

# A Study of Apparel Dress Model Technology on the Web

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## Abstract

This study analyzes the criticality of design factors that contribute to discernable differential in the experiences of goal-focused shoppers on dress model Web sites. Focused on the apparel industry, the study examines factors of accessibility and convenience, availability of information, lack of sociality, media richness, and product selection. The results of the study impute that basic functionality, except for lack of sociality, is in general more important than advanced richness of technology for goal-focused shoppers. Intention to buy is indicated in the study to be less impacted by the sophistication of technology on dress model sites. The study will benefit information systems professionals and marketing practitioners who continue to explore and evaluate the impact of technology on online stores.

**Keywords:** apparel industry, business-to-consumer (B2C) e-Commerce, customer experience, dress model technology, goal-focused shopping, information systems management

## Introduction

Business-to-consumer (B2C) e-Commerce continues to grow in the United States. Retail revenue on the Internet channel has approximated \$141 billion in 2004 (Alter, 2005), an increase from \$100 billion in 2003 (Chabrow, 2004). Apparel sales on the Internet channel have been estimated to be \$13 billion in 2005 (Tedeschi, 2005). Sales on the Web have comprised 7.7% of all revenue sales sources in 2005 (Gagnier, 2005), an increase from 6.6% of revenue sales in 2004 and 3.6% in 2002. Forecasts have indicated revenues on the Web will increase to \$172 billion in 2005 (Alter, 2005) and to \$230 billion, and 10% and higher of all sales, in 2008 (Chabrow, 2004). Consumers on the Web have grown to be mainstream customers of this additional buying channel, as 5 million households will annually buy on the Web for their first time through 2008 (Chabrow, 2004).

Retailers have to continue to invest in better e-Commerce design (Ricadela, 2005), in order to ensure increased buying on the Web. Apparel retailers have to be cognizant of buyer perceptions

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of service, risk, price, product and experience (Jarvenpaa & Todd, 1997), but in order to convert a consumer into a buying customer, retailers have to differentiate their design in an especially functional, engaging and compelling experience (Pullman & Gross, 2004). Differentiation in encountering a home page of a retailer Web site, searching and choosing a product from a catalog

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on the site, ordering and paying for the product, and contacting customer service if needed enables experience in apparel shopping on the Web (Sebastianelli, Tamimi, & Rajan, 2005). Studies indicate the evolution in the design of e-Commerce sites from that of experimentation, creation of value and growth through focus, to differentiation of experience and of relationship (Gabriele, Brohman, Watson, & Parasuraman, 2004; Prahalad & Ramaswamy, 2004). Innovation in the design of the apparel buying experience is indicated to give an edge to a retailer Web site.

The focus of our study is to examine the importance of factors that contribute to a discernable differential in the experience of goal-focused shoppers on apparel retailer dress model Web sites.

### Literature Review

Studies in the literature indicate factors of compatibility of lifestyle (Ratchford, Talukdar, & Lee, 2001), ease of use, ease of effort (Baty & Lee, 1995), fun (Goldsmith, 2000), playfulness (Liu, Arnett, Capella, & Taylor, 2001), and risk. The factors are indicated as important in the design of differentiation in a generic shopping experience (Jarvenpaa & Todd, 1997). Wolfenbarger and Gilly (2001) indicate differentiation in the context of goal focusing. Goal focusing is further indicated to be deliberate, efficient, fast, rational and task-focused shopping (Hoffman & Novak, 1996). Goal-focused shoppers are frequently independent of the help of online sales and service staff and are indicated to have a clearly defined objective to buy already identified products on the Web without the help of staff (Moe & Fader, 2001).

Wolfenbarger and Gilly (2001) introduce the following factors as important in goal-focused shopping on a retailer Web site:

- accessibility and convenience, which affords ease in effort in buying apparel products on the site;
- availability of information, which allows for organized, relevant and searchable specifications on the products sold on the site;
- lack of sociality, which enables fulfillment for a goal-focused independent shopper to buy the products with or without service or sales help; and
- selection, which enables sufficiency in the inventory of apparel products sold on the Web site.

