DESIGN RECOMMENDATIONS FOR THE CASH WRAP AREA
WITHIN THE RETAIL SETTING BASED ON
USER PERCEPTIONS

by

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(Abstract)

An essential area within every store's environment is the cash wrap area. This study was conducted to identify user needs and expectations of the cash wrap area in retail stores and to develop design recommendations. Women's apparel specialty stores in vicinity of Virginia Tech, and two women's groups at Virginia Tech were selected for the study. The study consisted of (1) a survey to assess employee perceptions of the cash wrap area; (2) a survey to assess the customer perceptions of the cash wrap area; and (3) field measurements of cash wrap areas in participating stores.

The surveys were divided into the following four sections: (1) environmental dimensions, (2) ideal conditions for the cash wrap area, (3) open ended questions on the cash wrap area design, and (4) demographic information. Respondents were asked to divide 100 points among the environmental dimensions (ambient conditions, space and function, and signs, symbols and artifacts) to indicate their relative importance; and to agree or disagree on a six-point Likert scale. Mean values for the variables were calculated separately for both employees and customers. Field measurements of the cash wrap areas were documented in seven of the participating women's apparel specialty stores.

The data were analyzed descriptively and statistically. A significant finding was that customers regard the environmental dimension of space and
function to be most important. Ideal conditions identified by customers and employees were itemized. The results indicated that employees have high expectations about their work environment and what they hope to accomplish within it. Responses to the open-ended questions were categorized and prioritized. Design recommendations were developed and categorized into: general recommendations, cash wrap area size recommendations, design feature recommendations, design recommendations specific to employee needs, and ADA design recommendations.
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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>ii</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>iv</td>
</tr>
<tr>
<td>TABLE OF CONTENTS</td>
<td>v</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>x</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>xi</td>
</tr>
<tr>
<td>SECTIONS</td>
<td></td>
</tr>
<tr>
<td>I. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>1</td>
</tr>
<tr>
<td>Purpose of the Study</td>
<td>3</td>
</tr>
<tr>
<td>Research Objectives</td>
<td>4</td>
</tr>
<tr>
<td>Limitations of the Study</td>
<td>4</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>5</td>
</tr>
<tr>
<td>Rationale</td>
<td>6</td>
</tr>
<tr>
<td>II. REVIEW OF LITERATURE</td>
<td>8</td>
</tr>
<tr>
<td>Conceptual Framework</td>
<td>8</td>
</tr>
<tr>
<td>Perceived Servicescape</td>
<td>10</td>
</tr>
<tr>
<td>Environmental Dimensions</td>
<td>10</td>
</tr>
<tr>
<td>Ambient Conditions</td>
<td>11</td>
</tr>
<tr>
<td>Spatial Layout and Functionality</td>
<td>12</td>
</tr>
<tr>
<td>Signs, Symbols, and Artifacts</td>
<td>12</td>
</tr>
<tr>
<td>Employee and Customer Moderators</td>
<td>12</td>
</tr>
<tr>
<td>Internal Responses</td>
<td>13</td>
</tr>
<tr>
<td>Behavior</td>
<td>15</td>
</tr>
<tr>
<td>Summary of Theoretical Framework</td>
<td>15</td>
</tr>
<tr>
<td>Retailing and Design</td>
<td>16</td>
</tr>
<tr>
<td>Users of the Retail Environment</td>
<td>17</td>
</tr>
<tr>
<td>Employees</td>
<td>17</td>
</tr>
<tr>
<td>Customers</td>
<td>18</td>
</tr>
</tbody>
</table>
The Specialty Store ............................................. 19
Women's Apparel Specialty Stores ...................... 20
The Importance of Store Environment .................. 21
Atmospherics .................................................. 23
Store Layout .................................................. 23
  Grid Layout .............................................. 25
  Free-form Layout ...................................... 25
  Boutique/Racetrack Layout ......................... 28
Americans with Disabilities Act Compliance and
Universal Design ........................................... 30
  ADA Compliance Specific to Specialty Retail Stores ........................................ 31
Ergonomics .................................................. 32
Location of the Cash Wrap Area in the Retail Setting ........................................... 34
  Store Productivity ..................................... 35
    Nonselling and Selling Areas ..................... 37
      Core Solution ..................................... 37
      Peripheral Solution ............................. 39
      Annex Solution ................................... 39
Equipment Design .......................................... 39
  Point-of-Sale Technology ............................. 42
ADA Compliance Specific to the Cash Wrap Area ........................................... 44
Ergonomics of the Cash Wrap Area .................... 45
Summary of Cash Wrap Area Design .................... 50
Research Questions ....................................... 51
Significance of the Study ................................ 51

III. METHODOLOGY ............................................. 52
Sample ....................................................... 52
Instrument .................................................. 53
Measures & Procedures .................................... 55
Ideal Conditions Indicated by Employees ........... 105
Ideal Conditions Indicated by Customers .......... 105
Employee Expectations for the Cash Wrap Area ............................................. 105
Field Study .............................................................................................. 106
Comparison of Findings With Cited Literature .......... 107
Conceptual Framework ........................................................................... 107
American Disabilities Act Compliance and Universal Design ...................... 109
Location of the Cash Wrap Within the Retail Setting ......................................... 109
Equipment Design ................................................................................ 110
ADA Compliance Specific to the Cash Wrap Area ......................................... 110
Ergonomics of the Cash Wrap Area ......................................................... 111
Implications and Design Recommendations ............................................. 112
Design Recommendations ..................................................................... 113
  General Recommendations ...................................................................... 113
  Cash Wrap Area Size Recommendations .............................................. 114
  Design Feature Recommendations ......................................................... 114
  Design Recommendations Specific to Employee Needs ................................... 115
  ADA Design Recommendations .............................................................. 115
Retrospective .......................................................................................... 116
Recommendations for Further Research ................................................ 117

REFERENCES ........................................................................................... 119
APPENDICES .......................................................................................... 122
  Appendix A: Example of Consumer Survey
  Cover Letter .......................................................................................... 123
  Appendix B: Example of Customer Survey ........................................... 125
  Appendix C: Example of Employee Survey
  Cover Letter .......................................................................................... 130
  Appendix D: Example of Employee Survey ........................................... 132
VITA ........................................................................................................ 139
<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Conceptual framework for understanding environment-user relationships in service organizations</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>The grid layout</td>
<td>26</td>
</tr>
<tr>
<td>3</td>
<td>The free-form layout</td>
<td>27</td>
</tr>
<tr>
<td>4</td>
<td>The boutique/racetrack layout</td>
<td>29</td>
</tr>
<tr>
<td>5</td>
<td>Rent allocation by floor area as means of evaluating store productivity</td>
<td>36</td>
</tr>
<tr>
<td>6</td>
<td>Location decisions for nonselling areas</td>
<td>38</td>
</tr>
<tr>
<td>7</td>
<td>Generic cash wrap area</td>
<td>40</td>
</tr>
<tr>
<td>8</td>
<td>Example of employee sightlines from the cash wrap area</td>
<td>43</td>
</tr>
<tr>
<td>9</td>
<td>Example of clearances required at a retail wrapping counter</td>
<td>48</td>
</tr>
<tr>
<td>10</td>
<td>Example of clearances required at the sales area</td>
<td>49</td>
</tr>
<tr>
<td>11</td>
<td>Retailer A: plan and front elevation views</td>
<td>85</td>
</tr>
<tr>
<td>12</td>
<td>Retailer A: rear, back counter and side elevations</td>
<td>86</td>
</tr>
<tr>
<td>13</td>
<td>Retailer B: plan and front elevation views</td>
<td>88</td>
</tr>
<tr>
<td>14</td>
<td>Retailer B: rear, back counter and side elevations</td>
<td>89</td>
</tr>
<tr>
<td>15</td>
<td>Retailer C: plan and front elevation views</td>
<td>90</td>
</tr>
<tr>
<td>16</td>
<td>Retailer C: rear, back counter and side elevations</td>
<td>91</td>
</tr>
<tr>
<td>17</td>
<td>Retailer D: plan and front elevation views</td>
<td>93</td>
</tr>
<tr>
<td>18</td>
<td>Retailer D: rear and side elevations</td>
<td>94</td>
</tr>
<tr>
<td>19</td>
<td>Retailer E: plan and front elevation views</td>
<td>95</td>
</tr>
<tr>
<td>20</td>
<td>Retailer E: rear, back counter and side elevations</td>
<td>96</td>
</tr>
<tr>
<td>21</td>
<td>Retailer F: plan and front elevation views</td>
<td>98</td>
</tr>
<tr>
<td>22</td>
<td>Retailer F: rear, back counter and side elevations</td>
<td>99</td>
</tr>
<tr>
<td>23</td>
<td>Retailer G: plan and front elevation views</td>
<td>101</td>
</tr>
<tr>
<td>24</td>
<td>Retailer G: rear, back counter and side elevations</td>
<td>102</td>
</tr>
<tr>
<td>Table</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>-------</td>
<td>------------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>1</td>
<td>Age group categories for store employees</td>
<td>61</td>
</tr>
<tr>
<td>2</td>
<td>Importance of the environmental dimensions to employees and customers</td>
<td>64</td>
</tr>
<tr>
<td>3</td>
<td>Expectations for the ideal conditions of the cash wrap area - employees' and customers' mean scores and T-test results</td>
<td>66</td>
</tr>
<tr>
<td>4</td>
<td>Expectations about the cash wrap area - mean scores of the store employees</td>
<td>70</td>
</tr>
<tr>
<td>5</td>
<td>Employee difficulties with the cash wrap area</td>
<td>72</td>
</tr>
<tr>
<td>6</td>
<td>Employee observations of customer difficulties with the cash wrap area</td>
<td>73</td>
</tr>
<tr>
<td>7</td>
<td>Employee observations of how transactions in the cash wrap area can be handled more efficiently for customers with physical disabilities</td>
<td>74</td>
</tr>
<tr>
<td>8</td>
<td>Employee's response to the one thing they like most about the cash wrap area</td>
<td>75</td>
</tr>
<tr>
<td>9</td>
<td>Employee's responses if they could change one thing about the cash wrap area</td>
<td>76</td>
</tr>
<tr>
<td>10</td>
<td>Employee's additional suggestions regarding the cash wrap area</td>
<td>78</td>
</tr>
<tr>
<td>11</td>
<td>Customer comments on difficulties with the cash wrap area</td>
<td>80</td>
</tr>
<tr>
<td>12</td>
<td>Customer's suggestions for changes desired for the cash wrap area</td>
<td>81</td>
</tr>
<tr>
<td>13</td>
<td>Cash wrap area measurements indicated by retailer</td>
<td>83</td>
</tr>
<tr>
<td>14</td>
<td>Comparison of retailer cash wrap area measurements to Panero and Zelnik's suggested requirements</td>
<td>108</td>
</tr>
</tbody>
</table>
SECTION I

Introduction

Customers today have several choices about how and where they can shop. They can shop at retail establishments, and from catalogs, television, Internet, telephone or mail. There are several types of retail establishments, including department stores (e.g., Macy's, and Nordstrom); specialty chains (e.g., The Gap, and Eddie Bauer); discount department stores (e.g., K-Mart, and Wal Mart); factory outlets; and supermarkets, some of which are chain stores and some are independent stores. Many retail establishments, however, have been forced to close their doors permanently. This is due in part to poor management, fierce competition, or a lack of understanding of the customer's and employee's needs (Levy & Weitz, 1995). In short, they have been unsuccessful. Retailers who want to remain competitive must periodically re-evaluate the retail store environment to insure that they are meeting the needs and expectations of the store employees and customers.

A key area in every store's environment is the cash wrap area. Designing the cash wrap area to meet the needs of both employees and customers while creating and maintaining a comfortable and inviting store environment, is a design challenge. Investigation suggests that currently designers and planners are not basing their designs on systematic studies of the functional needs of the users, but rather on personal experience and assumptions.

Statement of the Problem

The design and layout of the retail environment impacts the success of that establishment. Store service areas and layouts must be well designed to
provide spaces for selling, merchandising and servicing, and encouraging an efficient flow of customers and products. Money spent to design the retail interior setting may be wasted if customer service areas are not well planned (Fitch & Knobel, 1990). One strategic area that is the interface between the retailer and the customer is the cash wrap area. This area also effects the store design and can influence customer impressions of the store just as significantly as a distinctive store front or an exciting merchandise area.

One might perceive the cash wrap area as just another fixture in the store, but in effect it plays an important if not an essential role in the retail setting. The cash wrap area is typically the end of the customer's shopping experience, where financial transactions are made and purchases packed/wrapped for delivery to the customer. The service at the cash wrap area is the last impression that the customer has before leaving the store. The importance of managing this area is essential and obvious (Lewison, 1994). Thus, the cash wrap area merits proper planning and design.

The cash wrap area is complex and serves many functions. Store employees are expected to provide good customer service in this area by handling customer transactions, verifying credit, wrapping merchandise and answering customer concerns and questions (Fitch & Knobel, 1990). The design of the cash wrap area must provide for sophisticated cash registers, computers, telephones, and credit validators as well as the required cabling, storage for shopping bags and boxes, and merchandise collection (e.g., holding merchandise for customers) and returns, and so on.

Certain factors impact the success of the retail store. These factors are divided into two groups: (1) store environment concerns, which includes
atmospherics, store layout, American Disabilities Act (ADA) compliance and universal design, ergonomics, and location of the cash wrap area; and (2) equipment design concerns, which includes user needs and requirements, point of sale technology, ADA compliance and ergonomics of the cash wrap area. These are concerns because each can affect the success of the design of the cash wrap area. This study examined the needs of the user groups (store employees and customers) and their expectations of the store environment and the cash wrap area. The focus of the study was on the design of the cash wrap area in one type of retail establishment, the specialty retailer, and more specifically, the design of the cash wrap area in women's apparel specialty stores.

The increasing variety of retail choices available to customers, increases the competition among retail stores not only to differentiate from one another, but to attract customers as well. To prosper in this competitive atmosphere it is essential for retailers to provide a comfortable and inviting store environment for both user groups, but also to provide good customer service (Levy & Weitz, 1995; Mowen, 1995). A key customer service area in this regard is the cash wrap area. It is important for retailers and designers to understand what the user needs and expectations are for the retail environment, and more specifically the cash wrap area, because as Bitner (1992) states "the floor plan, layout of equipment, and equipment design can have a major impact on the ability of users to complete their tasks and achieve their service goals" (p. 67).

Purpose of the Study

The purpose of this study was to identify user needs and expectations of
the retail environment, and more specifically the cash wrap area. Then, this study analyzed the information obtained from the user groups (store employees and customers) and developed design recommendations for the cash wrap area that store designers and planners can use in creating retail spaces that better meet the needs of their users and improve the overall quality of this critical customer service area.

Research Objectives

The research objectives that were addressed in this study are as follows:

1. To identify the environmental dimensions (e.g., ambient conditions, space and function, signs, symbols, and artifacts) that are most important to store employees and customers.

2. To identify the functional design features (e.g., storage, heights of counters, space requirements, etc.) of the cash wrap area, by indicating what the ideal conditions should be from both user groups' (store employees and customers) perspectives.

3. To compare the employee attitudes and the customer attitudes regarding the functional design features of the cash wrap area.

4. To develop design recommendations for the cash wrap area based on analysis of input obtained from store employees and customers.

Limitations of the Study

Limitations of this study were the following:

1. The study focused on only one type of retail establishment, the specialty retailer, specifically women's apparel stores.
2. Customers surveyed were not limited to those who necessarily have had shopping experiences in the stores selected for this study, but was assumed to have shopped in similar stores.

3. The selection of women's apparel specialty stores was determined by the researcher's success of obtaining permission to survey the store's employees.

4. Employee and customer input was collected in a limited region and may or may not be generalizable to other regions of the country.

Definition of Terms

The following list of terms and definitions are specific to this study:

**Cash Wrap Area**: a piece of equipment (fixture) that will accommodate a cash register, materials for wrapping merchandise (e.g., boxes and shopping bags), as well as all equipment and supplies needed in finalizing all aspects of the business transaction between customer and retailer.

**Environmental Factors**: are factors such as, ambient conditions (e.g., music, temperature, etc.), space and function (e.g., traffic patterns, location, square footage), store appearance, style of decor, etc. that create the retail setting (Bitner, 1992).

**Ergonomics**: the science that seeks to adapt work or working conditions to the needs and abilities of the worker.

**Functional Design Features**: the specific features of the cash wrap area, such as storage areas, heights of counters, space requirements, etc.

**Point of Sale**: counters, fixtures or tables where customers make a
merchandise purchase.

**Servicescape:** the built environment (physical or man-made), within the service atmosphere (i.e., retail store) (Bitner, 1992).

**Rationale**

Every year millions of dollars are spent by retail merchants on redesigning and renovating their stores, and often important design decisions are based on assumptions and personal experience. This suggests that the actual users of the space are often left out of the design decision-making process.

With more women being represented in the work force, an important change in society has taken place during the last several years. Research indicates that over 60% of women eighteen and over are working outside the home (Lewison, 1994). The needs and roles of women are not only changing, but they are growing as well. Women's buying behavior and their retailing activities are affected by the change in their roles and needs. Women continue to make the majority of buying decisions and influence the others (Levy & Weitz, 1995). The working women's segment is not only large, but important and complex. Because of its size it represents a very lucrative market that cannot be overlooked (Lewison, 1994; Levy & Weitz, 1995). Few efforts have been made to study the environment of women's apparel specialty stores' or more specifically the design of the cash wrap area within this environment. There is a lack of research addressing the effects of the physical environment, particularly the retail setting, on its users (store employees and customers) and their interactions (Baker, Berry & Parasuraman, 1988; Bitner, 1992).
Research in retail settings has been limited to consumer behavior research, and little research has been performed on the effect of the physical environment on its users, especially in service areas (Baker, et. al., 1988; Bitner, 1992). The retail setting and design of the cash wrap area warrants study. Cash wrap area designs vary just as much as the stores in which they are in, and some cash wrap area designs are more effective than others. Based on investigation, obvious problems with cash wrap area designs are: lack of space to place merchandise or write a check, difficulties with high counters and small writing surfaces, and lack of ADA compliance. Currently, the information and design aids that are available to store planners and designers are minimal. Intuition acknowledges the importance of the physical environment to the retailer's employees and customers. Research that reviews the perspectives of both of these user groups is needed (Baker, et. al., 1988). This need was addressed in this research project.
SECTION II

Review of Literature

This section begins with a description of a conceptual framework, developed by Bitner (1992), which suggests that the physical surroundings of servicescapes (e.g., retail store settings) impact the user groups (employees and customers) who function within them. Along with an illustration of this conceptual framework, certain factors that influence the design of the cash wrap area within the retail setting were reviewed. These factors were divided into two groups: (1) store environment concerns, which includes atmospherics, store layout, ADA compliance and universal design, ergonomics, and location of the cash wrap; and (2) equipment design concerns, which includes: user needs and requirements, point of sale technology, ADA compliance and ergonomics of the cash wrap area.

