all appropriate; thus, their evaluation is to be based solely on quality of construction.

At present, the computer simulation contains three garments. In the introduction to the simulation, the students are instructed to look at a minimum of five features or variables for each garment and, on the basis of information received, to decide the number of garments to purchase. A total of 50 units from among the three garments is required; the computer
will accept any combination that equals 50. Since the garments represent varying quality standards, the student's goal is to select more of the better quality and fewer of the poorer quality garments. Rewards are provided on the basis of the selection.

Following the program introduction, the students are asked to select the garment they wish to view first. The first display of the selected garment provides both a visual and a written description of the garment. Students are then asked what they want to know about the garment. The program has information on approximately 15 variables such as fabric, interfacing, collar, seams, sleeves, buttonholes, and hems for each garment. In some cases, a whole area is shown on the screen (i.e., the entire seam), with a close-up being highlighted for a careful examination.

This computer simulation currently runs on a GIGI (General Image Generator and Interpreter) terminal connected to a VAX 11/780. It was written using Digital Authoring Language and is made available to students through the Courseware Authoring System. The design team which developed the concept and programmed the simulation consisted of three people: project coordinator, a faculty member in the Textiles and Clothing Department; programmer, an educational computing specialist in the Computation Center; and graphics creator, a graduate student in the Department of Textiles and Clothing.

Problem-Solving Computer Programs:
Analysis Manufacturing and Merchandising Costs
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Demands on clothing, textiles and merchandising faculty to prepare students for roles in an increasingly information-oriented society are intensifying. Three computer programs have been developed which utilize information technology to facilitate problem solving and decision making in calculating selling cost, analyzing financial ratios and determining the appropriate wholesale cost of a garment.

The Selling Cost program was designed to develop the concept of selling cost. It helps explain one method retailers have for controlling costs. Students explore how selling cost is calculated given a salary figure and a sales figure, and how to set a sales goal given selling cost and salary. Students can also see how salary could be affected by sales.

The program allows students to choose weekly sales levels, salary levels and sales goals within given parameters. The computer then calculates selling cost based on the numbers chosen. By manipulating sales, salary and sales goals, the student can learn how selling cost rises or falls with changes in salary and sales. Explanations are provided for each manipulation and resultant selling cost.

Merchandising teachers can incorporate the program into a class for the purpose of teaching the concept, or use it as a tutorial device for students who are weak in their understanding of selling cost.

Financial ratios offer a simple, quick method of comparing financial performance over time and between firms of similar size and type. The
Financial Ratio Analysis program teaches students to work with two key financial ratios: sales per square foot and inventory turnover. Manipulating sales, inventory and various merchandising strategies can improve financial ratios, which will in turn enhance store profitability.

The program was designed to teach fashion merchandising students and small shop owners how to determine store ratios, how ratios compare to the national average and how to improve ratios.

The Wholesale Cost Calculations program was designed to teach students how a manufacturer determines the wholesale cost of a garment. Students are asked to select a fabric and notions for a garment they are designing. Factors which enter into the cost are explained.

The program then calculates the appropriate wholesale cost, taking into consideration both direct and indirect costs. The computer performs all computations, so students who get confused with the mathematical formulas and computations find the program easy to use. Since overhead costs are included students are made aware of the true costs of production.

The programs can be used in university classes and by entrepreneurs in apparel merchandising and manufacturing. They are easy to use, self-explanatory and make use of the problem-solving capabilities of the computer. Users can make decisions and receive immediate feedback on the effect of their decisions. Students receive experience in interacting with the computer, can move at their own pace and can explore each concept to the depth desired.

A Visual Presentation: Structure of Appearance
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With today's emphasis on developing, using, and teaching theory in home economics, an effective means of presenting difficult concepts to students is vital. Used as a teaching tool, slide presentations can combine a theoretical framework and a visual media for direct application in the clothing field.

The objectives of this study were to: 1) develop a visual presentation on the structure of appearance, 2) examine existing socio-psychological research in the area of clothing and appearance, and 3) devise an application of a theoretical framework to clothing and textile subject matter. Using Robert Hillestad's schematic framework for explaining the structure of appearance, a dual slide/tape presentation was developed. The visual presentation was designed to be appropriate for a variety of audiences, including undergraduate, graduate (clothing, textiles, and merchandising majors as well as non-majors), and extension programs.

The program consists of four parts: Introduction, Review of Literature, Hillestad's Schema, and Subject Matter Application. Hillestad uses nonverbal communication models to develop a schema for relating dress and body factors to appearance. Dress factors consist of articles of clothing and adornment. Body factors are composed of body form, body motion, and body surface.
The project used photography in conjunction with stereomicroscopy to closely examine fabric structures and to measure, from photostereomicrographs, distortion in fabrics after being subjected to tearing. Fabrics of varying fiber content, yarn type, yarn size and weave structure were studied, each student having a unique fabric. Fabrics were characterized by yarn type and size, weave structure, thread count, fabric weight, and number of yarn crossover points per unit area. Measurements of yarn crossover points per unit area were taken from photostereomicrographs.

Students prepared samples from fabrics and subjected them to torque tear tests. Samples subjected to these tests were then examined by stereomicroscope and photographed. Measurements of yarn distortion were made from photostereomicrographs. Test results from all students were pooled, and students selected results from 2-3 fabrics from this data pool to compare results from their fabrics. Each student then discussed results in a research report.

This project forced students to examine fabrics much more closely than they had ever done before, making them more aware of the relation of fabric parameters to fabric properties. The project also exposed students to the process of conducting research, emphasizing precision in sample preparation and testing.

The project can be easily replicated and adapted by instructors of textiles. Equipment required for the project is basic to a textiles laboratory, and many variations can be made on the project. Fabric properties examined and types of fabrics studied can be varied to suit the laboratory equipment available.

**Computerized Internship Management**

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Management and supervision of an internship program requires careful organization and record keeping. A computerized data-base management system, Perfect Filer, was adapted to aid in internship management. Customized data records recorded intern information such as home and store address, name of merchant supervisor and performance goal completion.

The data-base system provided instant access to intern records. Mailing lists were easily generated. Intern lists were quickly sorted by city, store, merchant supervisor, etc. Correspondence with merchant supervisors was efficiently organized and monitored. Student progress was recorded and grading tasks were completed with ease.

Using the computerized system aided in effective management of the internship program. Such a system could be helpful to others with similar responsibilities.
Development of an Employer Data Bank
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Textiles and clothing graduates currently compete with business graduates for many professional positions. Consequently, it is very important for textiles and clothing majors to understand the workings of business and industry, both for its opportunities and its limitations. To facilitate this understanding, we have developed an "Employer Data Bank" (EDB) as a resource in the Textiles and Clothing Department. The purposes are: 1) to provide an up-to-date body of information about major firms that are involved in textiles and clothing related businesses, 2) to increase student understanding of these major firms regarding the nature of their businesses, organizational structures, and the career paths, and 3) to provide students with concrete information to support their job search.

This project was initiated with a mailing of 200 letters to the nation's largest retailers and textiles and apparel manufacturers seeking annual reports and recruiting materials. A request to be added to their mailing lists for updates on this information was also included. Materials were received from over half of the firms. This was supplemented by dozens of clippings from Women's Wear Daily and Daily News Record and photo copies of articles about these firms from many business and trade publications. A second mailing was undertaken and funded two years later by the Placement Office of the Home Economics College. Students and faculty continue to contribute articles and other information to keep the contents of these files as current as possible.

The EDB is housed in a lockable five-drawer filing cabinet which is monitored by a work-study student and made available for student use several hours each week. Student and faculty use of this resource has increased each semester since its inception, and is expected to rise even more due to the recent addition of a companion microcomputer program. Existing database software (Appleworks) was used by an honors student to store information about each EDP firm and a simplified access manual was prepared to aid users in their search. Geographic location, type of business, job opportunities, etc., may now be explored as a preface to use of the EDB paper files.

The Employer Data Bank has provided faculty with a teaching tool at all grade levels to supplement coursework, for special projects, and as a career resource. The "Career Development Project" is used to introduce students to job opportunities in their field and to aid them in recognition of major firms. The EDB helps the students develop an understanding of the business and cultural aspects of the area as well as the specific firms they will visit. In Fashion Design for Mass Production, students describe a real firm, its target market, image, etc., in order to design and produce a line suitable for mass production by that firm. The EDB provides basic information about companies to learn of the possibilities in out-of-state locations for students seeking field experience. The same use is made by students approaching graduation as they prepare for interviews on and off campus. Learning the specifics of potential employers is invaluable in the job search.
The Catalogue Shopping Program is designed to assist consumers who purchase clothing from catalogues or electronic media. The program consists of a slide set, publication, leaders guide, and learning packet. A computer program is also in progress.

This program has been offered as a special interest lesson to individuals and as a leader training lesson with homemakers through the Cooperative Extension Service. In a leader training situation, a leader attends a meeting that is taught by a County Extension Home Economist and is then responsible for re-teaching the information to other club members.

The slide set and learning packet are designed for the agent's use and provides them with supplemental information on subject matter. The leader's guide is designed for the leader and also has more in-depth information than the leaflet contains. It also contains teaching methods and help for the leader so she will feel confident in re-teaching the information. The leader then re-teaches to club members and all receive the publication.

Publications are also used as mail-out lessons and distributed to other individuals.

The objectives of the lesson are identified below. Individuals will: 1) develop an awareness of the variety of clothing offered for sale by mail order catalogues at all price levels, 2) learn the advantages and disadvantages of shopping by mail, 3) identify quality mail-order companies through analysis of product descriptions, company policies, guarantees and order form, 4) learn how to keep appropriate records on catalogue purchases, 5) learn their legal rights and how the Federal Trade Commission and the U.S. Postal Service Act protects them, 6) learn factors to consider when placing an order by phone or mail using either a check or credit card, 7) learn how to respond to a company if they have trouble with their order, 8) learn where to go for help if they have a problem with a company and the company will not resolve the problems.

This topic is important because the catalogue business represents approximately $40 billion in consumer sales. It is growing nearly five times as fast as over-the-counter retail sales. By the year 2,000, catalogue sales are expected to account for a third of all general merchandise sold in the United States.

Fashion Flashbacks: Contemporary Fashion has Its Roots in History
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The study of costume history creates a marvelous opportunity for students to learn that contemporary fashion 1) has its roots in history and 2) is the most recent example of a continuous cycle of styles. Fashions of the early 1980s feature styling details from the Egyptian, Renaissance, Elizabethan and Rococo periods as well as more current styles form the 19th and 20th centuries. Specific details include the
ruff, ropilla, leg of mutton sleeve, cravat and women's borrowing from menswear interpreted with a 1980s flair. Famous styles of early trend-setting designers such as Poiret, Vionnet and Chanel are also featured. Fashion styles are compared using two projectors simultaneously showing slides of a historic original and a contemporary version while an informative script provides the background and explanation.

The slide program shows the impact that historic costume has on contemporary fashion and makes the study of costume history relevant and exciting for the modern apparel and merchandising student. The following course objectives are supported by the presentation: 1) to understand that fashion styles are cyclic in nature, 2) to show that 20th century fashion designers are influenced by historic styles, 3) to develop a keener sense of fashion observation, 4) to observe clues from fashion's movement that may indicate future trends.

The slide presentation is useful as an introduction to History of Costume class or later in the course progression when students have become familiar with the historic time periods presented. Student begins to understand that an historical perspective of apparel can provide a basis upon which to evaluate, speculate and, possibly, even to predict fashion trends in today's world.

Theory Based Color Coding: An Educational Approach to Personal Color Analysis
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Nancy Ann Rudd, The Ohio State University

After extensive research into, and practical experience with, the field of color coding, it was determined that a need existed for a theory based personal color coding program. As a result, the following program was developed and tested.

Program Objectives: 1) to develop a low cost program that could be used alone or in conjunction with a standardized system of color coding; 2) To emphasize participant understanding of basic color theory over and above the assignment of a particular color coding label; 3) To identify each aspect of the participant's personal coloring according to color content, value, intensity, and color temperature; and 4) To identify an optimum range of clothing colors for each participant.

Program Content: 1) Discussion of how color works with the elements of line, texture, and shape to create an over-all visual portrait; 2) Review of basic color harmony rules using a color wheel to illustrate; 3) Review of color dimensions (hue, value, intensity, temperature); 4) Determination of color content of skin, hair, and eyes by mixing water colors or by matching skin, hair, and eye colors to pre-mixed sample cards; 5) Determination of qualities of personal coloring that should be maximized and qualities that should be minimized (such as sallow skin tones); 6) Use of a value scale to determine amount of contrast created by combined skin, hair, and eye colors; 7) Use of an intensity scale to determine level of intensity of personal coloring; 8) Use of a color temperature scale to determine relative warmth or coolness of skin, hair, and eye colors; and 9) Determination of an optimum color range through
actual color testing using twenty-eight "color boards". (Each board contains color samples which represent a range of a specific color. For example, the "red" board ranges from warmest, red orange, to coolest, red purple. By passing the board below the participant's face, a determination can be made about the range of reds that harmonizes best with personal coloring. This optimum range is noted in the participant's workbook and on her individual color packet.) 10) Use of additional color boards to test the effect of various value and intensity groupings.

Merits of This Program: 1) Low cost; 2) Easily administered; 3) Emphasizes understanding of basic color theory; 4) Offers more individualized analysis than most standardized color coding programs; 5) Highly flexible (i.e. - can be adapted for individual or group use; can be used for a wide range of ages; can be used in a classroom, or for private consultations; can be adapted for use with men; and can be used independently or in conjunction with a standardized color coding program).

Suggestions for Program Supplementation: 1) Use of printed fabric drapes to determine optimum choices for motif, scale, muted versus bold, etc.; 2) Discussion of wardrobe planning and the use of the capsule concept to create a unified wardrobe; and 3) Combination of this color coding program with a figure analysis and style selection program that shows the participant how the elements of color, line, texture, and shape can be used to enhance the figure.

Projecting Image Impact Through Clothing
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Research studies indicate that the appearance of an individual is a form of non-verbal communication and influences the impression one makes on other people. Clothing choices reflect self image and self concept. As each individual is a complex personality and engages in many activities, clothing for differing moods and occasions is almost a necessity.

Each year many individuals request direction in analyzing lifestyles and clothing behavior in order to project a desired self image. Wise buymanship becomes essential as the cost of clothing continues to increase and as appropriate apparel choices fluctuate.

A video tape series "Projecting Image Impact Through Clothing" was developed to assist persons of various ages, lifestyles, and careers in learning how to save time and money by coordinating wardrobe of compatible color separates. The series consists of four 10-15 minute video tapes that follow a mythical family of four individuals through the processes of wardrobe analysis. The introductory tape "Individual Image Impact: Clothing; discusses 1) individual characteristics to consider such as personality, body type, coloring, 2) personal lifestyle activities, 3) inventory and organization of current wardrobe, and 4) development of a wardrobe plan. Three additional tapes focus on the details of wardrobe planning for women, for men, and for youth.

The four video tapes can be shown in sequence at one time or presented separately. The method of presentation depends on the type and
size of audience and the amount of time allowed for the program. Printed materials supporting the video tapes include: "Your Personal Wardrobe Plan," two "Color Clothing Charts" (men/women), "Wardrobe Tips" (men, women), Individual Color Key Cards, Wardrobe Inventory and Shopping Plan, Wardrobe Planning for Lifestyle Form.

This innovative teaching resource was developed jointly by Cooperative Extension and teaching faculty to be used for extension programs, campus classes, and community presentations. College and high school youth in occupational training programs, and community people preparing to enter the working world could benefit from these tapes by learning how to: 1) inventory and organize a clothes closet; 2) choose complimentary personal colors and conquer figure problems; and 3) select new additions to their wardrobes that harmonize with personality and lifestyle. Teachers, extension personnel, home economists, and business employees could use the video tapes and supporting materials for programs, courses, or workshops related to projecting an image impact.

Use of Undergraduate Research Projects in a Clothing Course Serving as Both a Required Home Economics Core Course and An Elective University Sociological Course
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One concern for core or general education courses is that the content is relevant to every student. Students enjoy and learn more if their personal needs are met. A format has been developed for individual projects in a home economics clothing core course that also serves as an elective course fulfilling sociological requirements for all university students. Projects introduce undergraduate students to research in clothing, textiles, and merchandising and them give them the opportunity to apply clothing concepts to their majors or life interests. Examples of project application to various majors include a foods and nutrition major that researched history of dietitians' clothing, a consumer science major that studied impact of imported clothing on consumers and the clothing industry, an education major that developed teaching aids to use in teaching clothing to high school students, and a hospital employee who surveyed physicians, nurses, and patients regarding fashion therapy.

Primary in-class uses of projects are to relate clothing to individual students' courses of study and to introduce research and research methods to undergraduate students. Many of the 600 projects have gone beyond the classroom. These include research poster presentations at the state home economics association annual meeting; the beginnings of a book on Indian clothing; a 4-H pamphlet on clothing for television appearances; a girl scout brochure on clothing for camping/hiking activities; a pictoral description scrapbook on functional uses of football uniforms; and clothing designed, sewn, and presented to individuals with specific physical handicaps. One student even sold her project to a major corporation.

To comply with accreditation requirements, core courses are somewhat of a necessity and attracting non-major students is advantageous for enrollment numbers as well as for recruitment. Whenever a successful
learning activity has been implemented that integrates a student's major or life interest with class material being presented it is useful to other teachers attempting to get and give the most in a classroom. Introducing research at the undergraduate level is also a merit of this activity. It is designed to help students become better consumers of research and to be aware of emphases of graduate study.

A Computer Model for Estimating Clothing Insulation
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A computer-based mathematical model for calculating body heat loss and clothing insulation was developed and verified using data from 60 clothing ensembles. The mode is based on straight-forward heat transfer relationships. It divides the body into 12 subsegments, with symmetrical halves of the body being treated as one segment (i.e., both thighs are one segment). Each segment can be further divided into subsegments if necessary, so that each segment consists of a part of the body surface that is at a uniform temperature and is uniformly clothed.

Skin surface area covered by a given subsegment is determined by inspection of a person or display mannequin dressed in the ensemble and in each of the component garments. Boundaries of each of the 12 major segments should be marked on the body. The area of these segments should be measured, and the fraction of each segment covered by a uniform set of fabric layers is estimated.

Fabric thicknesses are measured according to ASTM D 1777 using a 3 inch diameter presser foot and a 0.01 psi pressure. Where this is not possible (e.g., shoes), thicknesses are estimated using a micrometer. Air layer thicknesses are determined by measuring clothing circumferences at different locations on the body for successive layers of clothing in an ensemble.

All of these data are recorded on a sheet for input into the computer. The program is "user friendly" and makes data input simple. Other variables (i.e., skin temperature of each body segment, thermal conductivity of air, linearized radiation coefficient, etc.) are incorporated into the computer program.

The model is theoretically sound, and it gives predictions that are reasonably accurate (SD = 0.09 clo when predicted values were compared to those measured on a thermal mannequin). It can be used not only to estimate overall insulation, but also to give a valid indication of how specific changes will affect the insulation. For example, mannequin data show that adding a vest to a typical suit ensemble does not significantly increase the total insulation value. The model generates the same result since the chest and back body segments are already well insulated without the vest. Likewise, data show that adding a hat to a relatively warm ensemble has a major effect on the clo value. The model gives the same prediction also. Since the body is well insulated, much of the heat loss is from the head, and the hat blocks this loss. Simple regression equations and summation formulas cannot accurately simulate these types of changes.
This computer model was used as a teaching exercise. Specifically, students were given a clothing ensemble and asked to estimate its insulation value using a variety of methods (of which the model was the most complex and accurate). This model has been used in developing protective clothing systems. Specifically, computer simulations of different versions of the ensemble were conducted to see how the clo value would change (without actually constructing new garments).

The model can be very useful to researchers and apparel designers who want to predict how changes in the composition of an ensemble with respect to garment design, fit, or fabric thickness (i.e., insulation) can affect the insulation provided by the ensemble. It can also provide a learning experience for students in the classroom and increase their understanding of principles which affect clothing insulation and computer use.

Clothing Safety Resources for Farm Extension Audiences
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Each year family members are injured in farm accidents or develop health problems that are occupationally related. Recent research has shown that clothing can either cause accidents, help minimize the injuries, or prevent the accidents. For these reasons, Extension has provided information about clothing safety to help farm families become alert to common hazards and to suggest ways that clothing can be managed to avoid injury or other health problems.

Two clothing safety teaching resources developed and introduced in 1984 were: 1) Clothing Safety on the Farm, a slide-tape presentation, and 2) Preventing Farm Accidents, five 90-second video spots. Clothing Safety on the Farm is a slide-audio cassette that focuses on the strength of farm clothing and the ways clothing can get entangled in moving parts of farm equipment. Suggestions of ways to avoid clothing entanglement are given. Common hazards such as excess heat or fire and excess noise are discussed. Preventing Farm Accidents is a series of five 90-second spot video tapes. The five topics discussed are: fabric strength, managing clothes to avoid entanglement, the importance of guards and shields on farm machinery, hearing protection, and respiratory protection (respirators and face masks).

A short preliminary version of the slide set was used in a caramate as part of a larger exhibit at the Farm Progress Show in Iowa in 1983. Many families watched this 20 slide show. Many farmers told exhibit hosts about accidents friends, relatives, or they themselves had been involved in.

After the Farm Progress Show, a longer script was prepared and reviewed by Extension Agricultural Safety Engineers. Information about management of clothing for safety and use of protective gear for pesticide application was added so the program now includes 43 slides.

During 1984, the slide set was used 30 times and reached 638 people. Since then local staff have had easy access to it through Extension Area Offices. It has been used for both adult and older 4-H audiences,
although no children are shown in the slides. Some Extension Home Economists have used the slides in programs conducted with Agriculturalists. Field staff try to involve audiences in further discussion of other safety concerns and ideas after the show is presented.

The five 90-second video spots were taped in September, 1984 to fit into the local programming segment of Good Morning America for broadcast on WOI, the ABC network affiliate station. After their initial use, these tapes were circulated to five other Iowa television stations for broadcast. Both the slides and television spots are appropriate for both male and female audiences. They could be used in some undergraduate functional clothing classes to increase student awareness of clothing problems in a farm setting. Also, they might stimulate thinking in a design class where the emphasis is on functional rather than aesthetic design.

Four other states purchased the slide set after it was mentioned in Network, the North Central Region Extension textiles and clothing specialists' newsletter. The slide-tape presentation takes about twenty minutes. Each video spot is 90 seconds in length. All can be viewed in about 7.5 minutes.

In reaching farm audiences with clothing safety information, it is important to work in cooperation with personnel in agriculture. Their expertise and understanding of equipment and other hazards is necessary to the development of meaningful clothing safety resources for reaching farm audiences.


The Use of Photography in the Evaluation of Fabric Properties
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Students in textile courses often do not understand the effect of fiber content, yarn type and size, and weave structure on fabric properties. When similar fabric properties are examined in the laboratory setting, quantitative methods are typically employed, i.e., how many pounds force are required to propagate a tear. Quantitative methods give an overall measurement of fabric properties, but the contribution of various fabric parameters to this overall measurement is often not apparent to students. To address this problem, a research project was undertaken in which students were required to closely examine fabric structures in addition to performing physical tests.

The project was developed for and funded by the "Cameras in the Curriculum" program, which is sponsored by the National Education Association and Kodak. This program is designed to help faculty develop instructional techniques that use still photography as an integral part of education. NEA state affiliates conducted an initial screening of proposals from their respective states and forwarded the most promising ones to NEA. A national panel of judges then chose 150 award winners (20 at the post-secondary level). The winners received grants of $200 with
which to implement the projects. A period of approximately four months was allowed to implement projects and submit a final report to NEA.

Use of Retail Financial Planning Software in Merchandising Classes
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An integral part of textiles and clothing merchandising coursework should be exposure to numerical aspects of retailing through study of inventory planning and control. While most merchandising students typically take some combination of classes in merchandising, retailing, accounting, and computer science, few students get the opportunity to tie key concepts from these courses together. The microcomputer is a practical medium for this purpose, not only to provide this linkage, but to acquaint the student with software designed for practical business application.

The Financial Planning Software is designed for retail managers. It uses retail terminology, presumes little or no previous computer experience, and does not require accounting expertise. The program enables users to create an income statement, cash flow budget, balance sheet with ratio analysis, and open-to-buy plan for a business in total as well as each of its departments, divisions, or other component parts. Application of this program to classroom use requires 1) the program diskette, 2) microcomputer with at least one disk drive, display screen, and 80-column printer, 3) one blank disk, and (4) a guide to use of the program in conjunction with the requirements of each assignment.

Assignments developed initially for our TC 376 Merchandising Planning and Control class are "Analysis of P&L in a Retail Store" (critical thinking assignment) and "Creation of the OTR Plan for a Retail Company" (term project). Objectives of these assignments are: 1) to show understanding of concepts discussed in several courses (i.e., initial markup, maintained markup, gross margin, turnover, open-to-buy), 2) to integrate numbers with customer and merchandise issues, 3) to analyze businesses "from the numbers," 4) to compare alternative strategies, and 5) to use a microcomputer and actual packaged software "hands on." Additional use of this program for special projects and independent study possibilities is anticipated, particularly for more advanced students.

Many faculty have limited computer programming expertise, but wish to move their classes into computer usage nevertheless. Some of us have experimented with having programs written to supplement our coursework and have found mainframe programs awkward, costly, and annoying to maintain. A packaged program for microcomputer designed by retail and computer experts appears to provide a more cost-efficient alternative. With increasing microcomputer access and usage for most students, we anticipate this investment will allow us to focus our efforts on developing assignments around this and other packaged software rather than on writing programs. Sharing success (and failures) with computer software should be a part of the exchange among educators just as we currently share information about textbooks and other teaching materials.
In recent years a number of books and articles have appeared proposing or opposing an industrial policy for the United States. It is clear that the enactment of an industrial policy (including the failure to change existing government policies) will affect economic, political, social and technological sectors of the U.S. economy as well as impacting significantly upon the textile and apparel industries.

Proponents of a comprehensive industrial policy generally subscribe to the view(s) that: 1) the U.S. manufacturing sector is in decline and the nation is "deindustrializing"; and/or 2) Management and labor are unable to make the transition from existing to high technology industries without some form of assistance; and/or 3) the U.S. has lost, or is rapidly losing, the ability to compete internationally with industrial nations; and/or 4) Industrial policies have worked for other countries, most notably Japan. Opponents of an industrial policy argue that there is no need for such a policy, that evidence does not support the view that the U.S. is deindustrializing, and that attempts by the government to further intervene would impede the necessary transition by management and labor from older to newer technologies and industries.

The pattern over the past thirty years has been for the major nations of the world to progressively shift trade and investment policies toward specific industry sectors such as textiles and apparel rather than toward industrialization of the economy as a whole. In recent years such sector-specific support policies have been employed by a number of countries, particularly industrialized nations, which has led toward a new protectionism. Such protectionism has promoted the adoption of policies that support growth industries (winners), maintain mature industries, and protect or ease the adjustment of declining sectors (losers). Such is the setting for the textiles and apparel in the U.S.

The textiles and apparel complex of the United States is the single largest employment sector of the manufacturing economy, employing almost 2,000,000 white and blue collar workers in over 28,000 plants. This level of employment constitutes about 10% of total manufacturing employment in the United States. Product shipments of textiles and apparel make up 6% of total dollar value of manufacturing output in the U.S. This level of output is comparable to that of the automobile industry and twice that of the steel industry.

Given the economic and political importance of textiles and apparel to the U.S. economy the Federal Government, primarily under the MFA, has provided measures of protection from imports of textiles and apparel. Despite restrictions, U.S. imports of textiles and apparel grew, by conservative estimates, from 6.3% of domestic consumption in 1960 to 12.1% in 1980 to 20.8% in 1984. The compound rate of growth of textile and apparel imports has been about 19% since 1981, despite high barriers.

This paper suggests that the time may have come for a comprehensive industrial policy for the United States, or at least a more comprehensive and manageable policy for textiles and apparel. A gradual reduction in trade barriers may well be the appropriate path to follow.
Cross-cultural perspectives in the textiles and clothing curriculum were supported by relating global concerns to textile and clothing production and use. Three curriculum justifications (Pratt, 1980): 1) knowledge has intrinsic value; 2) learning trains the mind; and 3) education enhances employment were related to ten future global concerns (M'Bow, 1983): 1) one world concept; 2) disparities and inequalities within/across societies; 3) interdependence of the international economic system; 4) peace and the arms race; 5) human rights; 6) environment and natural resources; 7) communication between people and society; 9) cultural identity; and 10) changes in cultural values and standards.

The intrinsic value of knowledge was supported by the concept of native intelligence. Technological advancement was related to cultural identities, distinctive behaviors, and traditional textile and clothing production. Dress patterns were related to communication of cultural identities, values, and standards, and human rights.

Learning through cross-cultural comparison aids in understanding the evolution of a particular society in response to internal and external influences. Changing dress patterns were related to the effect of western influences on maintaining peace, disparities within societies, changes in values and standards, and the effect of consumption patterns on environmental and natural resources.

The need for textile and clothing students who are globally literate will be greater in the future as retail businesses become more international in perspective, imported goods continue to be a part of the American marketplace, and American manufacturers continue to do production overseas and expand their international divisions. Technological development in third world nations, cross-cultural communication, interdependence of the international economic system, and a one world concept were related to future career needs.


The role that clothing plays in the occupational setting has interested researchers since the early 1900's. Although lifestyles and dress styles have changed over the decades, this topic still commands the attention of both research and lay audiences. The purpose of this paper is to trace the development of research on career appearance. The specific focus will be the programmatic research directed by Dr. Eleanor Kelley and supported by the Louisiana Agricultural Experiment Station since the early 1970's.

Initial exploratory research on career appearance was concerned with clothing perceptions of working-class adolescents who aspired to white-collar occupations. They recognized clothing to be a practical, functional item that could be manipulated to create impressions and to influence others. These results implied that the ability to "put up a good front" was especially crucial for upwardly mobile teenagers who did not have white-collar behavioral models in the home. It served as the foundation for research leading to career appearance education.

Three studies were conducted in which hiring agents, executive secretaries and recently employed business college graduates were interviewed. These respondents recognized appearance to be an important factor in creating favorable impressions on employers during the interview and on the public during the daily work routine. Results from these phases were used to develop a career appearance training unit. Instruction was given to women from working class families who were preparing for white-collar office positions at a local business school. Those who received career appearance education scored higher on post-test measures, and showed greater improvement than those who did not.

A subsequent research project focused on the importance of career appearance in job acquisition, retention, and promotion. Responses to open-ended questions in earlier studies were used to develop Likert items to measure career appearance perceptions of university students and campus recruiters. Overall, students and recruiters had favorable attitudes toward career appearance, and viewed it as a component of performance evaluation and personnel decisions regarding the promotion and retention of employees. They agreed that appearance positively influences an individual's effectiveness, and that extreme styles are unacceptable business attire. Further analyses indicated that greater emphasis should be placed on social roles and situations to understand clothing perceptions.

Research on multiple role dressing, currently in progress, is in keeping with our ever changing society, and is especially relevant to the area of occupational appearance. Many of us have included various aspects of appearance and occupation in our research designs, and have focused special attention on clothing for women in managerial positions. This attention as well as that from contemporary media and literature is a reflection of our changing societal trends.
Designs for the Future: The Changing World of Functional Apparel
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With the environmental and technological changes that are projected for society as a whole, one can anticipate a number of areas where functional clothing design will experience dramatic changes.

In the future, we will undoubtedly be exploring new environments. NASA is planning now for a space station in the 1990's and space colonies are no longer considered a far-fetched idea. Many individuals in the space station crews will not be career astronauts and may struggle psychologically with changes due to isolation and physically with the zero-gravity environment. Developing garments that provide for the hazards of living in outer space and serve as career clothing for space station crews will provide many challenges for both functional and fashion designers.

New environmental hazards and the development of new materials will affect the functional designs of the future. New discoveries in the medical and holistic health fields will also provide inspiration for clothing development. Garments that ease pain, adjust to temperature changes in the environment, improve the mood of the wearer and prevent rather than protect after serious injury will become more commonplace. At the same time, more attention will be paid to the health hazards of everyday clothing as continued emphasis is placed on health and fitness in our society.

Perhaps the most exciting and rapidly changing developments that will affect the field of functional clothing are in the area of new technological developments. Heat sealing, molding and other non-sewing production methods for apparel could change the way garments are made and allow designers to create garment forms never before possible. Spray-on clothing and computerized body scans may lead to better fitting techniques, improving the protective capacity of many apparel items. Other new developments may make it possible to design items as diverse as garments that envelope a falling skier to prevent injury, neutralize the common cold virus, prod the body toward correct posture, or sense and massage a tense muscle.

Dual-Career Families and Clothing Management
Marilyn B. Stryker, Kansas State University, Manhattan, KS 66506

Dual-career couples face challenges in many areas of their lives, especially as they attempt to mesh individual career cycles with family roles and the day-to-day management of their home. The dual-income family, as presently structured and supported, experiences certain consequences which lead to role overload for employed wives. The management of clothing is one component of a variety of household tasks that is managed within the family. Clothing management tasks consist of a series of decisions about using family resources to meet family clothing needs and includes all the activities and components of clothing planning, buying, maintenance, and discard.
Clothing tasks are fragmented and complex requiring skills of integration. To carry out clothing tasks effectively requires being attuned to changing needs and wants of family members who differ in age and gender, and who are themselves constantly growing and changing. Routine procedures for clothing tasks and processes are difficult if not impossible to reduce to a regular or simple procedure. It takes skill to juggle these many components. Good clothing management helps contribute to harmonious effective family living.

The purpose of this study was to survey clothing management tasks in relation to the degree of stress and role overload perceived by wives in dual-income families as they meet family clothing needs. The sample was composed of 523 married female faculty and staff employees of Kansas State University who were between the ages of 25 and 50. The sample was divided into four groups: (1) dual-work families with children, (2) dual-career families with children, (3) dual-work families with no children, and (4) dual-career families with no children.

A survey approach was used and data were collected with a written questionnaire. The Clothing Management Survey was composed of three parts: (1) demographic information, (2) clothing management tasks, and (3) a role overload scale. Seven hypotheses were tested using analysis of variances, Fisher's Least Significant Differences (LSD), the Scheffe procedure and t-tests.

The findings of this study indicated significant differences among the four groups in reasons for the wives' employment. Significant differences were also found in who performed clothing tasks, how often the task was performed, and the level of conflict between wife, husband and/or children in performing tasks as perceived by the wives of these families. There was significant differences among the four family types in the wives perceived degree of stress on various clothing related situations, as well as how important these situations were to the wife. There were also significant differences among the four family types in the amount of role overload felt by the wives of these families.

Apparel Merchandising: Challenges in a Changing Environment
Dee M. Wellan, Louisiana State University, Baton Rouge, LA 70803

In apparel merchandising, change is not a new nor an abstract concept. Change has been, and it continues to be, an important factor in the merchandising of apparel. As it occurs in apparel merchandising, change is challenging and exciting because of the opportunities it presents. It can also seem threatening and uncomfortable; something to be endured and to survive. Merely surviving the inevitable changes which take place is not enough. To survive change we must adapt; to succeed we must not only adapt, we must master change through effective management techniques.

The pervasiveness of change in apparel merchandising can be illustrated in the demographic changes which profoundly affect all areas of society. Demographic changes directly or indirectly affect the merchandising of apparel and telecommunications now make it possible for political, economic, and social trends to sweep the globe, not just the
nation. Because of the global impact of change, research studies concerned with these trends must reflect an international approach. In our modern technological world, the pace of change is also accelerating. The challenge of change acceleration will be to monitor data more closely and to revise projections more frequently so that accuracy of forecasts can be increased. Another noticeable aspect of contemporary change in apparel merchandising is contrariety. Some trends are diametrically opposed to each other, others follow a less dramatic path but they proceed in different directions nevertheless. If the contrariety of trends does not complicate research, we can be sure that the interaction of the various aspects of the contemporary change-process will.

The overall theme in the New York Times education supplement of August 18, 1985 was "a changing world for professors." The prediction was that jobs would increase in an era of expansion for academic employment. The challenge will be to attract scholars to the increased number of academic positions which may well be adjunct or nontenure-tract. Problems arise since the adjunct approach reduces faculty available to carry on the research in academia. Faculties are also caught in the cross fire of conflicting signals about what they should be doing. Quality of teaching is important to professors, yet many feel that research matters most when they are evaluated for promotion and tenure. Complicating efforts at faculty recruitment is a widespread feeling that the rewards of being a faculty member are diminishing on many campuses. This feeling and the lure of jobs outside the academic world seem to hold a potential for lowering the quality of new professors and creating a drain of experienced teachers and researchers.

The changes mentioned in this paper challenge researchers to develop a basic research strategy; however, well defined management plans and strategies require knowledge based on replication and empirical generalizations. The basic strategy becomes one of replication; but replication is a rare phenomenon in apparel merchandising. Another suggestion for improving research in the area is "active-networking." As used here, the networking concept offers researchers the opportunity to actively work together to design and carry out research projects. The fundamental challenge is to take advantage of the opportunities offered by change. These opportunities should stimulate researchers to develop strategies and effective management plans which will produce generalizable results and make possible sound scientific theory in apparel merchandising.

According to the Artists: Changing Trends and Influences in Fashion Illustration
Donna Danielson, Iowa State University, Ames, IA 50011

An informal letter-writing project begun in the late 1960s to enrich the classroom teaching of fashion illustration has continued to the present day with the additional purpose of compensating for the limited literature about contemporary fashion illustrators.

Individualized letters were sent to illustrators providing fashion art for well-known stores, designers, publications, and other firms primarily in New York. The artists were asked to respond to two pages of
open-ended questions about their careers and other fashion illustration topics. Fifty-five artists have replied in written form. One of the questions sought their opinions about the trend to a dominance of photography over fashion illustration in editorial portions of "slick" fashion magazines such as Vogue and Harper's Bazaar. Another question asked the artists to identify additional trends and influences they noted at the time they were contacted. The quantity and time-span of the combined responses have produced a chronological overview of fashion illustration trends and influences from the late 1960s to the present.

In the late 1960s several artists noted a lull in trends and illustrator recognition since the deaths of fashion illustrators Carl Erickson and Rene Robert Bouche. Other artists cited the influence of the Space Age; past art movements such as Art Nouveau and Art Deco; current art movements such as Op art and Pop art; and some commented on the advent of less realism.

From 1970 to 1975 fashion illustration was often assessed negatively and characterized as having lost direction. Artists referred to a trend to reflect a variety of earlier time periods in fashion art and cited as examples every decade beginning with 1910 through the 1960s. Several artists noted an emphasis on a more natural look in the female fashion image and some reflection of current social climate.

The changing role of women was often mentioned as an influential factor in fashion art in the period from 1975 to 1980 as was the tendency to individualism. Allied to those trends were the mentions of a greater variety of drawing styles. Several artists during the 1970s said they made a particular effort not to be influenced by trends.

The 1980s produced increasing realism particularly as initiated and influenced by the artist Stavrinos and his many imitators. Some artists linked the trend of extreme realism to the competition from photography and increased consumer preference for that form of visualization. However, the most recent respondents have indicated the detection of some movement away from the theme of realism. A few artists noted some increase in receptivity to fashion art by fashion editors. Antonio Lopez and Mats Gustavson were acknowledged for their talent, innovation, and potential to generate new trends and lead a resurgence in fashion illustration.

What is History of Costume?
Cynthia R. Jasper, University of Wisconsin, Madison, WI 53706
Mary Ellen Roach-Higgins, University of Wisconsin-Madison

Members of ACPTC have discussed issues regarding history of costume, such as "What shall we include in courses dealing with this topic?" and how do we make history of costume relevant to the needs of our students, especially the undergraduates? These questions are difficult to answer because the concept, history of costume, is so broad in its scope. Conceivably it includes all costume for all people throughout history. Because this topic is so encompassing, we have to find ways to manage it. However, to a certain extent, events have limited the subject for us.
First, our record of the history of costume is incomplete. Much of the history of costume has never been recorded, and a great deal of that which has been recorded has been destroyed or lost. Related to the problem of incompleteness is language. If costume history is not written in English, many of us are not going to know much about it. A third reason why our information is limited is that biases, some of which may have been intentional, have crept into the way history has been recorded.

Despite these limitations, teachers of costume history, must try to organize extant historical information in a logical way. This means dealing with the problems we have outlined and deciding what is the best approach to this complex topic. Over the years people have handled courses in various ways. One approach is the picture show, based on books of pictures and written descriptions, where the plan is to attach the right name and description to a picture. The problem is that the naming and describing types of dress is of little importance - if we believe education is to promote understanding of matters as versus rote learning. Really learning something means going a step further to the level of interpretation. Thus, we must be concerned with the interesting, but difficult, questions that answer how costume links with the complex interactions among people.

Early in this century Wilfred Webb saw the need to go beyond the picture show to some structured way of analyzing historic data on dress. Webb (1912) emphasized that he wanted people to stop gathering facts for the sake of the gathering, and to move toward interpretation. As we commit ourselves to courses that go beyond the descriptive to the interpretive, we also must broaden our focus, for we have tended to emphasize "Western" at the expense of "non-Western" costume. Students must acquire a global view of costume and be aware of the numerous traditions in dress of which Western dress is but one. In courses with a "Western" focus we can limit Webb's title The Heritage of Dress to the Heritage of "American" Dress, but we must remember to include international influences. In this way we can convey a global perspective to our students.


Dressing as Means of Communication: A Case Study of Minnesota Quilters

Catherine A. Cerny, University of Minnesota, St. Paul, MN 55108

The purpose of this research is to extend the notion of semiotic mediation to the examination of dress as communication. Semiotic theory assumes that culture is the locus of meaning. Csikszentmihalyi and Rochberg-Halton (1981) note that meaning involves an ongoing "transaction" of the person with objects, with other persons, and with the environment.

The Minnesota Quilters, Inc. organization and its membership were the subjects of this case study. Fieldwork was conducted over a 12 month period, between October 1984 and September 1985. Data collection methods
included participant observation, unstructured interviews, and survey questionnaire. Observations were made at general membership meetings, workshops, quilt shows, and other locales where Minnesota Quilters' events occurred. Data focused on the discourse and activities occurring within the context of the organization and the experiences of particular members. The objective was to uncover the common conceptual world that structured and gave meaning to the quilters' perceptions.