Such factors give an enhanced edge to a retailer sensitive to goal-focused apparel shoppers on its Web site.

Other studies indicate factors of customization and personalization of apparel Web sites as important in the differentiation of a site (Drogan & Hsu, 2003). Customization allows consumers to alter choices and configurations of products during shopping on the Web site (Schrage, 1999). An example of customization in the apparel catalog industry is [www.landsend.com](http://www.landsend.com) (Ives & Piccoli, 2003). Personalization allows retailers to change catalog configurations of product offerings to customers on the Web, based on explicit or implicit buying preferences during the shopping. An example is [www.jcrew.com](http://www.jcrew.com). Personalization and customization technologies are indicated to give an improved edge to the apparel Web site (Roberts, 2003).

Though factors of importance in the design of an apparel retailer site have been indicated in the literature from the evolution of the Internet, few sites are indicated to have delivered an excellent online experience (Jackman, 2005), due to design of the sites and to perceptions of product, price, risk, and service. Loyalty of consumers to shop and to buy on a retailer site is elusive on the Web. Most consumers continue to abandon shopping carts and do not buy apparel products on their first surfed Web sites. They browse and search products, if not prices, on competitor sites, in

minimal expenditure of personal effort to buy the products in the store or on a subsequent site. Retailers continue to have a tenuous hold on buying customers (Srinivasan, Anderson, & Ponnavolu, 2002), as customers have less time for shopping (Bellman, Lohse, & Johnson, 1997). To induce increased buying by goal-focused shoppers of products, on initially surfed Web sites, an approach of further differentiation in the design and experience of the apparel retailer site may be needed in the advanced functionality of technology.



**Figure 1: Virtual dress models on Lands End Web site**  
(Source: Landsend.com, 2005)

To differentiate the experience of shopping on the Web, retailers have experimented and implemented designs beyond basic catalog content of apparel products (Nystedt, 2005). They have implemented “try clothing on” virtual dress models or dressing rooms, initially introduced in 2002 on the Web by [www.landsend.com](http://www.landsend.com), in “my virtual model” (Anthes, 2002), in Figure 1.

Virtual dress models and rooms have developed from basic functionality, consisting of the following: impersonal default two-dimensional (2D) static mannequin models, limited pictures of products, and limited information text. They have evolved in advanced functionality (Gonsalves, 2005; Greenemeier, 2005; Grover, 2005) of the following: consumer manipulated three-dimensional (3D) dynamic images, consumer personal-

ized 360-degree models, contrasted colors of products, expanded information text, high resolution zooms of pictures of products, simulations of products, sound, and video on sites.

This latter functionality is facilitated by broadband and digital imaging technologies on the Web (Spector, 2005). Indications are that 69% of buyers on the Web are broadband customers (Betts, 2005). They are buying more products on the Web than narrow-band customers (Mullaney, 2003). Retailers have further improved functionality by including the following: customized “great get together” product recommendations, personalized buying guides, 3D navigational shopping tools, and speedy “one-click express checkouts” on sites. These designs illustrate continued efforts by retailers in the apparel industry to distinguish the shopping experience on their Web sites through investment in technologies (Bernstein, 2005; Chabrow, 2004).

Studies in the literature indicate the contribution of virtual dress model and room environment in the consumer experience of apparel shopping on the Web (Esfahani, 2005). Experience is indicated to be richer on self-service and shopping virtual dress model sites. Klein notes the importance of consumer control and media richness, as factors in enabling a mediated environment that influences consumer attitudes towards products on the Web (Klein, 2003). Klein introduces the environment as strong in the experience of online presence:

“... the higher the level of telepresence, the more real the experience of the virtual environment will seem [to the consumer]; the more real the experience, the higher the intensity of the attitudes and beliefs toward the advertised products that will result [with the consumer]” (Klein, 2003).

Media richness is interpreted to impact consumer experience by sensory breadth and depth of stimuli on virtual dress model Web sites (Klein, 2003). Studies however of the impact of the richness factor on the intention of goal-focused shoppers to buy apparel from advanced technological dress model or picture sites, in contrast to the impact of other non-technological factors, are neither conclusive nor consistent in the literature.