Conceptual Framework

The conceptual framework, "Framework for understanding environment-user relationships in service organizations" (see Figure 1), proposed by Mary Jo Bitner (1992), a Professor of Marketing at the University of Arizona, suggests that both employees and customers are affected by the physical environment in which they interact. One of the objectives of the physical environment is to provide not only a space in which to function, but also to support and enhance the capabilities of the individual users of the space. The significance of the physical environment relies on the type of tasks to be performed and how those tasks are performed within the physical setting. Bitner (1992) suggests that the complexities of the physical environment are more significant in service type settings because both
Figure 1. Conceptual Framework for understanding environment-user relationships in service organizations.

customers and employees must function within the same physical setting. In service businesses (servicescapes), such as retail establishments, the design of the store environment can evoke certain behaviors and create certain perceptions about the particular retail setting which influence the customer's satisfaction with the service. The same retail setting that influences customers' perceptions, also can influence employee perceptions which impact employee satisfaction, productivity, and motivation (Baker, et. al., 1988; Bitner, 1992). Service organization environments (e.g., retail stores), "should support the needs and preferences of both service employees and customers simultaneously" (Bitner, 1992, p. 58).

Bitner's (1992) conceptual framework is presented to provide insight into environment-user relationships in service settings. This framework illustrates how the built environment (physical or man-made), which is defined as the servicescape, affects two user groups (employees and customers) within the service atmosphere (e.g., retail store). This framework is supported by environmental psychology. Other research fields such as, architecture, ergonomics, marketing and organizational behavior were explored by Bitner (1992) to enrich the framework.

The following subsections further define and develop the components of this conceptual framework.

**Perceived Servicescape**

For the purposes of this study, the perceived servicescape will be the retail store environment, specifically women's apparel specialty stores.

**Environmental Dimensions**

"Environmental psychologists contend that people respond to their
environments holistically. That is, though individuals perceive discrete stimuli, it is the total configuration of stimuli that determines their responses to the environment" (Bitner, 1992, p. 65).

There are three distinct components that distinguish the environmental dimensions of this framework. The three components are: ambient conditions, spatial layout and functionality, and signs, symbols and artifacts (Bitner, 1992). These three components supply a variety of features that create the servicescape environment which affects the internal responses and behaviors of both employees and customers. The environmental dimensions are those elements (e.g., lighting, temperature, style of furnishings, equipment, decor, etc.) that can be implemented and controlled by the servicescape manager to create and maintain the servicescape environment in which the employee and customer interact. A significant portion of that servicescape environment in the women's apparel specialty retail stores is the cash wrap area.

**Ambient Conditions**

Ambient conditions are those environmental dimensions, similar to atmospheric conditions, which affect the five senses. Temperature, lighting, noise, music and scent are just a few specific ambient conditions. Research in retail settings (restaurants, supermarkets, retail stores) indicate that music tempo can influence shopping pace, length of stay and amount of money spent (Bitner, 1992; Donovan & Rossiter, 1982; Levy & Weitz, 1995). Research specific to the work environment suggests that lighting, temperature, color, music and noise can directly affect employee performance and job satisfaction (Baker, et. al., 1988; Bitner, 1992).
Spatial Layout and Functionality

Spatial layout refers to the type, size, shape and arrangement of equipment and furnishings, and how they relate to one another. Functionality is the ability of these features to aid in the completion of the tasks to be performed. "Because service encounter environments are purposeful environments (e.g., they exist to fulfill specific needs of consumers, often through the successful completion of employee actions), spatial layout and functionality of the physical surroundings are particularly important" (Bitner, 1992, p. 66). The floor plan and arrangement of fixtures in the retail setting can affect the ability of employees and customers to achieve their specific goals. This is of particular interest in the cash wrap area of the retail store where customer service and employee productivity is of utmost importance.

Signs, Symbols, Artifacts

There are a variety of features in the physical setting that communicate information about the space to its users. Quality of materials, signage, display items, etc., all provide symbolic meaning in the retail environment and influence impressions about the stores' aesthetics and quality. Signs, symbols, and artifacts not only help the customer in finding their way through the store space, but also aid in differentiating between one retailer and another (Bitner, 1992).

Employee and Customer Moderators

Bitner (1992) asserts that there are three ways in which people respond to their surroundings, cognitively, emotionally, and physiologically. Bitner (1992) argues that individuals react to their surroundings based on their
individual situation; for instance, their reason for being in the specific setting. In service settings employees are there to work and provide services and customers are there to shop, browse and experience the retail setting.

**Internal Responses**

As mentioned in the section above, employees and customers respond cognitively, emotionally, and physiologically to their environment. Both user groups (store employees and customers) formulate perceptions of the retail environment which cause certain beliefs, emotions, and physical responses that affect their behavior (Bitner, 1992). Store employees and customers may use these internal responses to create impressions regarding the quality of the store environment, the people that work and shop in the retail environment, and the service within the retail environment (Bitner, 1992; Mowen, 1995).

Cognitive responses are those responses based on beliefs, i.e., knowledge and reasoning. They affect an individual’s judgments about an environment and the individuals and products within that environment (Bitner, 1992). For instance, in the retail setting, the style of fixtures and furnishings as well as the appearance of the employees will affect a potential customer’s judgments about a particular retail setting. Both employees and customers use physical surroundings as an indicator of quality (Bitner, 1992; Mowen, 1995).

Emotional responses are responses affecting mood and attitude. They have two dimensions, pleasure-displeasure and degree of arousal (Bitner, 1992; Donovan & Rossiter, 1982; Mehrabian & Russell, 1974). Research indicates that settings that evoke feelings of pleasure will be environments
where customers will want to spend time and money (Donovan & Rossiter, 1982; Levy & Weitz, 1995). On the other hand, if the environment is not pleasurable, it will be avoided. The environment is more likely to be perceived as pleasurable if the users are enjoying their experience within it. For instance, if consumers are finding the merchandise that they want as well as receiving the appropriate service, they are more apt to approach this environment than avoid it. Arousal plays a role in determining whether the environment is perceived as pleasurable or non pleasurable. Arousing environments are viewed as those that are exciting and filled with various stimuli (e.g., music, visual cues, etc.). But if the environment is viewed as too arousing where it becomes unpleasant due to noise, crowding, too much stimulation or confusion, the environment will be avoided (Merrabian & Russel, 1974). Pleasure within the environment is also related to the amount of perceived personal control. Factors such as clear signage, good air quality, and adequate space affect the perceptions of personal control (Bitner, 1992). An individual’s perception of having greater personal control within the retail setting, influences the pleasure experienced within this setting (Bitner, 1992).

Physiological responses relate to pain and comfort. They encourage individuals to stay in the environment or try to leave it. Factors such as, noise, temperature, air quality, lighting, and human factors/ergonomic issues all produce physiological responses. For instance, if the temperature of a store is too warm or too cold, it may cause discomfort to the consumer. Thus, resulting in the consumer leaving the environment and not continuing to shop.
Behavior

"That human behavior is influenced by the physical setting in which it occurs is essentially a truism" (Bitner, 1992, p. 59). Bitner's conceptual framework assumes that the environmental dimensions impact both customer and employee behaviors. According to environmental psychologists, individuals' responses to environments can be classified in two different and opposite ways, approach and avoidance (Bitner, 1992; Mehrabian & Russell, 1974). Approach behaviors are positive behaviors that encourage people to stay, explore, work, and affiliate. Avoidance behaviors are the opposite, and are negative responses that discourage individuals from staying, exploring, working, or affiliating in a particular environment. Research suggests that approach behaviors of consumers in a retail setting (enjoying shopping, spending time and money, and exploring a store) were affected by their response to the retail setting (Bitner, 1992; Donovan & Rossiter, 1982). Customers come to retail establishments to fulfill a certain need. The physical environment can either aid or prevent this objective. Employees are in the retail establishment to provide a service. Any aspect of the physical environment that hampers this, serves to defeat the purpose of the employee's responsibilities (Bitner, 1992). This framework infers that positive internal responses lead to approach behaviors, and negative internal responses lead to avoidance behaviors (Bitner, 1992).

Summary of Theoretical Framework

Bitner's (1992) framework addressed the interactions between customers and employees, and those interactions within commercial settings. It also suggests that both user groups may respond not only emotionally, but
also cognitively and physiologically to the physical setting (Bitner, 1992). This further implies that these responses to the physical setting affect the behavior of the users (employees and customers) within the environment, thus affecting their interactions (Bitner, 1992). The assumption of this framework is that the physical environment can either foster or prevent accomplishment of retailer's objectives and directly influence the success in retailing (Bitner, 1992). Therefore, the following discussion includes retailing and design objectives, the users of the retail environment, specialty retail stores, and women's apparel specialty retail stores.

Retailing and Design

Retailing is the business activity of selling goods and services to the consumer. Retailers are the link between the producers and the consumers, and they play an important role in establishing the assortment, quality, space and time gaps that separate consumers from producers. The goal of retailing is to provide a balance between the merchandise service needs of the consuming public with the financial and operating needs of the retailer (Lewison, 1994).

Just as the patterns of retailing are constantly changing, so is the importance of the physical design of the store. For example, in the United Kingdom, a fundamental change that has been taking place is, "the increased use of design as a strategic and competitive resource..." (Fitch, 1989, p. 35). In the highly competitive and demanding retail market place, retail store design is proving to be a powerful tool in contributing to a retailer's success. According to Fitch (1989), surveys completed by Mintel indicate that a large percentage of United Kingdom retailers are employing design as part of their
retail strategy. Mintel also discovered that when store designs meet retailers' expectations, not just in improvement of the image, but also in increased store traffic and in increased store sales (Fitch, 1989).

Store design is a strategic tool that not only expresses retailer differentiation, but also adds value to the shopping experience. With the incorporation of design in the retail setting, the shopping experience can be a positive one that influences customer's perceptions, and at the same time informs, educates and visually entertains them. This is done by providing the appropriate ambient conditions in the retail environment (Fitch, 1989).

According to DeGabrielle (as quoted by Thiele, 1991), personal relationships between the store and the customer can be created through design. Fitch (1989) indicates that a survey of United States consumers discovered that "to buy something," was ranked sixth among reasons for visiting a retail establishment. Higher ranking reasons were to meet friends, get current ideas and to see what was new. Mintel also questioned the concept of consumers going to retail establishments just to shop. This research suggests that consumers not only frequent stores to purchase products, but that they shop to be entertained and to be informed (Fitch, 1989).

**Users of the Retail Environment**

**Employees**

The employees have the responsibility of making sales, and providing services that produce satisfied and loyal customers (Levy & Weitz, 1995). Because employees come in direct contact with the customers, they have considerable influence on customers as to whether they return again to the store.
Customers

Customer expectations are based on their experiences with particular types of stores. Typically, customers have low service expectations for self-service stores (e.g., supermarkets and drugstores), but higher expectations for service oriented stores (e.g., department stores, specialty retailers). It is assumed by customers that supermarkets will provide low levels of service, have flexible hours from early morning to late evening, have a wide variety of merchandise that can be found easily and quickly, and offer fast checkout (Levy & Weitz, 1995). Therefore, customers do not anticipate that supermarket employees will be roaming about the store providing recipes and product information. But when these same customers shop in department stores, they assume the store will have salespeople available that can assist them and provide information about the merchandise (Levy & Weitz, 1995). Based on the above, Levy and Weitz (1995) have made the following conclusion, "since expectations are not the same for all types of retailers, customers sometimes can be satisfied with low levels of service and dissatisfied with high service levels" (p. 605).

The consumer of the 1990s is assumed to be the woman. Marketing research indicates that women make most of the purchasing decisions for the home and influence the others. As of 1995, 80% of women between the ages of 25 and 44 are working (Levy & Weitz, 1995). As a consequence, women currently have more disposable income than women in past generations, and they are spending more money on themselves. This indicates a change in the needs and responsibilities of working women, and this has an effect on their buying behavior and on retailer's marketing strategies (Lewison, 1994). Each
specialty retail store will not only need to carry the specific merchandise, but elements of the store layout and atmosphere also will need to be designed to appeal to the specified women's target market.

Interaction between customers and employees constitutes customer service. Good customer service is the key to making a personal connection. Thus, specialty retailers often incorporate the concept of strong personal interaction into their corporate philosophies. Moreover, specialty retailers provide focused levels of customer service for a specific target market.

The Specialty Store

There are many types of retail establishments, (department stores, specialty chains, discount department stores, factory outlets, supermarkets). The focus for this study will be on the specialty store, and more specifically, on women's apparel specialty stores. A specialty store carries a limited merchandise selection and it provides more focused levels of service in a store designed to utilize less than 8,000 square feet. When compared to department and discount stores, specialty stores concentrate on a specific target market, and the store seeks to serve all consumers within that target market in the very best way (Lewison, 1994). To accomplish this targeting effect, the retailer provides a specialized assortment of merchandise, and offers more concentrated retail service (e.g., personal attention), than the department or discount stores (Levy & Weitz, 1995).

A new, rapidly evolving trend in the retail industry is for specialty stores, rather than department stores, to be the pacesetters. This new trend supports the consumers' preferences to frequent specialty stores. Consumers are attracted to specialty stores because of "deep assortments, personal
attention, and intimate store atmosphere" (Levy & Weitz, 1995, p. 42). In a recent survey (based on more than 50,000 respondents), Consumer Report asked readers, to rate their experiences buying clothes at department stores and elsewhere. The results indicated that a third of the respondents are shopping at department stores less than specialty stores. They rated the sales help best at specialty retailers, and found the sales help more readily available and the financial transactions were faster at specialty stores than at other types of stores (Gurin, 1994). Respondents also were asked to rate the stores on satisfaction with shopping experience, value for their money and sales help. The top nine specialty retail apparel stores identified (all nationally known) were: Talbots, Eddie Bauer, The Gap, Casual Corner, Express, The Limited, Lerner New York, Fashion Bug, and Lane Bryant. Stores, an industry publication, identified the top 100 retailers based on sales gain and profit earnings. The leading specialty apparel retailer is The Limited, a company which includes The Limited, Express, Lerner New York, and Lane Bryant (Schulz, 1993). Other specialty apparel retailers that are ranked in the top 100 are: #10 - The Gap, #32 - Eddie Bauer, #40 - Talbots and #53 - Ann Taylor (Schulz, 1993).

**Women's Apparel Specialty Stores**

Examples of retail establishments that are classified as women's apparel specialty stores would be: Ann Taylor, Casual Corner, Lerner New York, The Limited, Talbots, etc. These establishments cater to the needs of women in selected target markets. The store merchandise reflects the selected target market by supplying focused categories of merchandise in a retail environment that appeals to their specific demographics (e.g., low, mid, or
high end price points). In addition, elements of store layout and atmosphere are also designed to appeal to the selected target market.

The Importance of Store Environment

The retail store environment is the setting in which the retailer believes he or she can operate effectively, efficiently, and securely. The retailer must create an environment that will meet the needs of retail operations as well as the shopping needs of the customers (Lewison, 1994). Survey research indicates that specialty retailers score the highest in retail scene setting, meaning specialty stores received the highest ratings for store ambiance (Gurin, 1994). Specialty stores create the specific environments in which target customers like to shop.

The impact of the store's physical and psychological environment on customer attraction, employee morale and store operations must be well thought out when a retail store is being designed or redesigned. A store's physical environment, can be defined as "a composite of the tangible elements of form as reflected in the way land, building, equipment and fixtures are assembled for the convenience and comfort of both customers and retailer" (Lewison, 1994, p. 265). The store's psychological environment can be defined as, "the perceived atmospheric setting a retailer creates. It is the image of the store produced in the customers' minds" (Lewison, 1994, p. 265).

Stores differentiate from one another by creating and controlling effective yet unique retail environments that project the store's physical and psychological setting. The store environment must support the retailer's goals, which are usually: (1) to increase sales and customer satisfaction; and
(2) to keep operating expenses at a minimum. To achieve these goals, the store's interior must be inviting, comfortable, safe, and convenient for the customer, and it must also allow the retailer to use the retail space efficiently and effectively (Lewison, 1994).

One of the purposes of the store's environment might be to produce an exciting atmosphere that reflects the retailer's philosophy and image. For this objective to be met, the store planner or designer must understand the retailer and the target customer. "Successful design is about capturing the consumer's imagination and through this, the consumer's loyalty, time and disposable income" (Fitch, 1989, p. 36). In appealing to the customers' senses, a well designed store environment will create a setting where customers can "relate to one another, where they will be stimulated not bored, where they are satisfied rather that frustrated, where they find solutions not problems" (Fitch, 1989, p. 36). What this really means is that customer's will appreciate an exciting and comfortable atmosphere that encourages them to shop and browse. The more comfortable the store environment, the better the chances that the customer will spend more time within the store and that an increase in both planned and unplanned customer purchases will result (Lewison, 1994).