Minnesota Quilters' conception of "quilt tradition" best equates as the "symbol system." Knowledge of this tradition, once learned, serves as the integrated set of meanings that directs and makes relevant the quilters' fabrication and use of the quilt object. Each quilter implements her creativity through some mix of traditional and contemporary modes of expression, as defined by the quilters' "symbol system." Her actions, the products of her action, and the discourse concerning both actions and products contribute to the designation of identity.

The quilted patchwork garment, one product of the quilter's activity, is a multivocal symbol. It is an individual creation of meaning to be understood from the perspective of the shared "symbol system." Form and use of the garment correlate to meaning. Applied as the definition and expression of identity, the quilted patchwork garment mediates the quilter's experiences. Through its use as adornment (personal or professional), gift, commodity, and/or artistic object, the quilter makes a statement about her self. This statement can be situated along traditional and contemporary coordinates: With the more traditional design and use as personal adornment or gift, the item remains within the family setting and reinforces her identity as homemaker. Through its more contemporary application as commodity or artistic object, the garment becomes a public object. Its maker gains validation in the world beyond the family.

Association of College Professors of Textiles and Clothing

Minutes of Central Region Business Meeting

Ames, Iowa
October 25, 1985

I. The meeting was called to order at 12:41 pm by the president, Hilda Buckley, at the Scheman Center, Iowa State University. President Buckley commented on how well the conference was going.

A. Introduction of 1985 officers and council members:
President-elect, J. DeJonge, University of Tennessee; Past-president, Marilyn Delong, University of Minnesota; Secretary, H. Bastow-Shoop, North Dakota State University; Treasurer, Mary Frances Drake, University of Tennessee; Council members, Ann Stemm, Illinois State University; J. J. DeJonge, University of Tennessee; L. Richards, Ohio State University; National Executive Board members, E. Meacham, Ohio State University; and P. Horridge, Texas Tech University.

B. President's remarks: H. Buckley commented on each of the items in the program of work she presented at the onset of her term of office in October, 1984.

1) Implementation of futures plans. Buckley updated the membership on its progress and asked them to support the 1986 president as she further facilitates the implementation of the plans.

2) Mission of Central Region ACPTC. She shared the newly drafted mission statement of National ACPTC and recommended that the 1986 Bylaws and Handbook committee of our region consider it for inclusion in our documents and that it be considered by program committees when planning future conferences.

3) Strengthening the scholarly work of ACPTC-CR members. More opportunities for sharing of such information have been included in the 1985 program.

4) Improvement in administration of publications. CR input is assisting this on the national level.

5) Implementation of the CR membership survey. Data obtained from the survey includes members' interests in serving on committees and offices, and interest in specific subject matter sessions. The addition of three new council members-at-large to a total of six will facilitate use of more members interested in serving.

6) Communication among ACPTC members. Many have called and written with ideas which will be looked at and implemented by the Council. Buckley encouraged the continued
sharing of ideas and interaction with new people.

II. The minutes of the 1985 Mid-winter Meeting were distributed by H. Bastow-Shoop, secretary. Motion was made by M. DeLong to accept minutes. Seconded by A. Beard. Minutes were accepted.

III. The Treasurer's Report was distributed by M. F. Drake, treasurer. Motion was made to accept the treasurer's report by A. Stemm and seconded by E. McCullough. Motion passed.

IV. Reports of 1985 Conference Committee Chairs:

A. Nominating, M. DeLong announced the newly elected officers: K. Dickerson, president-elect; S. Douglas, treasurer, L. Jolly and S. Butler, council members; J. Laughlin, national executive board, I. Ford, alternate, national executive board.

B. Membership, S. Douglas' report was given by S. Sontag. A survey was administered to CR members to determine their interests. The committee recommended that a membership drive be undertaken in 1986 using the data obtained from the 1985 survey.

C. Bylaws and Handbook, R. Marshall reported that all five bylaw changes were approved. Most changes were of an editorial nature. The most significant change was to increase council members from three to six.

D. Fellowship, D. Munson. Applications were mailed to five candidates. Deadlines which apply to the fellowship are as follows: Mail application by May 1, recommendation by May 5, notify winner June 7, accept or reject fellowship June 28. Raychel Pannebecker from Ohio State University won this year's fellowship.

V. Other Reports:

A. 1985 Conference, B. Feather acknowledged those people who helped with this year's conference. She was very pleased everyone was so willing to help with the conference and appreciated Iowa State hosting the conference.

Feather recognized two people who have made major contributions to the 1985 ACPTC program, J. Laughlin and K. Dickerson, and thanked them for their presentations. She presented them with paisley posters as a show of appreciation for their efforts.

B. National ACPTC Activities, M. DeLong reported on the restructuring of the organization beginning with the first futures meeting held in Minneapolis in April of 1983 and concluding with the most recent meeting held in April, 1985 in Millegeville, Ga.

1) The issue of restructuring the organization was
discussed. Western and Eastern Regions are interested in the nationalization of the organization. J. DeJonge spoke in support of nationalization and made a motion that ACPTC-CR supports the concept of nationalization and the formation of a national committee to examine the organizational structure for presentation to the membership at the 1986 meeting. Motion seconded by S. Friend. The motion passed unanimously.

2) National is also looking at membership requirements with the possibility of expanding membership.

C. National Executive Board, E. Meacham reported that the national executive board was discussing the possibility of allowing members to remain active after retirement, especially with early retirement. This will be put into bylaws changes.

Only 185 ballots were returned last spring. There are over 300 members in CR; more members need to return ballots so a quorum can be obtained.

D. ASTM Representative, R. Franzen presented her report.
(attached)

E. Research Reporting, G. Winakor reported she had received 55 abstracts; 52 of these were reviewed by the four committee members. Three abstracts were not correctly submitted. Twenty abstracts were accepted for presentation, 14 were presented orally and six were poster sessions.

Comments: Becoming a national organization may cut down on the number of presentations possible because of time limitations.

F. Newsletter, D. Behling reported there has been a change in newsletter content and name. The membership will receive three newsletters a year. Send news items to D. Behling to be included in the next issue.

VI. Old Business:

A. 1986 National Conference, P. Horridge reported the next national meeting will be in Houston, Tx. October 22-25 at the Weston Hotel, in the Galleria Shopping Center. Heidi Toffler will be the keynote speaker. Two preconference tours will be given: Nasa- Clothing and Textiles in space and living in space, and City/Bayou Bend. There will be three post-conference workshops, (1) grantsmanship, (2) theoretical development and (3) international perspectives. There will be three invited papers presented on futures topics. Special interest groups will be included.

Transportation was discussed. Fly to Hobby and Houston.
hotel. There is good shuttle service--45 minutes. Welcome to Texas in 1986.

Sharla Jean Houskin from the University of Kentucky gave a presentation, Fiber Art Exhibit, to announce the third national fiber arts exhibit to be held in Houston. She encouraged students and faculty to submit entries to the juried art exhibit.

B. 1987 CR Conference, Detroit, MI, J. Hooper reported that so far there is no program detailing but did extend an invitation to come to Detroit in 1987.

C. 1988 CR Conference, Manhattan, KS, M. D. Peterson extended an invitation to hold the 1988 conference in Manhattan, October 27-29. It will begin October 26 at the Holidome in Manhattan, KS.

VII. New Business:

A. Future Conference Sites, H. Buckley announced that in 1989 a national conference will be held in Atlanta, GA.

B. 1986 Program of Work, D. DeJonge reported that S. Douglas resigned as treasurer as she will be on leave during the major portion of her term. E. McCullough will take her place.

J. DeJonge, president-elect, presented her program of work:

1) Assist in communicating the ACPTC Mission, Futures Focussed Mission Statements and Plan of Action to the membership.

2) Facilitate the implementation of action steps defined by the ACPTC Futures Committee.

3) Encourage participation in a networking and mentoring system through a computer based retrieval program for the national computer data base.

4) Encourage development of position papers on purpose and mission for the 1986 National program to establish a philosophical foundation.

5) Continue the membership survey for new members to add to the pool of members interested in committees, offices, and subject matter.

6) Encourage participation of new and younger members in committees and leadership positions.

7) Encourage the publication of research from refereed journals in industry, business and consumer popular publications for increased visibility of our field.
C. ATMI will again have a tour of textiles mills in the Carolina. The announcement was distributed and members were asked to indicate their interest in participating.

VIII. Closing Remarks/Adjournment, H. Buckley stressed the necessity of contacting S. Hutton with address changes for all ACPTC correspondence.

Adjournment: C. Dyer motioned, seconded by E. Meacham. Adjourned at 2:08 pm

Respectfully submitted

Holly Bastow-Shoop, Secretary

October 25, 1985
Association of College Professors of Textiles and Clothing  
Central Region  

Financial Statement  
November 1, 1984 - October 31, 1985  
Submitted by: Mary Frances Drake, Treasurer

I. General Fund

<table>
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<th>Budgeted</th>
<th>Receipts</th>
<th>Actual</th>
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<td>Balance on hand Nov. 1, 1984</td>
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<td>160.00</td>
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Disbursements

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Balance on hand, October 31, 1985 $ 5,702.96
II. Scholarship and Publications Fund

A. Money Market Certificate
   on deposit Oct. 31, 1984 at 8.80%. $11,719.82

   Deposits
      Interest earned 1,017.20
   $12,737.02

   Disbursements
      Fellowship 1,000.00
      Savings 249.72
   1,249.72
   $11,487.30

B. Savings Account

   Receipts
      Balance on hand 61.78
      Interest on Savings and CD
      Money Market Certificate 197.71
   259.49

ACPTC-CR Membership

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CR Receives

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ACPTC-ER EXECUTIVE COUNCIL
November 1, 1984 - October 31, 1985

President
Carol Warfield, Auburn University
President Elect (1985-86)
Jo Paoletti, University of Maryland
President Elect (1986-87)
Nora MacDonald, West Virginia University
Secretary
Nadine Hackler, Florida Cooperative Extension Service
Treasurer
Suzanne Loker, University of Vermont
Council Member
June Mohler, Winthrop College
ACPTC-ER Representatives to National
Kay Obendorf, Cornell University
Past President
Carol Avery, Florida State University
Archivist
Elizabeth Rhodes, Georgia College
Past President
Judy Flynn, Framingham State College

Committee Chairpersons

Local Arrangements
Linda Welters, University of Rhode Island
Local Arrangements
Barbara Scruggs, University of Rhode Island
Proceedings
Nora MacDonald, West Virginia University
Hospitality
Susan Davis, University of Rhode Island
Evaluation
Charlotte Cross, University of New Hampshire
Research
Kay Obendorf, Cornell University
Graduate Student Research
Susan Hester, Cornell University
Innovative Teaching
Jo Paoletti, University of Maryland
Innovative Careers
Carol Avery, Florida State University
 Slater Mill Exhibition
Judy Flynn, Framingham State College
Public Relations
Nadine Hackler, University of Florida
Membership
Jo Paoletti, University of Maryland
Nominating Committee
Susan Watkins, Cornell University
Newsletter
Janet Wagner, University of Maryland
ACPTC-ER ASTM Representative
Bettie McClaskey, Winthrop College

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Association of College Professors of Textiles & Clothing
1985 Eastern Regional Meeting
Providence, Rhode Island
Biltmore Plaza Hotel
October 30 - November 2, 1985

THEME: Adapting to Change

Wednesday, October 30, 1985

9:00 - 3:30  Tour - Natick US Army Clothing Lab
12:30 - 4:00  Tours - Health Tex and Cranston Print Works
4:30 - 6:00  Executive Board Meeting
7:00 - 9:00  Opening of ACPTC Member Exhibition at Slater Mill Historical Site
            Introduction of Charles Kleibacker as Honorary Member
            Reception sponsored by Monsanto

Thursday, October 31, 1985

7:30 - 10:15  Registration
9:00 - 9:10  Welcome
   Carol Warfield, President ACPTC-ER, Auburn University
   Barbara Brittingham, Dean of College of Human Sciences
   and Services, University of Rhode Island
9:10 - 10:00  The New England Textile Industry and Mass Production
   Patrick Malone, Executive Director, Slater Mill Historical Site
10:00 - 10:15  Break
10:15 - 11:10  Textiles & Clothing: Adaptation to Change
   Panel Discussion
   Moderator: Carol Warfield, Auburn University
   Robotics & Technology
   Fred Abernathy, (TC)², (Talk not available)
   Computers in Retailing
   Bobbie Fuller, Winthrop College
   Communication
   Lenda Jo Anderson, Alabama Cooperative Extension
   Service, Auburn University
11:10 - 12:15  Business Meeting
12:30 - 2:30  Luncheon
   Building a Costume Collection
   Charles Kleibacker, Ohio State University
2:45 - 4:15  Rotating Discussion Sessions (30 minutes each)
   A - Robotics & Technology
      Fred Abernathy - (TC)²
      Barbara Scruggs - University of Rhode Island
   B - Computers in Retailing
      Bobbie Fuller - Winthrop College
C - Communication
Lenda Jo Anderson - Alabama Cooperative Extension Service
Judith Kline - South Carolina Cooperative Extension Service

2:45 - 4:15
Symposium on Curriculum & Teaching Innovation
Coordinator: Jo Paoletti, University of Maryland
Fabric Horizons
Gret Atkin, Cooperative Extension Specialist, Cornell University
Self Presentation for the Professional Woman
Geraldine H. Ray, Bennett College
Textile Conservation: Using Science to Preserve History
Frances W. Mayhew and J. W. Weaver, University of Delaware
Origami, The Game of Garments
Beate Ziegert, Cornell University
A New Use for Video Cameras & Recorders in Apparel Design Studios
Anita Racine, Cornell University

4:30 - 6:30
Discussion Groups
Extension - Coordinators:
Charlotte Cross - University of New Hampshire
Lenda Jo Anderson - Auburn University
Fashion Merchandising Curriculum - Coordinators:
Mary Barry - Auburn University
Janice Patterson Boles - Miami-Dade Community College
Apparel Design & Manufacturing - Coordinators:
Rita Purdy - Virginia Polytechnic Institute and State University
Carolyn Callis - University of Alabama
Historic Studies - Coordinator:
Anita Racine - Cornell University
Frances Duffield - Auburn University
Textile Science - Coordinators:
Marjorie Norton - Virginia Polytechnic Institute and State University
Patricia Helms - University of Rhode Island

4:30 - 8:00
Rhode Island School of Design Museum
Dinner - On your own
8:00 - 11:00
Repertory Theater - "Cat on a Hot Tin Roof" - opportunity to go backstage to costume shop after play

Friday, November 1, 1985

8:30 - 10:30
Research Sessions

RESEARCH SESSION A

Moderator: S. Kay Obendorf, Cornell University

8:30
A Consumer Perception Study of Polypropylene Apparel,
Teri Taggart and Susan B. Hester, Cornell University
9:00 The Role of Appearance in the Evaluation of Teachers By Students, Administrators, and Peers, Suzanne Loker, University of Vermont
9:30 Perception of Sexy Clothing By College Females, Flora E. Cunningham and David L. Weis, University of Connecticut
10:00 Perception of Selected Apparel Items as Masculine, Feminine or Androgynous By College Students, Linda A. Snyder, Queens College

RESEARCH SESSION B
Moderator: Susan B. Hester, Cornell University
8:30 The Effect of Retail Experience on Students' Judgements of The Saleability of Merchandise, Joy Press, Richard Ettenson and Janet Wagner, University of Maryland
9:00 Japanese Retailing Strategy in Fashion Apparel: Marketing to The Young Japanese Consumer, Debra Jones Brummett, Alabama Cooperative Extension Service, Auburn University
9:30 Imported Apparel: Does Consumer Behavior Reflect Consumer Attitude? Susan B. Hester, Cornell University
10:00 Socioeconomic and Demographic Determinants of Footwear Expenditures, Janet Wagner and Colleen Sinclair, University of Maryland

RESEARCH SESSION C
Moderator: Lydia L. Roper, University of Alabama
8:30 Energy Conservation Practices and Use of Non-Clothing Textiles in Residential Settings, Lydia L. Roper, Leatha A. Darden and Frances P. McLean, University of Alabama
9:00 Orchard-Testing of Pesticide Protective Clothing, Marjorie J. T. Norton and Charles R. Drake, Virginia Polytechnic Institute and State University
9:30 Effect of Phosphate Built Detergent Ban on Quality of Home Laundry, Sarah L. Cowan, Melvin D. Hurwitz and Nancy E. Hobbs, University of North Carolina
10:00 Conservation and Analysis of Textiles From a Recent Archaeological Excavation of Narragansett Graves, Linda Welters and Joyce Smith, University of Rhode Island

RESEARCH SESSION D
Moderator: Jan Yeager, West Virginia University
8:30 An Analysis of Men's Jacket Design, 1919-1929, Jo B. Paoleletti, Catherine Beeker and Diana Pelletier, University of Maryland
9:00 Body Image, Body Characteristics and Self Concept, Helen I. Douty, Auburn University
9:30 Clothing Attitudes of Retired Men As Related To Their Participation In Activities and Life Satisfaction, Rosetta S. La Fleur, University of Delaware

10:00 The Relationship Between Match/Mismatch of Cognitive Learning Styles of Fashion Merchandising Majors, Cognitive Learning Styles of Instructional Settings and Level of Student Achievement, Jeanne Richesin Heitmeyer, Florida State University

10:30 - 11:45 Break

10:45 - 11:15 Graduate Student Research Presentations Coordinator: Susan B. Hester, Cornell University

GRADUATE STUDENT RESEARCH SESSION

Moderator: Susan B. Hester, Cornell University

10:45 Early Power Loom Fabrics in New England, 1830-1860, Diane Erdmann and Linda Welters, University of Rhode Island

11:00 A Documentation and Analysis of Dated Victorian Crazy Quilts, Jo B. Paoletti and Kathy M. Jung, University of Maryland

11:15 Kayaker's Paddling Jacket: A Needs Assessment, Kathy Koon Mullet, Virginia Polytechnic Institute and State University

11:30 An Analysis of the Information and Assistance Needs of Small Apparel and Textile Manufactures in New York State, Julie McDowell and Susan B. Hester, Cornell University

12:00 - 1:30 Lunch - No speaker, "Subject Table" Discussion Groups

2:15 - 3:45 Newport Tours: The Breakers & Marble House

4:00 - 6:00 Tour: The Elms - View Costume Exhibition

This costume exhibition is mounted by University of Rhode Island students under the direction of Linda Welters. The costumes are from the Preservation Society of Newport County.

Old to New: Using Documentary Textiles to Inspire Decorative Fabrics for Today

Murray Douglas, Sr. Vice President, Brunschwig & Fils

Reception sponsored by the Preservation Society of Newport County.

6:15 - 9:00 Dinner & Shopping - On your own in the Wharf area of Newport

Saturday, November 2, 1985

8:00 - 9:15 Breakfast at hotel - Jo Paoletti, Incoming ACPTC-ER President, Presiding Presentation of Graduate Student Research Award

Nadine Hackler, Florida Cooperative Extension Service

Susan B. Hester, Cornell University

Recognition of Member Special Accomplishments
9:15 - 10:00  Children's Sizing

10:00  Break

10:15 - 11:30  Innovative Career Opportunities for T & C Graduates - Panel of former T & C Students
               Moderator: Carol Avery, Florida State University
               Evelyn Kennedy - Entrepreneur, Sewtique, Incorporated, Groton, Connecticut
               Amy Lerner - Softgoods Engineer/Designer, ILC Dover, Frederica, Delaware
               Cindy Speros - Account Executive/Production Manager, Wilgus Dalzell Advertising Agency, Boston, Massachusetts
               Marion Rogner - Personal Assistant/Dresser to Chita Rivera, New York City, New York

11:30 - 11:45  Questions & Discussion
               Adjourn

12:30 - 1:30  Executive Board Meeting
The New England Textile Industry and Mass Production

Patrick M. Malone, Slater Mill Historic Site (and Brown University), Pawtucket, RI, 02862

Many historians of technology have begun to argue that modern mass production evolved directly from a nineteenth-century concept known as "the American system of manufacturing" (Ferguson, 1981; Hounshell, 1984). The best definition of this system is manufacturing involving a "sequential series of operations carried out on successive special-purpose machines that produce interchangeable parts" (Ferguson, 1968, p. 298). This type of production became important in armories before 1840 and spread slowly to a number of other industries after the Civil War. In the twentieth century it did contribute heavily to some but not all forms of mass production. A reliance on interchangeable parts, which is the primary characteristic of "the American system of manufacturing," is not a necessary part of mass production. Indeed, the first industrial mass production occurs in textile mills, which produced yarn for a vast market before the end of the eighteenth century. The textile industry established the factory system in America and has played a critical role throughout the history of mass production (Ferguson, 1981, pp. 4-5).

Samuel Slater, a young immigrant with management training in the British textile industry, set up the first successful cotton mill in America at Pawtucket, Rhode Island in 1790. He introduced the Arkwright system of cotton spinning, which used a sequence of special-purpose machines operated by children. Keeping the number of skilled workers to a minimum was a major goal of the new industry. The manufacturing process in early textile mills was conceived as a true system, with a continuous flow of material through mechanized stages of production.

Francis Cabot Lowell added power weaving to the preparatory and spinning processes, creating the first fully integrated textile mill at Waltham, Massachusetts in 1813. No one had ever used powered machinery to convert raw cotton into cloth under one roof. The power looms of that period would produce only simple weaves, but their use in factory manufacturing brought a great expansion in cloth production. Soon both cotton and woolen mills were supplying machine made cloth to widespread markets.

The rapidly growing textile industry needed thousands of specialized machines, and this sudden demand created great opportunities for machinists like David Wilkinson of Pawtucket. Wilkinson, as a young man, had helped Slater build machinery for his first mill. The skilled metal worker went on to develop machine tools that could make the parts he needed for textile machines. He built the first industrial capacity, screw-cutting lathe, a machine which is one of the primary tools of metal-working. He also experimented with a form of centerless grinding for cotton spindles (Kulik, Parks, & Penn, 1982, pp. 79-80, 82, 87-89). Machine shops flourished in New England as textile mills multiplied. The need for equipment in shops that built or repaired textile machinery was more important in the early development of a machine tool industry than the stimulus provided by a
relatively small number of firearms manufacturers. Both the makers of textile machinery and the makers of firearms became large purchasers of machine tools and major influences on the progress of metal-working technology. Shops begun by textile manufacturers in New England also did heavy machining for locomotives, turbines, power transmission equipment, and hydraulic gate mechanisms.

Lowell, Massachusetts, America’s first great industrial city, was a center of machine building as well as textile production. The so-called Boston Associates, who founded the city in 1822, envisioned it as a site for fifty textile mills, a print works, and a machine shop. It grew at a rate that amazed international observers. In 1840 Lowell had thirty two cotton, woolen, or carpet mills with a total of 178,868 spindles, 5588 looms, and 9100 workers. Most of the textile machinery for these first mills was made in the city. Total cloth production was 1,265,450 yards per week (Statistics of Lowell Manufactures, 1841).

The textile industry achieved mass production through extensive mechanization and rigid work discipline. The pace of work was controlled by the speed of the machinery and enforced by managers. As E. P. Thompson (1967) has suggested, the shift from task-oriented pre-industrial work patterns to time-oriented labor was one of the most dramatic changes caused by industrialization. Textile mills, with their clock towers and "bell-time," made the workers part of a manufacturing system that depended on continuous machine operation. A slowing of production at any point in the system affected the entire process, for one set of machines fed the next and had to provide a steady flow of material (Brickett, 1925, p. 301).

The first mill operatives, usually women or children, had to tend to the needs of their equipment and stop a particular machine whenever a problem developed. Mechanical assistance to the workers, in the form of automatic fault detection systems, was soon common on textile machines. Paul Moody included this type of mechanical feedback control on many machines at Waltham. By 1818, he was using stop motions to sense broken ends, to measure lengths of yarn sized, and to halt filling frames when bobbins were full (Jeremy, 1981, pp. 192-198).

Devices which increased the pace of production, often by making it possible for one operative to tend more machines, won wide approval by the managers of American mills. Labor resistance to such technological change was less effective in America than in Britain. The self-acting temple adopted in American mills in the 1820s meant that weavers no longer had to stop their looms frequently to adjust the mechanism that held each side of the cloth. British weavers, probably fearing cuts in piece rate pay for yards woven, resisted the use of this labor-saving device until almost 1850 (Jeremy, 1981, p. 198; Kidwell & Christman, 1974, p. 68).

The textile industry was a leader in the development of automatic control systems for production machinery. Programmed control of machine operations, which is now the "cutting edge" of industrial engineering, owes a major debt to such innovations as jacquard and dobbby head looms. Both were imported technology, but New England machine builders invented their own chain motion controls for looms in
the 1830s and later improved the imported dobbey head. William Crompton’s chain motion of 1837 was a critical step in the path to a versatile fancy loom for power weaving (Cole, 1926, pp. 307-308, 313-314).

Early fancy looms by Crompton for cotton and woolen cloth led to the highly successful "Crompton Fancy Loom" of 1857, which included drop boxes for automatic shuttle selection. The drop box, adapted from an English form, allowed programmed changes in weft color within the controlled weave. Automatic shuttle selection largely eliminated the need for hand weavers, who had survived on fancy work long after the introduction of the power loom. An operating Furbush drop-box fancy loom of circa 1870 at the Museum of American Textile History uses a roller chain for harness controls and cams for operation of its two drop boxes. Merrill Furbush had helped to manufacture Crompton looms in Worcester before moving to Philadelphia to set up a large machinery firm of his own (L. Gross, personal communication, October 28, 1985)

Much of the manual work in the first textile mills involved the movement of materials onto, off of, or between machines. Scholars seeking the origins of assembly line production give much deserved credit to Oliver Evans for his development of conveyor systems in grist mills of the late eighteenth century. They then jump to the hog disassembly lines of the mid nineteenth century, look at a few later examples such as canning, and end appropriately with Henry Ford. The American textile industry was making many advances in mechanized conveying and automatic feeding throughout the nineteenth-century, but this technology has received very little attention from historians. John Goulding of Massachusetts invented a condenser in 1826 that drew a continuous sliver of wool from a carding machine (Jeremy, 1981, pp. 235-238). After mid century, the imported Apperly Feed allowed the mechanical transfer of wool from one carding machine to another without human intervention (Cole, 1926, pp. 353-356). Both cotton and woolen mills cut labor costs and increased production with machinery that moved, measured, and carefully "handled" fiber materials at various stages of manufacture.

Perhaps the most impressive engineering achievement of textile machinery builders was the solution to the problem of changing bobbins in the shuttles of high speed looms. Weavers were stopping looms up to a hundred times a day to replace by hand the empty bobbins that carried weft, or filling, across the long warps on the loom. Continuous mechanized production, with interruption only to halt damage to machine, product, or worker, was a clear goal of the textile industry; but the flying shuttle of a power loom seemed inaccessible unless the machine was stopped. James H. Northrop envisioned an automatic loom in England. Finding no support for his idea there, he took it to the Draper Company of Hopedale, Massachusetts. The Northrop Loom, known as the Model A Draper, was perfected with American engineering assistance by 1894, and it revolutionized the weaving of cloth. With automatic bobbin changing while the loom was in operation, electric warp stop motion, and the usual smash protection, the new machine required much less supervision. Managers jumped to raise the number of looms that a weaver operated and saw
production soar on these automatic machines (Copeland, 1966, pp. 86-88). The strain on weavers was a side effect seldom considered in an industry dedicated to mass production.

The textile mills required vast numbers of wooden spools and bobbins for their machines, and thread was packaged on small spools for the consumer market and the garment trade. A whole industry grew up to make these essential but often disposable items of wood. Special lathes developed by the Waymouth Lathe Company and the Wilder Lathe Company, both of Massachusetts, made possible the economical mass production of spools, bobbins, and other turned wooden products. Charles Wilder's machine was "intended to produce small articles in large quantities, cutting them to duplicate form and size without any further measurements than those necessary to set the tools in their proper positions" (Rose, 1888, pp. 208-209). George McCummisky made over 10,000 sewing machine spools in one day on the modified Wilder Lathe from the 1880s now operated at Slater Mill Historic Site. The museum also has a collection of metal templates with which the Atwood, Crawford Company of Pawtucket stored the dimensions of spools and bobbins to fit hundreds of textile and sewing machines. Such parts may have lacked high precision, but they were interchangeable and mass-produced on specialized machinery.

The sewing machine industry was uneven in its adoption of the American System of Manufacturing. Although Singer was one of the slower firms in using interchangeable metal parts for its machines, the great Providence machine tool manufacturer, Brown and Sharpe, set up its production of Willcox and Gibbs sewing machines in 1858 with full "armory practice" (Hounshell, 1984, p. 68, 75-77). Judged by the criteria of interchangeability, builders of textile machinery lagged far behind the more progressive makers of sewing machines (Gibb, 1950, pp. 265, 315, 357, 439-440). There were many makers of this new type of machine for both home and factory; between 1842 and 1895 the United States issued 7339 patents on sewing machines and accessories. The machines were readily accepted by makers of ready-made clothing in the 1850s and 1860s. They accelerated the breakdown of clothing manufacture into specialized tasks and allowed the rapid introduction of unskilled workers into the ready-made clothing industry (Cooper, 1968; Kidwell & Christman, 1974, pp. 75-79, 91-97).

Sewing at home, in a sweat shop space, or in an efficient factory required thread. Tremendous growth in the clothing industry and in home manufacture of garments, curtains, and other sewn products brought the rise of enormous thread firms in Pawtucket and in Willimantic, Connecticut. Hezekiah Conant built a fifty acre, steam-powered complex in Pawtucket beginning in 1870. This became the largest textile manufacturing site in Rhode Island (Kulik & Bonham, 1978, pp. 138-139).

Demand for cloth soared after the Civil War. Printed fabrics became wildly popular and were produced in mass quantities in New England. The mechanized calico printing established in the first quarter of the nineteenth century had become one of the most successful areas of the cotton textile industry by the 1870s. Fall River, Massachusetts capitalized on the demand for print cloth and soon surpassed Lowell in production statistics.
Fall River's industrial expansion was based on steam power. Its coastal location in southeastern Massachusetts gave it good maritime connections to both sources of coal and markets for cloth. Overnight shipments of fabric to mercantile houses in New York City were standard practice. Between 1871 and 1872 fifteen new corporations were formed in Fall River and 600,000 spindles added. In 1875 fully 88% of Fall River's mills made only print cloth, and by 1892 it made 70% of the print cloth in the United States. By then the city had over two million spindles, more than twice the spinning capacity of Lowell. Before its decline in the 1920s, Fall River surpassed the four million spindle mark. M. C. D. Borden's Fall River Ironworks produced twenty three miles of cloth per hour. His associated American printworks printed enough cloth in a year to encircle the world three times with 10,000 miles to spare (Victor, Gerstle, Englund, & Benson, 1981, pp. 80-84, 115, 157-159).

The largest of the New England cotton textile companies dominated the New Hampshire city of Manchester. Over a mile of mills and printworks belonging to the Amoskeag Manufacturing Company stretched along the Merrimack River. The company's impressive buildings and its reputation for high quality were not enough to ensure its survival, however. Bled dry by its owners in the twentieth century as southern mills expanded and modernized, Amoskeag's manufacturing base was liquidated in 1936 (Hareven & Langenbach, 1978, pp. 25-30, 346-351; Landes, 1983, PP. 331-332). The great mill yard has unfortunately been diminished by shortsighted demolition and "renewal" efforts, but it still provides the most evocative physical evidence of the vast scale of New England textile manufacturing.

Woolen manufacturers also became leaders in mass production. William Wood made the American Woolen Company into a gigantic firm in the first quarter of the twentieth century. Integrated worsted mills were the largest factories in the woolen industry, and as part of his expanding empire Wood built the biggest worsted mill in the world at Lawrence, Massachusetts in 1906. The Wood Mill, half of which survives today, was originally two parallel buildings linked at one end with an office structure. The main buildings had six floors and together offered thirty acres of floor space. They were each 1320 feet long and 130 feet wide. The total capacity of the mill was 230,000 spindles and 1470 looms (Molloy, 1978, PP. 29-30; Roddy, 1982, p. 63).

Competition from the south eventually destroyed most of the New England textile industry. Textron, a modern conglomerate, picked up the dying American Woolen Company in 1954 to get its working capital and the losses that could be carried forward to offset profits from other Textron ventures. Royal Little then consolidated Textron's woolen production, selling ten northern mills of American Woolen and putting all their operations in one newly constructed mill in Barnwell, South Carolina (Dunwell, 1978, pp. 162-164; Little, 1979, p. 132-133).

Cheaper, more compliant labor in the south was the biggest reason for the shift of textile manufacturing to that region. Lower taxes, less government regulation, and cheaper power were also important factors. Northern mills failed to invest in modern equipment,
resisted the introduction of synthetics, and naively expanded in peak years during and immediately after the First World War. There were nineteen million spindles in New England in 1923. After that the downward spiral began, leaving only 280,000 spindles in 1976 (Dunwell, 1978, pp. 156-159; Hareven & Langenbach, 1978, P. 25; Little, 1979, pp. 104-106).

In a sense the New England textile industry was crushed by the mass production that it had introduced to American manufacturing. The more efficient and less costly mass production systems set up in the south drove prices down and made it impossible for most northern mills to compete. The makers of standardized goods were usually the first to go under. Fine goods makers and specialty firms lasted longer. Many are still in business.

The New England textile industry introduced mass production to the United States. Textiles were the first product of the factory system, and technology from the textile industry was at least as important in the development of modern manufacturing systems as the concept of interchangeable parts which grew out of armory practice. Indeed, as highly automated, computer controlled manufacturing systems become the standard for today's factories, we should reexamine the sophisticated control devices and mechanical programming so common in the history of the textile industry. Historians of mass production must move beyond their fascination with durable goods and precision metal-working; textiles and textile processes deserve the careful attention of everyone who seeks to understand the history of manufacturing for mass markets.

References:


Building a Costume Collection

Charles Kleibacker, The Ohio State University, Columbus, Ohio 43210

It is a great pleasure to be here with all of you today. I'm often asked these days "How and why are you at The Ohio State University?" I have been designing clothes for many years and working with private clientele. One day in New York I thought, "Am I going to do another dress for a woman who has a closet full of expensive clothes?" Fortunately, I have been involved with some of you people in the world of academia. I decided to write nine letters indicating that I had collected some fine vintage clothing, asking did a University or College or museum think they could make use of this clothing and of my experience in the world of making clothes? As it developed, I had two firm offers, one from the University of Wisconsin and one from The Ohio State University. While I greatly respect both institutions, I found that Lena Bailey, the Dean of the College of Home Economics in Columbus, was an unusually astute person for whom to work. So, I decided to go to The Ohio State University, Columbus.

People ask me what I teach. I am not teaching at the moment, although I do have a number of independent study students. My major focus currently is to assemble the historic costume collection for The Ohio State University. I have a graduate associate and five students who are working with me. What I'm trying to say is that assembling a quality costume collection for a large university is a full time job. It's not that I don't want to be in the classroom but I don't see any way to do both and do both well.

At the moment my job is to obtain and catalog clothes for OSU. The University has had its own collection for many years but it was never given a definite focus. Since I didn't know Columbus very well I contacted the Columbus Fashion Group. They gave me names and addresses of potential donors. I wrote to these people. I am happy to report that we have been getting clothes. Since this time last year we have been given about 700 garments. That does not mean that we accepted everything offered to us. In addition, we acquired 250 Bonnie Cashin original samples from Philip Sills, the manufacturer for her clothes.

The space for the OSU collection is not beautiful but the university has invested in the proper air humidity control. I believe that we all need to have such air humidity conditions for our costume collections.

The clothes that the university owns and that we collect are not permitted to be put on human anatomy. A few of my clothes, and I stress only certain of them, I do permit to be put on human anatomy. I am aware that there is bound to be deterioration when this is done. However, I very seldom allow a garment with a sleeve to be worn. Here you see an 1860's gown that I own, on a model in these slides. This is the only time that I have put it on human anatomy. In defense of my allowing some of my collection to be put on human anatomy, I would like to emphasize that I would not have had the money to buy the clothes that I have purchased had I not been doing presentations around the country. The generous fees from these presentations have allowed me to pay up to $1000 for a garment. The university does not have money for buying. We are looking for donations.
When I came back from Europe in 1959, people were not thinking of vintage clothing as anything particularly special. I happened to go to an auction and found this beautiful garment and two walking suits. One was a silk velvet and one was a silk satin from the 1890's. Those two ensembles are in very good condition. I think I paid only $15 for a whole boxful of clothes. Times have changed.

This is probably one of the most valuable garments I own and probably should go to a museum. It needs a tremendous amount of work so I do not have it in Ohio; rather it is in one of my workrooms in New York. Sometimes I happen to be at the right place at the right time. Once a year in New York, the Lighthouse stages a sale of good clothing as a benefit for the blind. I have become accustomed to going to this sale. Two years ago, I asked a volunteer if the Lighthouse had older garments. She said most of the clothes were from the 1960's, 70's, and 80's. A woman next to me overheard our conversation and indicated that if I was interested in vintage clothes, she had a few. She was in New York to visit her daughter and invited me to come up to her daughter's apartment on Central Park West which happens to be in my neighborhood. The garment she had was this magnificent dress which was made in London in the 1880's as a wedding gown. It was used three times. The last time it was worn was at the Waldorf Astoria Hotel in New York in 1939. I realized that I indeed had come along at the right time when this woman said that she collects dolls and buys old clothes to cut up! So, I do believe that I rescued this gown.

I started my collection about six years ago. During the early years of my collecting, a group from Montgomery, Alabama visited my studio. After showing them my own designs, I brought out a few vintage things I own. Upon leaving, a woman said rather timidly "I have something up in my attic. I don't know if you would want it and I'm sure it is discolored. Suppose I send it to you anyway." It turned out to be this beautiful Patou dress, custom made for her to wear to a 1926 party in Paris, being given by F. Scott and Zelda Fitzgerald. For the purpose of producing this slide, this is the only time that I have permitted this dress to be worn.

I scrounge everywhere looking for these garments. One day I happened to be on Third Avenue in New York upstairs in a strange little building. I saw this garment on a window ledge in the hot sun. I attempted to negotiate with the woman but she wouldn't budge. I went back a second time and she wouldn't negotiate; the third time I went back and told her that if she didn't sell me the dress at a price we could agree on, she wouldn't have a garment left because it would disintegrate in the hot sun. It took us months in my New York workroom to put the dress back into good condition. The long fringe is strung bead by bead by hand, and then hung on silk chiffon. The rest of the beading is worked into diamond shapes.

One day at Christi's in New York, I bought two garments at the auction. While I was standing in line to pay for them I chatted with the woman in front of me. I asked her if she knew about the black velvet dress from the 1930's that was up for sale. She said, "I know. I own it. It didn't bring in enough money." She came to my studio and we negotiated and I got it...a Drecoll, made in Paris.
Hildegard was a great star who did early radio shows, including the "Raleigh Room" and "The Campbell Room". Her personal appearances at the Persian Room of the Plaza Hotel in New York in the 1940's were memorable. One of the dresses from the early 1940's that Hildegard used at the Persian Room was custom made for her by Lange. As I study the clothes worn in the movies the name Lange appears from time to time. Hildegard told me that Lange originally designed in Hollywood especially for Constance Bennett and Barbara Stanwick.

Hildegard was born in Milwaukee. I had been working at Mount Mary in Milwaukee and had influenced Hildegard to give 30 of her show garments to Mount Mary's historic costume collection. For the benefit of that collection we staged a fund raiser and Hildegard, at the age of 78, attended. I wrote the script and narrated her life by decade. She sang songs from each decade while we showed clothes from the corresponding decade. After the performance I told her that the beautiful Stavropoulos gown she was wearing was getting fragile and suggested that she leave it at Mount Mary. She did.

When I first had the idea that Hildegard might give her gowns to Mount Mary, I shared my thinking with her. She was willing to donate many of her costumes. I inquired about her Adrian garments, knowing that she had one of the best private collections of Adrians in the country. To my dismay she had given them to a thrift shop. She could have gotten a tremendous tax deduction.

I now have five Adrians. A man in Washington, DC heard that I was collecting clothes. He called me one day several years ago and indicated he had eleven Adrians. I got on the next plane. I could only afford two. Before I went to The Ohio State University, I had Anton Rudert, Jr. appraise my collection. He is the appraiser for the Metropolitan Museum in New York. The Adrians were the most valuable items in my collection. One was appraised at $6500, and another at $7500. Adrian is gone. No new Adrians will ever be created. At this point, no one has given an Adrian to OSU.

After the death of Gloria Swanson, the actress, her clothes were put up for sale at an auction. I bought a garment that was done by Valentina. When I say to the OSU students that the Gloria Swanson dress is by Valentina, I try to accent the 'a'. The students say "Valentino" and I say "no" Valentina. Valentino was not around in the 1930's, but there was a great designer by the name of Valentina who is still living. The Gloria Swanson dress I own, a jersey dinner dress, is by Valentina.

When we talk about vintage clothes, I believe that the first responsibility is to serve the students. The OSU collection is a "library" of clothes. The student of costume history, illustration, design, or textiles can come and examine the clothing first-hand. The collection also helps promote the university, especially the College of Home Economics and the Department of Textiles and Clothing.
Old To New: Using Documentary Textiles to Inspire Decorative Fabrics for Today

Murray Douglas, Sr. Vice President
Brunschwig & Fils, Inc., New York

What I want to do today here in fabled Newport is to share a bit of the exciting job I have with you. In the same way Newport evokes the Gilded Age in America so do these buildings and images evoke the glory of the 17th and 18th century in France which inspired so much creativity here in America, especially in the second half of the 19th century.

As a child, my aunt Zelena Brunschwig, initiated me into the delights of French decorative arts, fabrics, furniture and the way of life they created. Imagine being four years old and having your aunt, who was a decorator, babysit you and letting you dress in her silk velvet bedjackets and hang her long necklaces on you. I remember going and standing in front of a tremo and looking at myself, and then she would say "feel that silk velvet." I was hooked. So persuasive was her indoctrination that I found it perfectly natural to study and speak French. In 1949 I took a junior year in France from Skidmore College to cement all those bits of culture into a real passion for the French way of life.

This lovely little Boucher shows the beginning of the intimate family life which began in the Louis XV period. The furniture was portable. People changed their rooms to become whatever they wanted them to be. We are at Versailles. These pictures are so evocative that when I came into The Elms tonight I said "isn't it marvelous that I'm showing these pictures here because this is the great inspiration for this house."