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The aforementioned studies of Wolfinbarger and Gilly (2001), on accessibility and convenience, availability of information, lack of sociality and selection, and of Klein, on media richness, could help in evaluating the impact of virtual dress model rooms on the intention of goal-focused shoppers to buy apparel from the Web sites. Wolfinbarger and Gilly indicate that their experience factors give consumers who are goal-focused shoppers increased freedom and control on the sites. The Klein experience factor of media richness could further give these shoppers increased control in the simulation of physical shopping stores, if retailers are not too enamored of their technologies (Pine III, 1999). Richness as a factor could furnish indication of the sufficiency of the technologies to stimulate these shoppers to buy apparel comfortably from advanced technological sites. Selection, lack of sociality, availability of information and access and convenience as factors on the sites could eventually furnish a fuller impact on the goal-oriented shoppers to buy continually from the sites.

The virtual dress model sites have to be considered for the full functionality furnished to the goal-focused shoppers. Accessibility and convenience may not be apparent in virtual dress model rooms that do not have the real sensation and the touch of apparel on display in physical stores. Experience of telepresence on sites on the Web may be far less compelling than shopping in the stores. Experience of buying apparel on sites is especially not helped if the apparel may not be returned to the stores. Availability of information on apparel specifications may not be apparent on dressing room sites that do not have intuitive navigation and sufficient search systems. Lack of sociality may not be evident on sites that do not have optional dial-up or e-mail incident interaction with service and sales staff. Selection may not be evident on sites that do not have sufficient inventory of the stores. Evaluation has to be for functionality (Lightner, 2004) and usability (Goodwin, 1987) that are not inherently in the advanced technology, but in the basic design of the retailer Web site.

This study introduces the factors of accessibility and convenience, availability of information, lack of sociality and selection, and media richness, as important in differentiation of experiences of goal-focused shoppers on apparel virtual dress model Web sites. The factors form an initial base for increased control and freedom of the shoppers. The media rich technology of virtual dress models and rooms has to improve the experiences of these shoppers, but so do the other factors. The factors of accessibility and convenience, availability of information, lack of sociality and selection and media richness may be equivalently important in the experiences. The extent of the importance of customized and personalized richness of technology on the sites is however not clear in the literature on virtual dress model and picture sites. Our intent is to study the importance of the Klein factor of media richness relative to the other Wolfinbarger and Gilly factors for apparel goal-focused shoppers on retailer Web sites. These factors are defined in Table 1.

The focus of the study is to examine the importance of the aforementioned design factors that contribute to a discernable differential in the experience of goal-focused shoppers on apparel retailer dress model Web sites. The examination extends the individual findings of Wolfinbarger and Gilly and of Klein. The study integrates factors of accessibility and convenience, availability of information, lack of sociality and selection and of media richness. Though generic guidelines in the design of Web sites abound in the practitioner and scholarly literature, the study is focused on factors that facilitate the experience of goal-focused shoppers on specific dress model sites. The study is not focused on risk or price factors. Fresh insight is helpful, as the richness and sophistication of the functionality and of the technology of apparel dress model Web sites have improved since the Wolfinbarger and Gilly and Klein studies in 2003 and 2001. This study in its updated findings substantiates a framework for exploring design factors that impact improved experiences of goal-focused shoppers on virtual dress model Web sites.