A characteristic that influences the store environment, is the aesthetic quality of the store's interior. Store aesthetics focus on how to create sensory experiences through the design of the store's physical setting. The aesthetic qualities of a store's interior, often referred to as atmospherics, influence the customer's image of the store's environment, and how the store looks and feels (Lewison, 1994).
Atmospherics

The study of atmospherics is still new, but reports indicate "atmosphere is largely determined by store design and layout, and that it deserves careful considerations by all retailers" (James, Walker & Etzel, 1981, p. 104). Levy & Weitz (1995) define store atmosphere as "the physical characteristics of the store, such as architecture, layout, signs and displays, color, lighting, temperature, noise, and odors, which together create an image in the customer's mind" (p. G1). The atmosphere of a store is perceived through the customer's senses. Retail stores are known for trying to deliberately evoke certain emotions in their customers to influence buying behavior. The aroma from a bakery in a supermarket and ambient light and classical music in a high fashion clothing store are examples of how atmospherics can be used to influence shopping behavior.

By creating the right atmospheric conditions, the store can get the customer's attention, convey a message, and stimulate purchasing. For example, a no-frills store appearance will suggest that the store is lower priced, but an elegant appearance, will suggest the store offers higher quality but at higher prices (James, et al., 1981). Atmospherics plays an essential role when retail competition is high, because it can be the determining factor about where people will shop.

Store Layout

Store layout allocates space, organizes the arrangement of fixtures and counters, and determines the location of merchandise. Good store layout should encourage customer movement throughout the space and feature the merchandise in the most attractive way (James, et al., 1981). To achieve this,
store layouts develop particular traffic patterns, and different types of stores have developed some basic layouts. For example, Toys "R" Us uses a layout that forces customers to move through sections of inexpensive impulse purchase products in order to get to larger more expensive goods (Levy & Weitz, 1995). The store's layout can stimulate sales by dictating the direction of traffic flow. Research on behavioral patterns of shoppers' movements aids in creating a layout that will dictate proper traffic flow. For example, marketing research indicates that the average consumer has a fast walking pace, which will not slow down until the consumer is approximately ten to fifteen feet into the store. Other research studies indicate that customers tend to move to the right. This suggests that displays that are intended to make powerful impressions would best be located on the right side of the store just beyond the entrance (Thiele, 1991; Weishar, 1992).

It is important that the store layout not resemble a maze. If a store resembles a maze, the customers become confused and can not easily move throughout the space. Further implications would be that customers will become so frustrated with the store they will leave rather than shop. A "pinball effect" should aid in achieving a layout that will subconsciously move customers from the front of the store to the back and move them from side to side (Barr & Broudy, 1990). If the layout of the store appears to be too crowded, it could discourage customers from entering the space and would not facilitate shopping.

A store's physical layout and design is the most influential store investment that the retailer can make. Through store design, sales can be stimulated that will ultimately effect profitability (Barr & Broudy, 1990;
Donovan & Rossiter, 1982). In creating the appropriate store design, store planners must make decisions about options in store layout. For example, allocating space for the essential parts of the store, which include the entry, the cash wrap area, the main selling floor, and the fitting rooms will need to be decided upon (Thiele, 1991).

The three basic types of store layouts that are utilized by the retail industry are: (1) grid, (2) free-form, and (3) boutique/racetrack. Of these store layouts, specialty apparel retail establishments utilize the free form and boutique/racetrack type layouts most often.

**Grid Layout**

The grid layout, (see Figure 2), which is used mostly in supermarkets and drugstores, consists of merchandise displayed on long gondolas with aisles in between in a repetitive pattern. It is very simplistic, but it is a good arrangement to help move the customer quickly throughout the entire store. When customers do their weekly grocery shopping, they race up and down the aisles very aggressively and focused, selecting familiar products every week. Subsequently, they know where to find their products, and can reduce the time spent on a chore that many do not like (Levy & Weitz, 1995). The grid layout uses space very efficiently because the aisles are designed symmetrically and are just wide enough to facilitate customers and their carts.

**Free-Form Layout**

The free-form layout (see Figure 3) organizes a variety of different sizes, shapes and styles of displays together with fixtures positioned in an asymmetrical fashion. This layout is primarily used in either specialty shops or boutiques within large department stores. The main benefits of this layout
Figure 2. The grid layout.

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Figure 3. The free-form layout.

are that it creates a friendly and comfortable atmosphere that promotes more casual shopping and browsing. Creating a comfortable atmosphere results in extended customer shopping time and increases the possibilities of both planned and unplanned purchases (Lewison, 1994). The benefits of the free-form layout have some drawbacks: (1) increased cost of special fixtures and displays; (2) security problems; and (3) less efficient use of space (Levy & Weitz, 1995; Lewison, 1994).

Boutique/Racetrack Layout

The boutique/racetrack layout (see Figure 4) arranges the sales floor into individual and semi-separate areas. Each of these areas are built around a particular shopping theme such as women's sportswear or women's professional attire. By using displays and fixtures that express a specific shopping theme, and by allocating floor area to accommodate this theme, the retailer can create a unique shopping atmosphere. The boutique/racetrack layout arranges the sales floor into several small specialty shops. This facilitates getting customers to visit several areas within the store. This type of layout uses a major aisle to guide customer traffic throughout the entire area, providing access to all the various boutique settings (Levy & Weitz, 1995; Lewison, 1994). The boutique/racetrack design invites impulse purchasing. As customers move through the space, their eyes are almost forced to view various sections of the store instead of just peering down an aisle as in the grid layout (Levy & Weitz, 1995). Boutique/racetrack layouts have essentially the same disadvantages as free-form layouts, as mentioned above.

Each of these layouts have distinct differences in regard to their design solutions for the overall store environment, and create various concepts
Figure 4. The boutique/racetrack layout.

about the placement of the essential elements (e.g., the entry, the cash wrap
area, the main selling floor, and the fitting rooms) within the retail setting,
but they all have a common goal of creating a comfortable and unique retail
environment. Although each of these designs predate American with
Disabilities Act compliance, they have design flexibility that has the potential
of insuring that the goal of creating comfortable retail environments for all
can be achieved. Retailers and designers are challenged to incorporate
universal design elements and meet ADA compliance. This is easily
achieved with a proper understanding of ADA compliance requirements.

Americans with Disabilities Act Compliance and Universal Design

Two major influences on store planning and design are American with
Disabilities Act (ADA) compliance and universal design. ADA is a federal
civil rights law that protects people with disabilities from discrimination in
employment, transportation, public accommodations, telecommunications,
and the activities of state and local government. The ADA, has a goal of
providing universal access for an estimated 43 million disabled Americans.
This legislation ensures that all individuals will have access to all spaces that
are open to the public. It also establishes that it is no longer acceptable to
provide independent facilities for individuals with disabilities. Architectural
features must be integrated into spaces to provide for access and use by all of
the general public. For instance, stairs are replaced with ramps, elevators are
installed to provide access to upper floors, and doors are wide enough to
accommodate wheelchairs.

ADA compliance within public settings was encouraged prior to 1992,
but is now employed on a daily basis by design and architectural industries.
This civil rights legislation is enforced through legal challenges rather than inspections. The impact of ADA compliance on retail establishments is still fairly new, and little research has examined its impact within the retail setting. This is due in part to the recent introduction of ADA compliance guidelines and the ADA itself is only a few years old. ADA compliance is more easily regulated on newly built facilities because changes and improvements can be made throughout the planning process. The issue of ADA compliance in regard to existing and remodeled facilities is more complex.

Individuals who are protected under the ADA are those who have difficulties with walking, hearing, seeing or using their hands (Neilson & Taylor, 1994). Even though the ADA was designed to address the needs of the disabled population, the aging population benefits from ADA as well (Milshtein, 1993). The concept of universal design is that designs should meet the needs of all users without drawing special attention to those who are disabled (Neilson & Taylor, 1994). Universal design emphasizes that spaces and products should be designed with everyone at every stage in life in mind.

ADA requires that as of January 26, 1992, any construction or substantial renovation of the retail store must comply with its standards. The sections of ADA that affect the retail store are 4.1 through 4.35 and 7.0 through 7.4. These requirements are different depending on whether it is an existing facility, a newly built facility or a facility undergoing remodeling.

**ADA Compliance Specific to Specialty Retail Stores**

ADA compliance is a complex issue but it is not difficult to incorporate
ADA guidelines into the design of the retail setting. ADA guidelines that influence the design of the interior of a specialty retail store are as follows:

1. Customers that are in a wheelchair must be able to move freely throughout the store. A wheelchair requires widths of about three feet for forward travel and five feet for turning (Mellergaard, 1992).

2. An ideal minimum aisle width would be five feet, which would accommodate two-way traffic, and allows one wheelchair to turn around (Mellergaard, 1992).

3. Handicapped accessible fitting rooms should be integrated with the standard fitting rooms, and be of the same interior finishes so that all fitting rooms have the same appearance. The aisle to the handicapped accessible fitting room needs to be 42 inches wide. This fitting room needs to be equipped with a 36 inch swinging door (that must open outward) or a sliding door. The fitting room must have enough space to provide for a bench, grab bars, mirrors, peg boards, and clearances enabling a wheelchair to have 180 degrees of clear floor space (Lopez, 1995).

ADA should influence proper planning and design. It is essential for designers and planners to understand these guidelines. Therefore, they can be used to create designs that better meet the needs of all users. ADA and ergonomics share this common goal. The following section describes the importance of ergonomics in the retail setting.

**Ergonomics**

Ergonomics is the application of information about human characteristics, capabilities and limitations to the design of machines,
computer systems, automobiles, furniture, office equipment, and environments so that people can live and work safely, effectively and comfortably (Chapanis, 1990). The goal of ergonomics is to design products, processes, and environments that match the capabilities and limitations of human beings so as to achieve improved well being and increased productivity (Liao, 1989; Pelsma, 1987). Ergonomics is also referred to as human factors or human factors engineering.

A trend in interior design today is toward designing work spaces with an increasing focus on function and efficiency. "With growing nationwide interest in organizational effectiveness, the design and management of work environments and workers' responses to them are receiving increased attention" (Wineman, 1986, p. ix). Ergonomics can be applied to the retail setting and more specifically to the cash wrap area. Design of the physical environment evolves from ideas about work, workplace, and the organization of that work. The design of a work space sends messages to the present and future employees, and clients. The function of a work space's physical environment (such as office, cash wrap area, etc.) is to provide not only a place to work, but also to support and enhance the capacity of individuals and work groups to perform their tasks more efficiently (Brill, Margulis, Konar & BOSTI, 1984a).

Ergonomics was once just a theory but has become standard practice in creating today's work environments. It should also be an integral part of the design recommendations for the retail environment and more specifically the cash wrap area. The concern for increased efficiency and the acknowledgment that complicated systems depend as much on humans as on
technological factors have combined to accelerate ergonomic research and applications in the industrial settings (Pelsma, 1987). According to Kroemer (as quoted by Rogers, 1987), in the last 3-5 years there has been a wave of acceptance of human factors or ergonomics, and demand for things that should not be hard to use. The key to ergonomics is maintaining the right balance between the users' requirements and new technology (Rogers, 1987). Ergonomically correct furniture (which could include the retail cash wrap area) adapts the needs and tasks of the user into the design, and thus results in greater user comfort and increased user efficiency.

Location of the Cash Wrap Area in the Retail Setting

Placement of the cash wrap in the retail setting is a complex decision, because there is no one ideal location. The three basic areas in which the cash wrap could be placed are the front, middle or rear of the store. Each area brings with it advantages and disadvantages. The cash wrap location is determined by considering several factors, such as store size, number of employees, the customer service level the retailer wants to provide, customer behavior, store productivity, and selling and nonselling areas within the store.

Placing the cash wrap at the front of the store near the entrance, discourages customers from stepping in to browse for fear that an over-zealous sales associate will immediately approach them. This is especially true in the retail mall setting because browsing is a ritual for this shopping culture. There are security concerns when the cash wrap is placed near the front of the store as well. For example, in a specialty store with the cash wrap at the entrance, if the sales associate must leave the cash wrap area to assist
the customers on the sales floor near the rear of the store, the coverage at the cash wrap area and near the store entrance/exit is neglected and unprotected against theft (Green, 1991; Thiele, 1991).

Locating the cash wrap in the center of the store offers customer convenience. Placing the cash wrap in a central location within the store so that all points are within eyesight of the sales associates also addresses security concerns. A disadvantage of a central placement of the cash wrap area is that it is using and may be interrupting valuable store merchandising space.

Placing the cash wrap area at the rear of the store eliminates the problems of customer intimidation but still poses security concerns. The disadvantages of this location are inconvenience to the customer and employees cannot effectively observe the entrance from the rear of the store.

One plan for cash wrap placement in a specialty apparel store that addresses many of these issues is one that locates the cash wrap near the fitting rooms. This arrangement would allow the staff to efficiently attend to two of the major service areas in the specialty apparel store (cash wrap area and fitting rooms), and better meet the needs of customers (Green, 1991; Thiele, 1991).

**Store Productivity**

The value of a retail space is influenced by where consumers enter and how they travel through the store. Figure 5, illustrates how a store's floor productivity can be broken down into specific segments based on their revenue producing capabilities. The illustration also makes the point that the design of the store can directly affect the sales and profitability of the store (Thiele, 1991). In assessing value of interior store spaces, the retailer should
Figure 5. Rent allocation by floor area as means of evaluating store productivity.

consider the following three points. First, the most profitable area of any retail sales floor is the area near the entrance. Second, most customers tend to turn right when entering the store. Third, only one quarter of the store's customers will go more than halfway into the store (Lewison, 1994).

**Nonselling and Selling Areas**

A store's interior can be divided into two basic areas, nonselling and selling. A retailer's selling area consists of about 80 percent of the space within the store. The nonselling area is space allocated to management or employee activities including merchandise processing, and customer services. In most retail settings, retailers try to optimize and efficiently use the selling spaces while limiting the area allocated to nonselling activities.

There are five general plans for locating nonselling areas that provide both customer convenience and employee productivity. The plans (see Figure 6) are identified as the sandwich, core, departmentalized, peripheral, and annex solutions (Lewison, 1994). The sandwich and departmentalized solutions are not relevant for specialty stores. The departmentalized approach is only relevant to department store configurations due to the need for locating nonselling areas within each department of the store. The sandwich approach facilitates department stores as well as stores of multiple levels. This solution requires that all nonselling areas just be located on one particular floor. This approach limits the convenience to both its employees and customers.

The three solutions that are relevant to the specialty retail store are: core, peripheral, and annex, a description of each follows:

- **Core solution.** The core solution suggests that a central location for the
**Sandwich approach** involves using one floor of a multi-level store for nonselling activities. The retailer realizes operating economies by concentrating all sales support services in one area. The limitation of this plan is the inconvenience for both customers and employees of needing to go to a separate floor to obtain a particular service.

**Core approach** involves locating all nonselling areas within a central core area surrounded by selling areas. Customer convenience and some operating economies are realized by concentrating support services in one area. The disadvantage of the core approach is that service activities often interfere with customer shopping activities.

**Departmentalized approach** involves locating customer support services within each sales department. While this approach creates a number of operating inefficiencies, it does provide the customer with the highest level of convenience and personalized attention.

**Peripheral approach** involves locating nonselling around the exterior of the sales floor. This approach is the best compromise between operating efficiencies and customer conveniences: sales support services are close to the sales floor (convenience), and operations are fairly concentrated (efficiency).

**Annex approach** involves locating all nonselling activities away from the sales floor in a nonselling annex that is often an appendage to the back or side of the store. Like the sandwich approach, a sales support annex has the advantage of greater operating efficiency and the disadvantage of greater customer inconvenience.

Figure 6. Location decisions for nonselling areas.

nonselling areas be surrounded by the shopping areas. This design addresses customer convenience and employee efficiency by concentrating customer service in one area. The service is also more readily available to customers in the shopping areas. A disadvantage of the core solution would be that the service activities disrupt the shopping activities (Lewison, 1994).

Peripheral solution. The peripheral solution locates the nonselling areas on the perimeter of the store layout. The design meets the needs for operational efficiency and customer convenience (Lewison, 1994). The disadvantage is that service is not readily available to customers in shopping areas, unless additional store employees are made available to customers in the shopping areas.

Annex solution. The annex solution places the nonselling areas away from the sales floor. This solution offers retail operational efficiency, but neglects customer service and imposes customer inconvenience (Lewison, 1994).

Both the core and peripheral plans for placement of nonselling areas offer the most reasonable solutions for specialty retail stores. Ultimately, however, the placement of the nonselling areas will largely depend on the size of the retail establishment and concern about customer service levels.

Equipment Design

The cash wrap area (see Figure 7), is a custom designed counter, fixture or table that will accommodate a cash register (or cash drawer), materials for wrapping, boxing and or packing, as well as the surface necessary for the wrapping and writing functions. Figure 7 illustrates a generic cash wrap area that might be found in a specialty apparel store, this design is but one example
Figure 7. Generic cash wrap area.

of various designs that are used by the retail industry. The cash wrap, typically used by department and specialty stores, and the check out counter, found in discount and grocery stores are different in the respect that the check out counter is centrally located near the exit of the store, and customers must pass through this area to get out of the selling areas. The cash wrap areas in specialty stores and department stores are often located among the merchandise area. Another difference between the checkout counter and the cash wrap area is the actual design. The design of the checkout counter most often uses a minimal amount of space, only an amount necessary for unloading a shopping cart while waiting in line to finalize the financial transaction. The checkout counter design often does not add to the aesthetic quality of this area of the store either. The cash wrap area, on the other hand, often uses a minimal amount of space, but is more spacious than the checkout counter with aesthetic qualities reflecting the store image.

The design of the cash wrap area/check out area has as its main purpose to enable store employees to service customer needs and finalize their purchases. To do this, each type of cash wrap/checkout carries with it standard elements of planning, such as, lighting, power to operate cash register/computers, telephones and communication systems, credit verification devices, price scanners, space for merchandise, packaging and wrapping, and space allocated for writing surfaces to write checks and complete financial transactions (Barr & Broudy, 1990; Israel, 1994). If designed properly so as to not interfere with the main purpose, another function that could be accomplished in this area is the display of impulse merchandise (Barr & Broudy, 1990).
Other issues that affect the design of the cash wrap area in specialty retail stores are security, customer traffic and congestion, and ambiance. Security is an important consideration that affects the cash wrap area. Clear sightlines are needed to enable store employees to watch over the sales floor and aid in preventing shoplifting or burglary (see Figure 8). One design solution would be to add a platform to the cash wrap area to give employees a higher vantage point (Barr & Broudy, 1990). Customer traffic and congestion at the cash wrap area is also a concern. Customers appreciate space that allows for extra shopping bags, children, strollers, etc. (Green, 1991).