The Mecca for students when my aunt and I were going to school was the Musée des Arts Decoratifs, which is part of the Louvre. The museum is now currently undergoing renovation. The Louvre is going to have an I.M. Pei entrance and the French are up in arms. This sketch is the Louis Quinze Salon at the Musee des Arts Decoratifs.

Part of my training was to visit mills and to see the marvelous craftsmanship in France. This mill is in Alsace and I will talk to you later about some of the products that come from this mill. On the right is some of the equipment used for block printing, which is done very rarely today. There are only one or two mills in the world which do block printing today. Here in Lyon are marvelous hand looms which require a two story building because they have a jacquard attachment. All the looms are made of natural wood and the weavers are extremely dedicated. The weaver on the left has spent his life working on the Kings Bedroom at Versailles which is now finished and on view.

The tree of life design is the grandfather of all the flowering chintzes in the world. Palampores came to America with the China trade. In France and England they inspired the court ladies so much that they turned them into costumes and a whole fashion was begun. They were outlawed which is the easiest way to make anything popular. On the right is a hand woven silk for the dado in Marie Antoinette's bedroom at Versailles. It is a 10
inch border and the ceilings are about 20 feet high.

You come to realize that not everything can be produced by hand. You learn which of the mills around the world can produce the special things you would like to have made. We do not own any mills because we feel that it gives us more flexibility. We can go to the ones which specialize in the kind of work we want to have done.

On the left is what archives in France used to look like and as a matter of fact still do. I have donned a smock and spent a day going through storage finding all kinds of marvelous things. My aunt, Mrs. Brunschwig, collected since she was young. Her father-in-law, who began our business, collected and sent his collection over to America before the war which has formed the nucleus for our archives which you see on the right. The archive has only been in existence for about four years. Already we are doubling the size and moving to a new place.

This is an English printed cotton which imitates the tree of life. It was probably commissioned and made in India for the English market. It has bits of chinoiserie, indienne, and has a very different look from the original tree of life design. This example is from Winterthur. Part of our evolution as a firm was to begin to realize that museums had great treasures and that a collaboration was possible with museums in order to help them use their treasures. Old fabrics could be retired and replaced with reproductions of the original.

All of this is very interesting territory because everyone has a different idea of what a reproduction is. I will explain as I go along. On the left is the document and on the right is our reproduction. The colors in the reproduction are much brighter than they are in the original, which has faded over time. There is a controversy over what is the best way to present this to the public, to scholars, and to historians. On the left is a room at Winterthur where this fabric was displayed. It looks very pale on the wing chair because it is completely covered with crepeline to hold it together. The curtains are also very fragile. The dye used in the 18th century to achieve the dark brown color was extremely corrosive. Many times where the dark brown color was printed it ate through the fabric. This is a problem in many documents. In our reproduction the colors are much brighter. We studied the colors of the original very carefully with the curators at Winterthur. We found the colors of the original in the selvedges and they are much brighter.

The question is, does the reproduction give a better view of the textile or does the original? What do you do about the rugs which have faded? I’m answering any of those questions.

One of our most successful reproductions is this American ‘blue resist’ from the Hampton Room at Winterthur. They are usually two shades of indigo on undyed cotton. All that is white was painted with a resist in order to preserve the white. This exciting textile appeals to us and we felt that it would be a very marketable item, and it was. The interesting thing is that the reproduction of the document color, the indigo blue, has remained in our collection ever since it was introduced about 15 years ago.
Blue and white seems to have a special appeal. Here is a charming wool brocaded linen on a simple Chippendale chair. Our reproduction is on the right. We were able to do it using contemporary looms and using cotton instead of the wool for the brocaded part.

The 19th century document on the left, from Winterthur, shows the product of engraved copper plates. The engravers in those days were the same ones who did botanical engravings. They had a sense of how to make a flower turn, the curve and the delicateness of a leaf. The bird's nest is absolutely extraordinary. Every little twig the Baltimore Oriole picked for that nest is depicted. We printed it in France and were able to get an excellent reproduction.

I cannot say that all our reproductions are successful. Many unsuccessful ones have been discontinued. It teaches us a lot about picking and choosing documentary designs.

This is a wonderful story. Winterthur had this fabulous red English copperplate print on a bed and as bed hangings. We said that we would like to reproduce it. All they could give us was this piece in blue. Red and blue were the basic copperplate print colors, but blue is more difficult to photograph. Unless you have a really good document you can't do it photographically. You must redraw it. We had done it painstakingly in England at great expense. After grumbling that Winterthur would not let us have their document, we finally did it. It is done with three reds to imitate the shading you get with copperplate printing. We had no sooner done this than I went to a sale of a man who had been a screen engraver half a mile from my house in the country. He had great documents, and there I found the document. In the closeups of both the reproduction and the documents you see what the artist had to do for shading, with little lines on the copperplate. We are very pleased with this but it would have been better if Winterthur had let us have their document or that I had found the other document beforehand.

This is a wonderful wing chair in bargello canvas work. It has a curious textile in the back and on the sides which is wool moreen. Wool moreen is one of the most elusive of all textiles used in America because the moths loved it.

Our reproduction is not really a reproduction, but an example of an adaptation which is simply a print on linen to simulate the look of the crewel work on the chair. On the right is our reproduction of the vermicelli which is on the back of that chair. The whole story of the development of that moreen would fill a book. The fabric is from the north of France where they understand the weaving and spinning of wool so that it has a crisp firm hand. When embossed, it will hold the design. The document belongs to either Winterthur or the Brooklyn Museum. Both had a piece of it which had flowers on it and a vermicelli ribbon-like print.

We have reproduced it as a print not as an embossed design. The one on the right was done with a copper roller, made in Holland, which cost $4,000 at the time. It has probably doubled in price. This is a design process which could go anywhere. It is an 18th c. or even 17th c. imitation of a damask. It is trying in a simple way to develop a patterning which simulates a
more expensive document textile. So much of the history of decorative fabrics is trying to develop textiles which look like very rich designs.

At Winterthur is another embossed textile similar to moreen. In France there are many embossing rollers which are held in a pool. Textiles which have some pile to them can be embossed in those patterns. Here again is an inexpensive way of creating a cut velvet or damask. On the right is a bed with a palampore coverlet, and the bed is hung in embossed moreen.

This is another indigo blue resist probably made for the American market. In working with museums, we discovered that you cannot absolutely adhere to what the curator feels a fabric looked like when the fabric was brand new if you are creating a design that is going to have a general market. Marketability simply says that today people want something that is softened, has a look of age and patina, an old money look. To make it look too new doesn't sell. This is exactly what has happened with this design. We made it too bright, too strong, and it is only because I said I love the design that we still have it in the collection.

Here the document is shown in a room at Winterthur on a tester and as curtains. We should not have interpreted it the way we did. It is too strong. It is not pretty. It has been discontinued and is no longer available except on special order. However, there is a way of working with museums to develop something that will please them and will also be marketable.

Here is another example of a document which is soft and glowing. Although the reproduction matches perfectly the colors on the selvedge, it is too strong. No one liked it and it didn't sell.

The success story here is a painted Toile-de-Jouy design with chinoiserie done on a silk moire. We had permission to make an adaptation as a glazed chintz and it is absolutely charming. It is used in a museum and creates the look of the original. I hasten to add that museum collaborations pay royalties and therefore help Winterthur to do all the work they need to do.

After we proved to Winterthur that this is the way we wanted to work they were much more lenient. We could say 'adaptation'. Here is one of those marvelous indienne seats which is a repeat design with great style. You are seeing one on the right in yellow which is a best seller. The one on the left is more like the original and has great appeal. Here is a more positive adaptation.

This design is called 'Sun, Moon and Stars'. We had such trouble with this one. The curators didn't like the smile on the sun or the moon but gradually we convinced them that it would be alright. The sad story is that the document doesn't sell. However the one with the golden suns on a red background and golden suns on a midnight blue background sell like hotcakes. On the left is either a coverlet or hangings. The information on it is unclear. We have interpreted it as a charming little glazed chintz pattern. We also made it as a wallpaper with two borders. We use wallpapers and textiles interchangeably for inspiration because wallpapers were originally a less expensive version of textiles.
Here is the epitome of an American homespun textile, a plaid which we call 'Butterscotch' used on a Shaker rocker. The upholstery is a copy of a piece of 19th century mohair which the Shaker Museum at Old Chatham loaned to me. I think it looks a lot more comfortable than most Shaker chairs.

Now that was Winterthur's part of our American adventure. But as you can tell from my early history my heart was really in France and so when we heard a rumor that the Musée des Arts Décoratifs was looking for an American manufacturer to produce for them from their collection I jumped at the opportunity. I used all the networks that I have - our Paris office, telephones, people - to find out how we could get in on it. Finally I met a charming woman named Fabian DeSeze who had been an apprentice at the Metropolitan Museum of Art in New York. This was fortuitous because the French are very difficult. They won't let you inside unless you go on a guided tour; unless there are velvet ropes; unless it's 9 to 12, closed at lunchtime, open at 2, and closed at 4:30. We were able to go through all of their documents with the curators. We could ask for whatever we wanted - chinoiserie, chine, Toile-de-Jouy, and all the exotica we could think of - and the archives opened up as if by magic.

We went through and photographed around 250 designs after viewing about 1,000. The museum retained the slides, made copies and sent them to me with AD across the center of them. I showed them to my colleagues and we made a first triage, went back to France and looked at more. We finally settled on 25 designs of which we produced 21 as wallpaper and fabric.

This is one I wanted to show you because it was a piece that came from a dress. There is a painting of a woman who looks like Madame de Pompadour in the Frick Collection, and she wears a dress like this with painted roses. What a challenge to produce a hand-painted cream colored satin with silk screens. Here is one which I am not sure was a furnishing fabric or a fashion or a fashion fabric, but as you can see it's chiné. In other words it is a warp print and then the vertical stripe is printed but the horizontal stripe is woven in. The French called it 'chiné' because they thought the first ones came from China. They were fascinated by the technique.

On the left is the best Louis Quinze we came up with. We had a terrible time, because the museum had a great many which were actually owned by the great suppliers in France. I would see one and they would say "no you can't have it because so and so has it and still produces it today."

They were surprised when we chose this one which was virtually gone. We had one of our artists work out a simplified version of it.

On the left is a discharge print from the 19th century which was probably a shawl with a wheat and flowers motif. On the right is another chiné, probably late 19th century, which has been woven in along the stripes in rich Napoleon Trois colors.

On the left is the ultimate floral which we named 'Floreal'. It required 24 screens and was printed in France. We tried to do it in other colors and made trials of 2 more. They were awful. In the end we just did the original and it is selling beautifully.
On the right is one called 'Coraux' which is the kind of design we call 'passeportetous'. It goes everywhere. We knew it was going to be our 'ford'. It is one of the best sellers of the collection. We sent our artist over to document the colors because these documents are part of the French patrimony and cannot leave France.

The one on the right is a trompe l'oeil imitating silk. We were so excited about it that we made it the star of the collection. We produced it as a wallpaper and later made a printed chintz to look rather like a painted taffeta. What we did is imagine how the folded design would look if it was stretched out. Then we redesigned and printed it on fabric.

On the left is the art work for the rose design. What looks so simple requires 11 colors. The screens were done in Germany and they were absolutely beautiful.

Here is the art work for the discharge print. You probably all know about discharge. The red is dyed, then you print with a special process which eats out the red and deposits another color. But you need a screen for each one of the colors. Interestingly enough the red background is called 'rouge Adrianople', and that means turkey red. Adrianopolis is in Turkey.

We had good fortune for us and the Musee des Arts Decoratifs. One of the magazines was so enamoured that they decided to take a house in New Orleans and decorate it with our designs. Here is a wonderful lamberquin in the Victorian manner in the wriggled pattern which was the reconstructed brocade. On the right is a bedroom with trompe l'oeil.

It is very difficult for us without the support of some of the home furnishings magazines to show these designs in the beginning. Once they become popular and designers and architects use them, they get photographed for House and Garden and Architectural Digest. But to create room settings like this is a big endeavour. We have our friends at the magazines and hope that we can lure them with special collections.

On the left is 'Floreal', the little 'Coraux' design is on the chair, and a third design at the windows. They all worked together for an advertisement we did. All of you in merchandising have to understand the facts of life. You can have the most wonderful ideas but unless you can promote them, market them and get the response of the public there is no point in doing them.

I thought it would be fun for you to see the other things that we do. Here is a big consultation going on in the archives over some pieces that we have collected ourselves. This glazed wool became the fabric on a little bedroom chair. This fantastic Chinese painted taffeta had two huge panels which our designer had to work with so a repeat design could be printed. It has two sets of screens. We decided to call it 'Eden', because it had so many marvelous details including corn for the American market, painted by the Chinese for the export trade. Here is our adaptation in a rich chocolate color.

These are costumes. We did this wonderful ikat as a really bright number back in the 70s when soft color was in. Then we did it on linen in muted soft colors which goes marvelously with
A fabulous coverlet with incredible needlework - chain stitch embroidery - we translated into a border and an all-over design. Normally we don't like to try to imitate needlework. We think that 'keep it simple' is the best way to go.

Because everyone is so excited about the 'Treasure Houses' exhibition you might be interested to see what I found when I went to Attingham and Chatsworth. Passing down the hall where all the chairs are lined up I saw this marvelous needlepoint chair which I photographed and put away and didn't think about until my associate came up with a similar design.

It had pots on it and she said 'let's do it as one of our gros point textures' then I said 'I've got a better one than that' and pulled out my design and this is what we did.

I thought you might enjoy seeing how the Duchess of Devonshire lives in the private apartments. On the left is her bedroom with wonderful balloon curtains, flowers from the garden and a delightfully cluttered desk. On the right is an example from the drawing room at Chatsworth of English loose-covers, not slipcovers. Up to now in America slipcovers had to be so tight that they looked like upholstery. I think we are learning a lot from the British.

Another Attingham serendipity is this suite of Italian empire chairs covered with a painted Chinese export design for the French market. We translated those little directoire wreaths and so on as a glazed chintz. In my opinion we did it too soft, but you see I am not always right because it is selling very well. It provides scholarships every year for students to go to Attingham as part of the royalty.

Here is another needlework design which we translated. We get inspiration from all kinds of things. The inspiration for our design 'Le Matin' is a dress in the Costume Institute. Our adaptation is a very simplified design but I think in this case we got the essence of the design, those delightful little fluttery ribbons. We have it as a wallpaper and fabric. It is not the same as the original but that was our jumping off place.

The Brighton Pavilion, that extraordinary, fantastic, oriental dream, has provided us with great inspiration as it has many other designers. We have just completed a set of panels like the corridor. These are traced watercolors from the 19th century. On the left is wood graining. You see the faux bamboo and faux graining in pink. John Morley, the Director, said that it is what we call tea wood, so that is what we named our design. It sells like mad. We have it as a glazed chintz on linen. We have it as wallpaper, we have it in 10 colors, it goes on and on.

This little handkerchief we had in our archives, a simple print with painted flowers in the middle on a jacquard pattern. We simplified it in glazed chintz. Mario Buatta liked it so much that he used it as walls in a room that he did at Bloomingdales. The simplicity of it is that the jacquard is actually printed between the little lattice pattern that is what gives it character. It is more than the usual thing you can dream up in a minute. This is what the design of the past has to offer. This is why good design goes on forever.
What could be more simple than dimity? Dimity is a little woven design with a stripe, sometimes a heavier one, then lighter ones. It is the weave that gives you the striped effect. One of the most famous beds in the country, George Washington's, was dressed in dimity. When one of our historic houses in Richmond asked if we had dimity I said that I know that they have just reproduced it for Mount Vernon. The Philadelphia College of Textiles produced theirs. I think it is interesting to see dimity used in very simple ways, under curtains in the ballroom at Mount Vernon, and the bed for George Washington's bedroom. Our own dimity is at Boscobel on the Hudson and at Kenmore in Fredericksburg. Dimity is a perfect summer curtaining. Two designers thought it wonderful.

Mark Hampton covered all the furniture in the Kips Bay showhouse. Later Mario Buatta covered a bed at the Kips Bay showhouse last summer. There is a quality to this simple textile that is so appealing. When we first did it, the Philadelphia College of Textiles made us a thousand yards and everybody said 'Murray it's not going to sell, that 1,000 yards is going to sit on the shelf.' We finally had to go to Switzerland to have it made and now we order it by the thousands of yards. It's nice to be right sometimes.

To end it all is a little preview of what we are up to - our second collection from the Musee des Arts Decoratifs. In the Textile Study Room we found this design with roses and lace which we nicknamed 'Tante Rose', our favorite aunt. Then we went up to the archives with wallpapers and found the companion paper and you can see that the rose of the lace and ribbons are the same in both cases. That is one of the excitments of working with textiles. Thank you for letting me share this with you.
Computers in Retailing

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Retailers use computers to collect data in every area of their businesses from accounting to merchandise planning and control. This data is arranged into detailed, timely and accurate reports to be used by the retailers. In compiling these reports, computers perform two basic functions: (1) arithmetic functions (addition, subtraction, multiplication and division) and (2) comparisons. The computer simply produces the same information that retail personnel have been doing with a paper, pencil and calculator, but with greater speed. The computer is not a "cure all" for retail problems. It lacks taste, judgement and intuitiveness (Diamond and Pintel, 1985). Computers are only as good as the programs written and the people operating them. The computer aids the retailer in the decision making process. It should not make decisions.

A comprehensive look at computer applications in retailing was done by the National Retail Merchant's Association. In 1983 a subdivision of this group published a Directory of Retail Software: Currently-Installed and Functioning. In the directory, computer software used by retailers is divided into three function areas: accounting, operations/point of sale and merchandise processing and information (Zimmerman and Salerno, 1983). In addition, this paper looks at a fourth area, that of selling. As retailers more aggressively seek customers, computer selling may be the essential ingredient that gives one retailer a competitive advantage over another.

The accounting area is the first function area where computers were utilized by the retailer. In accounts payable, the computer can prepare and verify invoices for payment. Expense payable control deals with control of store expenses. The sales audit accumulates and summarizes data at the point of sale. The audit establishes sales totals by salesperson, department, merchandise classification, cash, charge, layaway, cash on delivery, employee's discount, sales taxes as well as customer returns and credits (Cash, 1979). Price change and price look up features have allowed the retailer additional options at the point of sale, that improve accuracy in data entry.

The accounting area also includes inter-store transfer. Transfer allows the movement of a group of merchandise from one store to another: to satisfy a customer, to provide a balanced assortment or to pool merchandise for clearance. The retail stock ledger deals with financial information including sales, cost of goods sold and gross margin. A profit and loss statement summarizes the overall financial picture of the company. Sales tax is automatically calculated at point of sale and summarized. Inventory control provides an immediate numerical foundation upon which to base decisions. Credit authorization at the point of sale includes both instore and third party cards. Accounts receivable deals with the administration of customer charge accounts. Accounts receivable collections follow up on unpaid customer accounts. Customer analysis and selection includes the development of customer profiles, surveys and market research. Application scoring
and approval deals with defining payment terms, calculating financial charges and monitoring of credit lines. Finally, electronic fund transfer allows the price of the product to be deducted from a customer's bank account and transferred to the retailer's bank account without cash changing hands.

The second function area is operations and point of sale. Electronic point of sale polling is a system that feeds information from merchandise tags directly into the computer for immediate processing. Electronic point of sale preprocessing sets up price inventories and organizes data for look up and reporting. Salesperson scheduling matches salesperson hours to peak traffic times and sales per hour. In addition, lunch and break periods have been reassessed and schedules of part-time people have been evaluated (Spalding, 1984). Alteration and repair control analyzes the costs versus benefits in these two service areas.

The operation function also includes direct mail-list processing. Mailing labels are produced by city, state or zipcodes. Warehousing and distribution applications include: on line receiving; merchandise handling systems; the management of labor, vehicles and space; the analysis of freight costs, operating expenses and turnover rates; and finally computer-generated shipping manifests ("Profitability's Final Frontier," 1985). Restaurant and food service agencies use the computer to look at employee productivity and the history of menu sales. Food costs can be updated and inventory reorders can be calculated. Pharmacy applications deal with prescription filling, third party billings and patient profiles. Energy management monitors and controls the use of the refrigeration, lighting, air conditioning, humidity, electricity and heating.

Personnel is also an operations function. Teleprinting programs, both audio and video, minimize the cost of travel and time away from the job. Computers are used to increase store security by cross referencing refund accounts, point of sale discrepancies, underrings, scheduling, uncollected checks and cash refunds (Schulz, 1984). Computer aided design is being used more in store planning, especially in large retail chains with many stores of the same prototype.

The third function area is merchandise processing and information. Merchandise planning and open to buy calculations show the amount of money available for merchandise purchases. Purchase order processing analyzes the sales patterns of every item in the store and determines the ideal inventory level for automatic reorder. Receiving and checking deal with invoice verification. Ticketing prepares tags for merchandise with information such as selling department, type of goods, vendor, style number, cost, size, date of arrival and selling price. Unit control identifies merchandise categories for which data are gathered.

Merchandise reporting includes volumes of information on any aspect of the business that can be quantified and compared. Masses of paper have been created analyzing every phase of merchandising: weekly, seasonal and annual sales reports; sales reports by department; class/price reports; style reports; promotion schedule with weekly review of events; weekly sales and advertising plan; vendor reports including
vendor analysis, vendor replenishment and vendor markdowns; and finally flash reports (Cash, 1979). To eliminate some of the proliferation of paper, retailers are trying to define the norm so that the computer can detect the unusual and print an exception report. Finally, in the forecasting and replenishing area statistical techniques such as trend analysis, time series analysis and multiple regression are used to make projections based on past experience.

The last function area is selling. This includes any computer application used during the consumer decision making process. Both the bridal registry and the gift registry have increased in popularity. Computer dating services also have increased in use. Electronic in-home shopping is in the testing stages with companies such as Comp-U-Store, and the Source. On line data bases include: an encyclopedia, agricultural reports, college guides, legislative transactions, medical data, earth structure, weather, the U.S. Census, employment services, law statutes, restaurant menus, wine lists, theater tickets and available seating, as well as, Dow Jones stock market information and sports information ("On Line Sampler", 1985).

Major cosmetic firms are developing make up treatments and color analysis. The automobile industry has created a price and feature comparison data base to facilitate consumer decisions. The electronic dressing room projects an outfit on an individual's figure allowing one to try on outfits at the touch of a button (Pauly and Friday, 1985). Figure analysis programs such as Personally Identified Clothing Choices by Joyce Jackson put body measurements into the computer to create a figure analysis and wardrobe profile. Computer analysis also has helped identify the shape and color of eyeglass frames that best suit the individual. On line travel services allow clients to book flights, hotel rooms and rental cars.

There are as many computer applications in retailing as there are imaginative people in the world. The surface has only been scratched. Retailers have received printout after printout that has no significant meaning or that would take days or weeks to put into a meaningful form. However, retailers recently have concentrated their efforts on getting the greatest amount of usable information in the shortest and most concise reports that can be produced. Instead of receiving a printout of every piece of inventory in the store, they receive exception reports that alert them to problems or unusual circumstances that need their attention.

References:


Adaptation to Change In Communications

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My charge today is to stimulate your thinking on how we are adapting to the changes that are being thrust upon us rapidly in the field of communications. Since extension is the work that I know best, I want to share with you how those of us in extension are using media to do our jobs. And that job is to be the long arm of the university reaching out in a network across our nation to disseminate research based information.

As extension educators we advocate change to our clientele. We pride ourselves on being "change agents" in our society to help bring about better living patterns for families and individuals. Now, as extension moves into the 21st century with its abundance of electronic technology, we have to prepare for changes in the way we deliver information.

In its report on Electronic Technology: Impact on Extension Delivery Systems the National Task Force divided the functions of extension into three categories.

1) Information Delivery - information flowing through many channels of communication from extension to clientele.

2) Educational Program Delivery - programs prepared and delivered by specialists and agents to upgrade knowledge, skills, and capabilities of clientele.

3) Problem Solving Tasks - clients looking to extension for expertise in helping to solve individual or group problems. (1)

What I would like to do in the next few minutes is to walk you through some of the media that extension is using to accomplish these functions. I will be sharing with you the results of a survey that was sent to all extension clothing specialists this fall. The questionnaire examined how extension clothing specialists are using media to communicate clothing and textile information. Fifty-four of the ninety-three questionnaires sent were returned with responses from forty different states. The questionnaire examined how clothing specialists are using traditional and innovative media in their clothing programs.

The first and possibly the most innovative of the new media is electronic publishing. The term electronic publishing refers to captioned television and video text services in the delivery of textual information into peoples homes and businesses. Electronic publishing also is applied to traditional text media including newspapers, magazines, pamphlets, publications, and newsletters. Electronic publishing by-passes the printing process and delivers the text on a television screen.

Of the clothing specialists responding to the survey 19% currently are in the formative stages of electronic publishing. However, comparing it with other media they ranked electronic publishing ninth in terms of its usefulness to their program. And they reported being more uncomfortable and less skilled in its use than any other media they were asked to rank.

When three or more people in two or more locations communicate through an electronic medium this interactive group communication is known...
as teleconferencing. Traditionally, extension has used meetings to com-
communicate our message. However, face-to-face meetings can be an ineffi-
cient and costly way to conduct business particularly if participant travel over long distances is involved. Teleconferencing may be an alternative in educational delivery. The following from the Missouri Extension Service gives a cost comparison of holding home economics subject-matter training via audio-teleconferences and transporting field staff to the Columbia campus for similar training sessions. (2)

Actual teleconference costs:
Operator charges -
8 3/4 hours at $5.00/hour $ 43.75
Total telephone charges -
from participating sites to Columbia (2,829 minutes) 1,073.19
Estimated postage for program mailings -
30 mailings at $.32 each 9.60
Total teleconference charges (5 sessions) $1,126.54

Estimated face-to-face meeting costs:
Mileage charges -
4,217 miles at $.20/mile $ 843.40
Meal expense -
10 out-of-town participants for 2 days at $25.00/day 500.00
11 state specialists for 2 days (lunch) at $7.50/day 165.00
Lodging expense -
5 doubles at $44.00/night 220.00
Unproductive travel time -
84.33 hours at $11.82/hour 996.78
Total estimated meeting charges $2,725.18

Over 53% of the clothing specialists surveyed reported involvement with teleconferencing. Forty-five percent reported audio conferencing, 17% reported one-way video conferences, only one person reported two-way video conferencing, and 9% reported computer conferencing.

Audio and one way video teleconferences were used for committee meetings either within extension or with clients, in-service education for agents, or subject matter updates and programming. Electronic mail and the National Accomplishment Reporting System (NARS) can be accessed through computer conferencing and allows us to share programs and results with all 50 states and the territories.

Dial access to recorded messages is an economical way to deliver information. Thirty-two percent of the clothing specialists surveyed reported having a dial access system in their state. Many stain removal and textile science questions are a part of this system.

With technological advances combining radio, computers, and digital voice transmissions, telephones will become increasingly important in linking the extension agent to the latest computerized information. Cellular radio will make possible the transmission of digital computerized information to portable computers carried in an extension agent's car.

Today, about 34% of homes have cable television capabilities with
the number increasing daily. By 1990, most experts predict that at least 50% of homes with television will have cable. (3) Cable television has proven to be effective with both youth and adult learners in the delivery of educational programs in classroom situations. (4) Thirty-six percent of clothing specialists surveyed reported using cable television in their clothing programs.

Estimates are that 40% of U.S. homes will have video recorders by 1990. (3) Seventy-four percent of the clothing specialists reported that they are contributing to or producing their own videos in the delivery of educational programs. Eighty percent maintain a library of video tapes for agent or public use. Seventy-three percent considered video cassettes as the most promising media to use during the next ten years.

Radio and television broadcasts, and newspapers have been the traditional communications media used by extension. The survey results indicated that 84% of the clothing specialists take part in radio broadcasts, 53% take part in regular television broadcasts, and 98% provide material for newspaper articles.

New technologies are increasing the efficiency and effectiveness of these media. Newspapers are adopting electronic technologies to reduce costs, speed delivery of news, and cut production time. Stories, layout, and composition are received in digital format, edited, and may be transmitted via satellite to distant printing locations for local delivery.

Some people have feared that these new technologies would cause a shift away from the printed word. In The Futurist, John Naisbett says that this is not a valid fear. In the case of newspapers we have more today than we had in 1969. (5) Production costs are down because of technology and it has become easy to start a newspaper.

Interesting to note here is that newspapers were ranked as the most useful medium for clothing specialists. However, ranking second after newspapers and interrupting the rank order of the other traditional media of television and radio is video cassettes.

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<tr>
<th>Media</th>
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<tr>
<td>Newspapers</td>
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<td>Video Cassettes</td>
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<td>Television</td>
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The extension office of the future will function with some very different tools. Portable computers will access electronic mail and stored voice messages. Subject matter specialists will be connected by a national network. Teleconferencing will speed up the ability to pool information. Mobile phones will provide mobile computer access. And programmed video courses will provide educational opportunities. And where will the extension agent fit in amidst all of this electronic gadetry? I believe that the human factor will still play a very significant part in the delivery of information, educational programs, and problem-solving solutions.
Maintaining quality programs as we adapt to innovations in communications is a real challenge for extension. According to the best selling book, In Search of Excellence, high performance companies stick to what they know best. (6) The characteristics that produced quality extension programs in the past can help guide us to the future. One of the core strengths of extension has been that it is a people-oriented organization. Planning, implementing, and evaluating extension programs with clientele will continue to give us direction for the future as we adapt to change in the field of communications.

Another characteristic that has been important to extension in the past is that we have been knowledge-based. New tools like computer conferencing can help us extend our research base to even broader areas in less time in order to provide clients with accurate research-based information to use as a basis in decision making.

There is so much information available today that a county agent cannot be expected to be an expert in stain removal, textile conservation, garment labeling, textile structures, garment construction, clothing budgets, consumerism, and small home-based businesses in addition to all of their responsibilities in foods and nutrition, family life, food preservation, housing and energy, and home furnishings. Innovations in technology can give us a cutting edge in disseminating a sound knowledge base more efficiently.

A third characteristic of extension is that we have always been problem-oriented. We've used a strong research base to meet people's needs and help them solve problems of interest to them. Using information, not just generating more and more and more, is the key issue of the information age. To quote Dr. Michael Quinn Patten in his Journal of Extension excellence:

> Extension isn't machines and computers. Rather, it is a state of mind. The high technology state of mind is one that works with people in applying knowledge and information to solve important problems and thereby create a better world. (7)

And the last characteristic that has served extension well in the past is that we have built quality programs with cost-effective means. The cost-effectiveness must be in terms of dollars and time. We can't afford to use every form of media. Equipment and production can be high at the state level, but we also have to equip counties to use the materials we produce. State offices may be ready to produce video, but counties may not have access to the equipment to view it.

As the technological advances forecast for each medium are realized, the relative strengths of one medium over another will change. The initial cost of the new technological support may be high, but the return on investment in terms of cost per clientele is likely to be lower. Wisely applied, advances in electronic media have the potential to multiply the impact of the knowledge base of extension.

References:


Fabric Horizons

Gret Atkin, Cornell University, Ithaca, New York 14853-4401

The lay public are far more interested in learning garment construction techniques than they are the basic foundation upon which all building takes place - that is, textiles. In spite of this, basic textile information is critical to the success of making, as well as selecting, buying, and caring for apparel. The "Fabric Horizons" regional in-service training program was developed for 4-H and Adult Extension home economists, 4-H Clothing Project leaders, home economics teachers, and fabric retail sales personnel as both background information and new approaches to teaching basic textile properties.

The objectives of the program were to: 1) be aware of new fabric trends and have an awareness of new textile products; 2) be able to name and identify common natural and synthetic fibers; 3) be able to distinguish between different fabric structures; 4) understand why fabrics behave the way they do; and 5) use clothing labels to learn about fiber content, fabric characteristics, and care techniques.

This basic-textile-course-in-three-hours was taught in nine locations throughout the state. During this time the following took place.

1. Participants took part in the "Touch and Tell" and "Test Your Fabric Skills" activities developed by the Man-Made Fiber Producers Association.
2. An introduction on the impact of fibers on our lives was followed by an overview of color, fabric, and style trends.
3. Participants developed swatch sheets with pre-cut fabric samples. The swatches provided a basis of comparing weaves, knits, and non-woven structures; fiber and yarn structures and types; texture; fabrications.
4. Participants conducted fiber and fabric testing including the effects of burning, absorbency, resiliency, heat sensitivity, drape, and comfort.
5. Labeling information and its implications for garment performance were covered in small group discussions.
6. Re-teaching fact sheets, activities, and games were provided to accompany each segment of the program.

Evaluation of data collected from over 300 participants at the end of each of the sessions indicated that the audience gained a great deal of knowledge about textiles and were more self confident in teaching basic textile information to others. Success in organization of the program was evident in the fact that up to 65 people (at one site) were able to conduct textile testing procedures in a school cafeteria. And, understanding of basic concepts was evident in the number of times "Aha!" was heard among the audience.

The Extension Clothing Specialists provide information on textiles on an on-going basis. In addition, this program will be added to our regular rotation of in-service education and will be repeated in the future.
Self-Presentation for the Professional Woman

Geraldine H. Ray, Bennett College, Greensboro, N.C., 27405

The challenge, as stated by the Director of Freshman Studies at Bennett College, was to "develop and present a seminar for the Career and Life Planning Course, with the theme - Women in the World of Work." This course was composed of 228 freshman women enrolled in the college and a small number of upperclass women students who took the course as an elective.

Initial development of the seminar considered the characteristics of the students who would be involved. The students were all women, the majority were freshmen, all were of the black race, and 75% had limited financial resources.

A major task was how to impart harsh facts to a group of very proud young women. How does one tell them that natural hair styles, corn rows, and beads can be a deterrent in the business and professional world; ethnic styles of dress and loud colors can cause negative impressions during a job interview.

It became clear that presentation style would be the ultimate key to the success of the seminar. Consequently, the results were an oral presentation encompassing transparencies, physical demonstrations and a fashion show, using students enrolled in the clothing and textile curriculum. This multi-media presentation addressed a very basic but crucial subject which is important to entry and advancement of women in the business and professional world. The seminar covered hair, makeup, style of dress, colors, accessories, hands, hose, shoes, body language, and etiquette; therefore the title "Self-Presentation for the Professional Woman" was descriptive of the content of the course.
Textile Conservation: Seeing is Believing

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J. William Weaver, University of Delaware

Textile Conservation is a relatively new discipline which applies scientific principles to decisions on cleaning, repair, storage, and exhibition of antique textiles. Agents which are damaging to textile objects are identified, and the mechanisms of this degradation are pursued. Treatment procedures which eliminate, retard, or shield textiles from these agents are developed and evaluated.

Unlike the museum curator, who must identify objects and interpret them to the public, the museum conservator is responsible for the care of the museum collections. Many small museums are unable to support more than one professional. The responsibilities of this individual could include administrative, and curatorial duties as well as conservation of the collections. Many such museum professionals find that their training may not have prepared them for this spectrum of duties the most foreign of which is the conservation of the vast array of art objects in the collection, some of which may be textiles. To provide some basic information on the care of textile objects, the course TDC 467/667 Fundamentals of Textile Conservation was conceived. This course is designed to provide students whose educational background has been primarily non-technical with enough technical information to facilitate authoritative decisions relative to the textile objects in their care.

The objectives of TDC 467/667 are:
1. to provide basic tools for the analysis of the complex and unique problems which each conservation project offers (microscopy, solubility, and burning methods are included);
2. to provide a theoretical framework for application to specific questions regarding the preservation of antique textile objects (topics include surfactants and detergency, oxidative and hydrolytic chemical damage, insect and microbial damage, photooxidation, thermaloxidation, and damage due to particulate soil, strain, and neglect);
3. to illustrate by means of a laboratory project the effects of agents which are damaging to textile objects and to demonstrate that fibers do not all react in similar fashion to specific damaging agents;
4. to demonstrate or explain treatment procedures which retard or counteract these damaging agents; and
5. to promote the understanding and application of information available from technical literature by familiarizing students with the jargon, reliable sources, and typical approaches.

TDC 467/667 Fundamentals of Textile Conservation has been taught three times. The target student group is upper level undergraduate, graduate, and inservice professional. Due to the demand from inservice professionals, the course is offered in the evening. Practicing professional textile conservators have reviewed the course content and indicate that TDC 467/667 is the type of course they wish their curator could take to facilitate articulation of conflicting ideological situations. It is hoped that this course will formulate the germ of a comprehensive graduate program in Textile Conservation.
One of the most important goals of educating students in the field of apparel design is to impart a thorough appreciation for the relationships among clothing design and textile attributes. While much information about fabric and clothing design is relayed to apparel design students through routine instruction in technique, sometimes one may overlook an opportunity to deepen the student's appreciation for apparel design as an art form by giving inadequate attention to history and to the student's own knowledge and experience.

A special section in my senior design class offers students insights on the origin of clothing design and to challenge him/her with a problem of integrating past and present. Entitled "Rectangular design and ornamentation", the project also could be called "Origami, the Game of Garments". The ancient Japanese art of Origami, that is folding a rectangle to create a three-dimensional form was one of the first ways to think of clothing. In this project students are expected to design a modern garment using the rectangle and/or divisions thereof. All pattern pieces for one garment must fit into the rectangle, without fabric waste, as usually occurs with the conventional sloper method. What might seem a mere "game" of shapes and illusions produces interesting insights on the past and new revelations for the present.

Historically, clothing was based on rectangular design, or a system of geometrical shapes, cut or wrapped in such a way as to use every scrap so that waste was minimal. The design of the garment thus was related closely to the weaving of the cloth, an important factor today. Students are fascinated to discover this fact.

Ironically, many of the fundamentals of apparel design are obscured for the modern student by the body contouring sloper method. This project succeeds because it encourages the student to be creative within the constraints of the fabric width. Most importantly, the project has modern application, now that the textile industry must minimize labor and fabric waste. Consequently, students are expected to design contemporary garments, not traditional costumes.

I have taught the project for five years to senior Apparel Design students. They first have an opportunity to see slides of traditional dress, and to examine actual garments from different parts of the world. Students also are provided with a list of references. They then choose fabric and garment type. Overall the response has been positive and students have been very inventive. As they progress with their individual projects, students realize that they are not just wrestling with archaic constraints, but in fact, are doing some modern pioneering. This transformation of perspective is one of the most exciting moments in the project.

The project is four weeks long. For evaluation purposes each student submits a diagram layout in quarter scale. It includes all measurements and is one part of the five item evaluation system used for the project.
A New Use for Video Cameras and Recorders in Apparel Design Studios

Anita Racine, Cornell University, Ithaca, New York 14853-4401

Video cameras and recorders can be very effective aids for helping apparel design students increase their aesthetics skills. These video methods for teaching were developed to help students become more successful in visualizing the changes that take place between the two-dimensional and three-dimensional stages of the design process. By allowing the early recognition of problems in aesthetics, fitting, and construction, they can help students to produce design work that is more professional in appearance. The ability to visualize design work in several dimensions takes practice and experience. The most beneficial time to assist the students in this process is during the muslin stage.

This teaching method is successful because it provides students with instant visual feedback in a two-dimensional format which helps them to interpret how garments will appear in final photographic form. By using video technology during the muslin critiques, an astute instructor can help students to: 1) enhance their design sensitivity; 2) have an opportunity to analyze their work with some detachment and objectivity; 3) make timely decisions about design concepts which can be incorporated into necessary pattern changes; and 4) develop more professional-looking garments and portfolio work.

As muslins are modelled and students defend their work, an assistant videotapes the critique. When the videotape is played back, students view their segment of the critique and make adjustments and corrections on their sketches. During the playback, the stop-action feature of the machine is used to focus attention on problem areas of a garment while additional suggestions for improvements are noted by the instructor. A clear plastic film placed on the surface of the monitor screen allows the instructor to sketch directly over the garments being viewed to change proportions or indicate other style possibilities.

This method also is a useful evaluative tool for the instructor. At the time of final grading, videotapes may be reviewed and critically compared to finished samples and portfolio photos to evaluate how far garments have progressed from the original muslin forms. This graphically shows how well the students have solved problems highlighted in the critique, an essential part of the design process.
Innovative Career Opportunities for Textiles and Clothing Graduates

Evelyn Siefert Kennedy, Sewtique, Inc., 71 Plaza Court, Groton, CT 06340

In the late sixties, long before "entrepreneurship" was in vogue, a candidate for the master of science degree in textiles and clothing at the University of Rhode Island utilized the educational arena to plan her career. A semester of independent study provided the opportunity to research the development of a small business.

A model was created and designed, for implementation six months later, by the aspiring business owner and operator of the firm Sewtique, Inc. The university library, the business administration department, the textiles and clothing laboratories, the media and visual arts center, and many other resources were utilized in the formation of a successful business model and plan...which continues to flourish today.

The model was comprised of all necessary ingredients for a start-up business, including alternatives for location, finances, business organization type, capital equipment, inventory procurement, bookkeeping procedures, personnel, operation methods, taxes, client relations, and a multitude of mundane items contained in a small business. The university faculty encouraged and supported the graduate student to the extent that the independent study program was replicated. The student's written report was duplicated and distributed throughout the department and used as a sample for later enterprising students.

The Small Business Administration, Chamber of Commerce, Bureau of Statistics, and other agencies supplying management assistance to entrepreneurs report that small business failure is significantly related to insufficient and thoughtless pre-planning. The business owner's lack of experience combined with heavy drains upon finances, health, social/emotional resources, and dramatically altered personal life will contribute to his or her failure unless the required total business concept is analyzed carefully prior to operation of a business. It is extremely important that all ramifications of entrepreneurship be scrutinized before embracing it as a career option.

The university environment is an ideal site for student preparation for business ownership. A student can interact with faculty to devise a plan of operation for a craft shop, fabric store, interior design studio, silk screen production, quilt manufacturing, couture design, or other facet of the textiles and clothing industry.

An initial investment of $12,000 in June 1970 grew to gross income of over $100,000 within three years. Later Mrs. Kennedy divorced, temporarily closed business for a year, remarried, re-opened business, and has completed her fifteenth year as an entrepreneur.

Mrs. Kennedy was appointed by President Carter in 1976 to membership of Region 1 Advisory Council of the Small Business Administration, serving through 1982., at which time she was named an Active Corps Executive. She still serves. SBA. She is a member of URI's College of Business Administration Advisory Council and a Trustee of the Board of Directors for the URI Foundation. Her textiles and clothing background is drawn upon in her work as a member of the Major Appliance Consumer Action Panel, and business experience contributes to her work as a member of the Home Economists in Business National Board.
Innovative Career Opportunities for Textiles and Clothing Graduates

Amy Lerner, ILC Dover, Frederica, Delaware 19901

I graduated from Cornell University in 1983 from the Department of Design and Environmental Analysis. I completed a double major in Apparel Design and Textile Science. Two years later, I realized that I am employed as a design engineer of the only truly complete and portable human environment - the shuttle space suit. Upon leaving the spacecraft, the astronaut wears a space suit which must provide an atmosphere, thermal protection from both temperature extremes, waste management, mobility, and versatility to perform a variety of activities, both planned and unplanned.

The current state of the art in space suit design includes primarily soft components interfacing with various hardware components and the life support system and controls. ILC Dover, as a sub-contractor to Hamilton Standard, designs and manufactures the entire suit with the exception of the life support systems and controls. As a softgoods design engineer, I am involved in the development, revision, testing, and manufacture of the soft components of the suit.

Although the Shuttle space suit is made of many "high tech" materials, and a variety of manufacturing processes, much of it is surprisingly ordinary. About 60% of the soft components of the suit are put together with standard cut-and-sew methods. The remaining 40% are manufactured using techniques such as heat sealing, dipping, molding, cementing, taping, and several unusual techniques developed specifically for the space suit. The soft components then are inspected, assembled with the associated hardware, tested, and shipped to the Johnson Space Center for assembly with the life support systems. As the evolution of the space program continues, new tasks and problems are identified; improvements and changes to the space suit constantly are required.

Often when I describe my job and background, my description is met with surprise that I am not a "real" engineer. However, I explain, as I firmly believe, that my Cornell degree in Apparel Design and Textile Science has prepared me well for this career. The Textile Science courses provided me with specific materials knowledge as well as the ability to select, develop, and test a variety of materials for use in the suit. The Apparel Design courses provided a familiarity with garment construction and pattern design. Although much of this instruction was geared toward the standard apparel market, it is possible to apply this basic knowledge to space suit design. In general, the Cornell curriculum of liberal arts, science, and applied technology provided an excellent blend of specific technical education, creative problem solving, and the refinement of general communication methods.

I have found my career at ILC a fascinating and challenging one. I think the space program holds many opportunities for softgoods designers, not only in the design of the actual space suit, but also in the many associated softgoods requirements and spinoff programs. I hope that all of you will continue to educate and inspire your students toward careers in the space program.
So Where Are You Working Now?

Cindy Speros, Wilgus Dalzell, 12 Farnsworth Street, Boston, MA, 02210

The first question asked around Bostons' advertising circles is, "So where are you working now?" When I answer Wilgus Dalzell people look at me a bit cockeyed and say, "Will what? How do you spell it?" I spell it out for them and then they ask, "What's that?"

Presently I work for Wilgus Dalzell (two words, no hyphen) an exclusive fashion and beauty advertising agency which is located on Museum Wharf in Boston. Wilgus Dalzell was begun by two women, Carol Wilgus and Elaine Dalzell, who had extensive experience developing advertising for retail stores. They reviewed advertising agencies to locate one which could handle a chain of womens' fashion stores. What they found was a void in fashion advertising in New England.

Wilgus Dalzell services fashion and beauty accounts exclusively. Our responsibilities are many. Our jobs range from creating a stores' image to changing a stores' image. For example, if an inexpensive junior store wanted to begin carrying suits for the career woman, aged 25-40, we might develop in-store signage to support the new image. We would design an advertising campaign to fulfill the stores' new needs. We also design and produce logos, design names for clothing lines, produce hang tags, packaging, magazine ads, select media, and lots of point of purchase signage. Wilgus Dalzell is a full service advertising agency which is willing to go the extra mile to meet the needs of the client.

My job at Wilgus Dalzell varies from day to day. Being a small agency means that everyone is required to wear many different hats. Most of my time is spent as a production manager and an account executive. My day to day tasks include being aware of what stage of development every job is in at all times, quality control of all work that leaves the agency, and reviewing color both in the separation and printing stages. I also service some accounts as well as "keep my eyes open" for new accounts for the agency.

My path to Wilgus Dalzell was direct. I graduated from the University of Vermont in 1982 with a degree in Textiles, Merchandising, and Consumer Studies (TMCS) with my concentration in apparel design. My junior year I realized that sewing was more of a hobby than the way I wanted to make a living. After an internship with a small local newspaper and numerous informational interviews I knew that there was a lot more I needed to know.

After graduation I went to work for Yankee Magazine as a resident. I learned all I could about publishing during my year of residency. Yankee was a fabulous opportunity for me and I left with a "sound" production and publishing base.

After Yankee I worked for Jordan Marsh, a New England department store chain. As a direct mail coordinator I worked with various advertising agencies, color separators, and printers as well as the in house staff to produce the numerous direct mail catalogs. Jordans was a great second step. Next, I decided I wanted to see the world from the other side of the fence. I decided to join a small fashion advertising agency. Hence, I landed at Wilgus Dalzell.
Innovative Career Opportunities for Textiles and Clothing Graduates

Marion E. Rogner, Personal Assistant to Chita Rivera
44 New Valley Road, New City, NY 10956

Never in a million years did I expect to be in show business, but here I am. It only goes to prove that no one, particularly a Home Economist, should ever rule out any field of work. There were several characteristics of a Home Economist that were stressed when I was an undergraduate at the State University College at Oneonta, New York. The one characteristic I remember most is that a Home Economist is versatile.

After completing my graduate work at the University of Rhode Island in Textiles and Clothing, I obtained a position as a textile analyst with Sears, Roebuck and Company in their New York Textile Laboratory. I had emphasized the technical aspects of textiles in my graduate work so was thrilled that I was able to land my first job in the field for which I had specifically studied. I was with Sears five years, four of which were spent in the New York office and one as manager of the textile laboratory in Alhambra, California. The management position was not what I had expected and Sears was beginning to centralize the company. The laboratories eventually were closed and everyone moved to the Chicago Headquarters. I decided to move back to the east coast where I literally fell into the position I now hold and have held for the past six and one half years, that of Personal Assistant to Chita Rivera, Broadway actress, dancer, and singer.

My job duties vary and I never stop adding new skills and experiences to my repertoire. Personal Assistant can mean anything and everything. I am secretary, dresser, seamstress, costume maker, consultant, confidant, and friend. I have extended my clothing construction techniques and abilities by building costumes. I have used my knowledge of textiles and clothing construction by working with Broadway and high fashion designers. My job is to help Miss Rivera in explaining her preferences and needs in the fit or performance of a particular costume. I arrange appointments, interviews, and answer fan mail and business mail. Whenever she performs in a show, I am her dresser. I work during the show helping her make costume changes, being in the wings wherever she enters or exits, taking care of her costumes, and acting as secretary and receptionist for guests. I also am present during rehearsals for shows, taking notes as to where she enters and exits, what costume or prop she has and where she must go for her next entrance. My presence makes her life, as well as the stage manager's life, easier in that it relieves them of these small details. I also aid in Miss Rivera's personal life by making purchases for her and her home and by being a person in whom she can confide.

To have a position like mine, one must be able to roll with the punches. Many of the courses I took have been utilized well. Good organizational and communication skills are a necessity. A personal assistant virtually is on call twenty four hours a day. One must be able to communicate the feelings and opinions of his or her boss without putting their own opinion into it. The enjoyment of this type of work greatly depends upon the individual for whom you are working. I am extremely lucky because Miss Rivera is an exceptional human being and a fabulous friend.
A Consumer Perception Study of Polypropylene Apparel

Teri E. Taggart, Cornell University, Ithaca, New York 14853-4401
Susan B. Hester, Cornell University

The use of the synthetic fiber polypropylene in active sportswear has gained widespread acceptance in recent years by manufacturers and retailers. These producers and marketers of polypropylene claim that although the fiber's unique characteristics previously have kept it out of the mass consumer apparel market, it now has found a niche in active sportswear.

The current location of polypropylene apparel at the introduction stage of the garment life cycle suggests that it is appropriate to be developing consumer awareness of its attributes. Continued growth now may depend upon consumers' acceptance. Consumer satisfaction subjectively occurs when the received product attributes meet or surpass expected product attribute levels.

The purpose of this study was to investigate direct mail, polypropylene apparel consumers' perceptions and levels of satisfaction of polypropylene garments in order to develop an effective repeat purchase marketing strategy for polypropylene apparel sold through mail order catalogs. Data collection for this study was accomplished using a consumer survey. The questionnaire collected data related to: 1) direct mail, polypropylene apparel consumers' prepurchase and after wear perceptions of polypropylene apparel; 2) origins of direct mail, consumers' awareness of polypropylene apparel; 3) the level of satisfaction with polypropylene apparel; 4) method of care of polypropylene apparel; and 5) style and use of polypropylene garments.

Distribution of the questionnaire was accomplished with the assistance of a direct mail, active sportswear retailer. Two thousand questionnaires, included with boxes containing a polypropylene shirt, were sent with consumer placed orders. The response rate was 31%. Chi-square and descriptive statistical tests were performed to analyze the sample.

The consumers studied showed an increase of perceptions from prepurchase to after wear for their polypropylene garments suggesting that awareness of the fabric's properties increases with wear. Consumers' satisfaction was found to be related to specific after wear perceptions, length of use, method of care, and activity for which polypropylene was used.

The primary purchase motive was reported as the functional aspects that polypropylene garments offer the active wear consumer. The introduction of polypropylene into the mass consumer market, therefore, was cautioned against. Consumers' misunderstanding of particular perceptions, suggested the need for more consumer education on the meaning of thermal comfort. Results also suggested that there is a need for broader consumer awareness of the uses of polypropylene in active sportswear.
The Role of Appearance in the Evaluation of Teachers by Students, Administrators and Peers

Suzanne Loker, University of Vermont, Burlington, Vermont 05405

Social interactions among teachers, administrators, and students long have been considered important to achieve student learning. Yet, investigations have concentrated upon student-teacher classroom interactions and rarely have addressed the relationships among the various interactive systems, (i.e. student-teacher, teacher-teacher, teacher-administrator). Appearance variables such as clothing, facial attractiveness, age, and gender are used to make judgements about others when limited information is available about the individuals. In the three educational interactive systems above, the participants know only selective information about background or personal life. Teachers often restrict their interactions with their teacher peers to superficial discussions. This provides little information about the other teachers beyond appearance factors and demographics such as address, marital status, and years spent teaching. Administrators know teachers' professional employment backgrounds but teachers' personal characteristics in and out of the classroom must be picked up through a variety of short, interactive circumstances.

This research assessed the effect clothing, age, and gender have on a teacher's evaluation by students, administrators, and teacher peers. The personal and professional characteristics attributed to "good," "popular," and "knowledgeable" teachers also were evaluated. The uniqueness of the study is its investigation of all three groups that currently evaluate teachers and their comparison in terms of both appearance characteristics utilized and written evaluation. The study extends the investigation of appearance factors and teachers to an evaluation setting, providing information for policy development concerning the utilization of student, peer, and administrative evaluations of teachers.

Administrators, teachers, and students in six Vermont high schools were interviewed during Spring 1984. The respondents were asked a variety of open-ended questions concerning teachers who they have had contact with and considered "good" or "knowledgeable" or "popular." Descriptions of both personal and professional characteristics of these teachers were elicited. Typical evaluation methods used for Vermont high school teachers also were discussed. Qualitative analysis methods were utilized. Relationships between a teacher's clothing, age, and gender and his/her identification as a "good," "knowledgeable," or "popular" teacher were evaluated. These relationships will be used to set up future experimental research studying appearance variables in the public schools.

From a partial analysis of these responses, some general conclusions can be drawn. 1) Most students and teachers differentiate among "good," "knowledgeable," and "popular" teachers even though the best teacher likely would be a composite of all three. 2) Male teachers are named more frequently than female teachers. 3) Younger and middle-age teachers are preferred more than older teachers. 4) Teachers identified as "good," "knowledgeable/smart," and "popular" have similar clothing habits to other teachers within each category. 5) Fashionable or contemporary clothing was worn by many of the teachers in all three categories chosen by teachers and students.
Past research on interpersonal attraction indicates that personal appearance is a major factor in the initial stages of a relationship. Attractiveness has been shown to be a most important variable in dating situations. Though seduction styles vary, one of the ways to enhance one's appearance in order to attract the opposite sex is by wearing clothing which is perceived to be sexy. Since little previous research has explored this aspect of attraction, this study was done to investigate female perception of women's clothing as it relates to attraction of the opposite sex. A group of 14 color slides of the same female model wearing a variety of garments was shown to 166 female undergraduates. Respondents rated each costume on attractiveness, sexiness, likelihood of wearing on a date, and attractiveness to males using a 5-point Likert-type format. The remainder of the questionnaire asked for information on demographic variables and fashion opinion leadership.

Results indicate an element of caution in women's choice of clothing for a date. ANOVA and Pearson correlations indicate that the four rating scales are measuring different things yet are highly intercorrelated. While all correlation coefficients are significant, consistently higher values indicate that attractiveness is related more strongly to choice of clothing for a date than is sexiness or perception of male's rating. Correlation between sexiness and likelihood of wearing on a date indicate that the sexiest and the least sexy clothing are not as likely to be worn on a date as moderately sexy clothing. There are significant relationships between predictor variables and slide ratings but only for those costumes receiving either extremely high or low sexiness ratings. This is a further indication that moderately sexy clothing appeals to most women while clothing that is rated highly sexy or unsexy appeals only to some women. Lowest mean sexy slides were significantly related to both age and fashion opinion leadership. The least sexy clothes depicted styles not commonly seen on campus. The older the respondent, the sexier, more attractive, and more likely to wear on a date the clothing was rated. These same clothes were rated higher by fashion leaders. The styles were ahead of their time in design proportion and presented a unique appearance.

There are significant correlations between years of religious school and ratings for revealing clothing. The more years of religious schooling for the subject, the sexier she rated revealing clothes and the more willing she was to wear them on a date. The most revealing costume depicted a sheer sweater through which a bra was plainly visible. This suggests that religious women may wear revealing clothing in order to appear sexy, but may combine it with other garments to avoid a totally revealed look. Results suggest several ideas building toward a theory of the perception of sexy clothing by college women. Most women want to be attractive to men but not too sexy and so prefer moderately sexy clothing for a date. Religious women are even more cautious than others especially with regard to revealing clothing. For the majority of college women, appropriately sexy clothing is familiar in style and generally accepted by their peers. In contrast, women who are more interested in fashion like newer or more unique styles and rate them as sexier than women less interested in fashion.
Perception of Selected Apparel Items as Masculine, Feminine or Androgynous by College Students

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Every society has identified apparel items that it considers to be appropriate for males and for females. In recent years fashion has promoted a number of styles as "masculine looks" for female consumers. Men's clothing styles also have shown increased variety and brighter colors, as well as the use of colors and fabric textures previously associated with women's fashions and items of apparel. The purpose of this research was to assess the perception of the masculinity-femininity dimension of selected items of sportswear apparel by subjects enrolled in psychology courses at three southern universities.

A total of 240 subjects used the Andro Clo Instrument to evaluate the masculinity-femininity dimension of 18 apparel items categorized as masculine, feminine, or androgynous. The Andro Clo Instrument consists of DeLong and Larntz (1980). Data were analyzed by Chi-square analysis and principle axis factor analysis to assess differences in perception and categorization of adjectives by sex and race of respondents.

Chi-square analysis revealed significant differences in masculine-feminine ratings for 9 of the 18 apparel items by sex and ethnic group. The androgynous apparel category had the highest number of clothing items with significant differences (p = .05 or greater) in identification by sex of respondent. In keeping with social stereotypes, males and females were in agreement as to the identification of feminine apparel items. Analysis of data by ethnic group revealed significant differences in the classification of feminine apparel items. Some Black subjects used masculine and androgynous categories to classify apparel items in the feminine group.

Factor analysis derived six factors (form, preference, use, image, appearance, and occasion) used by respondents to describe sportswear apparel. Most variables on these six factors were consistent across sex and ethnic categories. However, one or two variables loaded exclusively on a specific factor for sex or race. Comparison of factor analysis for the apparel categories indicated the importance of an Occasion Factor for androgynous apparel, an Image Factor for masculine apparel, and a Preference/Image Factor for feminine apparel items.

The results of this research indicate that a core of bipolar adjectives are used to describe sportswear in general, while small subtleties in design are used to define masculine, feminine, and androgynous apparel. The classification of apparel items was influenced by the subjects' ability to perceive these subtleties. For this particular sample, the design factors associated with the masculine category were not different from the stereotypic factors identified by social historians and fashion promotion literature. Thus, the use of cultural stereotypes in the design and promotion of apparel goods continues to be a viable option for manufacturers and retailers.

References:

The Effect of Retail Experience on Students' Judgements of the
Saleability of Merchandise

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Decisions concerning the saleability of fashion merchandise lie at the heart of successful retail buying. Students training to be buyers may gain necessary skills from courses in fashion merchandising. In fact, the essentials of retail buying are a fundamental component of all fashion merchandising programs. Alternatively, students may gain knowledge of buying through work experience in a retail environment. To date, no research has documented how fashion merchandising students evaluate the saleability of merchandise. What's more, little is known of the effect of retail experience on students' saleability judgements. The primary purpose of this research is to examine the decision making process of fashion merchandising students. Specifically, this research investigates: 1) the relative importance of qualitative and quantitative cues on student's judgements of saleability; and 2) the impact of retail experience on student's evaluations.

Thirty-four fashion merchandising students (23 with retail experience and 11 without) each completed a set of hypothetical buying cases composed of five qualitative cues -- 1) fiber content, 2) cut, 3) color, 4) brand, and 5) country of origin; and three quantitative cues -- 6) pricing strategies (as indicated by mark-up), 7) promotional strategies (as indicated by advertising allocation), and 8) selling history. Each cue was varied at two levels in a 1/16 fractional factorial design consisting of 16 cases with a full replication (32 cases in all). For each case, students were asked to indicate the relative saleability of a basic misses' blouse with a slash (/) along an unmarked 100 millimeter continuum with ends defined as "not at all saleable" (0) and "very saleable" (100).

A separate analysis of variance of the fractional design was performed for each student. For students with no retail experience, significant main effects were found most frequently for the cut of the blouse and advertising allocation. Students with retail experience were found to have significant main effects most often for selling history and advertising allocation. To examine the proportion of variance accounted for by each cue (i.e., relative importance), Hays' (1963) omega squares ($\omega^2$) were computed for each student. Students with no retail experience considered both qualitative and quantitative cues when evaluating saleability, with cut and advertising allocation receiving primary emphasis. In contrast, students with retail experience placed considerable emphasis on quantitative cues, particularly selling history, with advertising allocation of secondary importance.

These results indicate that students with retail experience, compared to students with no retail experience, may enter fashion merchandising programs with a different base of knowledge. The results of this study should be useful to university faculty teaching fashion merchandising courses, and in advising fashion merchandising students to obtain practical work experience.
Japanese Retailing Strategy in Fashion Apparel: Marketing to the Young Japanese Consumer

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Japanese youths exhibit a unique sense of fashion awareness compared to their seniors; this group of pre-employees is able to reject traditional manners of dress before accepting a lifetime position in the Japanese workforce. These students use fashion as a means of entertainment and role playing in an effort to visually separate themselves from different generations and different peer groups.

This study was conducted with the purpose of developing a fashion apparel market profile of the young Japanese consumer, useful for U.S. apparel manufacturers and retailers interested in entering this potentially lucrative export market. Those preparing to market their products in Japan must be sensitive to the different Japanese clothing lifestyles. This study identified the fashion apparel needs and desires of the young Japanese consumer in 1983, noting the differences based on sex and educational levels. A total of 478 Japanese senior high school and university students (ages 15 to 24) were surveyed; and 35 fashion business professionals were interviewed in order to gain a broader understanding of the young Japanese consumers.

The survey questions were analyzed using contingency table analyses, and included response frequencies for the four consumer groups: 1) high school males, 2) high school females, 3) university males, and 4) university females. For ease of analysis and discussion, the survey questions were organized into seven categories of related content. They were as follows: 1) demographics, 2) fashion awareness, 3) shopping habits, 4) clothing preferences, 5) social habits, 6) personal image, and 7) buying potential.

Based on the results of this study and previous research, the young Japanese consumers generally can be classified as a leisure-oriented generation—one that is interested in sports and travel, which requires a variety of different clothes to suit the occasion; a consumption-oriented generation—with readily available spending money and some knowledge about smart shopping; and an internationally curious generation—in the areas of language, travel, and fashion.
Imported Apparel: Does Consumer Behavior Reflect Consumer Attitude?

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In 1984 the textile and apparel trade deficit reached 13.6 billion dollars, an increase of 53% over 1983. These imports were subject to both tariffs or explicit duties (averaging 22%) and quotas or quantitative restrictions. It has been estimated that the 1984 costs to consumers for this protection was $19 billion for tariffs and $4.4 billion for MFA-related quota restrictions.

The economic impact of these policies on consumers is evident, but consumers' ability to influence the adoption or modification of these policies is much less obvious. For this reason, recent studies have attempted to measure consumer attitudes towards imported versus domestic apparel. These studies have concluded that U.S. citizens are influenced by a garment's country of origin, prefer American-made apparel, and find it to be of superior quality. Recent import statistics give rise to questions about these conclusions.

The goal of this study was to test the assumption that consumer attitude is reflected accurately in consumer behavior. Its purpose was to assess the consistency of consumer attitudes with consumer behavior following the purchase of an apparel product.

Intercept surveys were conducted at a shopping mall with consumers who just had purchased clothing. They were questioned about their attitude toward domestic versus imported clothing and their awareness of the country of origin of their purchase. Reasons for the purchase and demographic information also were collected from over 500 consumers. The questionnaire was structured and administered so that behavior rather than attitude was measured.

Results from this sample vary widely from those obtained in consumer attitude surveys. For instance, 78% of the consumers questioned were unaware of the country of origin of the garment they had just purchased. Only 29% of the sample cared whether the garment was produced domestically or imported from another country. Consumers who both knew where their purchase had been produced and were concerned that it was domestically manufactured represented 11% of the sample. Chi-square tests revealed differences related to sex, age group, and item purchased.

The results of this research suggest that information on consumer attitude is not sufficient for making purchase assumptions. This pilot study should be expanded and data collected from other populations before generalizations are made, but preliminary results suggest that at the point of purchase numerous other variables take precedent over the garment's place of production, and American producers have not yet convinced consumers that "made in the USA" should be an important factor in their decision to buy.
Socioeconomic and Demographic Determinants of Footwear Expenditures

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At the 1980 Conference of the Association for Consumer Research, Upah and Sudman proposed research based on data from the Bureau of Labor Statistics' Consumer Expenditure Survey (CES). One suggested topic was the Engel curve analysis of expenditures for selected subcategories of goods and services. The purpose of this study was to use the CES data in evaluating the effects of socioeconomic and demographic variables on expenditures for one subcategory of clothing -- footwear. This information is of interest to retailers and manufacturers, who use socioeconomic and demographic variables in segmenting their markets. This research was based on a subsample of expenditure data collected from 8,953 consuming units as part of the interview component of the 1973 CES. The independent variables were the natural log of disposable personal income, family size, characteristics of the household head (age, sex, race, and education), region of residence, and city size. The dependent variable was the natural log of annual footwear expenditures. In least squares regression analyses the model was:

\[ C_i = B_0 + B_1 \ln X_i + \sum B_{j,k} \ln X_{j,k} + C_1 D_1 + \ldots + C_n D_n \]

where \( C_i \) represents the natural log of expenditures for footwear, \( B_1 \) is income elasticity of footwear expenditures, \( \ln X_i \) equals household income, \( X_{j,k} \) equals family size and age of the household head, and \( C_1 \ldots C_n \) are the coefficients of the dummy variables \( D_1 \ldots D_n \), which represent the characteristics of the household head and location of residence. When transformed to an adjusted antilog, the regression coefficient \( C_n \) represents expenditures for footwear as a percentage of expenditures by households in the relevant base category.

The model was significant at the 0.01 level in determining footwear expenditures. The \( R^2 \) was 0.37, with income accounting for 27 percent of the explained variance. The income elasticity of footwear expenditures was 0.67. Family size was related positively to footwear expenditures. Age of the household head was related negatively to footwear expenditures. Female-headed households, black households, and households located in either the Northeast or the South spent more on footwear than other households. Households headed by individuals with no college education spent less on footwear than households headed by the college-educated.

The results of this study confirm the importance of income in determining expenditures for goods. As economic theory suggests, income is the most important determinant of expenditures for footwear. As income increases, expenditures for footwear increase, but at a decreasing rate. This suggests that footwear is a necessity with respect to income. The CES is a rich source of data on the socioeconomic and demographic determinants of expenditures for footwear, as well as other subcategories of clothing. When the 1980-81 CES data become available, research should focus on the determinants of expenditures for clothing in other subcategories, such as undergarments, lingerie, hosiery, or accessories.
Energy Conservation Practices and Use of Non-Clothing Textiles in Residential Settings

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Today there are serious concerns involving the supply of most forms of energy used by consumers. In view of escalating costs homeowners, landlords, and employers are cutting back on heat. Methods of compensating for lower temperatures include the use of supplementary heating sources, textile products, and the addition of insulation to buildings. Authoritative recommendations related to energy conservation readily are available to consumers. However, knowledge of consumers' energy conservation practices is not easily obtained. The purpose of this research was to investigate energy conservation practices related to residential heating within the state. A secondary purpose was to examine the extent to which specific non-clothing textiles were used to maintain bodily comfort within those residential settings.

A telephone survey was conducted by professional interviewers to obtain data from a random sample of 445 state residents who were 18 years of age or older. Three types of information were collected: kinds of heating systems and thermostat settings; use of quilts, blankets, and wrap-ups; and demographic data. Descriptive statistics were used to report the findings.

Analysis of the demographic data indicated that the 445 respondents were similar to the total population within the state as reported by the 1980 Census. Fifty percent of the sample heated their homes with natural gas while those heating with electricity comprised 29 percent of the sample. The use of some type of supplementary heat, primarily fireplaces or space heaters, was reported by 35 percent of the respondents. The room where most respondents used supplementary heat was the den, family room, or great room.

Energy conservation practices reported by the sample included adjustment of the temperature within the home. Changes made in thermostat settings were from a prior mean of 72°F to a current mean of 63°F, from a median of 72°F to a median of 68°F, and from a mode of 70°F to a mode of 68°F. The specific times when respondents changed their thermostats were: when sleeping, upon arising in the morning, and when planning to be away from home. Also, approximately one third of the sample had added insulation to their homes. Ceiling insulation was used most frequently.

Only 31 percent used afghans, blankets, or other non-clothing textiles to maintain bodily comfort during sedentary periods. To maintain comfort while sleeping, blankets were used most often, followed in order by bedspreads, quilts, and electric blankets. Regardless of the type of bedding textiles used, preference was for lightweight coverings.

Lowering thermostat settings was the practice most often used by consumers to reduce the temperature in their homes during the winter months. The use of fireplaces or space heaters requires that information regarding their safety be made readily available. Non-clothing textiles are an "untapped source" of energy conservation. Such textiles offer many advantages. They are available in a wide price range, they provide flexibility in their use, and their aesthetic qualities are effective in humanizing space.
Orchard-Testing of Pesticide Protective Clothing

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Agricultural workers use numerous pesticides which range from high to low toxicity, though uncertainties exist about the toxicity of many of them. Protective clothing can minimize worker contact with, and possible absorption of, known or potential toxins. Workers may elect not to wear protective garments because of low moisture and air permeability, leading to discomfort and possibly heat stress in warmer months.

The objective of this research was to determine the pesticide protection provided by an experimental suit, as compared to a commercially available suit, when tested under orchard conditions. The commercial suit includes pants and hooded jacket, both made of heavy fabric coated with polyvinyl chloride (PVC). The experimental suit, of the same style and dimensions, was constructed of Gore-Tex® fabric which is designed to allow water vapor to pass through and yet to inhibit liquid water penetration.

For orchard testing, male mannequins were dressed in the two suits and other protective gear, then mounted on platforms on each side of the tractor driver during air-blast spraying. The driver also wore a PVC suit. Spraying occurred on three separate days in early fall, for one-half hour each time, using Dikar®, a common fungicide for apples. Pesticide exposure was determined by attaching non-overlapping filter papers on the inner garments and on the outside of each of the three suits, at six upper-body sites. After spraying the amount of pesticides on each paper was measured in parts per million (ppm) by gas-liquid chromatography for the Dithane M-45® component of Dikar® and by spectrophotometric assay for the Dinocap® component. A 76.7 percent formulation of Dikar® contains 72 percent Dithane M-45® and 4.7 percent Dinocap®.

Great variability was found in the amount of pesticide deposited on outside filter papers (units, ppm):

<table>
<thead>
<tr>
<th>Dikar® Component</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum Value</th>
<th>Maximum Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dithane M-45®</td>
<td>1144.39</td>
<td>946.93</td>
<td>13.76</td>
<td>3259.89</td>
</tr>
<tr>
<td>Dinocap®</td>
<td>57.23</td>
<td>25.93</td>
<td>12.77</td>
<td>97.02</td>
</tr>
<tr>
<td>Dithane M-45®</td>
<td>1255.08</td>
<td>1085.63</td>
<td>0.00</td>
<td>4012.28</td>
</tr>
<tr>
<td>Dinocap®</td>
<td>55.83</td>
<td>29.91</td>
<td>18.51</td>
<td>120.00</td>
</tr>
<tr>
<td>Dithane M-45®</td>
<td>1400.36</td>
<td>931.46</td>
<td>0.00</td>
<td>3535.80</td>
</tr>
<tr>
<td>Dinocap®</td>
<td>51.27</td>
<td>21.58</td>
<td>20.42</td>
<td>72.85</td>
</tr>
</tbody>
</table>

Variability and inconsistencies in deposition also were evident at body sites, but deposition often was higher on the shoulders than on upper arms, chest, or back, and deposition on the chest often exceeded that on the back. Higher wind velocity and turbulence on two days seemed to cause some variation. Even with varying outside deposition, there was no measurable trace of pesticide on any inside filter paper in any suit. Although the research involved no comfort measurements, it indicates that Gore-Tex® has promise as a protective yet comfortable fabric.
Effect of Phosphate Built Detergent Ban on Quality of Home Laundry

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While only seven state legislative bodies have banned the sale of phosphate built detergents for home laundries, other states, notably North Carolina and Virginia, are actively considering such a ban. Phosphorus and nitrogen are well known algae nutrients which, when present in bodies of water in excessively large amounts may lead to eutrophication. With the loss of oxygen from the water supply, the delicate balance of life cycles between fish and plants is upset, resulting in polluted bodies of water. Phosphate built detergents are a highly visible target for environmentalists and legislators.

The research examines the effectiveness of three major detergent types - phosphate built, citrate built, and carbonate built - in soil removal and the prevention of soil redeposition, carbonate build-up, and iron staining under typical urban and rural washing conditions. A variety of textile types were used: knits and wovens; cotton and cotton/polyester blends; pastels and whites for the iron staining, soil removal, and soil redeposition test segments; dark colors for the carbonate build-up segment of the study. Water hardness was adjusted to 59.5 ppm for all tests and the iron level was 0.8 ppm for the iron staining study. Standard washing and drying procedures were followed and textiles were removed for evaluation at specific intervals during the testing. Evaluations included light reflectance (L, a, and b as well as percent whiteness) and appearance using the AATCC Gray Scale for Color Change and a panel of expert judges.

After five wash/dry cycles the phosphate built detergent was more effective as a soil remover than was either the citrate or the carbonate built detergent. (Soil was a slurry of clay and vacuum cleaner dust). Although subjective evaluation by a panel of experts indicated that the consumer probably would not be able to see any difference among the detergents in effectively preventing soil redeposition after five wash/dry cycles, instrumental values showed that the phosphate built detergent was slightly more effective in preventing soil redeposition than was either of the other two detergent types. However, visual observation of the backgrounds of the soil removal test samples clearly confirmed the instrumental implications. In evaluating the dark colored textiles for carbonate build-up after thirty wash/dry cycles, considerable color loss was noted. Hunter Color Difference Meter readings and subjective evaluations indicated the least color change for the liquid citrate built detergent washed samples and the most for the carbonate built detergent. It was concluded that most of the color change probably was due to alterations in textile surface characteristics and color loss rather than to the build-up of carbonate deposits. Atomic absorption spectra analysis for the presence of calcium indicates too small a portion to account for the observed color change. (Carbonate deposits, had they been present, would have been in the form of calcium carbonate). In areas where the domestic water supplies average 0.8 ppm iron, phosphate built detergents are more effective than either carbonate built or citrate built detergents in effectively maintaining textile whiteness through repeated (30) wash/dry cycles.
Conservation and Analysis of Textiles from a Recent Archaeological Excavation of Narragansett Graves

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A mid-17th century Rhode Island Narragansett Indian Cemetery consisting of the skeletal remains and grave goods of 56 individuals was excavated during the summers of 1982 and 1983. This site, RI-1000, is one of a few known Indian burial grounds in Rhode Island. Excavation and analysis was a cooperative effort between Rhode Island Historic Preservation Commission, specialists in Rhode Island colleges and universities, and Narragansett Tribe members. Preliminary analysis of the artifacts indicates the cemetery was used between 1650 and 1670. The burials contained a mixture of aboriginal and European artifacts such as spoons, clay pipes, brass pots, ceramics, glass beads, bells, buttons, and textiles. The textiles excavated consisted of approximately 150 fragments, some of aboriginal manufacture (plaited, twined, or other non-loom technique) and some of European manufacture (woven). The focus of this research was to conserve and analyze the excavated textiles of European origin. The objectives were (1) to stabilize the textiles and prepare them for analysis, and (2) to analyze the textiles and compare them to other textiles of European manufacture from similar sites.

Under the direction of a professional conservator, conservation techniques were devised for a lab with little existing equipment. After initial freeze drying to deter microbial growth, the textiles were treated for soil and salt removal. Approximately half of the fragments were bent or crumpled and needed treatment in a humidification chamber. All fragments then were washed in an alcohol bath. Next, the fragments were consolidated using an ethyl hydroxyethyl cellulose solution. Storage units consisting of foam mats (Volara), plexiglass sheeting, and end cap channel binders then were constructed for each textile. When making each unit, holes were cut in the foam mat in the shape of the fragment so that textiles could be analyzed from both front and back.

The 74 fragments were analyzed for fiber content, yarn structure, weave, color (Munsell system), and finish. Each textile was cross-referenced with excavation data worksheets to determine position of the fragment within the individual burial, number and kind of fragments per burial, and sex and age of the individual with whom the textile was buried. Sources from the 17th c. were read for information on how these textiles were used by the Narrangansetts.

Three of the fragments were cotton calico. None of the other similar sites yielded any cotton textiles. The remaining fabrics were wool of five different types ranging from coarse woolens with a nap to fine worsteds. Similar wool fabrics were found in other Rhode Island sites.

The European textile fragments from RI-1000 may have been used by the Narragansetts in their mortuary practices as follows: (1) heavy woolen cloth was used in place of traditional fur robes as body covering in the burial; (2) wool textiles sometimes were rubbed with red ocher as part of the mortuary practice; (3) as wrappers for grave goods; and (4) as parts of European or native made clothing.
The purpose of this paper is to describe the changes which occurred in the design and construction of men's suit jackets in the years 1919 to 1929. It is based on the study of extant garments as well as illustrations of men's jackets found in mail-order catalogs.

Compared with the number of studies devoted to the history of women's costume, men's clothing has been virtually ignored by costume historians. Only recently have scholars begun to turn their attention to the study of men's fashions. Of these, few studies have concerned the construction and design of men's clothing, as opposed to its relationship to male roles and other factors. Before any interpretation of men's fashions can be undertaken, it is crucial that basic information concerning style changes be available.

The purpose of this study is to describe changes in the design and construction of men's jackets in the United States from 1919 to 1929. This period was chosen because it was the time in which post-war technology and life-styles could be expected to have an impact on men's clothing. Men's jackets were selected for analysis because they were the most visible part of a man's ensemble. Formal clothing and active sports-wear were not considered, however.

The study was comprised of two parts. The first was a detailed investigation of the construction techniques and fabrics found in extant garments in the collection of the Smithsonian Institution. The second portion of the project was a form and content analysis of illustrations and descriptions of men's jackets found in Sear's catalogs from 1919 to 1929. In both portions, information was gathered concerning lapel width, jacket length, number of buttons, and many other design and construction details.

Although men's clothing certainly changed less quickly and drastically than did women's during the 1920's, there were many definite discernable changes which occurred. The first half of the decade was found to have been the period of greatest change in men's jacket styles. The fitted, narrow-shouldered styling which had originated before the First World War was replaced after 1925 by a looser, broader-shouldered silhouette. This was also the period of greatest change in the manufacture of men's apparel and a time when prices for menswear were falling dramatically. The relationship of these changes in design, production, and price is still under investigation. Research also is continuing on the period from 1930 to 1941.
Body Image, Body Characteristics and Self Concept

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The self-concept, a very complex and dynamic organization of self perception and feeling, exerts a strong influence on the total personality. Not only is the role of this physical dimension central to the identification of the person on a physical level but also the body characteristics play a critical role in the development of the self and its potential. While there is a sizeable collection of studies in the literature focusing on the relationship between the body image/body characteristics and self concept, little research has been done that measures the magnitude and nature of this relationship. Earlier studies have indicated that the body image held by an individual often is faulty. This study is designed to examine body perception as well as an objective assessment of body characteristics. The major purpose of the study is to explore the degree and nature of the relationship between body image/body characteristics and self concept. An ancillary purpose of the study is to demonstrate the use of an approach to measure quantitatively and objectively the actual body characteristics.

Two data collection procedures were used in the study. The TSCS, developed by William H. Fitts, has been widely used and reported in the literature and has respectable validity and reliability estimates. The instrument was used in its entirety including scoring and interpretation procedures. The second data collection device, "graphic somatometry," was developed by the author and has been tested and applied for many years while it is not yet widely reported in the research literature.

"Graphic somatometry" provides a graph of the figure by photographing the silhouette on an illustrated grid. Using this photograph in conjunction with rating scales, it is possible to secure quantified measurements of body units as relative ratings on five point scales. Using both the "somatograph" and a check-list, subjects record their own impressions of their figures. The objective ratings of the somatographs were secured as consensus rating of a panel of judges who had been trained by the researcher to use the method. Ratings included "body build" (height/weight relation), posture, body proportions, and smoothness of contour.

The subjects of the study were 176 female students in physical education classes, the entire population in a given quarter. The "somatographs" were made and self ratings secured early in the quarter. Judges' ratings of somatographs were accomplished in a series of two-hour sessions. The general null hypothesis of the study was that there were no significant relationships between the self concept (as measured by the TSCS) and body image/body characteristics (as measured by "graphic somatometry").

The raw data have been collected and a sample compared against the somatographs to document reliability of the procedure. The data were analyzed using correlations, multiple regression, and multivariate analysis of variance. Results of these approaches for interpreting the data and testing the null hypothesis will be presented, documenting the magnitude and nature of the relationship of body image/body characteristics and dimension of self concept.
Clothing Attitudes of Retired Men as Related to Their Participation in Activities and Life Satisfaction

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The purpose of this study was to examine the clothing attitudes of retired men. The specific objectives were to determine (a) the relationships between retired men's clothing attitudes, their participation in activities, and their life satisfaction, and (b) whether differences exist in retired men's clothing attitudes, their participation in activities, and their life satisfaction based on sociodemographic characteristics.

The sample was composed of 127 men who had retired. All of the men received retirement benefits and all lived in noninstitutional settings. A survey approach was used and data were collected by means of a written questionnaire. Four instruments that measured clothing attitudes, participation in activities, life satisfaction, and selected sociodemographic characteristics were used. The clothing attitude measure and the participation index were analyzed in both the composite forms and as subscales. Six hypotheses were tested using Pearson product-moment correlation coefficients and least squares analysis of variance.

The retirees had relatively positive attitudes about clothing for social activities and relatively positive attitudes about clothing maintenance. They reflected relatively negative attitudes about clothing for retirement. Participation in solitary activities and expressive leisure activities was relatively moderate, and participation in voluntary associations was relatively low. The men had a relatively high level of life satisfaction.

Attitudes about clothing for social activities and attitudes about clothing maintenance were related positively to participation in solitary activities and to participation in expressive leisure activities. No relationship was found between attitudes about clothing and participation in voluntary associations. Life satisfaction of the retirees was not related to their attitudes about clothing.

Differences existed in clothing attitudes between men who were retired and men who had retired previously but were working part-time. Fully retired men had more positive attitudes about clothing for social activities and more positive attitudes about clothing maintenance than retired men who were working part-time. Differences in their participation in activities and their life satisfaction were found among the retirees.
The Relationship Between Match/Mismatch of Cognitive Learning Styles of Fashion Merchandising Majors, Cognitive Learning Styles of Instructional Settings and Level of Student Achievement

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The purpose of this study was to determine whether: (1) students in a selected major had a predominant cognitive learning style, (2) a particular cognitive learning style of students was related to academic achievement, (3) a match or mismatch of cognitive learning styles of students and cognitive learning styles of instructional settings was related to level of student achievement, (4) the two instruments used to categorize cognitive learning styles of students resulted in similarities in classification of students into learning style categories, (5) and instructors' cognitive learning styles were related to their instructional presentation style. The Witkin Group Embedded Figures Test and the Kolb Learning Style Inventory were used to classify 173 fashion merchandising students and six instructors into cognitive learning style categories. The Herold Teaching Strategy Observation Checklist was used to categorize six clothing/textile classes into instructional styles of field independent or field dependent. Results showed students in the selected field of fashion merchandising did have a predominant cognitive learning style. Fifty nine percent of the students were field dependent and 41 percent were field independent on the Witkin instrument. The Kolb Inventory showed 44.5 percent were Divergers, 30.6 percent were Accommodators, 14.5 percent were Assimilators, and 10.4 percent were Convergers. No relationship was found between a particular cognitive learning style and academic achievement. No relationship was found between a match or mismatch of cognitive learning style of student and instructional setting and student achievement. The Kolb and Witkin instruments showed no similarities in classification of students into learning style categories. There was no significant relationship between personal cognitive learning style of teachers and their style of teaching.
Early Power Loom Fabrics in New England, 1830-1860

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By 1930, New England mills were installing water powered looms to make cloth instead of "putting out" machine-spun yarns to local hand-weavers. The types of fabrics manufactured by American mills at this time were inexpensive long run fabrics for the mass market, such as "kersey" and "osnaburg". But what exactly did these fabrics look like?