Customers value fast, knowledgeable, and efficient customer service, (Barr & Broudy, 1990). Today’s shoppers are time-pressed consumers who define good service as how fast the transaction can be completed at the cash wrap area (Lewison, 1994). The cash wrap area is normally the end of a customer’s shopping experience. Therefore, the final impression that the customer has before leaving the store is at this point. This implies that the cash wrap area can be one of the most valuable pieces of real estate in the retail setting (Levy & Weitz, 1995). The cash wrap area of the store also offers the potential for a touch of theatrical ambiance, because this area helps to define the last impression of the store.

Point of Sale Technology

If a customer has to stand in long lines, wait for service, or deal with rude checkout personnel, the retailer will suffer. Because of these inconveniences, many customers may leave the store without their purchases, especially at Christmas time. The retailer not only loses the sale, but perhaps the future patronage of the customer as well (Levy & Weitz,
Figure 8. Example of employee sightlines from the cash wrap area.

1995). With the increased technology of Point of Sale (POS) cash register terminals, now most transactions, such as time for check authorizations and credit card purchases, can be greatly accelerated. As a result, the amount of abandoned shopping carts and customer complaints are reduced (Levy & Weitz, 1995). In one study of the installation of new POS technology, research indicates that employee transaction times fell by as much as 40 to 60 percent (Levy & Weitz, 1995).

POS terminals are now programmed to provide instant information on what the retailer is selling, and what isn't (Levy & Weitz, 1995). With increased POS technology, instant information about individual customers' purchasing behavior and their merchandise preferences is accessible to the retailer. This information assists employees in improving sales productivity and customer satisfaction. POS technology not only provides information on sales and customers, but also affects customer service, and is helpful in determining space allocation for merchandise (Levy & Weitz, 1995).

**ADA Compliance Specific to the Cash Wrap Area**

The design of the cash wrap area must meet the needs of all individuals. The height, width, and length of this area is different from other merchandise display fixtures within the store. Design considerations for the cash wrap area would be: (1) clear floor space, (2) parallel approach, (3) high/low side reach limits, and (4) side reach over obstructions (Lopez, 1995). If the cash wrap area is designed in such a way that it is to be elevated by a platform, an accessibility ramp will need to be designed as well. ADA guidelines that influence the design of the cash wrap area are as follows:

1. The cash wrap area should have three feet behind it for employees
and three feet in front of it so a customer in a wheel chair can approach it from two directions without having to turn. If the customer in a wheelchair must turn to approach or leave the cash wrap area, a five feet turning radius is required in the front of the cash wrap (Mellergaard, 1992).

2. The cash wrap area must have one section lowered to 36" to allow wheelchair customers and employees to use it. It should be open underneath to 27" to allow a wheelchair to pull up (Mellergaard, 1992).

3. Forward reach requirements suggest that if the clear spaces only provide for forward approach to an area (e.g., displays, counters, etc.), the minimum low forward reach is 15 inches and maximum high forward reach is 48 inches.

4. Side reach requirements suggest that if the clear space provides for parallel approach, the minimum low side reach is nine inches and the maximum high side reach is 54 inches.

ADA should influence proper planning and design of the cash wrap area within the specialty store. It is critical for designers to understand these specific guidelines. Therefore, they can be used to create designs that accommodate the needs of all users. ADA and ergonomics share this common goal. The following section describes the importance of ergonomics specific to the cash wrap area.

**Ergonomics of the Cash Wrap Area**

Ergonomics plays an important role in the retail setting, specifically in fixture and cash wrap area design. The cash wrap area in the retail setting is a work space. A good understanding of the complexities of the cash wrap area may provide a more optimal design that will improve the well being of the
users and the productivity of store employees.

The most important function of the retail space is to display and sell merchandise. If the interfacing between the customer and the store's interior is limited, then the objective of the retail setting has failed (Fitch & Knobel, 1990; Novak, 1977; Panero & Zelnik, 1979). Also, if the quality of interfacing between the store's employees and their work space (e.g., cash wrap area) is not sufficient, the productiveness of the store is reduced (Baker, et. al., 1988; Panero & Zelnik, 1979).

Since the cash wrap area is a service area and a work space, it should contain minimal merchandise displays. Displaying merchandise in the cash wrap area to promote impulse sales is a poor design solution for the following reasons: (1) displays on counters may only be accessible to those standing directly in front of the cash wrap; (2) merchandise displays can physically get in the way of processing customer financial transactions; and (3) customers who are browsing, may want to examine the merchandise and crowd the customers who are trying to finalize their purchases.

In the retail environment, customer convenience and comfort are addressed through fixture design and store planning. The design of customer service areas and employee work spaces to human dimensions is of great importance. The height of the cash wrap area counter must be designed to accommodate the body sizes of the majority of customers and employees (Panero & Zelnik, 1979) and in a women's apparel specialty store, the height of the cash wrap area counter should be based on the average height of women that accommodates the needs of a majority of women. This is often not the case though, the counter where a customer would sign a receipt or
write out a check is usually 48 inches in height. This counter can only comfortably accommodate tall men and women, and in the process ignores the needs of individuals who are protected under the Americans with Disabilities Act (ADA).

Figures 9 and 10, are examples of design reference standards, developed by Panero & Zelnik (1979), that are specific to the retail setting. These standards are based on anthropometrical data and offer many illustrations, such as dimensioned plan and section drawings that give appropriate human dimensions based on user needs and the specific interior setting. These guidelines should be referred to when planning and designing any critical points of the retail setting, such as the cash wrap area. Figure 9, illustrates some requirements for clearances at a wrapping counter. The activities that take place in that area require counter heights of 35-36 inches. This height requirement would meet the needs of the majority of individuals who use the space. There are three zones indicated in the drawing: work surface, activity, and circulation. The work surface zone, refers to the counter area that the employee uses, it does not include the customer counter which is at a higher height. The activity zone, is the area directly behind the work surface zone and continues to the back counter, in some cases the activity zone and circulation zone overlap. The circulation zone is the area between the activity zone and the back counter that allows the employees space to circulate behind the work surface zone. Clearances within these zones must accommodate various sizes of individuals. Circulation and activity zones need to be specific to each retailer depending on the amount of activity and the number of employees that need to be accommodated in the space (Panero
Figure 9. Example of clearances required at a retail wrapping counter.

TYPICAL SALES AREA / STANDING CUSTOMER

<table>
<thead>
<tr>
<th>Area</th>
<th>Measurement (in inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>42</td>
</tr>
<tr>
<td>K</td>
<td>29 - 32</td>
</tr>
<tr>
<td>L</td>
<td>48</td>
</tr>
<tr>
<td>M</td>
<td>26</td>
</tr>
<tr>
<td>N</td>
<td>18</td>
</tr>
<tr>
<td>O</td>
<td>30</td>
</tr>
<tr>
<td>P</td>
<td>18 - 24</td>
</tr>
<tr>
<td>Q</td>
<td>6 - 10</td>
</tr>
<tr>
<td>R</td>
<td>35 - 36</td>
</tr>
<tr>
<td>S</td>
<td>35</td>
</tr>
</tbody>
</table>

Figure 10. Example of clearances required at the sales area.

& Zelnik, 1979). Figure 10 illustrates a typical sales area with a standing customer. There are three zones indicated in the drawing which are: circulation, customer activity and clerk's area with circulation. The circulation zone refers to the area that the customer has to move through the space and in front of the sales counter. The customer's activity zone is that area that consists of sales counter (horizontal surface) where they would select merchandise, talk with a store employee, etc. The clerk's area with circulation, refers to the employees work area and space between the work surface and the back counter. The customer activity zone, requires approximately 18 inches in width, while the clerk's area with circulation, requires 36-48 inches. The recommended counter height is 35-38 inches, and counter width should be 18-24 inches. These suggested clearances would meet the needs of various customers and employees (Panero & Zelnik, 1979).

Summary of Cash Wrap Design

One strategic area in which store employees interact with customers is the cash wrap area. Store designers can optimize the cash wrap areas if they have a thorough understanding of the user groups needs, as well as their expectations of this essential customer service area. Evidence suggests that store designers and planners are currently basing cash wrap area designs on guesswork, personal experience, and assumptions, because no in-depth studies of the end users have been performed.

The successful design of the cash wrap area is directly influenced by a variety of factors such as types of cash wrap areas, point of sale technology, dynamics of the work environment, ADA compliance and ergonomics, as well as, store environment, atmospherics, store layout, ADA compliance,
universal design, and the location of cash wrap within the retail store. Research on these factors aid in determining the critical design features of this essential customer service area within the retail store.

Research Questions

The research questions that were addressed in this study are:

1. What environmental dimensions (ambient conditions, space and function, and signs, symbols, and artifacts) are most important to both store employees and customers that determine the store's overall importance?

2. What are the functional design features (e.g., storage, heights of counters, space requirements, etc.) that both the store employee and customer indicate are ideal for the cash wrap area?

3. What design recommendations can be developed for future cash wrap area plans based on the needs identified by the store employees and customers?

Significance of Study

Limited information is available in literature to store designers and planners on user needs and expectations of the retail store environment, and more specifically the cash wrap area. This study served to address this issue and extend the data on the impact of the physical environment on its users in the retail setting. Thus, providing essential information that could be used in creating retail spaces that better meet the needs of their users and improve the overall quality of this critical customer service area.
SECTION III
Methodology

The purpose of this study was to identify user needs and expectations of the retail environment, specifically the cash wrap area in order to develop design recommendations for planning and designing the cash wrap area. Within this section, the sample, instrument, measures and procedures, and data analysis were discussed.

Sample

Two women's apparel specialty store user groups were sampled: store employees and customers. Employees surveyed for this study form a cluster sample which included managers, assistant managers and sales associates, taken from women's apparel specialty stores located in the Mid-Atlantic region. The store manager of each women's apparel specialty store that agreed to participate in this study provided the researcher with the total number of current employees so that the correct number of surveys were left with each store manager. Each store selected for the study qualified as a women's apparel specialty store by occupying 8000 square feet or less of retail space. Thirteen different women's apparel specialty stores with a total number of 128 employees represented the employee population of the sample.

Mall A, had five women's apparel specialty stores that met the criteria for this study. All five women's apparel specialty stores were contacted. Of those five, permission to participate in this study was granted by three of the stores.
Mall B, had twelve women's apparel specialty stores that met the criteria for this study. All twelve women's apparel specialty stores were contacted. Of those twelve, permission to participate in this study was granted by two of the stores.

Mall C, had fifteen women's apparel specialty stores that met the criteria for this study. All fifteen women's apparel specialty stores were contacted. Of those fifteen, permission to participate in this study was granted by eight of the stores.

A convenience sample of adult women customers who might shop at women's apparel specialty retail stores was selected from the Women's Network and the College of Human Resources on the Virginia Tech campus. It was assumed that these adult women customers all have previous experiences with shopping in women's apparel specialty stores. The group leader of the Women's Network organization was contacted by the researcher initially by telephone. The group leader of the selected women's organization provided the researcher with a total number of members, as well as campus mailing labels. Names and mailing labels for the staff of the College of Human Resources was obtained through the Dean's Office in Wallace Hall. A total number of 277 adult women customers were sampled. This will be a non random sample using all available subjects.

Instrument

According to Bitner (1992), user surveys are appropriate in assessing basic user group (employee and customer) needs and expectations. The survey instrument was developed to elicit user expectations about women's
apparel retail stores' environments and more specifically the design of the cash wrap area within these stores. The surveys were divided into seven sections that parallel the conceptual framework suggested by Bitner (1992), to collect data. The data collected was used to:

1. identify the environmental dimensions (ambient conditions, space and function, and signs, symbols and artifacts) that are most important to store employees and customers;
2. identify the factors that encourage customers to frequent women's apparel specialty stores (consumer survey only);
3. discover if the users have any difficulties completing their tasks at the cash wrap area that could be avoided by redesign of the cash wrap area;
4. identify the functional design features (e.g., storage areas, heights of counters, space requirements, etc.) of the cash wrap area by indicating what the users believe the ideal conditions should be;
5. determine if the physical design of the store and the design of the cash wrap area affect user's internal responses (e.g., cognitive, emotional, and physiological);
6. identify design issues that need to be considered when planning and designing the cash wrap area (employee survey only); and
7. develop the demographic profile of the sample population.

The questions in the surveys for both user groups were essentially the same percentage of questions in most sections except the questions were phrased in a way appropriate to either employees or customers. There were two sections
that were significantly different, and they are as follows: (1) section two, which sought to identify the factors that influence customers to frequent women's apparel specialty stores is only part of the consumer survey; and (2) section six, sought to identify the design issues that need to be addressed during planning and design phases of the cash wrap area is only part of the employee survey. The last section of the surveys obtained demographic information about the sample population. Each consumer subject was asked to indicate their age, height, status of employment (i.e., working, non-working), and work description. They were also asked questions about frequented stores, criteria for choosing stores in which to shop, most recent shopping experience, and money spent on women's apparel purchases. Each employee subject was asked to indicate their gender, age, height, status of employment (part time, full time), position title (manager, sales associate), and length of current employment. The demographic data served to develop a profile of the adult female and male employees and customers participating in this study. The demographic data does not answer any of the research questions but was used to determine if there is any correlation between user perceptions and demographics.

Measures & Procedures

This study was composed of three data collection phases: (1) a survey assessed the employees' perceptions of the women's apparel specialty store environment and the cash wrap area; (2) a survey assessed the customers' perceptions of the women's apparel specialty store environment and the cash wrap area; (3) field measurements of all cash wrap area equipment designs in
this sample frame.

**Assessment of Employee and Customer Perceptions**

The survey instrument was used to assess the perceptions of the importance of the retail environment and to elicit user expectations about the retail store and the cash wrap area. Variables that were investigated were grouped in the survey instrument according to Bitner's (1992) conceptual framework (environmental dimensions, moderators, consumer response moderators, internal responses, and behavior).

Respondents were asked to divide a total of 100 points among the environmental dimensions (ambient conditions, space and function, and signs, symbols and artifacts) to indicate their relative importance. Importance and expectations are concepts that are revealed because individuals may have high expectations about items important to them.

Statements were presented in the survey instrument and respondents were asked to agree or disagree on a 6 point Likert scale. Qualitative expectation statements are included to determine what respondents think "should be" in a women's apparel specialty retail store, and what "ideally" needs to be a part of the cash wrap area. This revealed what they desire to be in the store environment, and more specifically the cash wrap area.

**Field Measurements**

All measurements of the existing cash wrap areas were field measured by the researcher. Drawings were prepared and each cash wrap area was coded to match the mall (i.e., Mall A, Mall B, or Mall C) and retail store (i.e., Retailer 1, 2, 3, etc.) for purposes of comparison.
Pilot Test and Revision

A pilot test of the surveys was administered to adult female volunteers (women that are 21 and over) before the actual study. The questionnaires were checked for clarity, organization, and precision. The pre-testing aided in uncovering deficiencies in the surveys and misunderstandings of interpretation of the information as presented to the sample (Touliatos & Compton, 1988). Corrections were made to the instruments.

Procedure

Surveys were distributed to the two user groups by the researcher. Surveys for the store employee sample were distributed to each store manager to administer to all employees. The researcher collected the surveys after employees had completed them. The surveys for the customer sample were distributed through campus mail to all members of the Women's Network and the College of Human Resources at the Virginia Tech campus. The customers were instructed to mail the completed survey back to the researcher through campus mail.

Design and Analysis

To facilitate data analysis, the questionnaires were coded to identify which sample base they were from (e.g., mall, store, user). Employee questionnaires were also coded as to each store so comparisons can be made with employee comments on the cash wrap areas. The overall importance of the physical environment and environmental expectations were measured on a 6 point Likert scale. Mean values for the variables were calculated for both employees and customers. The relative importance scores for the
environmental dimensions were derived by calculating the mean values for each dimension on the list from the constant sum scale. The constant sum scale refers to how respondents divide 100 points among the environmental dimensions according to their importance. T-tests were performed to detect differences between the two users groups for all variables.

The comparative format was used to minimize the likelihood of inflated scores regarding the perceived importance of the environmental setting. The researcher categorized and made frequency tabulations of qualitative responses and demographic information.
SECTION IV:
Results and Discussion

This section is organized into two main parts, the survey results and the field study. The survey results include sections on the survey response rate, sample description, environmental dimensions, ideal conditions of the cash wrap area, employee expectations for the cash wrap area, employee responses to open-ended questions, and customer responses to open-ended questions. The field study section of this chapter describes the field measurements and general descriptions of the cash wrap areas for seven of the women's apparel stores that participated in this study.

Survey Results

Survey Response Rate

The survey questionnaires were mailed through inter-campus mail to the 277 members of women's groups on the Virginia Tech campus. Of the 277 customer questionnaires, 88 were completed and returned, resulting in a 32% return rate. Nine other customer questionnaires were returned but not completed and therefore could not be used in the study. Of the 128 questionnaires delivered directly to each manager of the 13 women's apparel specialty stores', 54 of the employees responded, resulting in about a 42.2% return rate. These responses from employees were received from 9 retail stores. Four retailers who had initially agreed to participate in the study decided not to participate in the study due to corporate policy reasons. The size of the women's apparel specialty stores that responded to the questionnaire ranged from 1400 square feet to 8000 square feet.

For analysis purposes, the survey was divided into the following four
sections:

1. a sample profile section which provided demographic information,
2. a section addressing environmental dimensions,
3. a section asking employees and customers to identify ideal conditions for the cash wrap area, and
4. a section asking employees and customers to comment on the cash wrap area design.