Many textile historians express difficulty in assigning names and descriptions to early to mid-19th century fabrics. Most literature on textiles of the period concentrates on prints, as these were saved more often than plain fabrics because of their decorative quality. Thus, the physical characteristics of early power loom fabrics were the focus of the research. Specifically, the objectives were (1) to determine the names of factory produced fabrics, and (2) to determine the defining structure, pattern, and visual appearance, based on a study of extant fabrics and records. The study was limited to cloth woven between 1830 and 1860 by mills in Rhode Island, eastern Connecticut, and eastern Massachusetts.

A total of 82 museums, historical societies, and libraries were contacted in order to locate fabric samples and mill records. Data collection began with an examination of cloth samples and recording of fabric information on specially designed worksheets for analysis. The worksheets then were categorized by weave structure and method of design. Fabric samples were photographed in black and white to record the weave structure and pattern. Store and mill records were examined to determine what fabrics were being produced and sold.

A total of 591 fabric samples were studied at 21 institutions. A total of 177 samples were determined to have enough documentation for inclusion in this study. These fabric samples were divided into categories for analysis: blue and white checks, Davisville plaids, Hazard samples, Peace Dale shawls, Yantic Mill samples, named fragments, prints, and other weave structures.

The blue and white checks were woven in a plain weave of single, cotton yarns in a yarn-dyed check pattern. The samples from Davisville also were plain woven of single wool or cotton yarns in a yarn-dyed plaid pattern. The Hazard samples were examples of fabrics produced in the 1840's and 1850's for the southern plantation market at the Peace Dale Manufacturing Company in Peace Dale, Rhode Island. The following named fragments were located and studied: osnaburg, cloaking, Carolina Plaid, muslin, Brown Sheeting, negro goods, delaines, Carriage Cloths, fancy tambours, and camblet. Other weave structures studied include weft-faced plain weave, double cloth, and twill weave.

The findings of the study should be useful to historians seeking information on physical characteristics of early to mid-19th century fabrics made in New England mills. The photographs illustrating the full research report are helpful in visualizing the fabrics described.
A Documentation and Analysis of Dated Victorian Crazy Quilts

Kathy M. Jung, University of Maryland, College Park, Maryland 20742
Jo B. Paoletti, University of Maryland

Victorian crazy quilts were part of a larger fad which encompassed a variety of needlework techniques in the late nineteenth century. Improvements in the mechanical printing process allowed the crazy design to be transmitted rapidly to a wide audience, but its popularity apparently was short-lived. Experts believe that as the popularity of crazy patchwork quilts waned, the decorative features which characterized them also diminished. The purpose of this study was to test that hypothesis and explore the crazy patchwork fad.

In order to determine the characteristics of the crazy quilt fad and its rise and decline in popularity, a sample of thirty-seven dated Victorian crazy quilts was documented. A methodology was developed to measure and quantify the features found on the sample quilts, such as fabric repeats, average number of patches and different embroidery stitches for a given area, and embroidered, painted, and fan motifs. A subjective analysis of the overall color characteristics of each quilt was performed based on the Munsell color relationship chart, and the quilts were photographed for future reference.

After the documentation was completed, standard statistical methods were used for data analysis. The distribution of number of quilts documented per year supported documentary evidence of the fad's appearance, duration, and decline. Certain crazy quilt features diminished in frequency over time, and a relationship was found between specific decorative features. An underlying order to the quilts became apparent through analysis which was not obvious upon visual examination. Deviations from the popular form of the crazy quilt did not occur until after the fad had lost its mass appeal.

A review of primary resources revealed no particular point of origin for the popular crazy design. Scant evidence suggests that crazy patchwork did not evolve from a patchwork or quilt making tradition; it more likely developed from a single needlework technique such as outline embroidery or from a combination of needlework techniques which included patchwork such as Persian or Japanese embroidery. Evidence did not support the theory that the crazy quilt originated in Colonial days and led to the development of an American vernacular patchwork quilt.
Kayaker's Paddling Jacket: A Needs Assessment

Kathy Koon Mullet, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061-8396
JoAnn Boles, Virginia Polytechnic Institute and State University

Although there has been an increase in the number of people enjoying whitewater activities, there is little research concerning the design of garments used for the sport. The purpose of this study was to determine the perceived and physical needs of male kayakers as related to a paddling jacket. A needs assessment was performed, using a procedure developed for educational purposes.

The first step in the needs assessment was to identify the problem based on needs. No assumptions or "givens" were made. To determine the kayakers' perceived needs for a paddling jacket, a questionnaire was developed. The sample was comprised of 74 male kayakers. From the results of the questionnaire, important characteristics of the paddling jacket were obtained through frequency of answer and Pearson correlation statistical procedures.

To determine the physical needs, a biomechanical analysis was done using cinematography. Two male kayakers were filmed performing the forward kayak stroke, Duffeck stroke, and Eskimo roll. From the analysis of the movements, the range of motion of the arms and upper torso of the body was determined.

The data obtained from the questionnaire and analysis of the film were the basis for the solution requirements of a paddling jacket. The solution alternatives included recommendations for possible fabrics and linings. The use of four possible armscye structures was suggested as well as three elbow designs and two waistline treatments, which would meet the perceived and physical needs of the kayakers for a paddling jacket. The paddling jacket alternatives were combined to form all possible combinations in total jacket designs. Each of the twenty-four possible combinations was reviewed, and accepted or rejected based on logic and aesthetic principles. Some designs were eliminated since not every design combination was logically or aesthetically possible. Five designs were accepted as solution strategies.

Although this study was concerned with developing a paddling jacket for male kayakers, the procedure used can be applied to other activities. A needs assessment is important in determining what the wearer believes is important in their clothing, and what physical requirements actually are necessary.
Assisting Small Apparel and Textile Manufacturers in New York State: The Potential for University-Based Programs

Julie McDowell, Cornell University, Ithaca, New York 14853-4401
Susan B. Hester, Cornell University

The apparel and textile industries are vital to the economic stability of the New York State manufacturing sector. As an employer of 175,400 people, the apparel sector alone ranks sixth in the state and first in New York City. In recent years, employment has declined dramatically due to increases in imports, lagging exports, and improvements in technological efficiency. This decline has been devastating especially to the large proportion of small firms in this sector which often lack the knowledge and capital required to improve productivity and gain a competitive edge.

Opinions are mixed as to what should be done, if anything, for this rapidly declining industrial sector. A variety of organizations have been established to help the industry adjust to foreign competition and other cyclical changes. Although various sources of information and assistance exist, many government programs have been limited by budget cuts and some efforts simply have been ineffective in reaching the industry. It was hypothesized therefore that more appropriate ways of providing information and assistance to this sector were needed, and could be provided through Cooperative Extension or other college based programs.

New York State, the major apparel producing state in the U.S., was the focus of this project. Three major objectives were identified:
1. To determine the sources of information and assistance utilized by these firms and to identify which were perceived as most appropriate.
2. To identify the kinds of information and assistance (e.g. marketing, technology) most needed by these small businesses.
3. To explore the potential for new programs and services such as Cooperative Extension or other college based programs to provide this information and assistance.

The project was divided into two parts. The first was a mail survey of four subpopulations (850 firms) within the total population of small apparel and textile manufacturers in New York State. Stratified random sampling with unequal sampling fractions ensured representation across location and industry type. The second stage of the project focused on specific marketing requirements, identified as the most pressing need in the mail survey. This was accomplished through 35 telephone interviews and 5 case studies of individual firms.

Results from the surveys indicated that most small firms in this sector are informed poorly about the programs and services available to them. It also was evident that manufacturers believe there is a strong need for more and better information and assistance, particularly by firms located outside of Metropolitan New York, and especially in the marketing area. Based on these and other results, specific recommendations were made regarding the development of programs to assist the New York State apparel and textile industries, the kinds of information or assistance that were needed, and the types of delivery mechanisms that would be most appropriate in providing this assistance.
Eastern Region Minutes, Business Meeting
Providence, Rhode Island, October 31, 1985

1. Carol Warfield, President, called the meeting to order at 11:30 a.m.
2. Minutes from business meeting at Greenbrier were read and approved.
3. Treasurer's report was distributed and accepted.
4. Reports
   * Nominating Committee
     President - Elect -- Susan Hester
     Council Representative -- Majorie Norton
     Representative to National -- Jan Yeager
   * Futures Committee
     Report was in the form of a slide set presentation, "ACPTC Focused Missions for the Future." The three missions are: research, theory and dissemination.
   * ACPTC Newsletter
     Received two this year. Experimenting with a less expensive format, so we could have more issues. Majority would like to have more.
   * 1984 Proceedings
     Not ready yet.
   * ACPTC-ER/AHEA Workshop
     Favorable responses. There were 41 participants from 37 institutions.
   * ASTM
     All standards are to be reviewed and, if necessary, revised, every five years. There is a proposal to add a fourth rating category -- consumer. Current activities include: body measurements for children's wear, terry products, feather and down filled products, home sewing terminology, textile conservation, upholstered furniture fabrics, washable sheets and pillow cases, shoe traction and safety, measuring fiber shrinkage, care labeling, bras.
   * ATMI Tour
     Susan Hester will work with Jim Donovan. Individuals were requested to complete the form and return if interested in participating.
   * National Executive Board Meeting
     Reported acceptance of National Honorary member submitted by Eastern Region; by-laws changes; increase in dues; some new National Committees will be formed.
   * 1986 National Meeting
     Houston, October 22-25, 1986, Westin Galleria Hotel. Program plans include: pre-conference tour to NASA; keynote speaker, Heidi Troffler; post conference workshops on grantmanship, theoretical, and international.
   * 1987 ACPTC-ER
     Charlotte, North Carolina, Marriott City Center (downtown), November 5-7, 1987.

5. New Business
   * Nationalization
Reported that Central Region had endorsed this concept by acclamation. Suzanne Loker moved that we request National Board to appoint a committee to evaluate the feasibility of a national organization. Seconded. Passed.

6. Announcements
   *Complete evaluations each day. Place on table or in box.
   *Thanks to Carol for a job well done.

Adjourned.
ACPTC/Eastern Region
Treasurer's Report
October 15, 1985

I. General Funds
   A. Receipts
      Balance on hand 11/1/84  7879.46
      1984 Annual Conference  1142.50
      Membership dues for 1984-5 1403.00
      Membership dues for 1985-6  1048.00
      AHEA-ACPTC Preconference Registration 1435.00
      Refund  561.58
      1985 Annual Conference Registration 12485.00
         Museum exhibit entries  460.00
         Monsanto reception  200.00
         Milliken Graduate Student Award  250.00
      Interest 11/1/85 - 10/15/85  293.60
      Total 27158.14

   B. Disbursements
      1984 Annual Conference 2996.51
      Board meeting expenses 2596.07
      Committee expenses  261.60
      AHEA-ACPTC Preconference  608.02
      Accounts Book audit  100.00
      1985 Annual Conference 1602.47
      Total 8164.67

      Balance on hand 10/15/85 18994.47

II. Publications Fund
   A. Receipts
      Balance forwarded  6726.42
      Interest  525.62
      Total 7252.04

   B. Disbursement
      1983 Proceedings  548.32
      548.32

      Balance on hand 10/15/85 6703.72

Submitted by:

Suzanne Loker, ACPTC-ER Treasurer
ACPTC-WR OFFICERS AND COMMITTEE CHAIRPERSONS

OFFICERS 1984-85

B. Jean Margerum, President
Merry Jo Dallas, President-Elect
Barbara White, Secretary
Mildred Crawford, Treasurer
Charlene Lind, Counselor
Janet J. Else, Historian

ACPTC NATIONAL EXECUTIVE BOARD, WR REPRESENTATIVES

Susan Kaiser
B. Jean Margerum
Christine Milodragovich

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General
  Margaret Rucker
  University of California, Davis

Program/Local Arrangements
  Margaret Rucker

Registration
  Susan Kaiser
  University of California, Davis

Hospitality
  Char Christensen
  Solano Community College

Refereed Abstracts
  Nancy Owens
  California State University, Northridge

Proceedings
  Leslie Davis
  Oregon State University

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  Leslie Labhard
  California Polytechnic State University

Publicity
  Susan Geringer
  California State University, Sacramento
  Nancy Rabolt
  San Francisco State University

Tours
  Nancy Rabolt
  Gwen Sheldon
  California State University, Chico
ACPTC WESTERN REGION CONFERENCE  
October 23-26, 1985  
Napa, California

THEME: FROM FIBER TO FASHION:  
ISSUES AND PRIORITIES

Wednesday, October 23

12:15 - 9:30 p.m.  
San Francisco tours led by Nancy Rabolt

3:00 - 4:30 p.m.  
Tour of Sawyer Sheepskin tannery and retail outlet led by Gwen Sheldon

7:00 - 10:00 p.m.  
Executive Board meeting

Thursday, October 24

7:00 - 9:00 a.m.  
Conference Registration

7:30 - 8:30 a.m.  
Continental Breakfast, courtesy of Macy's

8:30 - 9:00 a.m.  
Welcome: Margaret Rucker, Conference Chair  
President's Message: B. Jean Margerum  
Remarks: Linda Remington, Macy's

9:00 - 9:30 a.m.  
"Government, Industry, and Academia: A Cooperative Effort"  
Steven Fike, U. S. Customs Service

9:30 - 10:15 a.m.  
Panel: "Preparing Students for Careers and Career Change: Focused Versus General Education"  
George A. Morgan, Doris Hime, Antigone Kotsiopulos, Nancy Morris, and LaVon Blaesi, Colorado State University

10:15 - 10:45 a.m.  
Break

10:45 - 11:10 a.m.  
"Communication and the Classroom Climate"  
John Vohs, Director of the Teaching Resources Center, University of California, Davis

11:10 - 11:35 a.m.  
"A Process Approach to a Fashion Exhibition"  
Marcia A. Morgado, University of Hawaii

11:35 - 12:00 p.m.  
"Computer Applications for Merchandise Budgeting"  
Judith Everett, Northern Arizona University

12:00 - 1:30 p.m.  
Conference Luncheon and Business Meeting
AFTERNOON SESSION: Nancy Owens, Presiding

1:45 - 2:30 p.m. Interdisciplinary Panel: "Clothing as Communication" Susan Kaiser, Chair
Fred Davis, University of California, San Diego; Randall Harrison, University of California, San Francisco; JoAnn Stabb, University of California, Davis

2:30 - 3:00 p.m. Position Paper
"The Ecological Approach to Clothing and Textiles in Practice"
Mary Etta Williams, University of Utah

3:00 - 3:30 p.m. Break

3:30 - 4:00 p.m. Futures Report
Merry Jo Dallas, Futures Committee Representative - WR

4:00 - 4:30 p.m. Discussion led by Christine Milodragovich and Marilyn Horn

5:00 - 6:00 p.m. Poster Session
Barbara Christensen, "A Textile Filing System"
Lezlie A. Labhard and Elaine L. Pedersen, "Undergraduate Research in Textiles and Clothing"

Jane Larkin and Leslie L. Davis, "Consumer Use of Informational Cues in Judgments of Clothing Quality"

Tom Peterson and Myrna Johnson, "Effects of Teachers' Style of Dress on High School Students' Ratings of Teacher Characteristics"

Della Pottberg and Mary Thompson, "Pretesting Potential Students for Skill Performance and Understanding of Sewing Principles Before Registering for Intermediate Construction"

Milagros Moguel and Nancy J. Rabolt, "Evaluation of the Guam Beginning Sewing Workshops: Selected Factors Influencing the Acquisition of Sewing Skills"

Gwen Sheldon, "Retail Intern Activities Rated by Retailers and Educators"

Valerie Smith and Nancy J. Owens, "A Catalog and Storage System for the Costume Collection at California State University, Northridge"
Friday, October 25

7:00 - 9:00 a.m. Conference Registration
7:30 - 8:30 a.m. Continental Breakfast

Please note that there are two concurrent sessions.

SESSION ONE: Functional Textiles and Clothing
Anne Fehringer and Kathy Koch, Presiding

8:30 - 8:55 a.m. "A Comparison of the Performance of Eight Selected Sports Bras"
LaJean R. Lawson and Tom C. Peterson, Utah State University

8:55 - 9:20 a.m. "Development of a Universally-sized Prototype Life Vest for the Federal Aviation Administration"
Bernard J. Rueschhoff and Donna H. Branson, Oklahoma State University

Annette J. Fraser and Vera B. Keeble, University of Wisconsin, Stout, and Utah State University

9:45 - 10:15 a.m. Break

10:15 - 10:40 a.m. "Development of California Flammability Standards for Furnishings in High Risk Occupancies"
Gordon Damant, Bureau of Home Furnishings

10:40 - 11:05 a.m. "The Flammability Characteristics of Lightweight Cotton, Polyester and Polyester/Cotton Blend Fabrics"
Howard L. Needles and Cynthia Walker, University of California, Davis

11:05 - 11:30 a.m. "An Automated Foot Model to Assess the Heat Transfer Characteristics of Protective Footwear"
Thomas L. Endrusick, J. R. Breckenridge, and L. A. Stroschein, U. S. Army Research Institute of Environmental Medicine, Natick
11:30 - 11:55 a.m.  "The Role of Protective Clothing in the Prevention of Exposure to Hazardous Materials"
   Kim Mueller, Federated Fire Fighters of California

12:00 - 1:15 p.m.  Conference Luncheon

1:20 - 1:45 p.m.  "A Fluorescent Tracer Methodology for Assessing Pesticide Penetration of Clothing"
   Robert C. Spear, University of California, Berkeley

1:45 - 2:10 p.m.  "A Survey of Contamination by Pesticide Residues of Impervious Gloves Worn by Mixers and Loaders of Pesticides in California in 1984"
   Keith T. Maddy, Catherine Cooper, Clifford R. Smith, Steven L. Kilgore, Karl C. Jacobs, and Dorothy Alcoser, California Department of Food and Agriculture

2:10 - 2:35 p.m.  "Chemical Contamination and Decontamination of Protective Clothing"
   Charles E. Garland, DuPont

2:35 - 3:00 p.m.  "Efficacy of Selected Laundry Practices Used by Alberta Farm Families in Removing Pesticide Residues from Clothing"
   Katherine Rigakis, Nancy Kerr, Betty Crown, and Bertha Eggertson, University of Alberta

3:00 - 3:30 p.m.  Break

3:30 - 3:55 p.m.  "Development of the One-hour Self-contained Demilitarization Protective Ensemble (DPE)"
   Laurie Ann Hauch, U. S. Army Chemical Research and Development Center

3:55 - 4:20 p.m.  "New Directions in Work on Hazardous Agricultural Chemicals by the University of California, Division of Agriculture and Natural Resources"
   James Seiber, University of California, Davis

4:20 - 5:00 p.m.  Panel: "Voluntary and Involuntary Risk Taking - How Much Protection is Enough?"

SESSION TWO: General Textiles and Clothing
   Ellen Goldsberry, Presiding

8:30 - 8:55 a.m.  "California Color - A User's View"
   Faye Barton, University of California, Davis
8:55 - 9:20 a.m. "Clothing Research and the Psychology of Color"
Charlene Lind, Brigham Young University

9:20 - 9:45 a.m. "Comparison of General and Clothing Color Preferences"
Charlene Lind, Brigham Young University

9:45 - 10:15 a.m. Break

10:15 - 10:40 a.m. "Self-perceived Somatotype, Body-cathexis, and Attitudes Toward Clothing Among College Females"
Leslie L. Davis, Oregon State University

10:40 - 11:05 a.m. "The Preferences of Women Educators for Style, Color and Pattern of Career Clothing"
Sandra Eyman and Nancy K. Murray, Idaho State University

11:05 - 11:30 a.m. "The Influence of Clothing on the Perception of Professional Credibility"
Louise P. Young, Leslie L. Davis and Marilyn B. Noyes, Utah State University and Oregon State University

11:30 - 11:55 a.m. "The Influence of Physical Attractiveness and Dress on Hiring Agents' Impressions of Females Applying for Sex-typed Jobs"
Kim K. P. Johnson, Arizona State University

12:00 - 1:15 p.m. Conference Luncheon

1:20 - 1:45 p.m. "A Review of Moisture Sorption and Related Properties of Cellulosic Fibers"
Mee Sik Kim and S. Haig Zeronian, University of California, Davis

1:45 - 2:10 p.m. "A Review of Bacteria Barrier Properties of Textiles"
Debra Timm and You-Lo Hsieh, University of California, Davis

2:10 - 2:35 p.m. "Textiles and Dermatological Health: Consumers' Perceptions"
M. A. Morris, K. L. Hatch, and H. H. Prato, University of California, Davis, and University of Arizona

2:35 - 3:00 p.m. "Fiber, Dye, and Mordant Identification in Textiles from a Revolutionary War Gravesite"
Howard L. Needles, Vicki Cassman, and Elizabeth L. Word, University of California, Davis, and Institute of Textile Technology
3:00 - 3:30 p.m. Break

3:30 - 3:55 p.m. "Computer Users/Non-users Among Small Apparel Store Owners"
   Ann Fairhurst and Antigone Kotsiopulos, Oklahoma State University and Colorado State University

3:55 - 4:20 p.m. "Sales Forecasting for Service Oriented Businesses"
   Antigone Kotsiopulos, Colorado State University

4:20 - 4:50 p.m. "Social Stratification: A Review"
   Barbara Harger, University of Hawaii

Saturday, October 26

7:30 - 8:30 a.m. Continental Breakfast

MORNING SESSION: Christine Milodragovich, Presiding

8:30 - 9:15 a.m. Panel: "Is Clothing Construction a Viable Academic Option?"
   Jan Else, Merry Jo Dallas, Vivian Hogge, Della Pottberg and Joan Lare, Colorado State University, Brigham Young University, and California State University

9:15 - 9:45 a.m. "European Study Tour Review of Clothing and Textile Comfort Research"
   Naomi Reich and Elizabeth Shannon, University of Arizona and University of Manitoba

9:45 - 10:30 a.m. Panel: Interdisciplinary Research and Dissemination
   Panel members include Brenda Brandt, University of Arizona, and Barbara White, Montana State University

10:30 a.m. Conference concludes

10:45 - 12:15 p.m. Executive Board Meeting
Government, Industry, and Academia: A Co-operative Effort

Steven Fike, U.S. Customs Service, San Francisco, CA 94111

This paper discusses the importance of a co-operative effort between academia, industry, and government. Academia is listed first because in an informational society such as ours, academia has the responsibility of providing information and training people to lead industry.

Government has become involved in the textile industry due to the fact that the volume of textile/apparel imports into the U.S. has doubled in the last five years resulting in a loss of 800,000 jobs in the U.S. The U.S. imports $20 billion worth of textiles/apparel but exports only $4 billion. It is estimated that 35%-52% of the textile/apparel market are imports (the percentages vary depending on whose numbers one uses and whether the numbers refer to foreign or domestic value). In comparison, the steel industry has a 23% foreign market share and the auto industry, at its highest mark, had a 27% foreign market share. On the other hand, shoes have a 70% foreign market share. There's a belief that the U.S. textile/apparel industry has not "kept up" with technology, but this is not true. The industry is very modern and productive. Productivity, however, is not the problem. The U.S. simply cannot compete with the 50-60¢ per hour labor costs which exist in other countries. Therefore, the U.S. government has attempted to protect the U.S. industry through the use of import quotas. This is where the U.S. Customs Service becomes involved. Tariff Schedules of the U.S. are the main framework which the Customs Service uses. These tariff schedules outline the import duties of over 7,000 line item commodities. The U.S. Customs Laboratory provides the technical input to customs officers for decisions on how items will be classified. The laboratory is specifically involved in six different areas:

1. fiber content, the laboratory uses chemical testing and analysis to determine the fiber content of the item. This is the most basic of the tests to determine classifications under the quota system.
2. construction of the materials, for example, knit vs. woven.
3. value added to the item through a treatment or surface coating.
4. value of merchandise created through the quantitative analysis of the different components of the item.
5. country of origin, to prevent countries with tight quota restrictions from shipping items through another country.
6. counterfeit techniques, copyright or trademark owners are the only one's allowed to bring their merchandise into the country. When counterfeiting is discovered the merchandise is seized, the trademark destroyed, and the items are given to a nonprofit organization.
One possibility, in an effort to raise revenue in the U.S., the U.S. is considering the initiation of a quota auction where the U.S. would auction off quotas to countries rather than simply giving them quotas.

The key to co-operation is for academia to be more involved with government and industry in several ways. First, academia needs to be more involved with the process of establishing quotas and tariff negotiations. Through training of individuals, academia can provide information and new ideas to government by means of employees, co-op students, and student aids. Through research academia can provide the customs laboratory with better research methods and techniques, solid data in the literature, and sound statistical treatments.
Communication and the Classroom Climate

John Vohs, University of California, Davis, CA 95616

Classroom settings, along with other organizations, have their own "climate" which is defined as the feel, personality, or character of the environment. Research has identified five components that affect organizational climate: 1) individual autonomy in the organization, 2) degree of structure of the organization, 3) reward orientation of the organization, 4) consideration within the organization, and 5) orientation toward development. The following brief inventory was developed to better understand the climate within a classroom setting.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. It is safe to ask questions in this class.</td>
<td></td>
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</tr>
<tr>
<td>2. Students are given a reasonable amount of opportunity to make their own decisions.</td>
<td></td>
<td></td>
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<tr>
<td>3. The procedures and methods for getting things done are extremely clear.</td>
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<tr>
<td>4. Good work is recognized and rewarded appropriately.</td>
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<tr>
<td>5. The instructor is interested in the welfare of the students.</td>
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<td></td>
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<tr>
<td>6. Students are given the opportunity to exercise their initiative.</td>
<td></td>
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</tr>
<tr>
<td>7. It would be relatively easy to talk with the instructor about problems or concerns related to class.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. It is safe to express opinions in class, even if they are contrary.</td>
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Among those issues typically addressed in our forums is a concern for the image of our discipline. Our programs are supported and respected by fashion and textile industries, and our courses oversubscribed by students anxious to study fashion-related subjects and find careers in this field. Yet many of us sense that textiles and clothing is insecure in the academic community. On some campuses textile and clothing programs have undergone repeated academic reviews. Time and again, faculty energies which might have been devoted to professional development, to research, and to curriculum design are absorbed with demonstrating that courses are academically rigorous, that graduates hold significant positions in the industry, and that there is a justifiable need for university programs in fashion-related areas. We note with alarm that, in some cases, textiles and clothing has been dropped from university curriculum, not necessarily because the programs are insubstantial, but because the image of fashion-related subjects may be insubstantial. Although much of our subject matter is intimately concerned with questions of self-presentation and image projection, our programs sometimes fail to project an acceptable image to the university community.

What can we do to improve the image of textiles and clothing on the university campus? Many components make up the image we present to our colleagues. Over some of these components we have little control: our physical facilities, our students' performance in other university classes, the comments that students make about our program. Over other aspects of image we have more control: our research and publication efforts, our course content and instructional methods, our expectations for student performance. Our image depends not only on the quality of components such as these, but also on the techniques we use to publicize them.

At the University of Hawaii, exhibitions are a common means of keeping our program visible. Through exhibits of wearable art we show student and faculty fiber art skills. We speak to our study and research resources through exhibits of historic costumes. And each year we highlight the work of student designers in an elaborate fashion show. Here, some twelve hundred guests join us for cocktails and luncheon in a highly publicized social event. These types of exhibits give sparkle and life to our programs and generate interest in textiles and clothing in the wider community. But such exhibits may not effectively enhance our image among other academics. These exhibits tend to emphasize garments - embellished garments, historic garments, contemporary ready-to-wear garments. To those who have little understanding, and perhaps little appreciation for textiles and clothing, could this emphasis on garments reinforce notions that our subject matter deals with superficial concerns? Questions such as this lay behind our plans for an exhibit designed to enlighten the academic community and to modify its impressions of our program.

Rather than highlight finished garments, which are the products of certain skills and knowledge, this exhibition focused on processes involved in creating fashion apparel. Through this emphasis on process
we proposed to introduce the university community to some of the skills, concepts, and procedures which students study in the apparel design program as they learn to create ready-to-wear for a commercial market. The exhibit was mounted in the University's Campus Center Art Gallery. Some fifty pieces were included. Of these, only seven were finished or partially completed garments. The rest were muslins, pattern pieces, pattern layouts, photographs of inspirational sources, designer fact sheets, thumbnail sketches, and finished fashion illustrations. All were the work of textiles and clothing students.

We borrowed from our colleague's textbook in order to title the show "Inside Fashion Design," a caption which suggests a look behind the surface glamour of this field and which implies, as well, an introduction to the apparel design curriculum. The exhibit portrayed fashion design as a complex process involving a series of interrelated activities:

- translating sources of inspiration into design ideas;
- crystallizing ideas through sketching and illustration;
- creating prototypes of garments through draping muslin;
- preparing for production by developing a series of pattern pieces;
- grading pattern pieces through a range of sizes; and
- selecting appropriate materials for fabrication.

The design process begins with an inspiration - an insight into a new shape, form, or combination of colors or textures. Our student designers learn to look beyond contemporary apparel for new ideas - to examine historic sources, painting, architecture, decorative arts, and to look to the natural environment as well for design inspiration. All of the garments in the exhibit have fascinating inspirational sources. One, for example, was inspired by a dish of glass beads; another by a Greek sculpture; another by the work of a well-known painter; another by a Japanese temple. In the inspiration segment of the exhibit we illustrate how a student might find ideas for creative designs and how these ideas might be translated into wearing apparel. The inspirational source which illustrates this segment is a pine cone. Frankly, the dress our senior student designed from this source is not a quality show piece. But, as the focus here is on the process, rather than on the product, the dress works to illustrate how an object from nature might serve as a source of inspiration. A poster-size color photograph of the pinecone and a basket filled with pinecones and branches introduce the idea. The creative translation from the pinecone to the dress is an exciting visual statement.

Students must learn to adapt creative design ideas into a form that will fit on a human body. The draping segment illustrates one of the methods they learn in order to work out their ideas in fabric. The center of interest for this vignette is a muslin prototype which has been draped and pinned on a dress form. Nearby is the finished garment in the final fabric. A small photograph of the inspiration source for the garment reminds the viewer of earlier activities that led to this stage in the process. An additional accessory element in the vignette is a gallery card which briefly describes the process. This helps viewers who are less visually oriented to understand how the draping process works. Repetition of common elements such as the photograph and gallery card allows us to maintain visual relationships throughout the gallery.

To those of us who understand apparel construction, the idea that a pattern must be made as a guide for cutting each piece of a garment is
obvious. But to those unfamiliar with the garment design, the number and complexity of pattern pieces for a single garment can be surprising. The center of interest for the pattern making segment is a set of pattern pieces cut from sturdy oaktag paper. Nearby hangs the garment which can be constructed from these pattern pieces. The pattern, along with appropriate sewing guides, is laid out on commercial pattern paper in repeat, and this paper is hung from floor to ceiling several times as a backdrop. Accessory items include a fashion illustration which might be used for promotional purposes, and a fact sheet on which designers record a working sketch, pattern chart, fabric information, and special details regarding each design. Mounted illustrations and fact sheets are integrated into all segments of the exhibit and, like the photographs and gallery cards, help provide a thread of visual continuity across the gallery.

Although computers now accomplish the task of grading patterns, our design students must still learn the techniques of mathematical and mechanical changes in a pattern so as to reduce and enlarge each piece. In the pattern grading segment we have hung large oaktag blocks which show a pattern in its original size. And with it we have hung all the reductions and enlargements necessary to create a complete range of sizes from 6 to 16.

Students learn to evaluate fiber and fabric characteristics in order to make fabric selections suitable for specific garment styles. This is fabrication. To illustrate this activity we hung an unfinished suit jacket on a bust form and draped a tape measure around it to suggest the idea that the garment was in the process of completion. The matching pants were placed in a commercial machine which was threaded and ready for work. A gallery label explained that the suitability of fabric depends on such specific characteristics as texture, weight, surface interest, and fiber content, and it described reasons why the student designer had chosen polyester/wool challis for the garment.

Students in the fashion illustration class prepared materials for a segment of the show which focused entirely on the sketching activity. Some thirty working sketches and finished fashion illustrations - all of the same pink dress - describe the development of garment ideas from thumbnail sketch to a finished illustration suitable for advertising and promotion. A series of transparent overlays suggest exercises students work through to capture the sense of a garment in motion. Other series visually describe the development of a drawing from thumbnail sketch to completed fashion illustration.

As they study fashion design, students learn to manipulate a variety of implements and mechanical devices which serve as tools in the design process. Two gallery cases hold curved rulers, metal gauges, plastic curves, tracing wheels, point and loop turners, plumb lines and sewing needles. Here, laid out on black velvet and locked in gallery showcases, even simple sewing and turning tools and guides become, for a moment, special objects to be viewed in a new way.

Although our design students produced most of the exhibit pieces, fashion merchandising majors participated in the exhibition too. They helped to hang the exhibit, using some of the pinning and flying techniques they learn in visual merchandising and display courses. And they helped to market the show by arranging for promotional activities and publicity.

Invitations to an opening reception were mailed to the professional fashion community, to current students and alumni of the textiles and
clothing program, and the university community. Coverage in the campus paper and the local news helped to generate interest in the exhibition and brought to the reception university administrators, faculty, and students from diverse programs, as well as numbers of viewers from the general community.

We saw some immediate results. Faculty in the University's American Studies program required that students in a graduate seminar on technology and environment visit the exhibit and prepare reports. Faculty in the Sociology department sent students to see the exhibit and to write on fashion as popular culture. Students from the Women's Studies program sent their instructor to the exhibit and subsequently raised as a discussion issue some of the stereotypes associated with fashion-related careers. A note from the administrator of the University's Honor Program revealed that, after seeing the exhibit, parts of our instructional program now made more sense to her. The University Chancellor (who sends his wife to our fashion shows) told us that the exhibit opened his eyes to the complexities of fashion design. Other administrators and faculty members asked if we might prepare additional exhibits to describe other aspects of our textiles and clothing program.

This interest confirmed our hope that a carefully crafted exhibition might provide new ways for the university community to think about the textiles and clothing program. Our experience may serve as a model for colleagues who seek new methods to enhance the academic community's understanding of textiles and clothing. Others may find here ideas for a new approach to the exhibition of student work.
Computer Applications for Merchandise Budgeting

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The current emphasis on the use of computers in retailing led to the development of a two-part computer budgeting case study as a learning tool for the Fashion Merchandising curriculum. The academic unit, the College of Design and Technology, had limited computer resources at the time this project was introduced. Many of our upper-class students had not had any computer experience. The activity used the campus Honeywell mainframe computer.

The purpose of this two-part case was: 1) to expose students to the benefits of using computers in retail budgeting; 2) to support retail recruiters' recommendations that knowledge of working with existing software, not programming, should be the focus of merchandising students' computer work; 3) to give merchandising students opportunity to analyze and justify decisions relating to merchandising budgeting; 4) to help students overcome the fear of interacting with computers.

Junior and senior students who were enrolled in the course "Merchandise Planning and Control" studied the procedures required to prepare the semi-annual budget. The first part of the project required students to logon to the system and interact with the computer using a previously developed budget. The objective of this problem was to acquaint students with the computer operating system. Students were given a handout on basic computer operations, such as logging on, setting profiles, loading and running a program, entering data, making error corrections and logging off the system. A demonstration of the procedures was presented. At this stage, students were not required to make any decisions.

The second part of the case study required students to take on the role of a buyer for a new department being set up in a typical department store. A framework for a similar department was given as a guideline. Students individually analyzed the existing department and made decisions concerning the projected season sales and percentages of sales to be made during each month. They determined beginning of month (BOM) sales using the stock-to-sales ratio method, planned markdowns by season and month, planned purchases and seasonal stock turnover. They wrote justifications for their decisions and produced a computer printout of their six-month budget.

The two programs used for this case study were written in BASIC language by the instructor. The student would be asked to enter specific information, for example, "Enter the planned sales for the season." After the student input data, the computer would ask for additional information. After all data was entered, the students would receive a printout of their budget. Students were able to access the programs, but they were unable to destroy or alter the programs that were protected in the instructor's personal account.

The response to this activity was very positive. Prior to this exposure, students indicated that they were scared and intimidated by computers. This experience offered an opportunity to overcome their fears and helped students to recognize the value of using computer software in a retail environment. Students were able to interface with a computer system as well as make budgeting decisions. Thus, the "Computer Applications for Merchandise Budgeting" was rated by the students as valuable experience.
In the Spring 1984 issue of the Clothing and Textiles Research Journal, Elaine Pedersen proposed the ecological approach as a future option for clothing and textiles programs because it would integrate clothing and textiles with other home economics disciplines and act as a tool for posing new, interdisciplinary research questions. At that point in time, the Family and Consumer Studies Department at the University of Utah had already invested in the ecological approach for the above reasons, and because it would facilitate the development of a department focus that would cross content areas. This paper presents the ecological approach as defined by the department, the alternative clothing and textile approaches, the current application to clothing and textiles, and the resultant effect on the clothing and textiles program. The paper suggests that in the example cited of a small, multi-disciplinary department, the ecological approach does in fact facilitate integration of clothing and textiles with other disciplines and stimulates research and course innovation.

The FCS Department is located in the College of Social and Behavioral Science in a research university. It is a fifteen faculty member, undergraduate department that offers majors in Home Economics Education, Child and Family Development, and Family and Consumer Studies. Faculty members were trained in various disciplines including home economics specializations, psychology, sociology, and economics. The program model that preceded the adoption of the ecological approach was that of a college of home economics with departments in each of the content areas. That model had simply been reduced in scale to a department with areas of content specialization. The disadvantages of that model were serious and indicated its inappropriateness for a multi-disciplinary department. First, there was no common focus around which degree programs, research, and course development could grow. Content areas and faculty were isolated in their specializations. Second, the diversity of isolated programs and the limited financial resources of the department combined to frustrate development. As the department searched for a model that would solve these problems, alternative perspectives to guide the clothing and textiles program, such as merchandising, secondary education, design, and social/behavioral, were explored. However, these approaches all had the effect of isolating clothing and textiles from the whole of the department by depending on a content specialization. The ecological approach which was eventually accepted by the whole department is relatively content-free.

The ecological approach defined by the department derives mainly from the work of Beatrice Paolucci, et al, in home economics and Uri Bronfenbrenner and James Gabarino in child development. The program emphasis is the study of the family unit as it relates to the environment. The environment has three facets - the natural environment, the human constructed or physical environment, and the human behavioral environment. Clothing and textiles is part of the human constructed environment but has numerous two-way interactions with the natural and
human behavioral environments, as well as the family unit itself. The ecological framework also facilitates study of relationships between the family unit and the environment on different levels of the ecological system from the microsystem to the macrosystem.

As the ecological approach developed in the department, new avenues for clothing and textiles were created that would not have been facilitated under another system. A university liberal education course was designed that included clothing and textiles issues. Clothing and textiles is part of an undergraduate core class on family ecology as well as part of a core class on families and the physical environment in a newly proposed graduate program. Observation and research facilities such as the child development center and the home management house, have been opened to research projects that address clothing and textiles questions. These examples illustrate the most valuable product of the ecological framework which was to stimulate faculty to view the content areas in new ways. The ecological framework focuses on relationships of family environments to one another and examines the interdependent nature of the physical and behavioral environment. Such a point of view considers all aspects of the family environment important for study. As a result courses and research has begun to cross traditional discipline lines.

The adoption of the ecological approach was not an easy process and has taken several years of education, experimentation and evaluation. However, the results even at this beginning stage are worth the effort. The major advantage of the ecological approach was the integration of clothing and textiles, as a part of the physical environment, into the course development and research proposals of the entire faculty. Not only has this integration given a different shape to courses and raised non-traditional research issues, but has insured the vitality of clothing and textiles as part of the department program.

Futures Committee Report

Committee members: Merry Jo Dallas, WR Chair
Susan Kaiser, National Futures Chair
Ardis Koester, alternate and past WR Chair
B. Jean Margerum, President, WR

Duties:

1. To represent the WR in Futures activities for ACPTC.

2. To report to WR members and to make suggestions for long-range planning to the membership and Council.

Accomplishments:

1. Kaiser, Dallas, DeJounge (CR), and Rhodes (ER) planned and coordinated the National Futures meeting held at Lake Laurel Lodge, Georgia College, Milledgeville, Georgia, April 1985.

2. Input from the entire Futures leaders group (those trained in Minneapolis) was obtained via a questionnaire prepared by Susan Kaiser. All materials from sub-regional meetings and regional meeting workshops were assembled and sent to the three regional presidents, the national president and president-elect, the Executive Director, the national conference chair, and the committee.

3. The retreat was held to formulate an action plan for ACPTC. Penny Damlo, consultant, assisted in facilitating this. Funding for duplication the materials and hiring the consultant was from the Man-made Fibers Association.

4. A report was prepared to be forwarded to the National Board, the ACPTC Newsletter, and the three regional meetings. Some of the recommendations were directed to the national meeting in 1986.
European Study Tour Review of Clothing & Textile Comfort Research

Elizabeth Shannon, University of Manitoba, Winnipeg, Canada
Naomi Reich, University of Arizona, Tucson, Arizona

The study tour involved visits to four European institutes researching the topic of comfort in relation to clothing and textiles. These institutes carry out a combination of activities which included the development of testing standards, pure and applied research and contract research. There was some similarity in the general areas of research under investigation at these institutes, firstly, sizing systems and secondly research related to comfort of textiles and clothing. These topics will be discussed under the particular research institutes involved.

Sizing Systems

It was interesting to note that both Sweden and West Germany have recently updated their sizing measurements to better reflect the physical changes occurring in the population. Both countries recorded considerable changes in the sizes and measurements, which certainly warranted the time and finances used to revise their sizing information. In conjunction with this revision both countries have expanded their categories of measurements to include another group, the elderly and handicapped people.

Swedish Institute for Textile Research (TEFO): A most interesting development at TEFO is the establishment of a sizing system for females 65 years and over under the direction of Margareta Cednas. The letter 'E' is used to denote these series of measurements for both heights of 160 cm and 168 cm. The outstanding figure differences taken into account by this scheme are in the waist, hip and inseam leg measurement. Using the same bust size this group is 2 cm larger in the hip and 6 cm larger in the waist, with 1 cm less on the inseam leg measurement, than the average proportions of that bust size in the 16 to 65 age group. A longer center back length of 2.2 cm reflects the characteristic rounding of the back shoulder area. A similar rounding occurs in the high hip area which is approximately 7 cm greater than the average. These characteristics are important considerations when designing apparel for the elderly female. Also, the crotch seamline from front through to back waistline is 3.5 cm greater. There is also a recorded weight difference of plus 2 kg. These detailed measurements for the elderly 'E' are a valuable addition to a more comprehensive documentation of the body changes that are experienced by females as they age. This points out an area of concern which needs to be addressed in other countries. This type of information would help to improve the fit of apparel for an increasing number of elderly females.
Bekleidungsphysiologisches Institute Hohenstein: In Germany at Hohenstein Institute, under the direction of Mrs. Klepser, they have completed research on the body measurements of males in wheelchairs. After measuring 250 wheelchair users they found the size differences very erratic mainly due to atrophy related to their physical conditions. So to document the differences in seated measurements they used 250 non-handicapped males measured while standing and seated. The outstanding differences recorded were an 11-12% increase in back length from the neck under the seat to the back of the knee, and an expansion of the waist and thigh measurements.

Working with these measurements they have developed a basic pant block for a permanently seated figure and one for a partially seated figure with changes midway between the two extremes. The blocks were used by a manufacturer to make up sample pants for a wear test by 35 handicapped males. After this evaluation the pant blocks were refined and graded.

Some characteristics of the pant block are a diamond shaped dart at the back of the knee, a shaped hem that is lower at the front crease and tapers up to the side and inseams, a shorter lower front torso and a longer lower back torso. They found that the crotch seam needed to be moved 2 cm toward the back due to the shorter front length and the zipper needed to extend beyond the inseam by 2 cm. The detailed measurement information and the graded pant blocks are available for use by the apparel industry in West Germany.

The Clothing Technology Section at Hohenstein Institute is computerizing the data of their new sizing systems to facilitate easy access of the information on pattern sizes and grading. Other information included will be the market potential for each individual size.

These current sizing systems along with the new categories form the fundamental database to improve the comfort-fit factor of clothing in these countries. A review of the data for the general population and the definitive groups has provided a valuable comparison for use in other countries.

Textile Comfort Research

The Institute for Perception Research (TNO): The Institute for Perception of TNO in the Netherlands is involved in thermophysiological research. These investigations required the installation of a climatic chamber with temperature control from -20° C to +50° Centigrade, and a variable relative humidity. It is also equipped with a wind simulator, exercise bicycle and treadmill to investigate the clothing problems of heat transfer, water vapour and comfort factors of various clothing designs and fabrications during physical activity.
Drs. W. Lotens and E. Linde feel the current practice of describing clothing by insulation properties and vapour permeability is not adequate when changing thermal conditions exist. Along with these properties the absorption regain capacity of the fabric will effect the clothing assembly. At present they are working on clothing comfort under conditions of external radiation, freezing and rain. This could result in being able to describe a suitable clothing assembly for specific range of environmental situations and physiological conditions.

Work is currently underway to document the physical factors that contribute to the comfort and functionality of clothing. Dr. Lotens states that ease of wear is dependant on the weight and bulk of clothing plus any restrictions to body movement. He considers the ease of wear the second most important comfort factor after thermal comfort. Ease of wear is critical to an individual’s performance during strenuous activity. The ability to evaluate this factor and the resulting information will be beneficial to designers, handicapped, elderly and basically for all.

Another concern to the research team has been to quantitatively test the interactions of men performing tasks and the clothing assemblies being worn. Dr Lotens sees clothing as a tool for maintaining an individual’s thermal balance. He feels this is a behavioral aspect of thermoregulation. In experiments evaluating clothing assemblies, sensors were used with the resulting information transferred to a receiver. The actual recording hardware was designed to fit a back-pack for use in field experiments.

Bekleidungsphysiologisches Institute Hohenstein (HI): The clothing physiology section under the direction of Dr. Karl-Heinz Umbach has carried out extensive research in the physiological and comfort characteristics of clothing. Of concern was the interaction of the human being, the clothing worn and specific climatic conditions while various physical activities were performed. The testing of the thermal insulation and moisture transport properties or moisture resistance of a clothing assembly can aid in the determination of the maximum and minimum comfort zone of a particular clothing design assembly.

The development and standardization of testing equipment consisting of a Skin-Model in a climatic controlled cabinet with an on-line computer to record the test results can measure the thermal and moisture resistance of a fabric or textile assembly. In a sense it simulates the thermo-regulatory nature of human skin. The Skin-Model can be used for stationary tests and also for rhythmic movement to simulate a sweat impulse in the micro-climate. The results from using the Skin-Model for a number of fabric choices can be charted on a multi-criterion diagram. The fabric with the highest recorded value of physiological properties of concern for a specific end-use can be documented.
The researchers developed a thermoregulatory life size copper man called 'Charlie'. It is housed in a climatic chamber and is connected to an on-line computer for instant recording of the thermal conditions of both Charlie and the chamber. Charlie can simulate the characteristic arm and leg movements of walking which allows the testing of garments during some physical activity. The results obtained from this sophisticated equipment have been compared to human wear trials carried out in a similar climatic chamber. They have found that the calculated predictions of wearability are within 90% agreement with a comparable wear test on human subjects. In conjunction with the work on the comfort factor of clothing assemblies, they have established that the design, style and ventilation components in a garment influence the thermal insulation and moisture transport of clothing as it is being worn. At present the research is continuing in this area with special reference to work related clothing.

The researchers have developed a series of five steps in the physiological evaluation of clothing. These steps start with the least expensive which is the skin test, then the mannequin experiment followed by controlled wear tests, a limited field test and lastly and most expensive the extensive field test. A weeding out process is recommended at each stage to reduce the number of design and fabric combinations to just a select few for the expensive final field test.

The research results, as practical guidelines, will be available to the textile producers and garment manufacturers to assist in improving the comfort and wear quality of work clothes. These guidelines for obtaining maximum comfort in clothing assemblies will be beneficial to many groups with special needs including the handicapped and elderly.

Swedish Institute for Textile Research (TEFO): Under direction of Dr. Roshan Shishoo current research underway at the Swedish Institute for Textile Research (TEFO) involves incontinence products. The topic required a thorough review of the present use of incontinence pads and the development of a sensitivity for the needs of the wearer. As a result the institute has developed test methods and devices to evaluate the important properties of incontinence products.

The property of the penetration of liquid through the body contact cover of incontinence pads and the surface dryness of the cover during wear have been evaluated for test development. Other procedures test and evaluate the leakage propensity of incontinence pads by testing the liquid retention and liquid spreading patterns. In the final stage is the development of an experimental mannequin with a wetting device, which would hold the pad in the various positions of standing, sitting and laying on ones side or back. The liquid used in these test methods simulates the viscosity and composition of urine and its flow can be controlled as to
quantity and the rate of delivery. In relation to this topic area Sweden has the responsibility of developing standards for Aids for Incontinence and Ostomy for the International Standards Organization (ISO).

Hospital bedding assemblies have been investigated by evaluating the climatic and physiological comfort of these assemblies and comparing the results to the patients subjective evaluation of comfort/discomfort sensations. Findings have indicated that plastic underlays are not uncomfortable for elderly people. They determined that the climatic conditions within the bed are influenced by the metabolic rate of the patient, ease with which the mattress is compressed, the insulative quality of covers and the water vapour permeability. To date the results obtained give a very good correlation with the subjective comfort value of human subjects. The results obtained are a significant beginning to improved bedding assemblies for bedridden patients, and could lead to improved product development by manufacturers.

Also under investigation at TEFO is the building of a thermoregulatory mannequin which can simulate body movements. The next step in the development will be to build a sweating mannequin. This model will form part of the Nordic Research Project for developing tests to evaluate dry and moist thermal insulation properties as related to the comfort of clothing assemblies.

Dr. Margareta Cednas at TEFO has developed methods for testing closely fitted garments made of knit fabrics. These include the Shirt Length Gauge which measures the length of the garment while it is extended the appropriate amount widthwise for the size of the garment and a Width Extension Gauge for testing the opposite direction. Along with the testing equipment, statistically defined minimum and maximum limits of extension for the relevant body measurements were developed. Test results within these limits are considered acceptable for comfortable underwear.

Shirley Institute (SI): The Shirley Institute in England is conducting research on sensory comfort of fabric for the European Economic Commision (EEC). The project, under the direction of Elaine Clulow, involves a wearer trial of a short sleeved undershirt of twenty different knit fabrics which are worn next to the skin during work and physical activity. The undershirts are worn twenty times and laundered after each wearing. The comfort values from the wear trial will be compared to the results from a subjective hand evaluation of the various knit fabrics. This evaluation involves a questionnaire which will be administered to people at shopping malls. One other aspect of this research is the evaluation of types of garment labels, and their position in the garment. Future plans are to develop testing equipment to simulate skin comfort levels.
The research findings of these institutions are helping to develop a scientific basis for looking at the importance of clothing, not just the textile or fabric, but as an assembly that affects body thermoregulation and the feeling of comfort. This information will be helpful for recommending clothing layers required in specific circumstances especially for the handicapped with limited mobility and the elderly who experience decreased efficiency in their ability to regulate body temperature.

Conclusions
The European trend towards expanding sizing systems to include other figure types and conditions has shown a new direction that we need to consider. This is of special concern for institutions actively involved in research activities.

The current research endeavours towards a clearer understanding of the complex nature of clothing comfort will contribute valuable information for both textile production and clothing design. The development of testing procedures for evaluating comfort factors in clothing assemblies will provide important data for designers, manufacturers and researchers. The current available information and any future developments on clothing comfort should be included as an essential unit of the clothing and textiles curriculum.

Professional Consultations - Fall 1984

Cednas, Margareta  Swedish Institute for Textile Research, Gothenberg, Sweden
Clulow, Elaine  Shirley Institute Manchester, England
Jeffries, Roy  Shirley Institute Manchester, England
Klepser, Mrs.  Bekleidungspysiological Institut-Hohenstein Bonningheim, West Germany
Lotens, Wouter A.  Institute for Perception TNO Soesterberg, The Netherlands
Mecheels, Jurgen  Bekleidungspysiological Institut-Hohenstein Bonningheim, West Germany
Shishoo, Roshan  Swedish Institute for Textile Research, Gothenberg, Sweden
References:


Interdisciplinary Research: Contamination in the Clean Room

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Garments worn in clean rooms are a type of protective clothing. These garments protect the room environment from the worker. People working as technicians in clean rooms and the clothing they wear are considered to be major sources of contamination in the electronics industry. Submicron particles released from people and garments settle on microchips during manufacture. Once on a chip, particles cause defects, and product yields are lowered. As chip manufacturing moves to smaller geometries, submicron particle contamination control becomes increasingly important.

The research program in contamination control at the University of Arizona began in 1982 in the department of electrical and computer engineering; National Science Foundation monies funded the initial project. This program led to the establishment of a Center for Microcontamination Control in 1984. The purpose of the center is to foster cooperation between industries and universities to facilitate technology and information exchange. In addition to the garment study, other academic disciplines including physics, chemistry, chemical engineering, electrical and computer engineering, and management psychology are involved in research projects in contamination control.

The center is supported by some 30 companies; members include companies from various segments of the electronics industry--IBM, RCA, Motorola, and Xerox Corporation. The current fee for one year of membership is $30,000. The direction of the center's research program is decided upon by a board composed of representatives from the various corporate members. The board accepts research proposals from University of Arizona faculty and approves or rejects projects for funding.

Research results are considered proprietary to members of the center for at least one year after presentation in a center report. After one year, researchers may request permission to publish with the understanding that permission will be granted unless there is some reason for delay.

Involvement with interdisciplinary research strengthens the field of textiles and clothing. Participation provides outside funding to expand the basic knowledge of textiles and clothing. Interdisciplinary research increases the professional image of the field through interface and cooperation with those outside textiles and clothing, and improves the chances of developing successful garments for the electronics industry. Input from textiles and clothing professionals humanizes the science of clothing, taking into consideration the self-image and comfort of the worker. Lastly, solving problems associated with clean room garments will lead to a better general understanding of textile performance, especially fiber, garment, and wearer interaction.

Interdisciplinary research does present problems, and several surfaced during the first year of the garment study. One problem concerned terminology and language, another was poor management of the center during the first year of operation, and a third was the lack of general agreement from 30 center members as to the direction of the garment project. However, the benefits have so far outweighed the problems and frustrations associated with interdisciplinary research.
Preparing Students for Careers and Career Change:
Focused Versus General Education

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This panel included three presentations, each including some arguments and/or data for focusing a significant fraction of the curriculum on career preparation. Students who plan to enter careers in fashion merchandising are now the great majority of those majoring in textiles and clothing. The first presentation stated that, in part for political reasons, it may be desirable to give increased visibility to careers and to reorient the curriculum so that its focus is on what is the best preparation for those careers rather than what is the best background for a home economist who is a specialist in general textiles and clothing.

Results of a survey of Colorado State University textiles and clothing alumni indicated that about three-fourths of 1981-85 graduates were employed in merchandising and apparel related positions. In contrast, approximately 40% of those who graduated in 1975-79 and one-third of the students who graduated before 1975 were now employed in merchandising and apparel related positions. Those who graduated more than 10 years ago had frequently changed to careers in other home economics-related areas. However, among those who graduated more recently most shifts were to other business-related careers. Textiles and clothing departments should provide students with a solid preparation for first positions in merchandising, fashion design or apparel production. In addition, students should have a broad based education and adequate business background to prepare them for changing careers.

The original mission of home economics was philanthropic in nature and geared toward home management and domestic and health care concerns. As the roles of women changed and women entered the work force in greater numbers, teaching and secretarial roles became popular. The careers of today, however, are in retail stores, design studios, factories, warehouses and textile research laboratories as well as the home. National figures indicate that the dominant enrollment areas in home economics are merchandising, interior design and dietetics—all specialized career areas. The panel supported a strong general education core accompanied by career orientation within the major.
Following is a summary of the discussions derived from an interdisciplinary panel on clothing as a means of communication. This panel consisted of: Susan Kaiser, chair, from textiles and clothing; Fred Davis, sociologist; Randall Harrison, nonverbal communication scholar and cartoonist; and Jo Ann Stabb, wearable art designer and professor of design. The purpose of the panel was to explore and compare conceptual approaches to clothing as a means of communication, considering its uniqueness as a communication medium along with the corresponding characteristics of clothing codes. Concepts from social psychology, nonverbal communication, semiotics, and design were compared and integrated. Three specific contexts or media of clothing communication were also addressed and contrasted: everyday social interactions, cartoons, and wearable art. The following three abstracts represent each of the panel participants' conceptual or philosophical orientations to clothing as a form of communication, as summarized at the beginning of the session. Following these abstracts is a summary and synthesis of the ensuing discussion.

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Inasmuch as what we wear "says things" about ourselves, it is fair to infer that how it is said approximates in several respects the semiotic concept of a code. Clothing's code, however, is markedly different from the language codes of everyday speech and writing. The visual and tactile symbols it employs are, in contrast to words, much more context dependent, variable sociologically with respect to the images and associations elicited and subject to the vagueness and ambiguity characteristic of undercoding. Fashion, while dependent for its impact on the backdrop of a sufficiently conventionalized visual and tactile clothing code, seeks constantly to modify key elements in the code thereby engendering new images, associations and meanings. Fashion's continuity and historic prominence in Western civilization can in large part be attributed to the ability of its periodic code modifications to resonate with and lend symbolic expression to the numerous ambivalences of social identity which have affected and continue to affect Western men and women.
Clothing as Communication: The Nonverbal Dimension

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Nonverbal communication explores four major code systems: body codes, arising from the appearance and movement of the face and body; artifactual codes, arising from the creation, selection, arrangement, and use of objects; spatio-temporal codes, arising from the use of time and space; and media codes, including symbols in cartoons, blueprints, musical recordings, video, etc. Clothing obviously is an artifactual code, but it interacts with the other three code systems.

Clothing may start with utilitarian functions, e.g., to protect our hides from the elements, but it quickly develops symbolic value. In short, clothing communicates a message, to the wearer, and to those who see the wearer. The two dominant messages are individuation and association, i.e., "I am me," and "I belong." While these are the primary messages, they can be transmitted with great sublety and nuance.

To examine the full potential of clothing as a communication code, an exploration of its "design features" is necessary. Hockett and Altmann (1968), for example, propose more than a dozen features which can be used to analyze code systems. At least one additional feature might be necessary to account for the human use of clothing as communication: accessibility.

Clothing As Communication: Wearable Art
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Clothing has been chosen by a number of contemporary artists/designers as their medium of artistic communication. This phenomenon, currently known as "Wearable Art", has become a strong movement in the United States. It grew out of the attitudes of the 1960s that rejected the industrial society which had negated the individual through anonymous mass production. The resulting crafts revival stimulated interest in hand-producing the elements of one's own environment, including clothing: hand-knitted sweaters, tie-dyed T-shirts, and patchwork denim. These were symbols of rejection, individuality, and liberation. To a great extent, this established the context for wearable art: hand-production, personal symbolism, and commercial indifference.

Within the broad area of "Wearable Art", there are two major identifiable levels of creative communication: the art-for-art's sake approach which uses costume/clothing to make personal statements about the artist's view of society; and the fashion-as-art approach which seeks classic garment forms to explore aesthetic statements of color, imagery, texture in relationship to the human body, more realistically addressing functional needs. In both cases, clothing is used to reflect the uniqueness and personal creativity of the artist/designer. The potential wearer/perceiver is not a major element in the creative decision-making process. This is not a priority. If the potential wearer "identifies" with the artist's
visual interpretation, and can feel personal about it, then the designer is satisfied. But it is not the main motivation for creating a piece. There is usually little flexibility on the part of the designer to allow for modification of the piece of wearable art by the ultimate consumer. It is like a painting. An artist does not encourage a collector's "participation" in the development of the work, and often tries to control the framing, setting, context and environment in which that piece of art will be seen. Wearable Art is primarily a one-way communication from and about the artist.

Discussion Questions:

1. What are the requirements for meaningful communication to occur: between participants in everyday interactions, between a cartoonist and the audience, or between a designer and a prospective wearer or perceiver? To what extent does symbolic ambiguity pervade the identification and interpretation of clothing and appearance codes or messages in each of these three contexts? Symbolic ambiguity was operationally defined as the potential for more than one explanation about a wearer's identity or about the definition of a situation being applied by a wearer and/or a perceiver.

In terms of everyday social interactions, meaningful communication is only apt to occur if a wearer and a perceiver share an awareness of, and attribute the same meanings to, symbols or codes of dress. Yet dress as a means of communication is shrouded with ambiguity. Davis noted that styles of dress fall somewhere between art and language in terms of potential for ambiguous interpretations and undercoding. The semiotic concept of undercoding refers to the imprecise, and possibly emotional, coding that occurs in the absence of reliable or steadfast rules of interpretation (Eco, 1976, p.135). Davis has linked this concept with aesthetic expression through dress (see Davis, 1985). In the present discussion, it was noted that some styles may be more conducive to undercoding than others. Davis asserted that the current androgynous styles (e.g., very short hair) assumed by females appear boyish and youthful, yet still are undercoded with the power symbolism predominately assigned to masculinity in Western culture. A lesser degree of undercoding, or a greater degree of overcoding (its antithesis), relative to such power symbolism is the traditional business suit adopted by many career women.

In contrast to communications in everyday social interactions, clothing communication through the visual medium of cartoons must be precise and unambiguous in order to result in meaningful communication between a cartoonist and his/her audience. Whereas two-way, interpersonal communication in everyday life may involve processes of negotiation in the mutual interpretations of an ambiguous symbol by a wearer and a perceiver, possibly resulting in meaningful communication, cartoons involve one-way "communication to the quick" (see Harrison, 1981). Thus a cartoonist is likely to use relatively explicit or unambiguous codes of dress (e.g., uniforms, T-shirts with written messages) to illustrate a point with clarity, while also simplifying and/or exaggerating a message (Harrison, 1981, p. 17). Harrison introduced the concept of semanticity in relation to the clarity or explicitness of a code (Hockett and Altman, 1968, p. 63; Harrison, 1984, p. 61). Semanticity refers to the degree of correlation or associative ties between codes and the meanings to which they refer. For example, a uniform would possess a high degree of semanticity; similar commonly
understood, denotative codes contribute to meaningful one-way communication through cartoons.

In sharp contrast to explicit and clothing communication through cartoons, wearable art represents a medium through which the designer may wish to intensify ambiguity and to induce a range of emotional responses in the observer (instead of a specific message). Even the wearability of the garment may be veiled with uncertainty.

From pieces that demand to be worn on the body—to those which only allude to that potential, each idea expands the definition of clothing. The edge between wearable or not is shaky. It is this blurring of categories and resisting of proverbial pigeonholes that lie central to the vitality of Wearable Art. The spirit prevails (Stabb, 1983).

2. The following characteristics of clothing codes or messages were discussed, with particular emphasis on those which are relatively unique to clothing (or more generally, personal appearance) as a communication medium:

a. context-dependency, or the tendency for the meaning of an clothing or appearance code to change in different social situations (see Davis, 1985)

b. unfocused nature—the relative inability for a wearer to control who serves as a recipient of a message or code (Kaiser, 1985, pp. 194-195). This lack of control is further complicated by the variability in how symbols are likely to be interpreted by people in different social strata or lifestyle groups.

c. nonlinguistic nature, or the relative difficulty associated with trying to verbalize the meanings or emotions assigned to dress. T-shirt messages are a fairly good example of an exception to this tendency, whereas wearable art may be a good example of a style that one experiences rather than talks about (Kaiser, 1985, pp. 195-197). The nonlinguism of wearable art is likely to be linked to the high degree of undercoding, which prevails in the aesthetic realm, as well as a relatively low degree of semanticity.

d. nondiscursive nature, referring to a wearer's relative lack of control (as compared to language or nonverbal gestures) in shaping the course of the message once social interaction has been initiated. In other words, it is difficult to "change the subject" if communication is not going as desired (Kaiser, 1985, p. 197).

Perhaps the most intriguing areas of convergence in the inter disciplinary and contextual perspectives that were discussed involved the potential interrelationships among the concepts of nonlinguism, undercoding, and the relative lack of semanticity in much clothing communication. At one end of the continuum, dress in cartoons and uniforms represent the more linguistic, overcoded, and semantic codes of communication. Still, these modes of communication do not necessarily approach language in relation to these characteristics. Approaching the other extreme is wearable art, with its preponderance of nonlinguism and undercoding, and very little semanticity. Much of the dress worn in everyday life is likely to fall somewhere in between, depending in part upon the context of the social interactions and the identities of the wearers. Future attention to the possible inter-
relationships among these and other concepts from different disciplines is merited, particularly since the medium of dress crosses the aesthetic, semantic, and social boundaries of everyday experience.

Summary by Susan Kaiser

References


Is Clothing Construction a Viable Academic Option?

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The position I have chosen to present today is, "Yes, clothing construction is a viable part of the academic curriculum." Let us ponder and consider two issues that we may continue to develop and use tomorrow.

First, I believe that, to survive, we will have to make the purpose of teaching clothing construction clear, viable, and valuable. Our course must be all white; shades of grey will hasten our demise. We can no longer exist for the former economic reasons of, "I sew to save money," or "I sew because it's cheaper." These cliches in today's world do not "add up," yet students still come to us programmed with this belief. Who wants cheap clothes? This, as a want, would be beneath the dignity of nearly anyone. If we do want the cheap and tawdry, why make it anyway? The stores are full of this, too—in fabric, design and construction quality, as well as the degree of durability.

If we ever did "save money" through sewing, where is all the money we saved? If we truly save, we must have the money available to buy the RTW in the first place and be able to buy it, i.e., it is available and useful—but instead, we made a conscious decision to use our resources—our time, energy, money, and emotion in making the article. We also must be able to produce a garment that is at least equal to the RTW article in quality, fabric and design. A "homemade" rendition of acceptable RTW is not a saving of money. To justify the teaching and learning of clothing construction, four other reasons are viable today.

Learning to sew to control spending makes a lot more sense. Teach the when and why of home production versus end-product purchase. Is RTW the only source of an end product? Let's teach the variables that determine wise decision making. We need to exist for this so that wise purchasing will be done without guilt whether we clothe ourselves through new or second-time-around RTW, through the custom salon, through home production, or even through the trading of services. Regardless of source, students need to know how to make decisions so that the final choice is cost effective, emotionally satisfying and socially acceptable. This depends more than on skill alone—in short, we can and should help students be winners in any marketplace.

Let's help students realize that RTW does not fulfill all needs—someone has to be able to fill in the gaps. Who produces that which is neither cost effective nor available through RTW? Our students should be cognizant and capable of producing clothing in the areas of special services, unique design or individual needs. For example, the ability to produce adequate fit is not inherent in us; it is learned and possible for the student who is trained to understand the total fitting picture. It is essential that fabric geometry operate in combination with the physics of force from gravity where fabric does not touch the body and the force of tension where it does. Satisfying clothing results from the aesthetics of line and form interacting with personality, figure and the perceived ideal. Illusion is used to exploit or camouflage the physical attributes one may or may
not consider in line with their ideal. Function versus form and construction accuracy are all interrelated in the garment that exhibits proper fit.

Through students learning the art of sewing, we can help them develop their sense of dignity and worth, too. It is important to "do" and to earn money, but it is also important TO BE. Through knowing how to sew, students can know they are unique. The quality of construction they produce should be important because it belongs to them, not because the teacher has established a grading system or because "others" will see the product. Through knowing how to sew, students can control a part of their own destiny; develop the power to do; and learn to cope with failure, success, and problems, to change attitudes, and to survive events. We can train students to assume the responsibility of making decisions and living with the consequences, to learn to make things happen, to view the self as an okay person and to have strength against destructive peer influences by developing an impetus for exploring self-development, self-sufficiency and the setting and meeting of goals. Students can develop the ability to vocalize their beliefs, to be knowledgeable and satisfied consumers and to develop belongingness and leadership. Above all, they can feel special through creating that which is stylish and pretty.

Clothing construction also may be learned purely for its creative expression. This is okay. To accomplish this, however, students must be helped to become agents in using fabric in such a way that it fulfills the measure of its creation. Some of the awful end products in sewing quality and distasteful combinations we have seen in our classrooms should never have been conceived, let alone have come to fruition. The joy of expression comes from seeing a finished product; we should enjoy the fruits of our own labor in addition to developing the art of appreciation for someone else's. The more one is allowed to freely explore sewing, the more one's imagination and curiosity develop. This is far beyond continuously cloning the prototype of the pattern designed by someone else. Inventive recycling is still useful and even necessary as we approach an era in which we may be literally buried in our own garbage. In short, everyone "needs a glory." The art of home production of clothing can be this glory for many.

As we move into the informational age defined by John Naisbitt in Megatrends, we would do well to review our history, albeit the history of textiles--Phyllis Ackerman in her book on tapestry unveils the cause of the fall of Rome so well. Rome was an importer of both commodities and thought. "Whether it was tapestries, philosophy or wheat, Rome bought rather than created; but there comes a time when you can no longer buy if you do not create. Rome fell."

The second issue I would like to present is that we must treat sewing as only one facet in the total clothing discipline; we must not isolate sewing as a skill. To do this, let's evaluate our position as teachers. Do we outline projects for students to make, or do we teach people to learn how to sew by instructing them through the use of principles and then let them have their free agency to act independently, or do we dictate how and what and make them dependent on us even to the point of giving positive grades only when a skill is done "my way" or bribing them to wear the product by giving extra points? Do we help
Is Clothing Construction a Viable Academic Option?

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As merchandising has become more popular in programs of textiles and clothing, one curriculum issue debated repeatedly has been the amount, if any, of clothing construction a student graduating with a merchandising emphasis should complete. Is it essential for a person planning a career focused on promoting, buying, and selling mass-produced merchandise to know how a home-sewn garment is assembled?

Until 1981 all CSU textiles and clothing majors were required to take either TC 205 - Clothing Construction or TC 218 - Construction of Men's Clothing; TC 341 - Flat Pattern Design, and TC 415 - Tailoring.

In 1980, after much discussion, the textiles and clothing faculty decided to allow the merchandising students the choice in their designated curriculum between the three credit laboratory clothing construction course and a new three credit comparative apparel fabrication lecture course. No changes were made in the construction requirements for the apparel production, fashion design, and general concentrations.

The new lecture course, TC 206 - Comparative Apparel Fabrication was designed to expose students to construction techniques without a laboratory. It included a comparison in technique and assembly between various production levels: couture, home production, and mass production processes.

Even though over half of the merchandising students chose the lecture class, the question remained, "Should students graduating with majors in textiles and clothing have at least minimum exposure in clothing construction?" Both non-merchandising and merchandising faculty agreed that some knowledge of construction techniques through "hands-on" experience was essential.

In an attempt to design a program which would give all textiles and clothing majors some exposure to clothing construction, a modular system was developed. All students are required to take a three credit lecture course, Production Fundamentals and the first one credit module, Production Fundamentals-Shirt/Blouse/Dress. Design, apparel production, and general students take one additional module: Production Fundamentals-Women's Skirts/Pants or Men's Pants. Additional one credit modules available for elective credit are: Production Fundamentals-Children's Wear, Production Fundamentals-Fit and Alterations, and Production Fundamentals-Industrial Techniques.

The new modular system accomplishes the following objectives:
1. To give all students a better "hands-on" experience with clothing construction.
2. To expose all students to mass production equipment and techniques.
3. To give all students a stronger background on fit and alterations as applied to both home-produced and mass-produced garments.
4. To allow focused one credit options in expanded areas of construction.
5. To allow for a number of one credit workshops for summer offerings.
them process concepts and relationships and synthesize ideas or simply to memorize and store facts and right answers? Do we tell them sewing is easy when, in reality, it's not--sewing is the only discipline I know of that requires thinking in reverse constantly. Nearly every sewing task is done with the garment wrong side out, backwards, and upside down in relation to the position it is worn. Thinking and doing in mirror-image is necessary in skills such as sleeve plackets. Students must think from the end product back to the beginning as they are taught efficient and effective sequencing. They must then reinvent this wheel when we reteach the same skill being accomplished by factory or couture method. On the other hand, do we make such a big deal out of sewing that students are fearful to even try and they promise themselves that only by a quirk of fate will they take another sewing class.

If we want to be accepted by academia and participate in it, then we must incorporate academia directly into our teaching and into our students' learning. The teaching of construction cannot remain a recycling of what we were taught, or just an extension of our past teaching for another year. Instead, it must be the result of our own fact finding, experimentation and research. We must realize that skill is only one part of the whole. We must go beyond the how and incorporate the why, when, who and how much and then help students feel secure in being right for their reasons. We must be their light, but realize that they can also give light not only by being the mirror that reflects ours but by growing toward being the candle. We must never allow a student to become our clone; they must be trained to think, act and to be independent.

We must continually incorporate all other disciplines into our teaching of every lesson and vocally illustrate the integration. Every lesson every day provides this opportunity. We use physics constantly--fabric reacts with gravity; sewing involves action-reaction responses; inside vs. outside dimensions are continually present as we fold and layer fabrics. We constantly have opportunity to incorporate anthropology, archaeology and history as we teach appreciation of the past, understanding the present, and anticipating, predicting and guiding the future. Math, algebra and geometry are present in every sewing skill. Chemistry can be exciting rather than feared. The use of psychology comes alive as we teach spatial relationships and left- and right-hand sewing positions for left- and right-hand details. Both we teachers and our courses must reflect evidence of the need for and the use of academia. No student should ever have reason to question or excuse the fact that they like to sew or that they can use it as an income-producing entity. The more academic we make our courses, the less this will occur.
Is clothing construction a viable academic option? Yes, it builds on university subjects found in the humanities, the arts, and the sciences. Concepts are developed from the root subjects taken by all and allow the student to become a broadly-trained specialist, able to make many decisions relevant to a particular construction project.

The "follow-me, do it this way approach" in clothing construction should be abandoned. This is a lower grade school approach and not academic. Three academic concepts include: (1) clothing construction is the art of finishing a cut edge (NOTE: I did not use the phrase "raw edge"), and (2) what is done on the inside should usually not be conspicuous on the outside (NOTE: the hems in this room), and (3) joining multiple layers of fabric requires skill and technical know-how (NOTE: single layer construction might be easier for the beginner. David Dow uses single layer construction on 300 to 500 dollar suits.) These three concepts can lead to many design and construction possibilities when the decisions made are based on particular fabric qualities, the skill of the designer, and the time available for the project rather than blindly following the directions in the pattern.

Clothing construction is an ideal subject for teaching decision-making. A project can be started and finished in a short period of time. The effectiveness of decisions can be tested in the making and wearing of the garment. Concepts can be tested without needing a multimillion dollar federal grant.

We need to inculcate the idea that students are in a position to test new and old ideas. Although we are an old profession, not everything is known.

There are new fabrics like Gore-tex and Thinsulate. There is a need to design clothing that protects us from pesticides, gases, and flames as well as clothing that can be worn eight hours a day in laboratories and that protect the air and objects in the room from human waste products such as sweat and skin oils. These products should be tested for wearability and launderability. Clothing as a source of chemical contamination is a possibility which should be tested.

There is erroneous information taught that needs to be examined, like the conflicting color theories found in various apparel selection books. The effect of interacting variables on what is seen needs to be explored. The black and white visual illusions presented in psychology are seldom valid in clothing construction when applied to a three dimensional garment with color and texture. Our students need to run tests to determine the truth.

The basic philosophy we have in clothing construction is that you learn best by planning and executing a project. With this in mind we need to reassess what we teach and what we assign.

We need to encourage assignments and projects in which the students test their concepts and theories using an investigative process.

We need to rethink what we want the student to learn. I would suggest that the Clothing Construction course content include the following six areas of concern:
1. EDGE FINISH - Consider use of selvages, cut edges, fringes, facings, and trims. Vary the width, colors, and textures.
2. SHAPE CONTROL - Understand how dart size is based on size of curvature.
3. SURFACE CONTROL - Plan the use of interfacings and linings. Review and test for type, weight, and color.
4. STITCHING ACCURACY - Review needle size, needle placement and your viewing guide (the presser foot or the throat plate).
5. GRAIN MANIPULATION - Look for plumb lines rather than straight lines to help you fit.
6. MULTIPLE PROBLEM SOLVING - Solutions may be incompatible.

With a strong background in textiles and clothing and the supporting course work along with elective courses in business, the clothing construction student can be ready to enter the Apparel and Fashion world.
Air Force propellant handlers wear self-contained, impermeable suits to protect themselves from reactive, toxic, and carcinogenic propellants. Several propellants are noted for their skin absorption hazard and fast-acting skin irritation. The suits provide excellent protection but are uncomfortable to wear for more than a few hours because of their weight and the heat stress that they impose on the wearer. Activity can also be impaired by loss of dexterity and maneuverability. Because of these constraints, the suits are worn only by personnel directly involved in propellant handling operations.

The Air Force Space Division has initiated a program to develop lightweight, breathable protective garments practical for extended use by personnel who are not directly involved in propellant handling, but work in areas where propellants are handled or stored. These garments are to provide short-term skin protection against high vapor concentrations resulting from spillage and long-term skin protection against chronic low level vapor concentrations that may be present. Lightweight, breathable garments are required because they can be worn for extended periods without placing physical burdens on the worker that may impair job performance and safety.

Within its role as technical advisor to Space Division, The Aerospace Corporation is assisting in supervising the fabric development activities of Air Force contractors. The goal is a lightweight, breathable fabric that is impermeable to hazardous propellants liquids and vapors. This fabric must also be durable and flame resistant. An Air Force contractor is currently developing a composite membrane material that is selectively impermeable to propellant vapors. The material is a multi-layer composite structure consisting of a non-woven fabric support, a microporous membrane layer, a silicone rubber sealing layer, and an ultrathin permselective surface coating. The chemistry of the coating is such that it is essentially impermeable to organic agents but freely permeable to water vapor from the body. A second Air Force contractor will survey available protective fabric materials, test selected candidates, and eventually design and test a prototype garment under realistic environment conditions. Most lightweight, breathable fabrics being developed for use in protective garments contain activated carbon for toxic agent adsorption.
Environmental Protection has historically consisted of setting limits for the discharge of pollution. Health effects and the tolerance of the human body to environmental insult have been the primary concerns. The role of government has been to balance the benefits of pollution controls against their costs and choose limits for particular circumstances. In the absence of an established limit or standard, the lowest technically or practically achievable level of contamination continues to be desired. Legal liabilities are assumed to exist above a "deminimous level", a point below which "the law does not concern itself with trifles". This level has been determined by the technology of detection and public opinion. Detection thresholds of parts per quadrillion have long since replaced parts per million and it is possible to find every known substance in an ordinary glass of water.

According to one ethical view, citizens have an inalienable right to be free of all environmental risks and this extends to the most sensitive individuals and covers relatively minor health effects. An alternative view emphasizes increased use of risk-benefit analysis in decision making, risk management, and low levels of pollution as a necessary inconvenience since residuals are inevitable.

It is no longer possible to be "pollution free" based upon achievable detection thresholds. We must therefore manage risks and take more personal responsibility for informed judgments regarding environmental exposure.
Special metal files were purchased for storing the textile samples. The samples are hung on 11" metal rods in the drawers where they do not become soiled or wrinkled as the drawers are 22" deep. They can be left the full width or cut in lengths to fit the rod. The selvage edge is on the bottom and the side edges are pinked or zigzagged to prevent fraying. The swatches are a good size for class illustrations and adequate to show up to 11" designs.

Cardboard headcards are stapled over the rods to each fabric sample. The necessary information regarding the sample is on this headcard. The information includes method of construction, fabric name, fiber content, yarn construction, width of fabric, price, purchase date, method of color or design, finishes used, end use, and name of manufacturer. Other information could be added if desired. Fabrics that are old or cannot be cut can be hung in 8 1/2" x 11" manila envelopes or stored in boxes with a "see" reference card in the file.

The fabric samples are classified according to fabric construction. Fabric construction was chosen for grouping because every fabric has a distinct method of construction; not every fabric has a name, known fiber content, or any other consistent factor. For easy identification the headcards are color coded across the top of the headcard with a felt pen according to the fabric construction. This gives a rapid method of keeping the fabrics in the right group.

Each sample was assigned an identification number on the headcard. The number was placed on the upper left-hand corner under the fabric construction. The identification number consists of a letter and a number. The letter was the first letter of the fabric name. The letter was then followed by a number assigned by the following system:

A 100, B 200, C 300, on to Z at 2600

The second letter of each fabric has:

A 1 through 4, B 5 through 8, Y & Z 96 through 99

Abaca would be 105 while percale would be 1619.

If more than one textile sample of the same name is used, a small letter in parentheses follows the number. For example, a second percale would be identified as follows, Plain weave, 1619(b).

A cross-reference file was established for locating the samples. It is arranged so one may find an example of any conceivable factor one would desire concerning fabrics. For instance, one may wish to find an example of Qiana, fume fading, an imitation warp print, or flocking. To find one of these one would consult the alphabetized reference file. There is a card for each factor and on this card is a list by identification number of choice examples. The cross-reference system is being computerized.

As new fabrics and factors concerning the field of textiles appear, additional cards can be easily included or put directly on the computer. This file is especially beneficial to part time and new staff members unfamiliar with the location of department facilities.
An undergraduate research experience can contribute to professional development and help students develop maturity, independence, personal and subject matter confidence, creativity, and motivation. Research, organizational, management, and communication skills are learned which prepare students for careers or graduate school.

A senior project is required of all undergraduates at California Polytechnic State University. In home economics all students enroll in two consecutive quarters for a total of six units. A manual guides students through this experience. During the first quarter, regular class meetings are held; faculty use a team teaching format and instruct in research methodology. Students develop research proposals and complete the introduction, review of literature, and procedure. During the second quarter, students work independently to complete the research and prepare a final report including the results, conclusions, and abstract. The project provides tangible evidence of student efforts.

Recent textiles and clothing senior projects were reviewed to investigate trends in student interest within the specific subject areas of textiles and clothing and to identify the methodologies used. A total of 210 textiles and clothing research projects were completed during the period 1979-1984. When classifying them by subject areas, some were double counted because they covered more than one area. Aesthetics, which included garment and textile design and clothing selection and construction, was the most popular focus of study. Retailing and promotion were the next most popular topics. Textile science and psychological, socio-cultural, and historical studies followed in popularity. The smallest number of studies were on education and careers. Most students have shown consistent but diverse interests over the years; however, interest in the area of promotion has increased, and studies in historic aspects and in textile and garment design have decreased.

The questionnaire was the most popular research method. Some students used this as the sole method; others used the questionnaire to obtain information prior to developing a product. Many students developed products (such as garments, kits, visuals, programs) and evaluated them. Interviewing was another technique used by students but has declined in popularity. A few students each year have performed laboratory experimentation and direct observation.

Faculty benefit from participation in this undergraduate research experience. The team teaching format provides the opportunity for faculty to learn from each other; and the involvement helps faculty maintain subject matter currency. The record of senior projects provides faculty a mechanism to monitor student interest over time. The requirement also offers faculty and students a valuable opportunity to increase professional networking.
Consumer Use of Informational Cues in Judgments of Clothing Quality

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Beginning with the question, "What kinds of information do consumers use when making judgments of clothing quality in a store?", this study investigated the acquisition and use of objective information by consumers in making subjective judgments of clothing quality. A decision simulation approach, developed to investigate the dynamics of consumer decision-making processes, was used to identify how much and just what kind of information consumers used in making judgments of clothing quality.

Sixty-five female college students participated in a "shopping" task where they were asked to judge the quality of four white blouses. All subjects indicated they had shopped for a white blouse in the past year. Information about each blouse was presented to them via an information display board (IDB). Information on the IDB was arranged in a matrix array with the four brands ("A", "B", "C", and "D") as rows of the matrix and 10 clothing attributes ("care label", "department in the store", "fabric", "fit", "general construction", "manufacturer neck label", "price", "salesperson's opinion", "store", and "style") as columns of the matrix. For each cell of the matrix there was a pocket holding information cards, each of which stated the appropriate brand and attribute information for that cell.