Sample Description

Demographic Profile of the Employee Sample

The last section of the questionnaire was used to compile demographic information on the cluster sample of women's apparel specialty store employees. The following information was compiled from the employee responses: Of the 54 employees surveyed, 96.29% were female and 3.7% were male. The age of the employees surveyed are represented in Table 1. The results indicate that the 21-30 (40.70%) age group represents the majority of the employee sample. The mean height for the employees was 64.847 inches; i.e., just under 5 foot 5 inches tall. Survey results indicated that 33 (61%) of the employees worked full time, 19 (35%) worked part time and 2 (4%) worked temporary/seasonal. Of the 54 employees, 11 were managers (20.37%), 11 were assistant managers (20.37%), 24 were sales associates (44.44%), and 8 identified themselves as other (14.8%). The mean length of time the employees were in their current employment was 2.13 years. The mean total length of time these employees worked in women's apparel retail establishments was 6.57 years.
Table 1

Age Group Categories for Store Employees

<table>
<thead>
<tr>
<th>Age Group</th>
<th>under 20</th>
<th>21-30</th>
<th>31-40</th>
<th>41-50</th>
<th>51-60</th>
<th>over 60</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Employees</td>
<td>5</td>
<td>22</td>
<td>11</td>
<td>8</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>% of Sample</td>
<td>9.25</td>
<td>40.70</td>
<td>20.37</td>
<td>14.80</td>
<td>7.40</td>
<td>7.40</td>
</tr>
</tbody>
</table>
Demographic Profile of the Customer Sample

Two sections of the customer questionnaire were used to compile demographic information on the convenience sample of adult women customers who might shop at women's apparel specialty retail stores.

The age of the female customers ranged between 31 - 50. The mean height for the women customers was 64.951 inches, which was just under five foot five inches tall. They identified their professions as follows:

- semi-professionals (2);
- administrative/clerical (26);
- education related (31);
- engineering/architectural (3); and
- professional (13).

Of the female customers who responded to the survey, 86% of them indicated that they worked full time, and 14% of the women worked part time. These women indicated that they shop for women's apparel in department stores, specialty stores, women's apparel specialty stores and factory outlets.

The survey indicated that the last purchases of women's apparel by women customers was between one and six months ago. They indicated that they spent an average of $984.00 a year on women's apparel, and of that amount an average of $429.00 was spent in women's apparel specialty stores.

The women customers surveyed, ranked the primary criteria for shopping in women's apparel specialty stores in the following order:

- best value buys,
- store location/sales offered,
- assistance of sales personnel/name brands carried,
• appearance of the store, and
• designer fashions.

The survey indicated that women customers are more likely to shop in women's apparel specialty stores if:

• the lighting is most like natural day light (mean = 2.287);
• the store temperature is not noticeable (mean = 1.955);
• the store decor is attractive (mean = 2.299);
• the sales person does not approach, but waits until customer asks for assistance (mean = 2.690);
• the purchasing process can be completed quickly and efficiently (mean = 1.908);
• the store carries certain labels or brands (mean = 2.483); and there is a good selection of merchandise (mean = 1.795).

Environmental Dimensions

The employee and customer respondents were asked to divide a total of 100 points among the three environmental dimensions: (1) ambient conditions, (2) space and function, and (3) signs, symbols and artifacts to indicate their relative importance. The responses showed that the employees considered the three dimensions to be of almost equal importance. The mean scores for all the environmental dimensions for both employees and customers are shown in Table 2.

The Friedman statistical test was used to determine if the environmental dimensions were ranked equally. The results indicated that
Table 2

Importance of the Environmental Dimensions to Employees and Customers

<table>
<thead>
<tr>
<th>Environmental Dimensions</th>
<th>Employee</th>
<th>Customer</th>
<th>T-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient Conditions</td>
<td>33.03</td>
<td>29.7</td>
<td>1.59</td>
</tr>
<tr>
<td>Space &amp; Function</td>
<td>34.36</td>
<td>41.28</td>
<td>-3.39*</td>
</tr>
<tr>
<td>Signs, Symbols &amp; Artifacts</td>
<td>31.49</td>
<td>28.92</td>
<td>1.48</td>
</tr>
</tbody>
</table>

Note. Numbers are the mean values obtained from a constant sum-scale in which respondents were asked to divide a total of 100 points among (3) dimensions so that the more important a dimension was, the more points it received.

*p<.05
the p-value for the employees was $p=0.228$, meaning that the results were not significant. Therefore, the employees ranked the environmental dimensions all equally important. The Friedman statistical results for the customers indicated that the p-value for the customers was $p=0$ (meaning that the results were significant).

T-tests were used to determine if there were any significant differences in the three environmental dimensions as indicated by employees and customers. The T-test results indicate that there was a significant difference between employees' and customers' responses regarding the environmental dimension of space and function. The customers assigned a mean score of 41.28 to the space and function dimension which indicated that these customers considered this dimension the most important. Referring to Table 2, the mean scores for all the environmental dimensions are shown. Ambient conditions (29.7) was ranked next in importance followed closely by signs, symbols and artifacts (28.92). The customer sample demonstrated the ability to prioritize the dimensions. As the employees indicated all the environmental dimensions were equally important, the customers verified that the dimensions were not all equally important.

**Ideal Conditions of the Cash Wrap Area**

In this section respondents were asked to identify the functional design features of the cash wrap area by indicating what they believed the ideal conditions of the cash wrap area should be. Table 3 presents the mean scores of the thirteen different expectation statements that were addressed in the surveys of both the employees and customers. Of the thirteen different
Table 3

Expectations for the Ideal Conditions of the Cash Wrap Area - Employees' and Customers' Mean Scores and T-test Results

<table>
<thead>
<tr>
<th>Expectation Statements</th>
<th>Employee</th>
<th>Customer</th>
<th>T-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complement the store image</td>
<td>1.792</td>
<td>2.511</td>
<td>3.97*</td>
</tr>
<tr>
<td>Be located near the store entrance/exit</td>
<td>3.717</td>
<td>2.628</td>
<td>-4.69*</td>
</tr>
<tr>
<td>Be centrally located in the store</td>
<td>2.327</td>
<td>3.395</td>
<td>4.29*</td>
</tr>
<tr>
<td>Be located adjacent to the fitting rooms</td>
<td>3.642</td>
<td>3.782</td>
<td>.56</td>
</tr>
<tr>
<td>Be visible to all individuals in the store</td>
<td>1.537</td>
<td>2.352</td>
<td>4.89*</td>
</tr>
<tr>
<td>Be easily recognizable among all other areas and fixtures within the store</td>
<td>1.673</td>
<td>1.667</td>
<td>-.05</td>
</tr>
<tr>
<td>Be small to conserve floor space</td>
<td>4.385</td>
<td>4.094</td>
<td>-1.40</td>
</tr>
<tr>
<td>Be large enough to accommodate several customers at one time</td>
<td>1.556</td>
<td>1.6591</td>
<td>.72</td>
</tr>
<tr>
<td>Provide clear floor space around the cash wrap area for both customers and employees</td>
<td>1.63</td>
<td>1.6818</td>
<td>.39</td>
</tr>
<tr>
<td>Be arranged to maximize the opportunity for customer and employee interaction</td>
<td>1.574</td>
<td>2.148</td>
<td>3.96*</td>
</tr>
<tr>
<td>Provide privacy for the transaction and related discussions between the employee and customer</td>
<td>3.037</td>
<td>2.814</td>
<td>-1.06</td>
</tr>
<tr>
<td>Have a convenient space where customers may place their personal items while completing a transaction</td>
<td>2.074</td>
<td>1.8977</td>
<td>-1.13</td>
</tr>
<tr>
<td>Have main counter at same height as a kitchen counter (36&quot; above floor)</td>
<td>2.34</td>
<td>2.733</td>
<td>2.02</td>
</tr>
</tbody>
</table>

Note. Expectation statements were made on a 6-point scale (1= strongly agree, 6= strongly disagree).

* p<.05
statements, six were identified as most ideal to the employees. These are as follows:

- be visible to all individuals in the store (1.537);
- be large enough to accommodate several customers at a time (1.556);
- be arranged to maximize the opportunity for customer employee interaction (1.574);
- provide clear floor space around the cash wrap area for both customers and employees (1.63);
- be easily recognizable among all other areas and fixtures within the store (1.673); and
- complement the store image (1.792).

By contrast, the employees indicated that the following expectation statements about the cash wrap area were not as important:

- be small to conserve floor space (4.385);
- be located near the store entrance/exit (3.717);
- be located adjacent to the fitting rooms (3.642); and
- provide privacy for the transaction and related discussions between employee and customer (3.037).

The same thirteen expectation statements were also rated by the customers, so that the mean scores could be compared to indicate any significant differences between employee and customer perceptions of the cash wrap area within the retail environment. T-tests were used to determine if there were any significant differences among the users. The employees ranked the following five expectation statements higher than the customer, and therefore the results indicate significant differences in the
following: complement the store image, be centrally located in the store, be visible to all individuals in the store, and be arranged to maximize the opportunity for customer and employee interaction. The results indicate that there are differences between groups, employees want the cash wrap designed so that it makes them more accessible to their customers.

Of the thirteen different statements, four were identified as most ideal to the customers, and are as follows:

- be large enough to accommodate several customers at one time (1.6591);
- be easily recognizable among all other areas and fixtures within the store (1.667);
- provide clear floor space around the cash wrap area for both customers and employees (1.6818); and
- have a convenient space where customers may place their personal items while completing a transaction (1.8977).

The customer responses clearly indicated what would be ideal for them, but in contrast the employee results suggest that the expectations for the cash wrap area are to provide customer service.

It was essential for the study to compare the ideal conditions of the cash wrap area based on both user groups perspective, but the employees must utilize this area as their work place, and provide customer service within this area of the retail store. For these reasons, it was necessary to address nineteen expectation statements just to the employee sample. The following section discusses the results of this section on the employees' questionnaire.
Employee Expectations for the Cash Wrap Area

Table 4 illustrates nineteen expectation statements that were just addressed to the employee sample to provide more insight on their perspective of what the ideal conditions of the cash wrap area should be. The results indicated that there are fourteen conditions that are perceived as ideal by employees. These expectation statements and their mean scores area as follows:

- be positioned to allow for a clear view of most areas of the store (1.648);
- have adequate storage space for:
  - boxes, bags, tissue paper (1.3333),
  - hangers (1.3333),
  - office supplies (1.472),
  - re-ticketing merchandise (1.593),
  - reference materials (1.759),
  - returned merchandise (1.556), and
  - customers merchandise while they continue to shop (1.537);
- have storage for the above items within easy reach of the employee (1.4231);
- have all point of sale equipment in easy reach of the employee (1.453);
- have all point of sale equipment arranged so that the employee can use it without turning his/her back on the customer (1.906); and
- have space to display the following items:
  - credit card applications (1.759),
### Table 4

**Expectations About the Cash Wrap Area - Mean Scores of the Store Employees**

<table>
<thead>
<tr>
<th>Expectation Statements</th>
<th>Employee Response (Mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have more counter space for me to layout and examine merchandise being sold or returned</td>
<td>2.204</td>
</tr>
<tr>
<td>Have customer counter at the height approximately 8&quot; higher than main working counter (44&quot;)</td>
<td>3.196</td>
</tr>
<tr>
<td>Be positioned to allow for a clear view of most areas of the store</td>
<td>1.648</td>
</tr>
<tr>
<td>Have a separate station for each employee working in the cash wrap area</td>
<td>3.283</td>
</tr>
<tr>
<td>Have the station designed to accommodate only one customer at a time</td>
<td>4.404</td>
</tr>
<tr>
<td>Have adequate storage space for:</td>
<td></td>
</tr>
<tr>
<td>- boxes, bags, tissue paper</td>
<td>1.3333</td>
</tr>
<tr>
<td>- hangers</td>
<td>1.3333</td>
</tr>
<tr>
<td>- office supplies (staplers, pens, scissors, etc.)</td>
<td>1.472</td>
</tr>
<tr>
<td>- re-ticketing merchandise</td>
<td>1.593</td>
</tr>
<tr>
<td>- reference materials (sales promos, schedules, etc.)</td>
<td>1.759</td>
</tr>
<tr>
<td>- returned merchandise</td>
<td>1.556</td>
</tr>
<tr>
<td>- customer merchandise while they continue to shop</td>
<td>1.537</td>
</tr>
<tr>
<td>Have storage for the above items within easy reach of the employee</td>
<td>1.4231</td>
</tr>
<tr>
<td>Have storage for the above items so that the employees don't have to turn their back on the customer</td>
<td>2.075</td>
</tr>
<tr>
<td>Have all point of sale equipment in easy reach of the store employee</td>
<td>1.453</td>
</tr>
<tr>
<td>Have all point of sale equipment arranged so that the employee can use it without turning his/her back on the customer</td>
<td>1.906</td>
</tr>
<tr>
<td>Have space to display the following items:</td>
<td></td>
</tr>
<tr>
<td>- credit card applications</td>
<td>1.759</td>
</tr>
<tr>
<td>- current sales advertisements and promotions</td>
<td>1.717</td>
</tr>
<tr>
<td>- impulse merchandise</td>
<td>1.736</td>
</tr>
</tbody>
</table>
• current sales advertisements and promotions (1.717), and
• impulse merchandise (1.736).

By contrast, employees did not consider the following expectation statements as important:

• have the station designed to accommodate only one customer (4.404);
• have a separate station for each employee working in the cash wrap area (3.283);
• have the customer counter at the height approximately 8" higher than main working counter (44") (3.196);
• have more counter space for me to layout and examine merchandise being sold or returned (2.204); and
• have storage for above items so that employees don't have to turn their back on the customer (2.075).

Employee Responses to Open-Ended Questions

This section of the survey was developed to elicit employee responses in six different areas in hopes that the responses would provide further insight on the user groups expectations and perceptions of the cash wrap area within the retail setting. This area of the questionnaire requested comments by the participants concerning: (1) employee difficulties with the cash wrap area (see Table 5), (2) employee observations of customer difficulties at the cash wrap area (see Table 6), (3) employee observations of how transactions at the cash wrap area could be handled more efficiently for customers with physical disabilities (see Table 7), (4) employees' opinion of the one thing they like most about the cash wrap area (see Table 8), (5) employees' opinion
Table 5

Employee Difficulties with the Cash Wrap Area

<table>
<thead>
<tr>
<th>Comments</th>
<th>Number of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garment hooks/merchandise bar needed to assist in bagging, and hanging garments, so they are not crowding counter</td>
<td>4</td>
</tr>
<tr>
<td>Not enough room to work</td>
<td>4</td>
</tr>
<tr>
<td>Too small to accommodate more than two employees</td>
<td>3</td>
</tr>
<tr>
<td>More registers needed in the cash wrap area</td>
<td>3</td>
</tr>
<tr>
<td>Too small of an area</td>
<td>2</td>
</tr>
<tr>
<td>Not enough space to fold merchandise</td>
<td>2</td>
</tr>
<tr>
<td>Area to cluttered</td>
<td>2</td>
</tr>
<tr>
<td>More walking area is needed in cash wrap area</td>
<td>1</td>
</tr>
<tr>
<td>More drawer space is needed</td>
<td>1</td>
</tr>
<tr>
<td>Theft in front of store while employee is tied up at cash wrap area</td>
<td>1</td>
</tr>
<tr>
<td>Back counter should be designed with more storage</td>
<td>1</td>
</tr>
<tr>
<td>Area should be in the shape of a horseshoe with storage areas</td>
<td>1</td>
</tr>
<tr>
<td>Need to be able to enter from more than just one side</td>
<td>1</td>
</tr>
<tr>
<td>Counters need to be lower</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 6

Employee Observations of Customer Difficulties with the Cash Wrap Area

<table>
<thead>
<tr>
<th>Comments</th>
<th>Number of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not enough room to be able to sign a check/credit slip</td>
<td>7</td>
</tr>
<tr>
<td>No place to put their personal belongings</td>
<td>6</td>
</tr>
<tr>
<td>Larger counter to place merchandise on</td>
<td>4</td>
</tr>
<tr>
<td>Counter needs to be flat not slanted so customers can set things down</td>
<td>4</td>
</tr>
<tr>
<td>and sign paper work</td>
<td></td>
</tr>
<tr>
<td>Location needs to be at the back of the store</td>
<td>1</td>
</tr>
<tr>
<td>Privacy need - embarrassment over a rejected credit card/check</td>
<td>1</td>
</tr>
<tr>
<td>Counter needs to be lower</td>
<td>1</td>
</tr>
<tr>
<td>More clear space in front of the cash wrap area</td>
<td>1</td>
</tr>
<tr>
<td>Not enough room for customers to stand in line and be serviced</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 7

**Employee Observations of How Transactions in the Cash Wrap Area Can Be Handled More Efficiently for Customers with Physical Disabilities**

<table>
<thead>
<tr>
<th>Comments</th>
<th>Number of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower the counters to make it more accessible</td>
<td>13</td>
</tr>
<tr>
<td>Side area with a retractable shelf to provide better access to the cash wrap area</td>
<td>7</td>
</tr>
<tr>
<td>Have chairs for them to sit in so they don't have to approach the cash wrap area</td>
<td>5</td>
</tr>
<tr>
<td>Area at one end that is clear of fixtures and has a lower counter</td>
<td>4</td>
</tr>
<tr>
<td>Use a clipboard or portable surface so that the transaction can be brought to them</td>
<td>3</td>
</tr>
<tr>
<td>Have a separate area that they can go to, to help speed up their transaction</td>
<td>3</td>
</tr>
<tr>
<td>More clear space around the cash wrap area</td>
<td>2</td>
</tr>
<tr>
<td>Provide seating in the dressing rooms</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 8

Employee’s Response to the One Thing They Like Most About the Cash Wrap Area

<table>
<thead>
<tr>
<th>Comments</th>
<th>Number of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central location, everything is visible as they enter the store</td>
<td>8</td>
</tr>
<tr>
<td>Provides enough space to work in</td>
<td>6</td>
</tr>
<tr>
<td>Everything is within reach (bags, tickets, hangers)</td>
<td>5</td>
</tr>
<tr>
<td>Good storage areas</td>
<td>4</td>
</tr>
<tr>
<td>Ability to display merchandise</td>
<td>3</td>
</tr>
<tr>
<td>Display cases provided counter space to fold merchandise, bag and perform</td>
<td>3</td>
</tr>
<tr>
<td>paper work</td>
<td></td>
</tr>
<tr>
<td>Display cases force customers to look at accessories which increases sales</td>
<td>2</td>
</tr>
<tr>
<td>Located near the fitting rooms making it easier to work with more than one</td>
<td>1</td>
</tr>
<tr>
<td>customer at a time</td>
<td></td>
</tr>
<tr>
<td>Customer can’t see everything on the counter</td>
<td>1</td>
</tr>
<tr>
<td>The color of wood that the cash wrap area is made out of (comforting and not</td>
<td>1</td>
</tr>
<tr>
<td>overpowering)</td>
<td></td>
</tr>
<tr>
<td>Each register has its own supplies of bags, tissue, etc.</td>
<td>1</td>
</tr>
<tr>
<td>It is clean</td>
<td>1</td>
</tr>
<tr>
<td>Seating is placed near the cash wrap area, so customers can be comfortable</td>
<td>1</td>
</tr>
<tr>
<td>while we’re ringing up their sale</td>
<td></td>
</tr>
<tr>
<td>Different height levels of the counters</td>
<td>1</td>
</tr>
<tr>
<td>The openness of the cash wrap area - its not crowded</td>
<td>1</td>
</tr>
<tr>
<td>Appearance of the cash wrap area matches the store interior</td>
<td>1</td>
</tr>
<tr>
<td>Comments</td>
<td>Number of Responses</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Make area larger to accommodate more employees</td>
<td>9</td>
</tr>
<tr>
<td>Add more registers</td>
<td>6</td>
</tr>
<tr>
<td>Garment hook/bar to hang clothes on while bagging the merchandise</td>
<td>4</td>
</tr>
<tr>
<td>Bar to hang clothing that is returned</td>
<td>3</td>
</tr>
<tr>
<td>More space needed behind cash wrap area so employees can circulate</td>
<td>3</td>
</tr>
<tr>
<td>Better storage areas</td>
<td>3</td>
</tr>
<tr>
<td>More room to fold merchandise</td>
<td>3</td>
</tr>
<tr>
<td>Remove phones from the cash wrap area, it interrupts customer transactions</td>
<td>1</td>
</tr>
<tr>
<td>Counter needs to be wider so customer can set personal items down</td>
<td>1</td>
</tr>
<tr>
<td>Design the shape to be in the form of a horseshoe</td>
<td>1</td>
</tr>
<tr>
<td>Replace cash register with a new one</td>
<td>1</td>
</tr>
<tr>
<td>More space to store hangers - bars are too close together causing hangers to stick together</td>
<td>1</td>
</tr>
<tr>
<td>Better organization of storage space, making things easier to access</td>
<td>1</td>
</tr>
<tr>
<td>More hidden storage space for forms, adding machines, censor baskets</td>
<td>1</td>
</tr>
<tr>
<td>More drawer space for storage</td>
<td>1</td>
</tr>
<tr>
<td>Location should be in center of the store</td>
<td>1</td>
</tr>
<tr>
<td>Location should be closer to the front of the store</td>
<td>1</td>
</tr>
<tr>
<td>Customer line area needs to be clearer and larger</td>
<td>1</td>
</tr>
<tr>
<td>Need a flat wide edge for customers to sign checks / credit slips on</td>
<td>1</td>
</tr>
<tr>
<td>Orientation of the cash wrap area, so employee doesn’t have to turn their back on the customer</td>
<td>1</td>
</tr>
</tbody>
</table>
about the one thing they would change about the cash wrap area (see Table 9), and (6) additional suggestions (see Table 10). The following listings are their responses.

The four most dominant difficulties employees have with the cash wrap area, in order of the number of responses, were given as: garment hooks or merchandise bars are needed to assist in the bagging and hanging of garments in the cash wrap area so that the counters are not crowded (14.81%); not enough room to work (14.81%); more registers needed in the cash wrap area (11.11%); and the area is too small to accommodate more than two employees (11.11%). For a complete detailed listing, please refer to Table 5.

Perceived customer difficulties with the cash wrap area, in order of the number of responses received, were: not enough room to be able to sign a check/credit slip (26.9%); no place to put their personal belongings (23%); need a larger counter to place merchandise on (15.3%); and counter needs to be flat not slanted so customers can set things down and sign paper work (15.3%). This detailed list is given in Table 6.

The most dominant changes desired for the cash wrap area, in regards to making transactions at the cash wrap area more efficient for customers with physical disabilities, in order of the number of responses received, were: lower the counters to make it more accessible (34%); provide a side area with a retractable shelf to provide better access to the cash wrap area (18.4%); and have chairs near the cash wrap area for them to sit in, so they do not have to approach the cash wrap area (13%). Please refer to Table 7 for a complete detailed listing.

Perceived strong points that the employees liked most about their cash
Table 10

Employee’s *Additional Suggestions Regarding the Cash Wrap Area*

<table>
<thead>
<tr>
<th>Comments</th>
<th>Number of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Larger area for employees to work</td>
<td>4</td>
</tr>
<tr>
<td>Have more than one register</td>
<td>2</td>
</tr>
<tr>
<td>More display areas needed within the cash wrap area</td>
<td>1</td>
</tr>
<tr>
<td>Counter needs to be lower</td>
<td>1</td>
</tr>
<tr>
<td>Bar needed for return merchandise to be hung to keep area from being cluttered</td>
<td>1</td>
</tr>
<tr>
<td>More storage under counter for boxes, bags and tissue</td>
<td>1</td>
</tr>
<tr>
<td>Wider area for customers to sign checks/credit slips</td>
<td>1</td>
</tr>
<tr>
<td>Area needs to be wide enough for two people to move and function</td>
<td>1</td>
</tr>
<tr>
<td>Centralize the cash wrap area so one has visibility of the entire store</td>
<td>1</td>
</tr>
</tbody>
</table>
wrap area, in order of the number of responses received, were: central location - everything is visible as they enter the store (20%); provides enough space to work in (15%); and everything is within reach (bags, tickets, hangers) (12.5%). Please refer to Table 8 for a complete detailed listing.

Taking into consideration the comments regarding desired changes, the most prevalent problem areas of the cash wrap area as indicated by the store employees were: make the area larger to accommodate more employees (28%); add more registers (18.75%); and add garment hook/bar to hang clothes on while bagging the merchandise (12.5%). For a complete detailed listing, see Table 9.

The last question in the comments section requested additional suggestions by the participants. The most dominant suggestion offered for the cash wrap area was to provide a larger area to work (30.76%). For the complete detailed listing, please refer to Table 10.

Customer Responses to Open-Ended Questions

This section of the survey was developed to elicit customer responses in two areas in hopes that the responses would provide further insight on the user groups expectations and perceptions of the cash wrap area within the retail setting. This area of the questionnaire requested comments by the participants concerning: (1) customer difficulties with the cash wrap area (see Table 11); and (2) customers suggestions for desired changes to the cash wrap area (refer to Table 12).

The five most dominant difficulties customers have with the cash wrap area, in order of the number of responses, were given as:
<table>
<thead>
<tr>
<th>Comments</th>
<th>Number of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not enough room to sign a check/credit slip</td>
<td>7</td>
</tr>
<tr>
<td>Area is cramped and multiple people can't work</td>
<td>6</td>
</tr>
<tr>
<td>Not enough space to place personal items while completing a transaction</td>
<td>5</td>
</tr>
<tr>
<td>Counters are too high</td>
<td>5</td>
</tr>
<tr>
<td>Difficult to locate within the store</td>
<td>4</td>
</tr>
<tr>
<td>No clear waiting line delineation</td>
<td>3</td>
</tr>
<tr>
<td>Need to have a separate area to fill out forms</td>
<td>2</td>
</tr>
<tr>
<td>Storage needed for supplies so area doesn't look so cluttered</td>
<td>2</td>
</tr>
<tr>
<td>Needs to be accessible and accommodate wheelchairs</td>
<td>2</td>
</tr>
<tr>
<td>Not enough space to set clothing selections</td>
<td>1</td>
</tr>
<tr>
<td>Counters should be low enough to allow a child to watch</td>
<td>1</td>
</tr>
<tr>
<td>Don't know which side of the cash wrap area to be on</td>
<td>1</td>
</tr>
<tr>
<td>Not enough space to help two customers at a time</td>
<td>1</td>
</tr>
<tr>
<td>Have only as many cash wrap areas as the store is willing to staff</td>
<td>1</td>
</tr>
<tr>
<td>Comments</td>
<td>Number of Responses</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Needs to be large enough to accommodate several customers at a time</td>
<td>10</td>
</tr>
<tr>
<td>More spacious counter area</td>
<td>9</td>
</tr>
<tr>
<td>Provide cash wrap area with an area to set personal items down while</td>
<td>9</td>
</tr>
<tr>
<td>completing a transaction</td>
<td></td>
</tr>
<tr>
<td>Needs to be recognizable among all other areas of the store</td>
<td>8</td>
</tr>
<tr>
<td>Lower counter height</td>
<td>6</td>
</tr>
<tr>
<td>Provide adequate space to write a check or sign a credit slip</td>
<td>4</td>
</tr>
<tr>
<td>Needs clear space around the cash wrap area</td>
<td>2</td>
</tr>
<tr>
<td>Should complement the store image</td>
<td>2</td>
</tr>
<tr>
<td>Needs adequate space to stand in line</td>
<td>2</td>
</tr>
<tr>
<td>Should provide privacy for customers</td>
<td>2</td>
</tr>
<tr>
<td>Should have chairs for the elderly/handicapped to rest</td>
<td>1</td>
</tr>
<tr>
<td>Should be handicapped accessible</td>
<td>1</td>
</tr>
<tr>
<td>Should maximize the opportunity for customer/employee interaction</td>
<td>1</td>
</tr>
<tr>
<td>Should be located near the fitting rooms</td>
<td>1</td>
</tr>
<tr>
<td>Should be centrally located</td>
<td>1</td>
</tr>
<tr>
<td>There needs to be a way to summon a sales clerk</td>
<td>1</td>
</tr>
<tr>
<td>Needs to be customer comfortable</td>
<td>1</td>
</tr>
</tbody>
</table>
• not enough room to sign a check/credit slip (17%);
• the area is cramped and multiple people cannot work (14.6%);
• not enough space to place personal items while completing a transaction (12%);
• counters are too high (12%); and
• it is difficult to locate within the store (9.7%).

For a complete detailed listing, please refer to Table 11.

Taking into consideration the comments regarding desired changes, the most prevalent problem areas of the cash wrap area as indicated by the customers were: make the area larger to accommodate several customers at one time (15%); provide the cash wrap area with an area to set personal items down while completing a transaction (13.6%); more spacious counters area (13.6%); needs to be recognizable among all other areas of the store (12%); and counter height (9%). For a complete detailed listing, please see Table 12.

Field Study

General Descriptions of the Cash Wrap Area in Selected Stores

Of the nine women's apparel specialty retail stores that agreed to participate in this study, only seven agreed to have field measurements taken of their cash wrap areas. The two women's apparel specialty retail stores that decided not to allow field measurement, did so for corporate policy reasons.

Field measurements documented the various styles and design features of the cash wrap area. Design features that were documented were location of the cash wrap area, finish selections, shape of the cash wrap area, and the approximate size and square footage of the area. Table 13 presents the
Table 13

Cash Wrap Area Measurements Indicated By Retailer

<table>
<thead>
<tr>
<th>Retailer</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Panero &amp; Zelnik</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of Cash Wrap</td>
<td>88</td>
<td>108</td>
<td>112</td>
<td>94</td>
<td>100</td>
<td>112</td>
<td>100</td>
<td>N/A</td>
</tr>
<tr>
<td>Counter Widths:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Employee</td>
<td>24&quot;</td>
<td>18&quot;</td>
<td>28&quot;</td>
<td>24&quot;</td>
<td>30&quot;</td>
<td>24&quot;</td>
<td>30&quot;</td>
<td>18&quot; - 24&quot;</td>
</tr>
<tr>
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<td>10&quot;</td>
<td>12&quot;</td>
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<td>10&quot;</td>
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<td>42&quot;</td>
<td>36&quot;</td>
<td>42&quot;</td>
<td>46&quot;</td>
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</tbody>
</table>

Note. * Counter height between employees and customers.
field measurement data and compares it with Panero & Zelnik's suggested requirements that were reviewed in Section II - Review of Literature. The results indicated that the retailer's cash wrap area met the requirements suggested by Panero & Zelnik in the employee's aisle space category only. In contrast, the results indicated that the counter widths were not consistent with their suggested requirements and were often too small for the customers use. The back counter widths for all stores exceeded the recommended suggestions by Panero & Zelnik. The counter heights category was in contrast with the suggested requirements, the employee counter height often met the requirement range of 35-38". But the customer counter height was often much higher in height and measurements ranged between 36 - 48 inches.

A complete description is shown in the following elevations of the cash wrap areas in the seven retail stores that agreed to field measurements.

**Retailer A**

Retailer A was a small regional brand women's apparel specialty retail store located in the New River Valley Mall in Blacksburg, Virginia. The store was operated by five employees.

The cash wrap area is rectangular in shape, included a back counter area and accommodated one register. The cash wrap area consisted of approximately 88 square feet (see Figure 11 and 12). The area was centrally located on the left side of the store. The cash wrap area offered clear visibility of the entire store.

Some unique features of this specific cash wrap area were: built-in display cases in the counter area, wrapping paper storage located under the counter, and the closet in the back counter area that was used to store
Figure 11. Retailer A: plan and front elevation views.

Note. From actual field measurements. Notes in parentheses indicated deficiencies when compared to Panero & Zelnik's suggested requirements.
Figure 12. Retailer A: rear, back counter and side elevations.

Note. From actual field measurements. Notes in parentheses indicated deficiencies when compared to Panero & Zelnik's suggested requirements.
returned merchandise until it was re-ticketed.

Retailer B

Retailer B was a national brand women's apparel specialty retail store located in the New River Valley Mall in Blacksburg, Virginia. The store is operated by six employees.

The cash wrap area was trapezoid in shape and included a back counter area. Wardrobe areas were located on either side of the back counter. The cash wrap area was approximately 108 square feet, and it accommodated one register (see Figure 13 and 14). The area was centrally located at the rear of the store adjacent to the fitting rooms. The visibility of employees in the cash wrap area was hindered when it came to monitoring the entrance of the store.

Unique design features of this particular cash wrap area were the shape of the area, and the built-in display cases. In this particular design there was ample storage space to hang garments, store garment bags and work with returned and re-ticketed merchandise.

Retailer C

Retailer C was a national brand women's apparel specialty retail store located in the South Park Mall in Charlotte, North Carolina. The store is operated by fourteen employees.

The cash wrap area was designed in the shape of a long rectangle with a back counter area which included two wardrobe areas. The cash wrap area was approximately 112 square feet (see Figure 15 and 16).

The cash wrap accommodated three registers. The area was centrally located at the rear of the store adjacent to the fitting rooms. The entrance/exit are difficult to monitor from the cash wrap area, but the cash wrap provided
Figure 13. Retailer B: plan and front elevation views.

Note. From actual field measurements. Notes in parentheses indicated deficiencies when compared to Panero & Zelnik's suggested requirements.
Figure 14. Retailer B: rear, back counter and side elevations.

Note. From actual field measurements.
Figure 15. Retailer C: plan and front elevation views.

Note. From actual field measurements. Notes in parentheses indicated deficiencies when compared to Panero & Zelnik's suggested requirements.
Figure 16. Retailer C: rear, back counter and side elevations.

Note. From actual field measurements.
employees with good visibility of most parts of the store.

Retailer D

Retailer D was a national brand women's apparel specialty retail store located in the South Park Mall in Charlotte, North Carolina. The store is operated by eight employees. The cash wrap area had only one register.

The cash wrap area was designed in a rectangular shape, but was surrounded on three sides by three display cases that acted as additional counter space for the area. The area consisted of approximately 94 square feet (see Figure 17 and 18). The area was centrally located within the store. The cash wrap area provided clear views of the entire store, fitting rooms and entrance/exit.

The customer side of the cash wrap area was finished in wood while the employee work areas of the cash wrap were finished in a neutral laminate. Some unique features of this area were, the garment hooks, and the display cases that encompassed the cash wrap area.

Retailer E

Retailer E was a national brand women's apparel specialty retail store located in the South Park Mall in Charlotte, North Carolina. The store is operated by twenty five employees. This store had two separate cash wrap areas, each having two registers.

The cash wrap areas were rectangular in shape and included a back counter area. Each area was approximately 100 square feet (see Figure 19 and 20). The cash wrap areas were both centrally located on either side of the store. One area was closer to the entrance/exit and the other area was adjacent to the fitting rooms. The cash wrap area located closest to the fitting

92
Figure 17. Retailer D: plan and front elevation views.

Note. From actual field measurements. Notes in parentheses indicated deficiencies when compared to Panero & Zelnik's suggested requirements.
Figure 18. Retailer D: rear and side elevations.

Note. From actual field measurements.
Figure 19. Retailer E: plan and front elevation views.

Note. From actual field measurements. Notes in parentheses indicated deficiencies when compared to Panero & Zelnik's suggested requirements.
Figure 20. Retailer E: rear, back counter and side elevations.

Note. From actual field measurements.
rooms was primarily used for overflow business during sales and holidays. The main cash wrap area was the one located closer to the entrance/exit. It offered good visibility throughout the store, but the entrance/exit was slightly blocked by a highlight wall located at the front of the store. An employee must be stationed in the front area to greet customers. Some unique features of the cash wrap areas were the maple wood finish and the second ledge for customers to set personal items on.

Retailer F

Retailer F is a national brand women’s apparel specialty retail store located in the Valley View Mall in Roanoke, Virginia. The store is operated by nine employees. The cash wrap area has one register.

The cash wrap area was rectangular in shape and included a back counter area. In the area behind the employee side of the cash wrap area there are two racks where garments can be hung. The cash wrap area consisted of approximately 112 square feet (see Figure 21 and 22). The cash wrap area was centrally located on the left side of the store. The area offered good visibility throughout the entire store, including good visibility of the entrance/exit.