In individual testing sessions, each subject was asked to judge the quality of the four brands of blouses by selecting the information from the IDB she would need to make such a judgment. Each subject was told she could select as many or as few cards as she needed. After selecting a card, the subject would place it face down in a stack in front of her. The amount and type of information cards selected was the major data of interest. Subjects also completed a Clothing Interest Inventory and a Fashion Opinion Leadership and Innovativeness Scale. Results indicated that in general, consumers in this study disregarded half of the available information. On the average, subjects selected only 5 of the 10 attributes when judging clothing quality. The four most heavily accessed attributes when judging clothing quality were "style", "price", "fabric", and "fit". Interestingly enough, "general construction" was only selected by 62% of the subjects. The amount and type of information selected was not related to the subject's level of clothing interest, fashion opinion leadership, or fashion innovativeness.

Although the information environment that was provided was somewhat artificial, the study was exploratory in nature and provides an excellent basis for gaining a better understanding of the decision-making processes underlying clothing purchases.
Effects of Teachers' Style of Dress on High School Students' Ratings of Teacher Characteristics

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The purpose of this study was to determine if the style of a teacher's dress (formal, moderate, or informal) causes students to respond differently when evaluating certain teacher characteristics. Teacher's nonverbal behavior affects students' attitudes, achievement, the nature and quality of interaction in the classroom, and classroom management. This study sought to establish the specific effects that particular types of dress have on high school students' responses to characteristics exhibited by that teacher.

Subjects for the study were 102 male and 66 female high school students. After viewing slides of three male and three female teachers dressed in formal, moderate, and informal dress, each student rated each teacher on ten characteristics, which were considered positive attributes. Each characteristic was evaluated by the students using a 5-point bi-polar scale. The characteristics evaluated were: fair -- pleasant, clear, and honest; sympathetic -- understanding, sharing another's feelings; knowledgeable -- understanding of facts; enthusiastic -- eager, intense interest; friendly -- showing interest or desire for companionship; flexible -- to bend or change program or schedule; organized -- united or orderly arrangement; stimulating -- to excite or create interest; well prepared -- to be ready; clear -- easy to see and understandable.

A repeated measures analysis of variance and subsequent least squares difference (LSD) statistical procedures showed significant differences in attributed teacher characteristics based on the main effects of formality of teacher dress, the sex of the teacher, and the sex of the student evaluator.

The data were additionally analyzed by computing the mean score for each style of dress separately for male and female teachers by each of the teacher characteristics investigated. It was concluded that teachers' dress does exert some influence upon students' perceptions of teachers' characteristics.

No one style of dress emerges as most favorable overall. If a teacher chooses to dress in an extremely informal style, he or she would probably be perceived as sympathetic, friendly, and flexible while decreasing the probability of being perceived as well organized and well prepared. For the teacher dressed in a formal style, he or she would probably be perceived as knowledgeable, organized, and well prepared for class.

The results of the study indicated that students' perceptions vary as a teacher is seen in different styles of dress. Different personality characteristics are ascribed to teachers depending upon the style chosen since different clothing styles may facilitate the achievement of different interpersonal goals, individual teachers should determine the image they wish to project and dress accordingly.
Prior to the study, entering students in design and construction were assumed to be knowledgeable in construction when they elected entry into the intermediate course. By 1975 it was evident that fewer students performed well or used initiative to make decisions. Less new information could be taught and more reviewing was necessary; poor student performance continued through subsequent construction-oriented courses.

In 1979 a skill pretest, a "mock blouse," was developed to involve both behavioral and cognitive aspects of 14 basic techniques. The purpose was to determine skill level and screen students entering the intermediate course. A volunteer group of potential, intermediate students was tested. On this pilot group, percentage was used to establish skill level. Acceptance was set at 80% correct construction. The highest score was 65%; only one-half of the group sewed one-half of the techniques correctly. One-third completed 43% of the techniques incorrectly. Low skill performance was actual.

The refined test was used for 11 semesters to screen students into either an intermediate or a basic course. Pretested students receiving unacceptable scores and those with acceptable scores but not electing to enter the intermediate course Winter Semester 1982 were designated as Group I. The 68 students accepted into the course became Group II. It was hypothesized that their skill level would improve on their class projects (post-test). Analysis-of-Variance with $\alpha = .05$ was used to determine improvement. Consistent skill level was not maintained by anyone; 40% improvement and 60% regression of skill occurred. The T-Test confirmed one-half the regressed scores and all the improved scores; the performance level had not improved significantly.

An in-depth course was developed to train incoming students. Twenty-two students (Group III) volunteered to take the pretest as their final exam. It was projected that these scores would be significantly higher than Group II post-test scores. The two groups of scores were compared using percentage to determine differences. Group III scored 6-50% higher on eight techniques. Two consistent scores occurred. On four techniques Group III scores were 4-11% lower. Overall, Group III achieved significantly higher than Group II.

The pretest scores for Group I, II, and III were compared using the Neuman-Keuls Multiple Range Test and one-way Analysis-of-Variance to verify the findings. Overall, Group III scored higher on eight of the 14 techniques, equally with Groups I and II on three techniques and lowest on another four.

Even though students and teachers assumed that incoming students were adequately prepared, the statistical results did not confirm this. Students in Group I and II performed consistently lower than their perceived skill level. Group III trained students performed significantly better and met the department skill expectation.
Evaluation of the Guam Beginning Sewing Workshops: Selected Factors Influencing the Acquisition of Sewing Knowledge

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The main purpose of this study was to evaluate the sewing knowledge of participants of the Beginning Sewing Workshops offered through the Cooperative Extension Agency at the University of Guam which became a land grant institution in 1972. Other areas of investigation determined if the acquisition of sewing knowledge varied with motivation, learning environment, age, residence, home support, and education.

The sewing test consisted of 19 questions of content covered in the six-weeks workshop including pattern alterations, cutting out fabric, and basic construction techniques. A twelve-page questionnaire was sent to 125 participants of the Sewing Workshops with 104, or 82%, returning the instrument. Thirty percent of the sample were teenagers and 46% were between ages of 26 and 45. Sixty percent were high school and college graduates.

Frequency distributions of correct and incorrect answers were used to analyze the 19-item sewing knowledge test, thus determining areas of weakness in the workshop. The t-test and one-way ANOVAs with Duncan Multiple Range Test were used to analyze relationships between the independent variables and the participants' mean scores on the sewing test.

Data analyses indicated mean test scores varied with motivation, learning environment, age, and education. No relationships were found between test scores and area of residence nor support at home. For motivation, the highest test scores were obtained by those who wanted to learn more about sewing, to expand their sewing skills, and to teach their daughters. Lowest test scores were earned by those whose motivation for attending the workshop was mainly socially oriented. Test scores varied with learning environment, defined as workshop location. Those taking classes in structured educational settings (elementary schools and the University of Guam) earned higher scores than those attending workshops in community centers and private homes. Young adults (aged 26-35) and older adults (aged 36 and above) scored higher than the youngest participants (aged 12-25). College students and graduates scored higher than high school or grade school graduates.

Based on these findings, recommendations for improving the workshops were formulated. Promotion of the workshops might include the notion of improving or expanding sewing skills since participants with this motivation appeared to be the most successful. Based on test scores, formal settings appeared to be more effective learning environments. Therefore, some informal sites for the workshops might be restructured or eliminated. Younger participants may need longer than the normal timeframe to acquire basic sewing skills.
Retail Intern Activities Rated by Retailers and Educators

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To aid in the structuring of retail internships, this study examined the attitudes of retailers and college educators concerning 33 selected intern activities. The data was collected in 1984 from questionnaires answered by 196 California retailers and four-year-college educators. Respondents were asked to indicate the amount of exposure interns should or could receive to 33 activities. Groups compared in the study were: (a) retailers and educators, (b) different types of stores (department, specialty and discount), (c) chain (six or more) and non-chain stores, (d) main and branch stores, and (e) cooperative education administrators and faculty teaching retail related courses who supervise interns. In analyzing the data, mean scores were calculated, then ANOVA and Fisher’s LSD were used to test for significant differences in the various comparison groups. A Chi-Square analysis of distribution was also done. The minimum level of significance for differences in groups was .05.

Results of the study indicated that retailers and educators felt interns should receive some exposure to all 33 activities listed. Retailers and educators agreed considerable or extensive exposure should be given to nine activities that include sales, stock duties, providing and discussing customer needs and store competition with buyer, attend buyer and manager meetings, and conduct part of a sales meeting to train other sales personnel. While many of the activities might be routine functions, interaction with buyers and managers and some management level participation is indicated as important by both educators and retailers. The activities rated higher (for more exposure) by retailers than educators relate to routine activities on the sales floor. The activities rated higher by educators than retailers were related to the buyer’s responsibilities. A significant difference was shown in the attitudes of retailers and educators concerning the amount of exposure to buying activities an intern should or can be given.

Comparing department, specialty, and discount stores, specialty stores stand out as rating more activities significantly higher than department and discount stores. This suggests that specialty stores may offer the widest range of activities during an internship.

The data comparing chain versus non-chain and main versus branch stores were similar in that activities related to the sales floor were rated higher by branch than main and by chain than non-chain stores. Activities related to the buyer responsibilities were rated higher by main than branch and non-chain than chain stores.

Few differences were shown between cooperative education administrators and faculty who teach retail related courses as well as supervise interns. Cooperative education administrators rated some activities involving formula computations lower than faculty.

Major differences shown in this study concerned the amount of exposure interns should receive to routine sales floor activities versus buyer related functions. Perhaps, if retailers had a better understanding of interns prior training, they would be more willing to let interns experience buyer related or other higher level activities.
A Catalog and Storage System for the Costume Collection
at California State University, Northridge

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The purposes of this project were to review cataloging and storage systems in use and to establish an appropriate system for the costume collection housed in the Home Economics Department at California State University, Northridge. Cataloging and storage methods used by museums and universities were examined. Curators of costume collections were interviewed, reports of similar projects were reviewed, and large museums and universities were contacted for information.

An inventory of the costume collection was made and slides were taken of each item. Items were classified and named using a system adapted from Robert Chenhall's classification system for man-made objects. Ten classifications including (1) adornment, (2) outerwear, (3) underwear, (4) headwear, (5) footwear, (6) accessory, (7) personal gear, (8) personal symbol, (9) toilet article, and (10) function unknown were established.

A cataloging system including a registration number, curator work sheet, and catalog file was developed. A registration number based on the date of acquisition of the item was used. A two-part curator work sheet was used to record information about each item. One curator work sheet was filled out for each item. The first part of the work sheet consisted of a one-page general information sheet. This was used with each item regardless of the type of item. The second part consisted of a series of check lists developed to record design details. Check lists were developed for bodices, skirts, shifts, pants, underwear, and decorative features. A check list was selected for use based on the item.

A general catalog file and a subject file were developed. Information from the curator work sheet was used for the catalog cards. This information included (1) a description of the item, (2) the date of the item, (3) donor information, (4) information concerning the physical condition of the item, (5) location, and (6) the registration number. Each card had a photograph of the item, made from the set of slides. One general catalog file card was filled out for each item. Subject file cards were cross-indexed to the general catalog file.

The costume items were stored hanging, in acid-free boxes, or on storage shelves. Sturdy items were hung on padded hangers and protected with cotton dust covers. The remainder of the items were stored in boxes or on shelves. Acid-free boxes were provided for most items. Items which did not fit easily into boxes, such as hats and parasols, were stored on shelves. The wooden shelves were lined with acid-free barrier paper and washed, unbleached muslin. Each item was wrapped in acid-free tissue paper.

Each item was assigned a permanent registration number. Nondestructive, acid-free hang tags were used to label each individual item with its assigned registration number. The tags were attached to the item in a consistent location to prevent over-handling of the items.

The effectiveness of the cataloging and storage system was evaluated by a panel of instructors and students. The curator work sheet was seen as providing very adequate information for cataloging; the file system was easy to use; storage was judged as safe and convenient to use.
CLASSROOM ALTERNATIVE: INNOVATIVE Experience for TEXTILES, FASHION and INTERIOR STUDENTS.

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Three types of classroom alternatives are generally available for most teachers: The traditional classroom utilizing lecture etc.; the expanded classroom which is the same as the first with added speakers and field trips; and the community classroom which gives the students hands-on experience by getting them "out where the action really is".

The Design House situation is an example of the third type of classroom alternative. It is the classroom of the future. It allows the student an opportunity to interface with real situations in the real world.

The learning opportunities are outlined on a separate page titled, "Design Problem Process, The Ten Problem Planning Stages and the Forty Solution Sequences". Students with textiles and Fashion interests as well as Interiors can be incorporated easily into such an experience. The Textiles students can be assigned responsibilities for fabric selection, finishing and maintenance. Demonstration could also be incorporated into a sight activity, once the Design House is open to the public.

The Fashion students could use the home furnishing fabrics and create a special Line of garments. Fashion shows could be presented when the house opens. Fashions made in the traditional classroom could also be presented in a show.

Interior students receive most every type of experience necessary, especially when involved during the total nine month time span. All of the students could use the experience to carry out research with the hundreds of people involved in such a project. There would be no problem finding people to interview or to fill out a questionnaire.

This type of experience can become on-going, once established. The first year the project was the hospitality room with sixteen students working as a team. The second year six students worked with one designer on one room. Next an invitation has been extended from twenty designers, each to have one student work and share one room with them for the total project.

The advantages are endless. The learning is obvious, and the advertisement for the program is wonderful. It is a great amount of hard work and many hours, both for the students and the teachers involved. The rewards are worth the effort.

In order to get such a project as this started, contacts must be made with people in Business and Industry. Once the people find out that there are willing people, they are receptive to the education process and to make a contribution.

Other kinds of opportunities are available for INNOVATIVE experiences, as a classroom alternative. Design centers are an example. Most are willing to get students involved.
Evaluation of Techniques for Bacterial Activity of Fabrics

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The knowledge on bacterial activity of fibers is essential in the effective prevention of dissemination and transfer of pathogens, odor, production, discoloration and microbial degradation of the fabrics. In the literature, bacterial activity of fabrics has been mostly studied by microbiological techniques. Majors test (1) quantifies bacterial growth by measuring the acid or alkali produced from the bacteria. This technique is limited to those organisms which produce urease (2,3). The Quinn (2) and Lashen (4) tests are similar in their concepts. Both tests involve the direct visual observation and counting of the incubated fabrics in agar plates. Problems with these techniques include the difficulty in observing the colonies among the fiber and yarn interstices and the unknown effects of possible diffusion of fabric additives including antimicrobial agent into the agar. These limitations render these techniques inappropriate to give valid results on wide ranges of fiber and bacteria types.

The AATCC-100 test has been the most commonly used method in the evaluation of antibacterial finishes on fabrics (5). It quantifies bacteria by viable plate counting of bacteria washed off from fabrics inoculated with known amount of bacteria. This technique, however, assumes that all viable bacteria can be completely washed off from the fabric or the absence of bacterial adherence to the fabric.

In our laboratory, bacterial adherence on untreated cotton, polyester and polypropylene fabrics under AATCC 100 test condition was confirmed using microbiological, chemical and microscopic methods of evaluation. Scanning electron micrographs show high and variant bacterial adherence among the fiber types. From microbiological testing results, bleached cotton fabric at '0' contact time with bacteria showed bacterial adherence ranging from 16-36%, and the adherence increased to 99-100% after a 24 hour contact. Polyester had a slightly lower adherence at '0' and 24-hour contact time with the ranges being 3-26% and 90-96%, respectively. Polypropylene showed no adherence at '0' contact, but ranged from 98-100% after 24 hour contact. The analysis of bacterial protein as a mean for quantifying bacteria also indicated the adherence of bacterial cells under both contact conditions. Extensive bacterial adherence on the untreated fabrics cautions the applications of the AATCC-100 test method for quantifying antibacterial efficiency on fabrics.

References

A Comparison of the Performance of Eight Selected Sports Bras

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The women's movement and accompanying federal legislation mandating equal access to athletic participation, along with a growing interest in fitness and health have resulted in a dramatic rise in female sports participation. Increasing numbers of female athletes and non-athletes engage in regular strenuous exercise, which generally creates additional breast motion and a need for comfortable, adequate breast support. While foundation garment manufacturers have tried to capitalize on the sports bra market, few bras have been designed using data from biomechanical studies of breast motion and supervised field testing.

The purpose of this study was to evaluate eight marketed sports bras for differences in control of vertical displacement of the breast, overall comfort scores, and overall support scores for A, B, C and D cup size groups. An additional objective was to determine differences in the vertical displacement of the nude breast among the four cup sizes.

The 59 subjects were female university students and employees, and local community residents, divided into four experimental groups of approximately equal size according to bra cup size (A, B, C and D). Eight sports bras were selected for testing based on diversity and innovation in design and availability in a wide range of sizes.

To determine differences in vertical displacement, subjects were filmed while jogging on a treadmill, and film data were analyzed frame by frame. Data on comfort and support were gathered using a questionnaire developed from the review of literature. Questions called for rating specific bra attributes on a 5-point Likert-type scale. Subjects exercised for a minimum of 20 minutes in each bra just prior to completing the evaluation form. Overall scores were determined by summing the responses to questions relating to comfort, and those relating to support.

Analysis of variance and subsequent Least Squares Difference statistical procedures showed significant differences in vertical displacement between the D cup size group and the other three cup sizes in the nude condition. Significant differences in the eight styles' abilities to control vertical displacement and in overall comfort and support scores were found, both within the group as a whole and within each cup size group.

The data indicate that no single style of sports bra rated high on all three criteria. Generally, bras considered to be more comfortable were rated lower on support and controlled motion less effectively. Also, bras that controlled objectively measured vertical displacement did not always score well on the subjective support ratings.

The findings suggest that when selecting a sports bra, one should take into account cup size, sport engaged in, individual breast configuration, silhouette preference and fabric preference. It also appears that the sports bra needs of large breasted women are not presently well met, and that further research is needed. Suggestions for sports bra research methodologies and design modifications are included.
Development of a Universally-Sized Prototype Life Vest
for the Federal Aviation Administration

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The object of this research was to develop a prototype thermal protective life preserver for the Federal Aviation Administration (FAA) that included provision for: 1) increased thermal protection, 2) thirty-five pounds of buoyancy, 3) self-righting the wearer in five seconds, 4) being donned in fifteen seconds, 5) universal sizing for the United States adult population, and 6) meeting airline weight and storage requirements.

If an accident occurs in water below 18°C, thermal protection is needed if victims are to survive long enough for rescue efforts to be successful. Although the temperature of 47 percent of the ocean waters is less than 20°C, current airline flotation devices do not offer thermal protection from cold water.

The first step in the design process determined that four specifications (3 through 6) constrained the amount of thermal protection that could be provided. In order to meet the donning time and weight and storage specifications, a full protection suit was not considered. Due to weight and storage limitations, a single-chamber air bladder that covered the major heat loss areas of the upper torso was designed. To facilitate quick and accurate donning, the air bladder was developed into a jacket style bladder with a front zipper closure. In comparison, the current life preserver is a dual-chamber air bladder that is U-shaped, encompasses only the neck area and has complicated retention harnesses which prolongs donning time.

Since a close fit has been shown to influence thermal protection, means of accommodating the need for universal sizing and a close fit were sought. Anthropometric data for males and females were used to specify critical measurements. A material search and evaluation resulted in the use of one-eighth inch closed-cell neoprene in the lower back region of the prototype. The 300 percent stretch of the neoprene and a belt provided universal sizing and further enhanced the means of achieving a close fit.

Currently used life preservers and the prototype provide universal sizing and thirty-five pounds of buoyancy. Both self-right the wearer in five seconds and meet airline weight and storage requirements. Mean donning time for the currently used life preservers ranged from 28 to 37.6 seconds. Mean donning time for the prototype was 17.5 seconds. In addition, the prototype life preserver provides enhanced thermal protection and elimination of water channeling to the face.

Design of a Protective Garment for Pesticide Application: Theoretically-based Problem for Advanced Design Students

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This project was initiated as an educational experience for advanced fashion design students. Students designed and produced functional garments to minimize occupational exposure to pesticides. Garments will be used in a study to evaluate exposure under field conditions.

The project incorporated the following objectives: (1) to design a garment prototype using theoretically based functional design strategies to minimize worker exposure; (2) to produce one dozen protective garments, cut and sewn according to specifications developed for design prototype using mass production techniques; and (3) to provide an educational experience simulating the apparel manufacturing process for advanced fashion design students and students in an industrial sewing class.

The steps of the design process utilized in traditional research and development, R&D techniques, are explicitly articulated in designing for functional needs. Sixteen advanced design students had the opportunity to expand an assigned design/production problem which included the following: (1) orientation to existing problems with protective clothing for fruit growers as presented by Textiles & Clothing Extension Specialist; (2) design options and limitations relative to use of Gore-Tex; (3) investigation of problem through interaction with panel of fruit growers, commercial pest control operator, and the university horticulture specialist; (4) assessment of critical design factors for garment specifications; (5) design and construction of test sample garments; (6) testing of samples according to predetermined criteria; (7) development of prototype incorporating best design features--pattern work, grading, marker-making, cutting, bundling, and supervising construction operation utilizing an industrial sewing class comprised of ten operators; (8) management of human resources which included judgment and evaluation of operator skill levels and development of incentive program for goal-oriented project; and (9) evaluation of project through written analysis of the functional design process titled "Job Report" by advanced design students.

All participants benefitted: students experienced a complete design/production problem with all the intensity and fervor of an industrial situation; fruit growers learned more about protective clothing through interaction with the specialist and students; researchers grew from the experience in a variety of ways--the value of the multidisciplinary approach to problem solving, a better understanding of the role of facilitator in creating a learning environment, and seeing the design process through to a usable finished product which will be incorporated into a second phase of the research project.

The learning experience is heightened when a theoretical base is used for the functional design/production process. Students' abilities are enhanced when they are given an opportunity to contribute toward the solution of a problem which would benefit others. The positive results of this functional design problem imply that students perform well when they feel their contribution to research has value and credibility. Procedures followed through this design/production experience with accompanying responsibilities contributed to character development and leadership qualities which will be useful in future endeavors.
Development of California Flammability Standards for Furnishings in High Risk Occupancies

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Flammability standards for residential home furnishings, such as mattresses and upholstered furniture, have existed in California since the early 1970's. In recent years, increasing concern has been expressed about the potential fire hazard of furnishings used in high risk occupancies, such as institutions, and public buildings, such as auditoriums, stadiums, high density office buildings, and the public assembly areas of hotels and motels. The paper will briefly review work at the California Bureau of Home Furnishing's fire research laboratory which has led to the development of California flammability standards for furniture and mattresses used in high risk occupancies and certain public buildings.
Lightweight cotton, polyester, and polyester/cotton blend fabrics and to a lesser extent rayon and polyester/rayon blend fabrics are used in many apparel applications. Garments of these lightweight fabrics are involved in many clothing-related fires, particularly those involving children and the elderly. Extensive research has been conducted on the ignition properties and flammability characteristics of cellulose, polyester, and polyester/cellulosic blend fabrics. However, little is known about the relationship of ignition and burning properties of these lightweight fabrics burned in the vertical mode compared to the properties of these fabrics burned at 45° as found in the CS 191-53 test method.

The flammability characteristics of a series of commercially available lightweight cotton, rayon, polyester, polyester/cotton, and polyester/rayon fabrics weighing less than 4 oz/yd² were examined using two modifications of the CS 191-53 test method. In one modification the flame was impinged on the fabric until ignition occurred. In the second technique, the fabric was mounted vertically and the flame impinged until ignition occurred. In each case the ignition time and the time for the fabric to burn 5 inches (burn time) was measured.

The ignition and burn times of the fabrics increased with fabric weight. While the ignition times were about the same for similar weights of fabrics in the vertical mode and at 45°, the burn times were shorter for vertically mounted fabrics than for samples of similar weight tested at 45°. The burn times of cellulosic fabrics were more sensitive to increasing fabric weight than the burn times of polyester/cellulosic blend fabrics. The burning rates of cellulosic fabrics tended to be slower than the burning rates of corresponding weights of polyester/cellulosic blend fabrics. Polyester/cotton fabrics burned more slowly than polyester/rayon blend fabrics of the same weight. The observed differences were greater for tests conducted at 45°.

These studies suggest that lightweight polyester/cellulosic blend fabrics appear to be somewhat more flammable than corresponding weights of all cellulosic fabrics.
An Automated Foot Model to Assess the Heat Transfer Characteristics of Protective Footwear

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An automated foot model was used to assess the insulative characteristics of protective footwear designed to be worn in an arctic environment. The model is an epoxy-filled copper shell, 0.32 cm (0.13 in) thick, subdivided into twenty seven separately heated and controlled measuring sections. Each test section is fitted with a heating element and from one to five thermistors embedded at designated locations.

The automated controller system for the model is comprised of two basic subsystems which are integrated and modified to perform all required functions. Total, as well as sectional insulation (clo) values are calculated and printed every 15 minutes.

To demonstrate the use of this model, a comparative evaluation was done between a winter-use, commercially manufactured boot and the US Army standard Arctic Vapor Barrier Boot. Seven variations of the commercial item were made by the manufacturer, each differing in the thickness and type of insulation used in the innersole region of the boot. The innersole insulation thickness of the test footwear varied from 0.32 cm (0.13 in) to 2.5 cm (1 in) and was comprised of single or multiple layers of felt, sponge foam, poly foam, poron foam or Ensolite foam. All footwear was evaluated in both compressed and uncompressed states within a climate-controlled chamber under the following environmental conditions: ambient temperature 23.00°C (73.50°F); 50% relative humidity. The compression of the innersole was done to show any change in insulation as a result of the full body weight exerting pressure on this region of the boot. Additionally, the commercial item with the highest dry insulative value and the standard boot were both evaluated while standing in 5.1 cm (2 in) of water to determine insulation changes throughout the innersole when totally saturated and compressed.

Total insulation losses as a result of compression of the innersole under the weight of a typical infantryman (73 kg, 160 lb), were minimal (average 0.03 clo) in the commercial series. However compressed insulation losses at localized sections of the model were significant, especially in section 19, back sole and section 13, front sole (average 0.33 and 0.43 clo, respectively). The standard boot gained slightly in total insulation (0.08 clo) as a result of compression.

The immersion of the commercial boot with the highest dry insulative value (1.46 clo, uncompressed) in water caused a total insulation loss of 0.10 clo while uncompressed and a loss of 0.78 clo when compressed. The standard boot offers 118% more insulation (1.48 vs 0.68 clo) than the commercial item when immersed and compressed.

The use of this model offers the footwear technologist the ability to assess and modify the insulating characteristics of a protective footwear item in the preproduction, prototype stage and to evaluate footwear designed to be worn in similar environments.
"The Emperor's New Clothes": The Role of Protective Clothing in the Prevention of Hazardous Materials Exposures

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Protective clothing for "HAZMAT" incidents does NOT play a significant role in preventing firefighter exposure to toxic materials. Like the Emperor's new clothes, in many cases it's as if the protective clothing is not even there. Just one example: In 1983 Benicia firefighters responded to a leaking tank car containing Dimethylamine (DMA). The firefighters wore fully encapsulated suits. Shortly after they began their response, the polycarbonate facepieces of their ensembles shattered, heels of their boots came unglued, their gloves began to disintegrate.

Forty one percent of the chemicals firefighters are likely to encounter require encapsulated suits for full protection. Although encapsulated suits are available, they have been designed for industrial exposures where the type of chemical exposure is usually known in advance. They are not designed for emergency response where the chemicals involved are not known prior to exposure. Even the most effective material for encapsulated suits, butyl rubber, does not protect against exposure in approximately thirty percent of the cases. The goal of protective clothing is ZERO EXPOSURE to materials which may be carcinogenic, teratogenic, or otherwise hazardous.

Currently fire department HAZMAT Teams use encapsulated suits made of butyl rubber, Viton, neoprene, polyvinylchloride, or chlorinated polyethylene. Teflon is very promising in terms of chemical resistance; however, it is costly and hard to manufacture. Materials for non-encapsulated suits include rubber, urethane, PVC-coated nylon or cotton, Tyvek. As noted, butyl is the best material currently used in encapsulated suits.

The following criteria are provided to encourage the development of better suits and materials: Impermeability to 100% chemical exposure. Compatibility with respiratory system. Compatibility with communication systems. All components of top quality, supporting integrity of entire design. Comfort. Decontamination should not degrade future performance. Shelf life = ten years. No degradation with ultraviolet or ozone exposure. Wearing time = two hours minimum. Chemical resistant for twenty hours total (minimum). Ambient temperature = -20 to 40 degrees C. Fire retardant. Inexpensive, easy to fabricate! Remember: thirty years ago manufacturers said the development of something like Nomex - a common material at the fireground today - was impossible!

Currently there are no standards for hazardous materials response! The National Fire Protection Association is just beginning work on standards. These will set minimum levels of protection and help structure future R&D.
A Survey of Pesticide Contamination of Impervious Gloves Worn by Mixers and Loaders of Pesticides in California in 1984

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Impervious gloves are considered a primary barrier to exposure by mixers, loaders and applicators to the pesticides they handle as part of their normal work activities. Many different theories and beliefs are held as to the relative value of each type of construction to best protect the employee's hands and to least inhibit the employee's productivity. This is reflected by the wide variety of types of gloves that are in widespread use by pest control operators in California. They include different combinations of synthetic or natural rubbers or non-rubber materials; relatively thick, non-pliable materials, or thinner, more flexible materials; and, those with or without an absorbent "flocked" lining.

In over 100 studies conducted by this Branch, hand exposure has been shown to account for an average of greater than 40 percent of total dermal exposure, even when gloves were worn. Previous samplings by solvent rinsing of the inside of impervious work gloves have indicated that substantial quantities of some pesticides may be there more or less continually. In addition, hand wash and cotton glove insert sampling has indicated higher exposure levels than can be explained by penetration during the sampling period. Several frequent work activities, as well as certain workplace habits, require employees to doff and don their gloves throughout the work day. Hands contaminated while not wearing gloves, as well as airborne pesticide dusts, may cause the contamination of the inside of a glove.

The purpose of this study was to survey the potential for worker exposure to pesticide residues previously deposited in their gloves. Impervious work gloves used by employees of 11 licensed Pest Control Operator (PCO) firms were sampled. A total of 60 gloves were sampled. Gloves selected for sampling were those in regular use by employees who mix, load and/or apply pesticides. It was not possible to develop detailed use histories for each glove. The age of the gloves surveyed ranged from several days to several months. None of the employees using the glove reported any signs or symptoms of illness.

To sample each glove, 400 ml of a solution of water and Sur-Ten (a surfactant) was poured in, the top was rolled closed, and the water was agitated with a moderate "rocking" action. After 5 minutes of agitation, the glove was opened and 200 ml aliquot of the solution was measured into a sample jar.

Washings from the inside of gloves were screened for 27 chlorinated hydrocarbon and 24 organophosphate pesticide residues. Identification of pesticide compounds by this method was exceptionally difficult because of instrument "noise" caused by phthalates and other co-extractants. Confirmation of some sample results was attempted by mass spectroscopy; this was not always possible due to the spectrometer's higher limit of detection.

Of the 60 gloves sampled, 42 were found to be contaminated with
levels of various pesticides up to 198 mg. Since the dermal absorption rate of pesticide residues from gloves has not been well characterized, safe levels of glove contamination have not been calculated. Estimated safe levels have been calculated for field worker exposure to pesticide residues on foliage, based on leaf to skin transfer rates, dermal absorption rates, and acute toxicity data. Residues in twelve gloves exceeded those considered safe for foliar contact by field workers. Among these samples are those which represent gloves with levels of contamination which probably have the potential to cause illness or injury to employees wearing them.

Below is a table summarizing the number of contaminated gloves.

<table>
<thead>
<tr>
<th>Pesticide</th>
<th>No. of Samples Contaminated</th>
<th>Range of Contamination Found (ug/cm²)</th>
<th>No. of Samples Exceeding the Estimated Safe Level*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azinphos-methyl (Guthion)</td>
<td>4</td>
<td>0.08 - 0.64</td>
<td>0</td>
</tr>
<tr>
<td>Chlorothalonil (Bravo)</td>
<td>10</td>
<td>0.01 - 2.05</td>
<td>0</td>
</tr>
<tr>
<td>Diazinon</td>
<td>2</td>
<td>0.02 - 0.05</td>
<td>0</td>
</tr>
<tr>
<td>Dimethoate (Cygon)</td>
<td>21</td>
<td>0.01 - 26.30</td>
<td>0</td>
</tr>
<tr>
<td>Endosulfan (Thiodan)</td>
<td>19</td>
<td>0.002 - 0.09</td>
<td>0</td>
</tr>
<tr>
<td>Folpet</td>
<td>6</td>
<td>0.19 - 1.04</td>
<td>0</td>
</tr>
<tr>
<td>Malathion</td>
<td>2</td>
<td>0.03 - 0.06</td>
<td>0</td>
</tr>
<tr>
<td>Methidathion (Monitor)</td>
<td>2</td>
<td>0.42 - 5.20</td>
<td>2</td>
</tr>
<tr>
<td>Methyl parathion</td>
<td>4</td>
<td>0.02 - 0.04</td>
<td>0</td>
</tr>
<tr>
<td>Mevinphos (Phosdrin)</td>
<td>18</td>
<td>11.20 - 264.00</td>
<td>9</td>
</tr>
<tr>
<td>Parathion</td>
<td>3</td>
<td>0.01 - 0.06</td>
<td>1</td>
</tr>
</tbody>
</table>

*The "Estimated Safe Level" used here is based on the Department of Food and Agriculture's estimate of a safe level of farm field worker exposure to pesticide residues on foliage in treated fields. This level has not previously been used to characterize or evaluate direct contact with clothing. It is therefore provided for purposes of comparison only. Estimated safe levels have been calculated for azinphos-methyl (1.6 ug/cm²), Diazinon (1.5 ug/cm²), dimethoate (5.30 ug/cm²), methidathion (0.2 ug/cm²), methyl parathion (0.1 ug/cm²), mevinphos (0.09 ug/cm²), and parathion (0.06 ug/cm²).

Of the 10 samples of unlined gloves taken, seven samples (70 percent) showed no measurable contamination. This compares favorably with an overall average of 30 percent showing no contamination. While it seems reasonable to expect less retention of contaminants in an unlined glove, the number of samples taken in this study is not adequate to demonstrate this conclusively.

Detailed characterization of factors influencing employee exposure to pesticide residues due to dermal exposure to the inside of work gloves was not possible. The range of results found indicates that certain factors may cause some employees' gloves to become much more contaminated than others'. It can also be concluded that wearing impervious gloves may not actually prevent exposure of an employee's hands to a significant exposure by pesticide residues. Indeed, use of such gloves may, under some conditions, increase the risk of overexposure to highly toxic pesticides.

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The purpose of this research was to determine whether the laundry practices commonly used by Alberta farm families remove pesticides accidentally spilled on clothing during handling and use. Concern for reducing the potential for dermal exposure to the pesticide user and secondary exposure to other members of the family was generated by the findings of a Pesticide Safety Survey (Hussain, 1983). This survey found that many farmers wore their regular clothing and made little effort to protect themselves against dermal exposure to the pesticides they were handling. Ten percent of the grain growers interviewed experienced what they believed to be symptoms of pesticide poisoning; this translates into 5,000 farmers in Alberta. Moderate symptoms (nausea, abdominal cramps, diarrhea, chest tightness, blurred vision) were described by more than half of those surveyed, however these symptoms have the potential to precipitate long-term health problems.

The same random sample (488), used in the earlier survey, was sent a Laundry Practices Questionnaire in August of 1984; 187 usable questionnaires aided in the choice of pesticides and conditions for the laundry experiments which followed.

Two commonly used herbicides, Treflan (trifluralin) and Avadex BW (triallate) were selected for study. Cotton specimens were spiked with 0.5 mL field strength dilutions of Treflan or Avadex in emulsifiable concentrate formulations, then laundered after 24 hours, with or without pretreatment with 1 mL Spray n' Wash. A 0.2% detergent solution (Tide) was used and specimens were individually washed in an Atlas Launderometer for 12 minutes at 50°C and rinsed twice at 40°C. A procedure was developed to extract the residual pesticides with acetone, then analyze the extract by gas chromatography. The percent of pesticide remaining after laundering was the change in pesticide concentration (mg/specimen) between the control and the laundered specimens. Twenty-three percent of the Treflan was retained after one wash when no pretreatment was given. A Spray n' Wash pretreatment reduced the Treflan residue to 11.7%. If two consecutive washes were given, the Treflan was reduced from 23.0% to 16.3% for specimens given no pretreatment and from 11.7% to 8.7% for specimens pretreated with Spray n' Wash. Results for the Avadex showed cotton retained approximately double the amount of pesticide.

Reference:

DEVELOPMENT OF THE 1 HOUR SELF-CONTAINED
DEMILITARIZATION PROTECTIVE ENSEMBLE
Laurie Ann Hauch

INTRODUCTION:

During the late 1970's, the US Army developed an air-supplied chemical protective
ensemble to provide better protection in industrial demilitarization areas where ex­
posure to liquid and vapor chemical agents is likely. The new chemical protective en­
semble, called the Demilitarization Protective Ensemble (DPE) is currently used by the
Chemical Agent Munitions Disposal System (CAMDS). The original umbilical cord, air-sup­
plied DPE has been used in the CAMDS environment since 1978 without any incidence of
exposure.

The air-supplied DPE was modified in the early 1980's to provide improved comfort
and added protection to the user. To prove the feasibility of the modified DPE, a 1
hour, self-contained unit was developed utilizing commercially available components
when possible. The protective ensemble consists of the following:
• The DPE outergarment.
• A Biopak-60 self-contained breathing apparatus (SCBA).
• A positive pressurization system within the DPE outergarment.
• A liquid-cooled vest.

The outergarment totally encapsulates the wearer and all other ensemble compo­
nents. The DPE suit is constructed from 20 mil thick chlorinated polyethylene. The
visor is made from polycarbonate. A photograph of the modified DPE is shown in Figure 1.

Entry into the overgarment is made through a vertical opening using a closure/
restraint zipper assembly. A two-track plastic closure and a plastic tooth restraint
zipper make up the closure assembly. The two-track plastic closure is closed by manu­
ally interfacing the mating halves together and opened by an external pull tab.

A self-contained breathing apparatus and air-line cooler maintains a 60 minute
supply of breathing air. Because the respirator is a closed circuit breathing appar­
atus, it recirculates the majority of the wearer's exhaled gas.

The suit pressurization system provides positive pressure within the self-contain­
ed DPE during operation. Three components make up the pressurization system: an inlet
valve for initial garment pressurization, a volume accumulator to prevent pressure
surges due to volume changes, and an overpressure exhaust assembly which minimizes
operating pressure.

A commercially available cooling vest is used for the cooling system. The vest
is self-contained and liquid cooled. It utilizes a battery operated pump to recircu­
late water from the internal ice bag to the vest and back.

METHODOLOGY:

After completing modifications to the original air-supplied DPE, a test program
was conducted by US Army personnel to meet the certification requirements prescribed
by the US Army Surgeon General. The test program included pressure testing, chemical
testing, material evaluations, heat stress monitoring, and human factors tests.

Test results indicate that the 1-hour, Self-Contained DPE poses no health threat
either through failure of system components or through inadequate protection.

The Self-Contained DPE is constructed of durable materials consistent with the
operational environment and has been proven (through performance testing) to meet op­
erational needs in selected Army depot facilities. Army personnel engaged in moving
chemical agent munitions and "first-entry" monitoring will find the modified DPE a
benefit because of added cooling, added protection, and freedom of movement.
In the early sixties, Dr. Frances Quinn, Cooperative Extension Clothing Specialist at UC Berkeley, began work on developing a method for analyzing personal color for individual's use in selecting clothing and cosmetics. She collaborated with color consultants at the Munsell Color Company for several years. The resultant color method, often referred to as the Munsell Color Method, has now been in use for some twenty years.

This method of selecting color for individual's clothing and cosmetics differs in several aspects from many of the personal color methods currently popular.

These differences occur in: the classification of skin tones; the use of hue, value, and intensity; the individualization of each completed color fan; and in the amount of "color" education presented by the instructor during the workshop.

A "users" view of a typical color workshop presented by Cooperative Extension can describe California Color - the Munsell Method.
Clothing Research and the Psychology of Color

Charlene Lind, Brigham Young University, Provo, Utah 84602

Is a person who consistently wears bright yellow-green a well-adjusted extrovert or a social misfit? Is the woman who regularly wears black and grey a sophisticated fashion leader or suffering from depression? It would be nice if clothing professionals could answer such questions and give guidance in both how the color of clothing worn affects the individual wearer and in how the the wearer is perceived by others. This is not currently possible.

Interest in the field of clothing color psychology over the last 30 or more years is evidenced by an almost continuous output of research, most of it in the form of theses and dissertations. To date, I have found 65 studies which in whole or in part have looked at some aspect of color preference or usage related to clothing. This interest from clothing graduate students and professionals has paralleled that in fields such as psychology, physics, architecture and interior design. Each of these areas has looked for answers to questions of how and why we see colors and what the colors mean to the observer or the user. Many of the studies have shown some significant results, but often they do not agree with each other. After such an expenditure of effort as is represented by the clothing-related studies alone, we must honestly ask why we are not further along in developing a theory for interpreting clothing color and in supplying guidelines for the use of color in apparel. There are some obvious answers to this question. One of the most obvious difficulties is that the vast majority of the research has been conducted by master's degree candidates who are just beginning to learn research methods. Their work usually involves limited sample size and frequent methodological naivete.

From my own experience, I would say that a more serious problem has been the difficulty in finding what other work has already been done. We have had neither a center for the study of color in clothing, nor a network for sharing research results. I began working in the area about three years ago after numerous undergraduate students had tried to write papers in the field but could not find an adequate number of studies through the normal library sources. I have been amazed at the number of studies now on my bibliography, many of which were gathered one at a time only from reference lists of other studies. We are certainly hampered by the lack of adequate publication sites for our work, and the lack of a central listing of theses and dissertations. I am most grateful for the recent emergence of THE CLOTHING INDEX and the resumption of printing of titles of dissertations and theses by the HOME ECONOMICS RESEARCH JOURNAL. The ACPTC NEWSLETTER's listing of research in progress is a great help also. But none of these sources is complete. My motivation in preparing this paper is to share with ACPTC members the results of my search for sources and to establish contact with others interested in the field. If there is enough interest, I will try to publish, for a nominal cost, the accumulated bibliography which is much too long to include in our conference proceedings.