Retailer G

Retailer G was a national brand women’s apparel specialty retail store located in the Valley View Mall in Roanoke, Virginia. The store was operated by nine employees.

The cash wrap area is rectangular in shape, included a back counter area and accommodated two registers. The cash wrap area consisted of approximately 96 square feet (see Figure 23 and 24). The area was centrally
Figure 21. Retailer F: plan and front elevation views.

Note. From actual field measurements. Notes in parentheses indicated deficiencies when compared to Panero & Zelnik's suggested requirements.
Figure 22. Retailer F: rear, back counter and side elevations.

Note. From actual field measurements.
located in the rear of the store. The cash wrap area did not provide employees with clear visibility throughout the store.
Figure 23. Retailer G: plan and front elevation views.

Note. From actual field measurements.
Figure 24. Retailer G: rear, back counter and side elevations.

Note. From actual field measurements.
SECTION V:
Summary, Major Findings & Design Recommendations

Summary

A very important area within the retail setting in which store employees and customers interact is the cash wrap area. Store designers and planners can create optimal designs for the cash wrap area if they have a thorough understanding of the user's needs and expectations. Evidence suggests that store designers and planners are currently basing cash wrap area designs on guesswork and assumptions; no in-depth studies of the users' needs has been performed.

Few efforts have been made to study the environment of women's apparel specialty stores and more specifically the cash wrap area within this type of retail store. This study was undertaken to identify user needs and expectations of the retail environment, and more specifically the cash wrap area. Two data collection instruments, one for customers and one for employees, and three methodologies were designed and employed to determine user perceptions. Field measurements of the cash wrap areas were made in seven of the women's apparel specialty stores whose employees participated in the employee survey. These stores are located in three cities in the vicinity of Virginia Tech; Blacksburg, Virginia; Roanoke, Virginia; and Charlotte, North Carolina. Data collection took place during a three week period in the Spring of 1996.

A convenience sample of 277 women customers and a cluster sample of store employees were asked to complete the surveys. Completed responses were received from 88 customers and 54 employees. The overall importance
of the physical environment and environmental expectations were measured on a 6 point Likert scale. Mean values for the variables were calculated for both sample groups. The major findings of the study are presented in the next section.

Major Findings

Major findings from the surveys and the field measurements were as follows:

Survey Results

The surveys of the customers and employees were very similar in both structure and content. They both started by asking for a ranking in importance of the environmental dimensions (ambient conditions; space and function; and signs, symbols and artifacts) followed by a section asking what the ideal conditions for a cash wrap area should be, with responses on a six-point Likert scale. The survey for the employees included within this section additional statements of expectations about the ideal cash wrap area. The employee survey also included a series of open-ended questions soliciting employee comments, suggestions and recommendations about cash wrap area design issues. Both surveys included sections to obtain demographic information. The customer survey included a separate section to obtain information on shopping preferences regarding store selection and design features. The findings from the survey responses are as follows:

Environmental Dimensions

1. The employees ranked the three environmental dimensions all equally important.

2. By contrast, the customers ranked the space and function dimension
significantly higher in importance than the other two environmental dimensions.

**Ideal Conditions Indicated By Employees**

1. The employees identified the following six conditions as most ideal:
   - be visible to all individuals;
   - be large enough to accommodate several customers at one time;
   - be arranged to maximize the opportunity for customer employee interaction;
   - provide clear floor space around the cash wrap area for both customers and employees;
   - be easily recognizable among all other areas of the store; and
   - complement the store image.

**Ideal Conditions Indicated By Customers**

1. The customers identified four conditions as most ideal, and of these four conditions, three were in agreement with the employees. The three conditions that they identified in common with the employees were:
   - be large enough to accommodate several customers at one time;
   - be easily recognizable among all other areas of the store; and
   - provide clear floor space around the cash wrap area for both customers and employees.

The fourth condition identified as ideal by the customers was:
   - have a convenient space where customers may place their personal items while completing a transaction.

**Employee Expectations for the Cash Wrap Area**

1. The results indicated that the employees have high expectations
about their work environment and what they hope to accomplish within it. They indicated that they have the following expectations for the cash wrap area:

- be positioned to allow for a clear view of most areas of the store;
- have adequate storage space for: boxes, bags, tissue paper, hangers, office supplies, re-ticketing merchandise, reference materials, returned merchandise, and customers merchandise while they continue to shop;
- have storage for the above items within easy reach of the employee;
- have all point of sale equipment in easy reach of the employee;
- have all point of sale equipment arranged so that the employee can use it without turning his/her back on the customer; and
- have space to display the following items: credit card applications, current sales advertisements and promotions, and impulse merchandise.

Field Study

Actual field measurements of the cash wrap areas of seven women’s apparel specialty stores were compared to Panero & Zelnik’s suggested requirements that were reviewed in Section II - Review of Literature. The cash wrap areas measured did not meet Panero & Zelnik's suggested requirements in the following three regards:

- counter widths,
- back counter widths and
- counter height.

1. Counter widths were often too small for the customers’ use. The counter widths ranged from 6" to 30" for customers and 18" to 30" for the employees.
2. Back counter widths for all stores measured exceeded the recommended measurements.

3. The counter heights were also in contrast. The employee counter height often met their suggested requirements of 35" to 38". However, the customer counter height was often much higher with measurements from 36" to 48".

Table 14 indicates that there are deficiencies in the existing cash wrap area designs when compared with Panero and Zelnik's suggested requirements. The data collected by both the store employees and the customers supports the anthropometrical data created by Panero and Zelnik.

Comparison of Findings With Cited Literature

Some of the findings in this study are in agreement with the literature cited in Section II; and some of the findings are in contrast with the cited literature. Findings are compared with the statements of authors of the cited literature in order of the appearance of these citations.

Conceptual Framework

In the beginning of this thesis, a conceptual model was presented that illustrated how the built environment (physical or man-made), which is defined as the servicescape, affects the user groups within the service atmosphere (e.g., retail store). There are three distinct environmental dimensions in this conceptual framework which are: ambient conditions; space and function; and signs, symbols and artifacts. The employees rated all three environmental dimensions to be equally important, but the customers clearly indicated that the space and function environmental dimension was the most important to them. This research supports what Bitner (1992)
**Table 14**

Comparison of Retailer Cash Wrap Area Measurements to Panero & Zelnik's Suggested Requirements

<table>
<thead>
<tr>
<th>Retailer</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Panero &amp; Zelnik</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Footage of Cash Wrap:</td>
<td>88</td>
<td>108</td>
<td>112</td>
<td>94</td>
<td>100</td>
<td>112</td>
<td>100</td>
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<tr>
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<td>18&quot;</td>
<td>28&quot;</td>
<td>24&quot;</td>
<td>30&quot;</td>
<td>24&quot;</td>
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<td>Customer Counter Widths:</td>
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<td>12&quot;</td>
<td>28&quot;</td>
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<td>12&quot;</td>
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<td>18&quot;-24&quot;</td>
</tr>
<tr>
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<td>48&quot;</td>
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<td>36&quot;</td>
<td>42&quot;</td>
<td>36&quot;</td>
<td>35&quot;-38&quot;</td>
</tr>
</tbody>
</table>

**Note.** * Counter height between employee area and customer area. Shaded areas indicate deficiencies in existing cash wrap area designs when compared to Panero and Zelnik's suggested requirements.
suggested, "Because service encounter environments are purposeful environments (e.g., they exist to fulfill specific needs of consumers, often through the successful completion of employee actions), spatial layout and functionality of the physical surroundings are particularly important" (p. 66).

**American Disabilities Act Compliance and Universal Design**

The ADA establishes that it is no longer acceptable to provide independent facilities for individuals with disabilities. Unfortunately, some of the suggestions offered by the employees are not consistent with this requirement of the ADA. Their suggestions would have to be modified in order to be implemented in a way that is consistent with the ADA. This is addressed further in the design recommendations section.

**Location of the Cash Wrap Within the Retail Setting**

The decision on placement of the cash wrap area within the retail setting is a complex one because there is no ideal location. The three basic areas in which the cash wrap area could be located are the front, middle or rear of the store.

The placement of the cash wrap area at the front of the store near the entrance discourages customers from stepping in and browsing. This is in partial agreement with this study, because the employees indicated that this was not an ideal condition to place the cash wrap area at the front of the store. Rather they indicated that it should be located in the middle of the store.

Although the customer group indicated that it was not as important to locate the cash wrap area near the front of the store, the mean scores were less than that of the employee sample, meaning it was more ideal to them. In reviewing customer ideal conditions and their suggestions, the customers
would rather see the cash wrap area at the front of the store. The customers indicated that it is difficult to locate the cash wrap area in the store, therefore if it is located at the front, they will always know where to complete their purchase of merchandise.

**Equipment Design**

According to Green (1991), customer traffic and congestion at the cash wrap area is a concern. The survey responses to the ideal conditions and open-ended questions are in agreement with this concern. It was indicated that it is ideal to have clear floor space around the cash wrap area by both sample groups. The customer sample also indicated that there is no clear waiting line delineation. Employees indicated that the customer line area needs to be more clear and larger.

Barr & Broudy (1990) suggest that customers value fast, knowledgeable and efficient service. In the demographics section of the customer profile, the customers indicated that they would be more likely to shop in a women's apparel specialty stores if the purchasing process can be completed quickly and efficiently.

**ADA Compliance Specific to the Cash Wrap Area**

The design of the cash wrap area must meet the needs of all individuals. This area is unique in design from all other areas in the store. Lopez (1995), suggested the following design considerations for the cash wrap area: clear floor space, parallel approach, high/low side reach limits and side reach obstructions. ADA guidelines are specific in their requirements as well. Mellergaard (1992) verified that the cash wrap area should have three feet behind it for employees and three feet in front of it so a customer in a
wheelchair can approach it from two directions without having to turn. The results of the field study portion of this study indicated that the seven women's apparel specialty stores that participated meet this requirement.

Another important guideline of ADA specific to the cash wrap area is the requirement of counter height. According to Mellergaard (1992), ADA clearly states that the cash wrap area must have one section lowered to 36" to allow wheelchair customers and employees to use it. It should be open underneath to 27" to allow a wheelchair to pull up. The results of the field study indicated that the majority of the women's apparel specialty stores do not meet this requirement. Table 13, presented the field measurements of the cash wrap areas, and the results suggested that the counter heights for the customer exceed the 36" ADA guideline. The cash wrap areas did not have the required 27" open area underneath the cash wrap area counter for a wheelchair to pull up.

Ergonomics of the Cash Wrap Area

Fitch & Knobel (1990), Novak (1977); and Panero & Zelnik (1979) emphasized that if the interfacing between the customer and the store's interior is limited, then the objective of the retail setting has failed. Baker, et. al. (1988); and Panero & Zelnik (1979), stressed that if the quality of the interfacing between the store's employees and their work space is not sufficient, the productiveness of the store is reduced. The employee sample indicated that this was an important point as well. They indicated that an ideal condition of the cash wrap area would be that it is arranged in a way to maximize the opportunity for customer and employee interaction.
Implications and Design Recommendations

The findings of this study, deduced from information from surveyed employees and customers, have implications for four groups of professionals involved with interior store environments. These four groups are:

1. Design disciplines (architects, interior designers, fixture designers and store planners). As these design disciplines pursue creative solutions for the retail environment, the findings of this study should be beneficial and should add to their programming process. This study can be an effective reference, as they plan, design, and specify furnishings, finishes and equipment for retail environments.

2. Management personnel responsible for retail environments, including store managers, facility managers, and store owners. Employees and customers within the retail environment are the users of the environment. They have pertinent practical experience in using the environment to accomplish their purpose. Therefore, their perspective on the environmental dimensions should be helpful to management personnel in making decisions on store layout and space allocation and in developing design criteria and specifications for the professionals in design disciplines.

3. Educators of design students. This study should provide educators with a higher awareness of dominant problem areas in retail environments, and should enable them to provide more informed instruction for students in programming, designing, and specifying retail interior environments.

4. Researchers. This study adds to the body of knowledge of the retail environment. As mentioned, however, this study only reviewed one area of the retail environment, in one type of retail store. Further research is needed
to address other types of stores and other aspects of retail store design.

The recommendations listed are intended to:

1. assist designers in programming, planning and specifying products for the retail environment;

2. develop further awareness within the retail industry of current problems with the design of cash wrap areas that need attention, and solutions;

3. increase the awareness of interior design/environmental design educators of the dominant problem areas in retail store design which should, in turn, enhance the education of students in the design of store interiors and in the specification of equipment that will best meet the users' needs; and

4. add to the body of knowledge of the retail environment and encourage more research to be performed within this particular area of study.

**Design Recommendations**

The design recommendations that follow are general in application, and not specific to any of the stores that participated in the study. The following design recommendations should be applicable to women's apparel specialty stores and may be applicable to other retail environments as well:

**General Recommendations**

1. Locate and design the cash wrap area so that it is visible to all individuals within the store.

2. Design the cash wrap area so that it is easily recognizable among all areas of the store.

3. Design the cash wrap area so that it reflects and complements the store image.
4. Provide a clear floor space in front of the cash wrap area at least three feet wide and with straight approach aisles that are at least three feet wide.

**Cash Wrap Area Size Recommendations**

1. Design the cash wrap area to serve and accommodate more than one customer at a given time and so as not to promote crowding.

2. Provide space at the customer counter to allow customers to place their personal items as well as merchandise they want to purchase; and provide space on the employee counter for employees to attend to preparing this merchandise for purchase.

3. Design the cash wrap area so that it is generous in size, affording sufficient space for users to perform intended functions. The cash wrap areas in the stores that participated in this study ranged in size from 88 square feet to 109 square feet. The general consensus is that the cash wrap area should be larger. However, it should not waste valuable floor space or create an atmosphere of emptiness.

**Design Feature Recommendations**

1. Design the cash wrap area to maximize the opportunity for customer and employee interaction.

2. Provide the cash wrap area with a place for customers to place their personal items while completing sales transactions. Customers are often shopping with extra items such as, purses, other bags, coats or umbrellas. Therefore, the design should incorporate a feature where they may place these items during their transaction.

3. Design the counters to be about 36" in height. Having more than
one counter surface, not all at the same height is appropriate. This adds to the design of the area, but 36" counters are recommended to meet the needs of all customers, especially those who are in a wheelchair. Employees and customers both have tasks that need to be performed at the counters in the cash wrap area and the counter height that is suitable for most people is 36".

4. If a separate counter is provided for customers to sign a check or credit slip, it should measure between 18 to 24" wide. The cash wrap area design should incorporate an area for customers to sign a check or credit slip that measures between 18 - 24". In most stores, the counter provided for customers to sign checks and credit slips is too shallow.

**Design Recommendations Specific to Employee Needs**

1. Design the cash wrap area so it allows for a clear view of the store.

2. Provide garment hooks and garment bag storage within the cash wrap area to aid in bagging and hanging merchandise.

3. Design the cash wrap area so that it arranges all point of sale equipment within easy reach of the employee.

4. Provide adequate storage space for boxes, bags, tissue paper, hangers, office supplies, reference materials, returned merchandise, reticketed merchandise and customer-selected merchandise while they continue to shop.

5. Provide storage for all the above items within easy reach of the employee in the cash wrap area.

**ADA Design Recommendations**

1. Design the cash wrap area counters so that the main counter is no higher than 36".
2. Design the cash wrap area so that there is three feet of floor space immediately behind the main counter for employees and three feet of floor space in front of the main counter so customers in wheelchairs can approach the main counter from two directions without having to turn.

3. Provide a shelf at 36" height that has clear space underneath it so that a customer in a wheelchair could wheel up to and under it, or that is retractable so that a customer is a wheelchair can easily pull the shelf out over the wheelchair.

Retrospective

In the event that this study were to be repeated, the following are suggestions for improvements that could increase the value of the data.

1. Provide the surveys to the selected customers at a time when they will have ample time to respond. The selected customers for this survey were members of women's groups at Virginia Tech. The response rate for the survey could have been higher if the mailings to the customers had not been during final examinations at the end of a semester and school year.

2. The length of the survey instrument. The employee survey was six pages in length and the customer survey was four pages in length. The length of the surveys might have had a detrimental effect on the response rate. Two or four pages would probably result in more responses than four or six pages.

3. The wording of the questions and expectation statements. Although the surveys were pilot tested, improvements could be made to clarify the questions and obtain the information desired.

4. Perform behavioral observations of the employees and customers
within the selected retail setting. A better understanding of the results could have been realized with behavior observations of customers and employees in the participating stores, if arrangements to do so could have been made with the management of the participating stores. In this study, most of the stores were uneasy about allowing such observations of customers and employees.

Recommendations for Further Research

A study similar to this one should be performed for several additional areas of retail stores and the cash wrap area should be further explored. Research is needed to assist interior designers and store planners as they design retail store environments. Research is recommended in the following areas:

1. Review the satisfaction levels of employees with the cash wrap area in women's apparel specialty stores.

2. Repeat this study of the cash wrap area but in other types of stores, since the women customers indicated they are likely to shop in department stores and factory outlets as well as in specialty stores.

3. Study other areas of the retail environment in the same manner as that this study looked at the cash wrap area. The conceptual model (Bitner, 1992) used in this study could be used in investigating other aspects of retail store design. Recommended areas of study include:
   a. type of store layout (grid, free-form, boutique)
   b. design of the fitting rooms
   c. location of the cash wrap area within the retail setting
Although this study did address the location of the cash wrap area, the results did not lead to any definite findings. For this reason, more research is needed on the location of the cash wrap area in retail stores.

d. shape of the cash wrap area

The majority of the cash wrap areas that were in this study were rectangular in shape which included front wrap area and a back counter area (galley shape). Develop a study that tests the effects of the shape of the cash wrap area. Are L-shape or U-shape designs more successful in meeting user requirements than the galley shape that seems to be the standard. A recommendation for further study is to design three different shaped cash wrap areas based on this study's recommendations and have them tested by user groups of employees and customers.