Color is a very complex phenomena and hence difficult to study. Adequate investigation of color is closely tied to knowledge of and
limited by technological developments in various other fields. We must look to physics for an understanding of light as energy and the characteristics of the electromagnetic spectra. Physiology and psychology together are concerned with the way the eye "sees" color and how the neurological messages are encoded and decoded by the brain. Chemistry can provide information on dyes and pigments needed to produce the phenomena of colored materials. The field of color theory and color science itself is needed to describe the dimensions and characteristics of the color space. To that must be added the theories of attribution, and personality from psychology, and the theories of the fashion process from clothing and textiles and sociology if we are to begin to understand the symbolic meaning that clothing colors may carry for either an observer or wearer. Some of these fields have progressed further in developing fundamental principles of color science than our own field has and others are about where clothing and textiles is in understanding the phenomena. We could despair of ever coming to understand color when so many fields are involved. But color is such a fundamental part of clothing, and interest in color so widespread that we can not give up on the task. Rather, we must carefully assess where we are and go on from there.

In assessing the position of psychology in the study of response to color Gelineau (1980) outlined problems that are common to those in clothing color research. We will not make significant strides until our clothing researchers solve these problems. They include:

1. Clearly specifying the colors used as stimuli so that results can be compared across studies.
2. Paying adequate attention to both intensity and value as dimensions of color as well as the more frequently used variable of hue alone. This is not easy given the asymmetrical shape of the color space itself.
3. Using a standardized light source and adequate control of viewing conditions.
4. Adequate screening for possible color vision dysfunction of subjects.
5. Using criterion measures that meet professional standards with respect to reliability of measurement.
6. Basing research on adequate theory such as a general model of color vision or some underlying model of behavior until such time as we can develop a theoretical model of clothing color preference and usage.

Let me now address each of these problems and outline where clothing research is in current practice. Only as we see the current state of the art can we improve in the future.

**Specification of Color Stimuli**

To completely specify the color stimuli it would seem necessary to indicate the hue, value and intensity designation of each color stimulus relative to an accepted color notation system such as the Munsell Color Standards, the CIE or Ostwald Systems. If matching actual garments or fabrics to these standards, standardized matching procedures such as those in ASTM's Standard Method, D1535, would need to be followed. A potentially less complete specification could be achieved by using previously developed test instruments with color stimuli more or less
completely specified. Of the studies I have seen, approximately one
two thirds used well specified color stimuli, one third used a previously
designed test so the results were comparable across studies, but not
necessarily with studies using other forms of color stimuli, and one
third used non-specified color stimuli. Even some of the most recent
studies have not fully specified the colors used.

Control of Value and Intensity

Since clothing colors are seldom used in hues of full intensity and
values vary widely, it would be most desirable that research use the
range of values and intensities most often found in clothing. The
asymmetrical nature of the color space makes it difficult to do this and
also sample equally the values and intensities of all hues. Fatigue of
subjects is a real problem if too many colors are included. Studies
have handled these problems in a number of ways. Approximately
25 percent of those I have read chose to test only the effect of hue and
may or may not have controlled for value and intensity. Others have
used a more or less representative range of values and intensities.
Some have shown the full range of values and intensities of a hue as a
single illustration, assuming that the subject could average or other­
wise respond to all possible variations of a hue at one time.

Researchers who took the most notice of value and intensity
variations did so by using standardized colored papers, such as Munsell
standards or Color Aid paper. Others compared their color stimuli to
Munsell notations, though some of those comparisons were made by simple
visual comparisons rather than under standard viewing conditions; such
as ASTM's Standard Method D1729 which specifies checking the color match
under at least two different but standard light sources, having specific
amounts of illumination, controlling geometric conditions, background
and surrounding areas.

Standardized Lighting and Viewing Conditions

It might be debatable whether or not clothing should be viewed
under controlled lighting conditions. When judgments of people in real
life situations are made, no such controlled conditions exist. But when
our concern is with reproducible research results then attention must be
given to lighting and viewing conditions. Colors are differently
perceived under differing lighting conditions. It should go without
saying that common viewing conditions are needed if the responses of
subjects within a single study are to be compared, combined and other­
wise manipulated for statistical evaluation.

Of the studies reviewed, approximately one half controlled the
lighting in the viewing situation. Some did so very precisely with
standard light sources, neutral grey backgrounds for displaying colored
samples, even including dressing the experimenter in grey to match the
background setting. Others selected white as the background, which is
included in the standard methodology though there is some research
showing that color perception is affected more by white backgrounds than
by grey. Other studies used an illumination source that was consistent
for that study but not standardized for accurate viewing of color
stimuli. A few used natural light but did check that the amount of
light was consistent for all subjects.
Approximately half of the studies, unfortunately, did not control either the amount or source of light in which the color stimulus was viewed. Hence these studies can not guarantee that the colors seen by different subjects was the same, to say nothing of comparing their results with those of other studies. Again, recency of the research is no indication of how well lighting in the viewing setting was controlled. Some of the early studies were well controlled and some rather recent ones made no attempt to control illumination or other viewing conditions.

Controlling the lighting in the viewing situation probably means bringing subjects to a single testing location. This is easier with some populations than others. College or high school students, even nursery school children are available in centralized locations, but for adults and the elderly, controlling lighting presents a significant problem that has generally not been solved by clothing researchers.

Screening for Color Vision Dysfunction

One of the weakest characteristics of clothing color research has been the failure to test subjects for potential color vision dysfunction. Tests available to assure adequate ability to perceive colors accurately include one of the forms of the pseudo-isochromatic color plates such as those developed by Dvorine, Ishihara or American Optical Co. More complicated and time consuming are the Farnsworth-Munsell 100 Hue test or the Holmgren Wool Test.

Only 25 percent of the studies reviewed tested for any form of color blindness, leaving 75 percent of the research where subjects were not even asked for a self-report of vision problems. Since color blindness affects less than 5 percent of the population and appreciably more men than women and since most of the subjects of clothing studies were women, the magnitude of the potential problem is not as great as it might seem. But an additional vision problem has been totally ignored, that is the gradual yellowing of the cornea of the eye with age which at some point does alter color vision for many adults. Studies which focus on the elderly should certainly take this into account. Future research must surely include some form of color vision testing appropriate to the age of subjects.

Reliability and Validity of Criterion Measures

The reliability of research measurers would need to be considered in terms of the purpose of the research. A casual reading of the titles of color studies suggests that there are many purposes. A more careful consideration reveals that there have been primarily two purposes for clothing color research. One of these has been to assess preferences for colors singly or in combinations. The second broad purpose has been to see if color preferences (either for single colors or color combinations) provided a cue to some aspect of personality, self-concept or impressions of personality, including feelings of attraction to the individual.

Clothing researchers have used a variety of instruments for their study of color. These have included the Compton Fabric Preference Test, the Color Pyramid Test, selections of Munsell Color Standards, Color Aid or Color Vu papers, fabric swatches or slides of fabric swatches,
garments in varied hues, evaluations of subjects' wardrobe colors (primarily from self-report), and colored illustrations of clothing items. Individual researchers have developed their own instruments such as Buchanan's Color Awareness Test and Cave's Color Preference Measure. Of this array of methods specifically devised to test color preferences in clothing, only the Compton Fabric Preference Test has received sufficiently wide use that it could be considered to have reliability standards. The Compton Test uses fabric swatches or slides of the swatches to assess preferences for warm or cool colors; tints, shades, or saturated forms of six hues, and strong or weak contrast between figure and background color.

The Color Pyramid Test is primarily a projective technique for assessing personality characteristics. In that form it has been evaluated for reliability and validity. This work was primarily done in Europe on adult populations. Clothing researchers, however, have also used the Color Pyramid Test for assessing clothing color preferences and preferences for color combinations which use may be considered beyond its normal scope.

Each of the measures devised or used rests on assumptions about the relationship between the color stimuli used and actual clothing when worn. Looking at the diversity of stimuli that has been used, one must ask questions about these assumptions. Can a single garment represent any possible garment or are colors judged differently when used for different types of apparel? (One study suggests that color preferences are specific to types of garments.) Is a swatch of fabric seen as an adequate substitute for an actual garment and how large does the fabric swatch need to be? Is colored paper judged in the same way that color would be seen in fabric or actual garments and how large should it be and from what distance should it be viewed? Is the name of a color responded to in the same way that an actual color swatch would be and which form of the color does an individual subject have in mind when only the color name is used? All of these forms of color stimuli have been used by clothing researchers. Each has its strengths and weaknesses and all are of necessity only an approximation of a real life situation. In short, one of the major reasons that reliable results have not been accumulated in the clothing color research may well be that we have not yet developed a reliable color test that can be used over a period of years without being invalidated by changing fashion.

Changing fashions themselves create another of our problems. Most clothing researchers but few color researchers from other fields recognize that color preferences are or may be affected by changing fashions in color usage. Not only changes in apparel colors, but also changes in home furnishing colors may influence subjects. A number of recent studies have shown yellow green to be one of the least liked colors, yet 20 years ago, it was a favorite color for clothing and for use in homes. Ten years ago very few of my students liked purple and today it seems that everyone favors it.

A major failing of many of the measures used to assess color preferences may be the unsubstantiated assumption that an individual's color preferences are stable over time. The Compton Fabric Preference Test did attempt to establish reliability with a retest after two weeks giving rather high correlations between the first and second tests. But
is that enough time lapse? Only one study that did not use the Compton test attempted to establish test-retest reliability of the instrument used. That researcher found some changes over about a 10 week period, but the study has some serious methodological problems. We are left with practically no substantive data on how stable clothing color preferences really are.

Theoretical Base

To date, no clothing researcher, to my knowledge, has attempted to formulate a unique theory of color usage in clothing. Some of the more recent studies have related their work to theoretical paradigms in psychology, but I have found no study that has taken into account the theories of how color is perceived by the eye and interpreted by the brain, an admittedly complex field with several competing theories extant. Perhaps the field of clothing color is sufficiently different that we should be brave enough to advance our own theory or theories for future testing and verification.

The diversity of groups studied is encouraging. Subjects of the clothing related research have ranged from preschool children to the elderly with the heaviest emphasis on college age women. We have included the obese, delinquent adolescents, drug users, the deaf, mental patients and a few men; so the range of subjects tested would justify an attempt to articulate a theory of color usage for clothing were there a pattern of agreement among the studies. Unfortunately the results are less than satisfying. Some studies have shown a preference for cool colors, others for warm colors. Purple has been both the most preferred and the least preferred hue. Similar subjects have preferred tints or shades, strong or weak contrasts. The relationships of color preferences to personality characteristics or to personal values have been weak to nonexistent. But we do not need to wait another 20 or more years before we attempt theory building. Several large studies that adequately solve the methodological problems might well provide the basis for bringing together the results of some of the previous work and allow substantial progress to be made in a relatively short time.

Color is certainly a complex phenomena to study. Clothing color is even more complex, involving as it does shifting fashions and cultural taste. A beginning point for solving the current research problems would be a complete annotated bibliography to make past research more readily available and the identification of colleagues working in the field so that improved methodology and results could be shared. I would welcome hearing from anyone interested in joining me to pursue these projects.

References:
Comparison of General and Clothing Color Preferences

Charlene Lind, Brigham Young University, Provo, Utah 84602

Color is one of the most important elements of apparel and as such has been the object of a moderate amount of research. An even larger body of research has identified personal preferences for color without reference to its use for a specific item. One important objective in the general color research and the clothing color research has been to identify whether there were specific relationships between characteristics of the subjects, such as personality traits, that correlated well enough with color preferences so that color could be used as a predictor of these characteristics.

The objective of the current research was to compare general color preferences and preferences for clothing colors. If the two were the same for the majority of people, the extensive research in general color preferences and personality could safely be used by Clothing and Textiles professionals when studying and teaching about clothing color choices. If the two preferences are not the same, much more caution must be exercised in using the non-clothing research.

Subjects were 138 university students from a variety of disciplines, some were trained in color theory and some were not. They ranked 10 Munsell color standards (full intensity and natural value) first, in order of personal preference viewed just as a color, and then as a color to be used for a piece of clothing such as a sweater. Additional rankings were made with value and intensity variations of the most preferred hue. The stated preference for clothing colors were compared to the colors of clothing subjects were wearing, to the predominant colors they reported to be in their personal wardrobes and to the garment they identified as their favorite piece of clothing.

Statistical analysis showed that half of the subjects selected different colors as their favorite for general color preference and for clothing color preference; and one third did not include their most preferred general color as either first or second choice for clothing usage. Except for the most popular colors (blue and blue purple, which were worn by everyone) the rankings of colors preferred for clothing were significantly related to colors of clothing being worn, to colors of favorite garments or to dominant colors in the subject's wardrobe. Training in color theory did not significantly affect the results.

It is evident from this research that we cannot assume that research into the psychological effects of color or the personality predictions from color choices (such as from the Luscher Color Test and the Color Pyramid Test) are valid when applied to either individual or group choices for apparel colors. Clothing professionals should, therefore, be cautious in applying research about general color preferences to clothing situations though such usage is not necessarily invalid.
Self-perceived Somatotype, Body-cathexis, and Attitudes Toward Clothing Among College Females

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The purpose of this study was to determine the extent to which body-cathexis (individuals' satisfaction or dissatisfaction with their bodies) and attitudes toward fashion and the use of clothing differ among groups of college females differentiated according to self-perceived somatotype (body build). Previous research on self-perceived somatotype has demonstrated its relationship to several indices of self-concept, including body-cathexis. However, all previous work has been conducted exclusively with male subjects. This study extended research on self-perceived somatotype by investigating female subjects and by relating the concept to relevant appearance and clothing measures.

Ninety-six randomly selected college females were administered the Perceived Somatotype Scale developed for this study, the Body-cathexis Scale, a Fashion Opinion Leadership and Innovativeness Scale, Creekmore's Importance of Clothing Questionnaire, and a Clothing Interest Inventory. The Perceived Somatotype Scale included a lineup of five female figures representing five different somatotypes ranging from ectomorphic (thin) to mesomorphic (muscular) to endomorphic (fat). Each subject selected the figure she thought most clearly resembled her own body build; thus creating five perceived somatotype groups. Analysis of variance for unbalanced data was utilized to determine the extent to which the perceived somatotype groups differed in body-cathexis and the fashion and clothing measures. Results indicated that self-perceived ectomorphs and mesomorphs had significantly greater body satisfaction than self-perceived endomorphs. Contrary to stereotypic assumptions there were no differences between the perceived somatotype groups in terms of clothing interest, fashion innovativeness, fashion opinion leadership, and attitudes toward the importance of clothing. The results have implications for an increased understanding of the large size market segment for apparel retailing. It appears that females who perceive themselves as endomorphic are as much interested and concerned with clothing and fashion as other females. The merchandising strategies for the large size market should therefore continue to reflect this fashion orientation of larger women.
The Preferences of Women Educators for Style, Color and Pattern of Career Clothing

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Nancy K. Murray, Idaho State University

The purpose of this study was to examine what garments and colors are considered appropriate, approachable, and credible for wear by women educators. In spite of the popularity of dress for success literature, there are no particular guidelines for women educators.

Four classically styled garments were chosen to be tested (Rabolt, 1984). These garments included a two-piece skirted suit, a two-piece dress, a pair of trousers with a cardigan sweater, and an A-line skirt with a cardigan sweater. A banded collar shirt was shown with all garments except the dress. Line drawings were selected to prevent participant bias based on models' or mannequins' appearance. Additionally, the study tested the participants' preference for color and pattern. The three colors selected were navy blue, light taupe and cherry red. (Weiland and Wood, 1984). The fourth "color" was actually a subtle pattern of houndstooth check in medium blue to very dark blue. To provide tactile clues for each style, color and pattern tested, fabric and yarn swatches were attached to the garment illustration cards.

Three sample groups of twenty each were tested. They included: Extension educators, classroom educators and a clientele user group. Each respondent examined four sets of four garment cards illustrating each style, color and pattern. Five repetitions were necessary to provide data for this balanced incomplete block design (Cochran and Cox, 1957).

The primary objective was to determine educators' and user group preference for style, color and pattern based upon how they saw these garments as being appropriate, approachable and credible. The Durbin test was used to show preference by ranking. Educators showed a preference for the navy suit, while the clientele group preferred the navy dress. The Durbin test showed there was a significant preference for the color blue. The Spearman Rho test showed there was no significant difference between Extension and classroom educators' preference and classroom educators' and user group preference for style, color and pattern. There was a significant difference of .750 between Extension educators' and user group preference for style, color and pattern.

References:


Influence of Clothing on Perceptions of Professional Credibility of Utah Extension Home Economists

Louise P. Young, Utah State University, Logan, Utah 84322
Leslie L. Davis, Oregon State University
Marilyn B. Noyes, Utah State University

The focus of this research was to determine: (1) the impact clothing has on the professional credibility of Extension Home Economists and (2) what the stereotypic image of Extension workers was perceived to be.

Research has clearly demonstrated that one's attire plays an influential role on impression formation in first impression situations. To determine the impact clothing has on forming impressions, researchers measure the effect of changing clothing while keeping all other salient cues constant. Specific lines of impression formation research which directed this study include: (1) occupational choice which has shown that attractive persons are selected over unattractive persons, (2) certain types of uniform dress serve as symbols for the expectations of those in a particular occupation, and (3) the selection of one's clothing should be consistent with the purpose of the occasion and message intended.

A person perception questionnaire was mailed to extension, business, and professional working women in the state of Utah. Responses were recorded on a zero to six Likert type scale. Each subject viewed a photograph of a model wearing either a business suit, casual suit, dress, or outdated pant suit. A personal profile which contained personal, occupational, and educational information about the model was also included.

Data were analyzed using a one-way analysis of variance and LSD procedure. Clothing was the independent measure manipulated by variables relating to the model's psychological well being, interpersonal attraction, occupational success, attractiveness, femininity, and masculinity.

Based on the responses, the model wearing the dress was believed to possess significantly higher psychological well being, occupational success, and femininity. The model in the casual suit was significantly more attractive while the model in the business suit was rated the most masculine. Neither fashionability nor interpersonal attractions were significantly different.

The results have significant implications for Extension Home Economists. People tend to associate occupational success with a stereotypic image perceived about a certain occupation. Extension Home Economists are seen as dressing less than professional. They may not need to compete with a corporate image look but the non-verbal appearance message should convey a competent, professional but unintimidating image regardless of audience.
The Influence of Physical Attractiveness and Dress on Hiring Agents' Impressions of Females Applying for Sex-Typed Jobs

Kim K.P. Johnson, Arizona State University, Tempe, AZ 85281

Three hundred college campus recruiters, drawn from the '83 Directory of the College Placement Council, served as subjects. Each subject was mailed a cover letter, a questionnaire, and a single, colored photograph of one female applicant. Two female models served as "applicants" for the study. One had been previously rated by judges as physically attractive and the other as moderately physically attractive. Each was photographed in three different clothing outfits. One outfit had been rated by judges as appropriate for a job interview (a business suit), one outfit had been rated as moderately appropriate for a job interview (tailored dress with Peter Pan collar, and 3/4 length sleeves), and one had been rated as inappropriate for a job interview (tightly fitted dress, V-neckline, and long, fitted sleeves). These combinations of attractiveness and dress resulted in six different "applicants". Subjects were asked to consider the applicant on 26 personality characteristics and eight employment potential statements. Ratings were scored on 5-point scales reflecting a high to low response, e.g., friendly/not friendly. Data were subjected to factor analysis and analyses of variance.

Factor analysis of personality characteristics led to the isolation of three significant factors identified as competence, independence and creativity. Analyses of variance indicated subjects were not influenced by the attractiveness of the applicant or by the sex-typing of the job in their ratings on the three factors. However, subjects did rate applicants dressed in appropriate dress as significantly more "competent" and "independent" than applicants dressed in moderately appropriate or inappropriate dress.

Analyses of variance indicated subjects discriminated significantly between attractive and moderately attractive applicants in their ratings of employment potential. They rated the attractive applicant as more likely to fit in with others and to have others like to work for her. Subjects also discriminated significantly between the applicants on the basis of dress as they rated the applicants dressed in appropriate dress as more likely to fit in with others, as having good leadership potential, as having good potential for success, as having good potential for fulfilling qualifications needed for employment, as more likely to have others like to work for them, and as more generally employable than applicants dressed in moderately appropriate or inappropriate dress. In addition, analysis of data indicated subjects' impressions of the applicant were not affected by interactions of attractiveness with dress. Subjects indicated they believed the applicant was more qualified and hireable when she was under consideration for the salesperson job. Overall, neither attractiveness nor sex-typing of job appeared to be major influences on recruiters' impressions of either personality or employment potential. Rather, it was dress of the applicant that appeared to exert a consistent influence on impressions of personality and employment potential formed by recruiters.
A Review of Moisture Sorption and Related Properties of Cellulosic Fibers

Mee Sik Kim, Division of Textiles and Clothing, University of California, Davis, California 95616
S. Haig Zeronian, Div. of Textiles & Clothing, University of California

The interaction of moisture and hydrophilic fibers, such as cotton and viscose rayon, is very important in many ways. Water causes swelling which, in turn, affects such textile processes as dyeing and finishing. The tensile properties of the fibers are altered by moisture absorption and thus their behavior can be affected during mechanical processing; for example, spinning, weaving and knitting. There is commercial interest, also, since the weight of a textile is changed by absorption and desorption of moisture. In addition, moisture-related properties of fabrics strongly influence apparel comfort. Because of such factors a better understanding of the sorption of water by cellulose fibers is important and many studies have been made.

The amount of water sorbed by a hydrophilic textile substrate will depend on such factors as the crystallinity and morphology of the fibers, the ambient relative vapor pressure, and the direction from which equilibrium is approached. At a given relative vapor pressure, the amount of water absorbed by a dry sample is always less than the amount retained after desorption of the same product from the wet state. This phenomenon is called sorption hysteresis. The degree of hysteresis varies depending on the type of fiber, temperature, and the previous conditioning of the sample (1,2).

Several theories have been proposed for explaining hysteresis. One is a molecular explanation based on the change in accessibility of the hydroxyl groups in the cellulose on increasing or decreasing the relative vapor pressure of the atmosphere surrounding the sample (3). Another has been established on differences in the curvature of the water meniscus in the capillary structure under desorption and adsorption conditions (4). It is suggested in a third theory that hysteresis may be due to the mechanical stresses which are set up when fibers swell on exposure to water vapor (5). The validity of these theories has been discussed by several researchers (4,6). The factors affecting the moisture sorption by cellulosic fibers and effects of moisture on the fiber properties will be reviewed and related to current research being performed at Davis.

References:


A Review on Bacteria Barrier Properties of Textiles

Debra A. Timm and You-Lo Hsieh,
University of California, Davis, CA 95616

The role of textiles during surgical procedures and wound healing as aseptic barriers is important to impede progression of pathogenic substances to wounds to reduce the possibility of infections. The permeable nature of textiles to moisture and air is essential for the comfort of the users but also make them susceptible to the pathogens transported through and/or carried within (1,2,3). This has spurred a great number of studies concentrating on bacterial penetrability along, through, and/or around textile surgical elements. This paper gives a review of literature concerning experimental studies and clinical reports on the barrier properties of textile substrates to microbial invasion and appraisal on the bacterial barrier effectiveness of commonly used substrates.

Textile materials have been shown to be vulnerable to transmission of air-borne microbes (4). The resistivity to bacterial transmission of textiles is further decreased on wetting by perspiration, body fluids or blood (4,5). Bacteria can be forcibly transferred through wet textiles via direct pressure in a phenomenon known as "strike-through" (6,7). The surgical textiles most impervious to moist bacterial strike-through are high yarn count wovens treated with water proof finishes or specialty substrates of nonwoven polymeric composition (6). Other finishes and/or plastic layers have also been applied to improve the bacterial barrier of many textiles (6,8,9).

Laboratory studies have been undertaken in attempts to establish bench test actually predictive of in use performance of textile barrier-ness. Because of variability of results and the lack of correlation between testing situations, the usefulness of these results are questionable. Clinical studies have shown results for specific substrates under limited conditions. The real need is a reproducible quantitative technique for textile barrier properties under wide range of test conditions.

References

Textiles and Dermatological Health: Consumers' Perceptions

M. A. Morris, University of California, Davis, CA 95616
H. H. Prato, University of California, Davis, and
K. L. Hatch, University of Arizona

Medical literature, as reviewed by Hatch (1984), indicated that contact with fabrics can and does cause dermatological problems for some individuals. Detergent and other laundry products may also contribute to occurrence of skin reactions. Analyses of literature indicates that fabric related dermatological problems occur infrequently in a population of people - probably less than one-half of one percent. However skin problems resulting from wear or use of textiles may be more prevalent than medical literature indicates. The purpose of this study was to determine the type and frequency of dermatological problems attributed to contact with clothing and household textiles by assessing consumers' perceptions of the types of problems involved (rash, etc.) and what aspects of the textiles (fiber content, etc.) or laundry products (detergent, etc.) are suspect.

A mailing of 1000 questionnaires was made to households in two different areas that are similar in population, but dissimilar in climate and ethnic characteristics. In the questionnaire the respondent was asked to indicate the number of members in the household and if any members ever had a problem with skin irritation or allergic reaction caused by (1) garments or household textiles or (2) laundry products used. Completed questionnaires were returned from 219 households giving information for 629 persons. Of this sample, 12% reported problems attributed to textiles and 13% attributed to laundry products.

More information on the nature and suspected cause of 79 cases was obtained by telephone interviews. Chi square analyses showed few differences in the information obtained from the two different survey areas. Approximately one-third of the problems were considered to be severe and about 40% of the cases had consulted a doctor regarding the problem. Itching and rash were the most common types of reactions reported. Wool was suspected as the cause of the reaction in 29% of the problems attributed to textiles. Synthetics, either synthetics in general, nylon, or polyester, were thought to have caused the reaction in 18% of the cases. Detergents were generally the type of laundry product that was considered to be the cause of problems.

References

Fiber, Dye and Mordant Identification in Textiles from a Revolutionary War Gravesite

Howard L. Needles, University of California, Davis, CA 95616
Vicki Cassman, University of California, Davis
Elizabeth L. Word, Institute of Textile Technology

Two textile samples were taken from a gravesite near Charlottesville, Virginia and analyzed to determine the fiber content of and the dyes and possible mordants present on these buried samples. The textile samples were thought to be from the clothing of Hessian soldiers, who acted as mercenaries during the Revolutionary War and who were held as prisoners of war in the Charlottesville area.

The first sample was taken from the bottom of a grave and was encrusted in clay. The sample was believed to be a fragment of a wool garment with a fabric weight of about 20 oz/yd² dyed with cutch. The sample was carefully washed to remove excess clay prior to analysis. Both light and scanning electron microscopy confirmed that the sample was wool. Scanning electron microscopy further revealed that the sample had undergone a high degree of mineralization during burial. The clay still adhering to the sample after washing interfered with thin layer chromatographic analysis of the dye or dyes present on the sample. The infrared spectrum of dye extracted from the sample was identical to the spectrum of an authentic sample of cutch confirming that this was the dye present on the sample. X-ray fluorescence analysis showed that chromium and copper in a 16 to 1 ratio were used to mordant the cutch to the wool.

The second sample was thought to be part of a uniform and to be a blue wool fabric. Gold buttons and fragments of a decorative braid were found with this fabric. Optical and scanning electron microscopy of the washed second sample indicated that it was a highly degraded mineralized wool sample. A special extraction technique was used to confirm that the dye present on the fabric was indigo. Thin layer chromatography did not detect any other dyes present on the fabric.

These two examples demonstrate the complexity of fiber, dye, and mordant analysis on buried textile materials that have undergone severe weathering and partial mineralization. Optical and scanning electron microscopy, thin layer chromatography, infrared spectroscopy, and x-ray fluorescence were shown to be effective tools for analysis of samples of this type.
The purpose of this particular study was to determine a profile of retailers who currently use a computer in their small apparel stores and those who do not. Information regarding the variables that influence the decision to purchase a computer system as well as variables that would create problems in the installation of a computer system was obtained. The results of a questionnaire were analyzed using frequency distributions, chi-square, discriminant analysis and factor analysis. A significant relationship between computer usage and the number of years the store had been owned was indicated by the result. Factor analysis was applied to study the relationships among specified variables and to aid in the interpretation by reducing the variables with high intercorrelations. The results indicated that "Print Propaganda" and "Communications Network" are influential to the decision regarding the purchase of a computer system. Through a second factor analysis, the factors that would be considered potential problems to the retailer when installing a computer system were identified as "Operational Education," "Computer Maintenance," and "Financing."
Sales Forecasting for Service Oriented Businesses

Antigone Kotsiopulos, Colorado State University, Ft. Collins, CO 80523

Service industries represent the fastest growing sector of the U.S. economy. Dry cleaning, a textiles and clothing related service industry is recognized as a traditional service sector and one of the few which has a standard industrial classification code.

Sales forecasting has typically been used by larger companies for projecting long-term needs in product areas. Little research has been done to examine the feasibility of utilizing sales forecasting for short-term planning in small service businesses.

The purpose of the research was to develop a sales forecasting model for small businesses within a selected service industry, dry-cleaning and laundering. The primary objectives were to identify and quantify the marketing and other variables to be used in developing the sales forecasting model; to develop a sales forecasting model; and to assess the model(s) and formulate guidelines for small businesses in the selected service industry.

Fourteen independent variables were identified and four models were developed using the sample business data for the years 1980, 1981 and 1982 to predict monthly sales for 1983. Multiple regression was selected as the sales forecasting method. Performance of the four models was assessed using fourteen similar businesses.

Assessment of the four models indicated that three were efficient for small businesses. The 'best' model selected for the sample business included the independent variables of price, the number of outlets and dummy variables used to reflect seasonal variation in sales. The model performed efficiently with an R² of .9535 and a .0001 level of significance. The model predicted short term sales ranging within .48 to 9.62 percent of the actual sales figures. Guidelines were included for utilization of the sales forecasting models by similar service businesses.
Social Stratification: A Review

Barbara Harger, University of Hawaii, Honolulu, HI 96822

Ideally, we in America like to think of everyone as created equal; to believe that everyone has equal access to the valued resources of our society such as money or social position. Realistically, we know this isn't true. Socially, people are stratified by differences in age, sex, race, or even ability to perform certain tasks. For this presentation I will be focusing on socioeconomic social stratification: stratification based on such socioeconomic indicators as education, income, and occupation.

Socioeconomic stratification has been one of many ideas explored as part of our efforts over the years to explain clothing-related behavior. The aim of this presentation is to increase your awareness of the complexities of using stratification in your research and to provide you with some resources to increase your expertise in the area.

Socioeconomic indicators were widely used in clothing research in the 1950's and 1960's. We have gradually shifted away from using these indicators since the counterculture movement of the late 1960's. There have been only 25 reports using social stratification indicators published over the last five years in the Clothing and Textiles Research Journal (Volumes 1-2), the Home Economics Research Journal (Volumes 8-12), the Journal of Consumer Studies and Home Economics (Volumes 3-7), and the Journal of Home Economics (Volumes 71-75). Of these articles, eight used the indicators to describe the sample while the other 17 related them to the variables being studied. Out of this research have come very few significant relationships and even fewer meaningful ones. Given such evidence of limited interest and results, why should we concern ourselves with social stratification when studying clothing-related behavior? Because, unfortunately, the research that has been done has been flawed. If replicated, the results may be significant—or at least we could say with confidence that in these cases social stratification is not influencing clothing-related behavior. Because of the weaknesses, we cannot say that socioeconomic stratification is unimportant because we do not have the facts on which to base our decision. And if we are going to continue to use the indicators, it behooves us to do a better job.

In reviewing published research, four major areas of weakness are evident: 1) a lack of understanding of the theoretical bases of the stratification measure being used, 2) use of outdated measures, 3) how the measure relates to the area being studied, and 4) poor research design.

The first problem area relates to the theoretical base of the measures. Generally, measures of social stratification are based on the class and status concepts of Max Weber. Class is the differentiation of people on the basis of property, or lack thereof, and includes the kinds of properties and services that can be exchanged for money (Weber, 1966). The only measures of class now available are those developed by Nam, Powers, and their colleagues at the U.S. Bureau
of the Census. There are several versions of the Nam-Powers Occupational Status Scores (Nam & Powers, 1983) that rank occupations for males, for females, or for the total employed civilian population. The female-oriented version is the only measure for employed females that has been found to be more efficient than the male version in analyzing data for women (Powers & Holmberg, 1978). Since we often work with all-female or with mixed male-female samples, this is a measure we may want to consider using. It is probably most efficient in studying variables that are economically based. The other measure of class is the multiple-item Nam-Powers Socioeconomic Status Index that incorporates the occupational status scores with scales for education and family income. This index is thought to be more sensitive to variations of individuals within the same occupational category (Nam & Powers, 1983).

The other socioeconomic measures now available are based on occupational prestige. Prestige or status is the regard that people accord others; thus it has both attitudinal and behavioral dimensions (Turner, 1984). These measures may be more responsive to the dimensions of occupation that are not economically oriented--where the prestige of the situation is a more important consideration to the variables being studied (Hauser & Featherman, 1977). The current measures of prestige include Hauser and Featherman's updated version of the Siegel Prestige Scores (Hauser & Featherman, 1977), the Duncan Socioeconomic Index (Featherman & Stevens, 1982), the Blishen Socioeconomic Scale for Canadian populations (Blishen & Carroll, 1982), and Treiman's Standard International Prestige Scale (Treiman, 1977). These scales are generally based on employed males though Blishen is planning a revision incorporating females.

Secondly, given the wide selection of measures now available, it is sad to note that the most commonly used measure in clothing research is the Hollingshead Two Factor Index. This index is based solely on the occupations and educations of male heads of households in New Haven, Connecticut in 1951 (Hollingshead & Redlich, 1958; Miller, 1984). Only two studies used more modern instruments. This heavy reliance on an outdated, male-oriented measure may account, in part, for the lack of results in the studies that were reviewed. Granted, Hollingshead's Index is easy to use. The newer measures require more detailed occupational information from a respondent and take longer to code accurately. Experience with the measures will eventually reduce coding difficulties. The need for detailed occupational information will continue to present difficulties especially when working with younger children.

Judging from what has been included in the published research reports, the third problem is that no consideration has been given to the concepts behind the stratification measures in choosing which measure to use. Admittedly the information is not readily available. Furthermore, agreement is lacking on whether a measure is based on class or prestige; and little work has been published that evaluates the differences in results when using measures based on different concepts.
The fourth area of weakness lies in the design of the research. Two problems readily identifiable from published research are a lack of mutual exclusiveness in categorizing respondents and the ignoring of intragenerational mobility. Lack of mutual exclusiveness is found in studies using occupation alone as an indicator. For example, a common occupational category is student. While this may reflect a certain temporary lifestyle, it does not reflect the students' backgrounds or available resources. The possible similarities of backgrounds between the students and other occupational groupings included in a study produce categories that are not mutually exclusive for socioeconomic comparisons.

Intragenerational mobility has been a problem when using occupation, either alone or as a part of a multiple-item index. For instance, the use of fathers' occupations for single women and husbands' occupations for married women confuses the point in the life cycle at which the two groups are operating. The father may be in his 50's and has reached the pinnacle of his profession while the husband may just be starting up the job ladder.

These problems are not unique to clothing and textiles. Dominguez and Page (1981) discuss similar problems with research in consumer behavior. The difficulties are not likely to be resolved quickly nor is it likely that stratification will ever account for large percentages of variance in human behavior. This does not mean it is not important. As Coleman (1983) said, "Social class is conceptually complicated, philosophically upsetting, and methodologically challenging, yet it continues to offer provocative insights into consumption choices" (p. 265). Without careful attention to research design and without proper usage of the measures of stratification, we will never be able to definitively address the question of whether stratification affects behavior related to clothing usage.

References


ACPTC-WR BUSINESS MEETING

October 24, 1985

Napa, California

1. Call to Order: The meeting was called to order by President Jean Margerum.

2. Introduction of ACPTC-WR Council Members: Jean Margerum introduced the officers and current council members. Also introduced were Merry Jo Dallas, incoming president; Leslie Davis, president-elect; and incoming council members, Tom Peterson, Nancy Bryant, and Marjorie Chitwood-Burri.

3. 1984 Minutes: Since members had previously received the minutes, the secretary asked for corrections/additions; a motion for acceptance of minutes was made and approved.

4. Financial Report: A review of the printed financial statement previously distributed was provided by Mildred Crawford with specific attention to an error made in the 1983 budget listing of expenditures. The correction of the error will be made and books corrected for 1984; a motion was made to accept the financial statement with corrections; motion carried.

5. Membership Committee: Rose Fedorak reported a slight increase in membership for the Western Region, with 177 members listed as of July 1985; 143 were Active; 25 Reserve, and nine Graduate status. The Membership Chair also noted a new brochure would be available for distribution in the near future; the Membership Committee would be meeting October 24, 1985 in Napa, California to discuss future directions.

6. Proposed Budget: Mildred Crawford reviewed the proposed budget for 1986; the budget had previously been approved by the Executive Council, October 23, 1985 and was presented at the business session for information only.

7. Nominating Committee: Jean Margerum introduced new members of nominating committee chaired by Antigone Kotsiopolis. The chair indicated the committee would appreciate names of any members interested in becoming more involved in the regional organization; also, ideas for the election procedure were to be forwarded to the Executive Council.

Jean Margerum indicated that Leslie Davis is the president-elect and Tom Peterson, Nancy Bryant, and Marjorie Chitwood-Burri are the incoming council members. First alternate is Leslie Labhard, second alternate is Sally Francis, and third alternate is Carolyn Balkwell.
8. **Newsletter**: The newsletter report was given by president-elect Merry Jo Dallas in the absence of Marcia Moragado. Changes in the newsletter format and content suggested by National call for "newsworthy articles;" research articles will no longer appear in the ACPTC newsletter. Additional information included: review of duties of three regional editors with WR newsletter editor reviewing 29 articles in categories of research, education, and conference and other reports. Ten articles were edited by the regional editor.

9. **Bylaws and Handbook**: Chris Milodragovich reported that 182 ballots had been sent relevant to by-law changes; 43 ballots were returned. All changes were made in by-laws; the by-laws were retyped and distributed to the membership. Chris reported that there was the potential for further changes by National and regionally.

10. **ASTM Report**: Ellen Goldsberry reported relevant to the ASTM as a "standards, writing and developing body" functioning on the basis of industry and consumer requests. The committee meets twice a year with subcommittees directing attention to a variety of concerns including standard improvement for seams; home sewing terminology; standards for swimwear; terminology related to interfacing; care labeling; body sizing, measurements and apparel sizing and concern toward consistency in sizing; and others.

11. **Scholarship Report**: Charlene Lind reported progress of committee relevant to instituting a scholarship fund, currently under consideration by Executive Board; no decision on definite procedures for action were stated at present time, but members were encouraged to give consideration to the kind of projects which might be eligible for dollar funding in the future and to share any other feelings relevant to scholarship funds sponsored by the association.

12. **Directory of Membership**: Leslie Davis reviewed a sample copy of the membership directory which as of October 23, 1985 had 105 members listed. Leslie indicated final deadline for submission of forms for inclusion in first printing of directory is November 15, 1985. Order forms are available; the cost of the directory is $5.50. Leslie also extended her appreciation to Phyllis Touchie-Specht and Joan Margorum for their assistance in compiling the directory; in addition to Oregon State University personnel for help in distribution.

13. **1985 Conference**: Peg Rucker reported on the current conference noting 123 registrations plus invited guests and speakers. Peg also indicated the planning committee's satisfaction with quantity and quality of abstracts submitted.

14. **National Meeting**: Susan Kaiser reported on National meeting held in June, 1985 directing comments to four major areas including: 1) Eastern Region motion of honorary member, Charles Kleibacker. Honorary membership award will be presented at ER meeting; 2) 1986 National Meeting, Houston, Texas, October 22-25; 3) Futures mission relevant to research, teaching, and service, and 4) feasibility of national meetings every year.
15. President's Report: Jean Margerum directed the participants attention to variety of concerns addressed by the Executive Council including re-emphasis on Membership Directory and Scholarship considerations.

16. 1985-86 Plan of Work: Merry Jo Dallas, president-elect, commented on the direction of the Plan of Work based on recommendations from the FUTURES committee. Also included were comments relevant to futures content in newsletter; if membership did not receive copy, was suggested that copies be obtained at registration area of present conference.

17. NEW BUSINESS: Jean Margerum asked for New Business but receiving none, called for adjournment. Ellen Goldsberry extended her appreciation and that of the Executive Council and membership for Jean Margerum’s leadership and direction during the past year.

Motion was made to adjourn; motion carried.

Respectfully submitted,

Barbara White
Clothing and Textiles Specialist
Montana State University
Bozeman, Montana 59715
WR Secretary 1984-85
ASSOCIATION OF COLLEGE PROFESSORS OF TEXTILES AND CLOTHING - WESTERN REGION

Statement of Support, Revenues and Expenditures and Changes in Fund Balance
For 13 months
October 1, 1984-October 31, 1985
(Books closed October 16)

SUPPORT AND REVENUE

Support:
Dues $1,988.00

Revenue:
Conferences $951.88
Dividends 1,005.81

Total Revenue 1,957.69
Total Support and Revenue 3,945.69

EXPENDITURES

President's Expenses 315.18
Proceedings 463.96
Office Supplies and Postage 131.66
Seed Money for Napa Valley, CA 500.00
Contract Services 72.00
Committees 169.03
Telephone 27.00

Total Expenditures 1,678.83
Excess of Support and Revenue over Expenses 2,266.86
Fund at Beginning of Year 9,945.65
Fund Balance at End of Year 12,212.51

Note: Beginning in 1985, the fiscal year will begin November 1.
# Association of College Professors of Textiles and Clothing - Western Region

## Proposed Budget

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<td>Conference Planning</td>
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<td>President's Travel</td>
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<td><strong>Sub Total</strong></td>
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<td>Postage and office supplies</td>
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<td>Bonding for treasurer and conference chairman (annual)</td>
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<td>981.51</td>
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<td><strong>Grand Total</strong></td>
<td>$2,190.00</td>
<td>$1,678.83</td>
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ASSOCIATION OF COLLEGE PROFESSORS OF TEXTILES AND CLOTHING - WESTERN REGION

Balance Sheet
October 31, 1985

ASSETS

Current Assets
Cash $ 2,201.97
Investments 8,914.95
Total Assets $11,116.92

LIABILITIES AND FUND BALANCE

Total Liabilities 0.00

Fund Balance:
Fund Balance, November 30, 1984 $9,945.65
Excess of Support and Revenue over Expenditures 2,266.86
Fund Balance, September 30, 1984 9,945.65

Total Liabilities and Fund Balance $12,212.51