4. A multi-method study that utilized a survey instrument and behavioral mapping or behavioral observation would be helpful to store planners and designers. The researcher must have full cooperation from management and employees of the retail establishments. They will provide the necessary cooperation if they are convinced that the information obtained will be beneficial to the store and that information they want protected will be protected as proprietary and confidential.
REFERENCES


reports, 712-722.


Design.


Appendix A

Example of Consumer Survey Cover Letter
May 3, 1996

Dear:

I am a graduate student in the Housing, Interior Design and Resource Management Program here at Virginia Tech. I am researching the importance of retail environments and more specifically the cash wrap area.

Our research is being undertaken because of the belief that the opinions of the end-users should be taken into account in the formation of guidelines for planning and developing the retail environment and the cash wrap area within women's apparel specialty stores.

Your perceptions are very important because marketing research indicates that women make most of the purchasing decisions for the home and influence the others. If we can better understand your needs and perceptions of the retail environment and the cash wrap area, we can more appropriately plan and design them to meet those needs.

This research has been granted approval by the Human Subjects Review Board verifying that your privacy will be respected and protected. I do realize it is the end of the semester and things are rather busy, but your assistance is very much needed.

Once the survey has been completed, you may place the enclosed pre-addressed label over the original label and refold the cover letter around the survey (either taping or stapling it shut). The completed survey can be sent back to us through campus mail. Please return the survey by May 24, 1996.

Thank you in advance for your assistance.

Sincerely,

Mary Bredderman
Master's candidate
Interior Design Program

Dr. Joan McLain-Kark
Associate Professor
Interior Design Program
Appendix B
Example of Consumer Survey
CONSUMER SURVEY

We are interested in your perceptions of your shopping experiences in women's apparel specialty retail stores (e.g., LaVogue, Lane Bryant, Casual Corner, Ann Taylor, etc.), and more specifically your perceptions of the cash wrap area (check-out area) within these stores. Your ideas will assist in developing design guidelines that will be beneficial to store planners and designers as they plan interiors of new stores or for remodeling old stores. Please take a few minutes to answer the following questions. Even though each survey form has been given an identification number, be assured that your responses will be kept confidential. Please do not put your name on the survey form.

Mary Broderman
Department of Housing, Interior Design, and Resource Management

Dr. Joan McClain-Kark
Department of Housing, Interior Design, and Resource Management

* Listed below are 3 dimensions of all retail environments. We would like to know how important each of these dimensions is to you, as a consumer. Please divide a total number of 100 points among the 3 dimensions. Rank these according to how important each one is to you. The more important a dimension is to you, the more points you should give it. Please be sure that the points you allocate to all 3 dimensions ADD TO 100.

Points Allocated

A. The background conditions of the store (Ambient conditions)
   1. music
   2. temperature
   3. lighting
   4. scent

B. The organization and arrangement of spaces and fixtures in the store (Space and function)
   1. equipment & fixture design
   2. store layout
   3. access to the cash wrap area
   4. ease of use of the cash wrap area

C. The overall appearance of the store (Signs, symbols and artifacts)
   1. architecture
   2. furnishings
   3. use of materials
   4. use of color use

100 Total Points Allocated to all Three Dimensions

For statements on the following two pages, please circle the number that indicates your level of agreement with each of the following statements.

1 - Strongly Agree
2 - Agree
3 - Somewhat Agree
4 - Somewhat Disagree
5 - Disagree
6 - Strongly Disagree
This set of statements asks for your evaluation of the women's apparel specialty store environment in which you most prefer to shop. Please circle the number that indicates your level of agreement with each of the following statements.

**I AM MORE LIKELY TO SHOP IN A WOMEN'S SPECIALTY CLOTHING STORE IF:** (Please circle one)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. there is background music playing</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>2. the lighting level is high</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>3. the lighting is most like natural daylight</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>4. the level of lighting is low and creates an ambiance</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>5. there is a noticeable fragrant scent</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>6. the store temperature is not noticeable</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>7. the store interior decor is attractive</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>8. the store interior decor has a distinctive image</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>9. the salesperson offers assistance as soon as I enter the store</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>10. the salesperson does not approach, but waits until I ask for assistance</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>11. I know that the purchasing process can be completed quickly and efficiently</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>12. I know that the store carries certain labels or brands</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>13. I have not been there before; I like to explore different shopping possibilities</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>14. there is a good selection of merchandise</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
</tbody>
</table>

**SHOPPING FOR CLOTHING FOR MYSELF:** (Please circle one)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. is an enjoyable use of leisure time</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>2. takes away from what I would rather be doing</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>3. is done only when an item is needed</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>4. is limited to stores located 20 miles or less from my home</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>5. is done only when I visit major cities, like Washington DC</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>6. gives me a chance to explore new places</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
</tbody>
</table>

- The cash wrap area within the women's apparel specialty store serves an important function in finalizing a sale and bagging or wrapping merchandise for the customer.

- Have you experienced any difficulties at the cash wrap area while paying for a purchase that could be avoided by changing the cash wrap area design? (Please explain)

127
The following statements asks for your opinion of what **IDEALLY** a cash wrap area should be.

(Please circle one)

<table>
<thead>
<tr>
<th>THE CASH WRAP AREA SHOULD:</th>
<th>Strongly Agree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. complement the store image</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>2. be located near the store entrance/exit</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>3. be centrally located in the store</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>4. be located adjacent to the fitting rooms</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>5. be visible to all individuals in the store</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>6. be easily recognizable among all other areas and fixtures within the store</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>7. be small to conserve on floor space</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>8. be large enough to accommodate several customers at one time</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>9. provide clear floor space around it for customers and employees</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>10. be arranged to maximize the opportunity for customer and employee interaction</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>11. provide privacy for the transaction and related discussions between employee and customer</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>12. have a convenient space where customers can place their personal items while completing a transaction</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>13. have a main counter at the same height as a kitchen counter (36 inches above the floor)</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
</tbody>
</table>

This section of statements asks for your opinions about the importance of store design and cash wrap area design.

(Please circle one)

| 1. Your feelings (attitude) about shopping in the store are affected by the design of the store | 1 2 3 4 5 6 | |
| 2. Your feelings (attitude) about service in the store are affected by the design of the cash wrap area | 1 2 3 4 5 6 | |
| 3. Your beliefs about the quality of the retailer, service, and merchandise are influenced by the design of the store | 1 2 3 4 5 6 | |
| 4. Your beliefs about the quality of service are influenced by the design of the cash wrap area | 1 2 3 4 5 6 | |
| 5. Your physical comfort is affected by the design of the store | 1 2 3 4 5 6 | |
| 6. Your physical comfort is affected by the design of the cash wrap area | 1 2 3 4 5 6 | |
In what ways could the cash wrap area be designed to assist the customer in completing a transaction? Please explain.

The following information will provide a demographic profile of consumers participating in this study. (Please check one)

1. Your age:  
   □ Under 20  
   □ 21-30  
   □ 31-40  
   □ 41-50  
   □ 51-60  
   □ 61 and above  

2. Your height: □ feet and □ inches  

3. Employment status:  
   □ Not employed  
   □ Full time  
   □ Part time  
   □ Retired  

What best describes your work?  

4. What types of stores do you shop in: (check all that apply)  

   □ Department stores  
   □ Specialty stores  
   □ Men’s apparel specialty stores  
   □ Factory outlets  
   □ Women’s apparel specialty stores  
   □ Other (specify)  

5. When you shop for women’s apparel, what are your primary criteria for choosing the store? (Please rank your criteria 1 being most important and 7 being the least important)  

   □ Store location  
   □ Best value buys  
   □ Appearance of store  
   □ Name brands carried  
   □ Assistance of sales personnel  
   □ Designer fashions  
   □ Sales offered  

6. Estimate how long it has been since you last purchased an item in a women’s apparel specialty store (e.g., Casual Corner, Lane Bryant, Ann Taylor, La Vogue). (please check one)  

   □ One week or less  
   □ Two weeks to one month  
   □ One month to six months  
   □ Six months to one year  
   □ Over one year  

7. About how much do you spend each year on women’s apparel? $  

8. About how much of this do you spend in women’s apparel specialty stores? $  

Thank you for assisting with this survey.
Appendix C

Example of Employee Survey Cover Letter
May 11, 1996

South Park-Cache

Dear Ms. Sherry Flynn:

I am a graduate student in the Housing, Interior Design and Resource Management Program here at Virginia Tech. I am researching the importance of retail environments and more specifically the cash wrap area.

Our research is being undertaken because of the belief that the opinions of the end-users should be taken into account in the formation of guidelines for planning and developing the retail environment and the cash wrap area within women's apparel specialty stores.

Your perceptions are very important because if we can better understand your needs and perceptions of the retail environment and the cash wrap area, we can more appropriately plan and design them to meet those needs.

This research has been granted approval by the Human Subjects Review Board verifying that your privacy will be respected and protected. Based on our previous conversation, and your approval to participate in this research project, you will find enclosed surveys for all your employees. If you could insure that your employees have an opportunity to fill out the surveys, I will collect the completed surveys at the end of May. I will contact you prior to coming to the store. At that time I will need to schedule an appropriate time to measure your cash wrap area.

Thank you in advance for your assistance.

Sincerely,

Mary Bredderman
Master's candidate
Interior Design Program

Dr. Joan McLain-Kark
Associate Professor
Interior Design Program
Appendix D

Example of Employee Survey
EMPLOYEE SURVEY

The cash wrap area is an important service area within the retail store. This study is reviewing how well the design of cash wrap area meets the needs of both customers and store employees in an effort to develop design guidelines for store planners and designers to adopt for future projects. Your thoughts on what works and does not work well with the cash wrap area you currently use will be most helpful. Each survey form has an identification number but your answers will be strictly confidential. Please do not write your name on the survey. Thank you in advance for your assistance.

Mary Bedderman  
Graduate Teaching Assistant  
Department of Housing, Interior Design,  
and Resource Management

Dr. Joan McLain-Kark  
Associate Professor  
Department of Housing, Interior Design,  
and Resource Management

Listed below are 3 dimensions of retail environments. We would like to know how important each of these dimensions is to you, as a store employee. Please divide a total number of 100 points among the 3 dimensions. Rank these according to how important each one is to you. The more important a dimension is to you, the more points you should give it. Please be sure that the points you allocate to all 3 dimensions ADD TO 100.

Points Allocated

---
A. The background conditions of the store (Ambient conditions)
   - music
   - temperature
   - lighting
   - scent

---
B. The organization and arrangement of spaces and fixtures in the store (Space and function)
   - equipment & fixture design
   - store layout
   - access to the cash wrap area
   - ease of use of the cash wrap area

---
C. The overall appearance of the store (Signs, symbols and artifacts)
   - architecture
   - furnishings
   - use of materials
   - use of color

100 Total Points Allocated to all Three Dimensions
Answers to the following questions will help identify design issues that need to be addressed when planning and designing the cash wrap area.

1. Have you experienced any difficulties at the cash wrap area while completing a transaction for a customer that could be avoided by changing the cash wrap area design? (Please check one)

   Yes_____     NO____  (If YES, Please explain)

2. Have you noticed any difficulties that the customer has had at the cash wrap area while completing a purchase that could be avoided by changing the cash wrap area design? (Please check one)

   Yes_____     NO____  (If YES, please explain)

For statements on the following three pages, please circle the number that indicates your level of agreement with each of the following statements.

1 - Strongly Agree  
2 - Agree  
3 - Somewhat Agree  
4 - Somewhat Disagree  
5 - Disagree  
6 - Strongly Disagree

The cash wrap area within the women's apparel specialty store serves an important function in finalizing the transaction for the customer. The following statements asks for your opinion of what IDEALLY a cash wrap area should be.

THE CASH WRAP AREA SHOULD:

(Please circle one)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. complement the store image</td>
<td>1  2  3  4  5  6</td>
<td></td>
</tr>
<tr>
<td>2. be located near the store entrance/exit</td>
<td>1  2  3  4  5  6</td>
<td></td>
</tr>
<tr>
<td>3. be centrally located in the store</td>
<td>1  2  3  4  5  6</td>
<td></td>
</tr>
<tr>
<td>4. be located adjacent to the fitting rooms</td>
<td>1  2  3  4  5  6</td>
<td></td>
</tr>
<tr>
<td>5. visible to all individuals in the store</td>
<td>1  2  3  4  5  6</td>
<td></td>
</tr>
<tr>
<td>6. be easily recognizable among all other areas and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fixtures within the store</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. be small to conserve on floor space</td>
<td>1  2  3  4  5  6</td>
<td></td>
</tr>
<tr>
<td>8. be large enough to accommodate several customers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>at one time</td>
<td>1  2  3  4  5  6</td>
<td></td>
</tr>
<tr>
<td>9. provide clear floor space around the cash wrap</td>
<td></td>
<td></td>
</tr>
<tr>
<td>area for both customers and employees</td>
<td>1  2  3  4  5  6</td>
<td></td>
</tr>
<tr>
<td>10. be arranged to maximize the opportunity for</td>
<td></td>
<td></td>
</tr>
<tr>
<td>customer and employee interaction</td>
<td>1  2  3  4  5  6</td>
<td></td>
</tr>
</tbody>
</table>
This section asks for your opinions about the importance of store design. Please circle the number that indicates your level of agreement with each of the following statements.

(Please circle one)

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Your <strong>feelings (attitude)</strong> about working in the store are <strong>affected</strong> by the design of the store</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>2. Your <strong>feelings (attitude)</strong> about working in the store are <strong>affected</strong> by the design of the cash wrap area</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>3. Your <strong>beliefs</strong> about the quality of the retailer, service, and merchandise are <strong>influenced</strong> by the design of the store</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>4. Your <strong>beliefs</strong> about the quality of service are <strong>influenced</strong> by the design of the cash wrap area</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>5. Your <strong>physical comfort</strong> is affected by the design of the store</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>6. Your <strong>physical comfort</strong> is affected by the design of the cash wrap area</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
</tbody>
</table>

Answers to the following questions will help identify design issues that need to be addressed when planning and designing the cash wrap area.

1. Of the listed activities below, please indicate the tasks you perform in the cash wrap area. **(PLEASE CHECK ALL THAT APPLY)**.

   - [ ] Monitor store entrance
   - [ ] Monitor sales floor
   - [ ] Interact with customers
   - [ ] Respond to telephone calls
   - [ ] Respond to customer questions
   - [ ] Coordinate the use of fitting rooms
   - [ ] Remove security tags
   - [ ] Process transactions (operate register/receive payment)
   - [ ] Fold/wrap/box/bag purchased merchandise
   - [ ] Receive and inspect returned merchandise
   - [ ] Prepare merchandise to place on sales floor (ticket/check in)
   - [ ] Interact with other employees and management
   - [ ] Other (please specify)______________________________
<table>
<thead>
<tr>
<th></th>
<th>(Please circle one)</th>
<th>Strongly Agree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. provide privacy for the transaction and related discussions between the employee and the customer</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. have a convenient space where customers may place their personal items while completing a transaction</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. have main work counter at same height as a kitchen counter (38 inches above floor)</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. have more counter space for me to layout and examine merchandise being sold or returned</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. have a customer counter at the height approximately 8 inches higher than main work counter (44&quot;)</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. be positioned to allow for a clear view of most areas of the store</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. have a separate station for each store employee working in the cash wrap area</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. have that station designed to accommodate only one customer at a time</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. have adequate storage space for:</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- boxes, bags, tissue paper</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- hangers</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- office supplies (staplers, pens, scissors, etc.)</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- re-ticketing merchandise</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- reference materials (sales promo, schedules, etc.)</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- returned merchandise</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- customer merchandise while they continue to shop</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. have storage for the above items within easy reach of store employee</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. have storage for above items so that employees don't have to turn their back on the customer</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. have all point of sale equipment in easy reach of the store employee</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. have all point of sale equipment arranged so that the employee can use it without turning his/her back on the customer</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. have space to display the following items:</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- credit card applications</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- current sales advertisements and promotions</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- impulse merchandise</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2. How can transactions be handled more efficiently for customers with physical disabilities and for those who, because of a disability, cannot use the cash wrap area?

3. What is the one thing that you like most about the cash wrap area where you work? **PLEASE INDICATE AND EXPLAIN WHY.**

4. If you could change one thing about the cash wrap area, what would you do? **PLEASE INDICATE ITEM OR FEATURE AND EXPLAIN WHY.**

5. If you have any further suggestions for making the cash wrap area function more efficiently for store employees and customers **PLEASE INDICATE AND EXPLAIN.**
The following information will provide a demographic profile of respondents of this study (Please check one for each question).

1. Gender:  
   _____ Female  
   _____ Male

2. Your age:  
   _____ under-20  
   _____ 21-30  
   _____ 31-40
   _____ 41-50  
   _____ 51-60  
   _____ 61 and over

3. Your height: _____ feet and _____ inches

4. Employment status:  
   _____ Full time  
   _____ Part time  
   _____ Temporary/seasonal

5. Position Title:  
   _____ Manager  
   _____ Sales Associate  
   _____ Assistant Management  
   _____ Other (please specify) _____

6. Length of time in current employment: ____________

7. Total length of time working in women's apparel retail establishments: ____________

THANK YOU FOR YOUR ASSISTANCE WITH THIS STUDY.
VITA

Mary Theresa Bredderman, daughter of Rudolf and Helen Bredderman, was born August 6, 1969 in Washington DC. She graduated from Moreau Catholic High School located in Hayward, California in 1987. In 1992, she received a Bachelors of Science, with a concentration in Interior Design from California Polytechnic State University, San Luis Obispo. After working in the design profession for two years, she returned to pursue a Masters Degree and enrolled in the Housing, Interior Design and Resource Management Program at Virginia Polytechnic State University - Blacksburg, in 1994.

While in graduate school, Mary held graduate teaching assistantships in senior studio contract design courses. In December 1996, the requirements for a Masters of Science Degree were completed. Mary is a member of the honor societies Phi Upsilon Omicron and Kappa Omicron Nu. Her current employment is with the Trammell Crow Company as a Project Manager. Her responsibilities include programming, design, construction management, project coordination and move coordination for a high profile account in Uptown Charlotte, North Carolina.

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