**Table 1: Experience factors of goal-focused shoppers on Web**

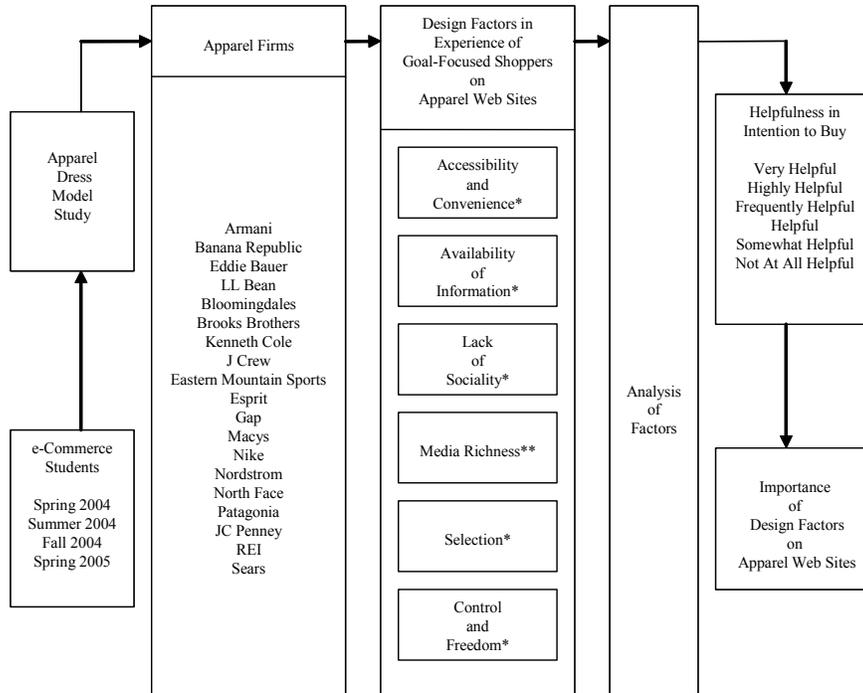
<b>Factor</b>	<b>Definition</b>	<b>Source</b>	<b>Other Sources</b>
<b>Accessibility and Convenience</b>	Degree of comfort and ease in personal effort and in savings of time in buying apparel products on virtual dress model Web sites, that contributes to more control and freedom of goal-focused shoppers	Wofinbarger & Gilly, 2001	Yale & Venkatesh, 1985
<b>Availability of Information</b>	Depth of organized, relevant and searchable specifications on apparel products on virtual dress model sites, that contributes to more control and freedom of goal-focused shoppers	Wofinbarger & Gilly, 2001	Klein, 1998
<b>Lack of Sociality</b>	Extent of fulfillment to order and to buy apparel products on virtual dress model sites, optionally with or without human interaction with sales and service staff, that contributes to more control and freedom of goal-focused independent shoppers	Wofinbarger & Gilly, 2001	Hoffman & Novak, 1996
<b>Media Richness</b>	Degree of direct experience of the multimedia of representations of apparel products on virtual dress model and picture sites, that contributes to more control and freedom of goal-focused shoppers	Klein, 2003	Coyle & Thorson, 2001, Bezjian-Avery & Calder, 1998
<b>Selection</b>	Depth of real-time sufficient inventory of both regular and special order apparel products on virtual dress model sites, that contributes to more control and freedom of goal-focused shoppers	Wofinbarger & Gilly, 2001	Modahl, 2000
<b>Control and Freedom</b>	Impact of accessibility and convenience, availability of information, lack of sociality, media richness and selection on intention of goal-focused independent shoppers to buy on a virtual dress model and picture Web site	Wofinbarger & Gilly, 2001	

## Methodology

The research methodology of the study consisted of an analysis of the online businesses of 19 apparel firms in the United States. The firms were chosen by the authors based on effective equivalency in products and on reputation in practitioner literature, such as [www.bizrate.com](http://www.bizrate.com), as leading business-to-consumer (B2C) virtual dress model and picture sites with leading products. The sites are indicated in Figure 2. These sites were analyzed by 68 adult graduate students, who were information systems majors on a case study project in a *Strategy for e-Commerce Technologies* course, at the School of Computer Science and Information Systems, of Pace University, in New York City. The sites were analyzed anonymously and independently by the students, in a four semester period of the spring (15 students), summer (23) and fall (17) 2004 and spring 2005 (13) semesters of the course.

The 68 students who examined the 19 sites were knowledgeable consumer subjects, as noted in the literature (Hempel, 2005). Demographics of the students indicate that their average age was 26.57 years, and they were employed full-time (84%) in industry, had high speed technology

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**Figure 2: Research process of the study**

\* Wolfinbarger and Gilly, 2001 Study

\*\* Klein, 2003 Study

at home or in the office (70%), and included female (41%) and male (59%) subjects. They were frequent and intelligent buyers (intervals of 7.65 months) on the Web. The findings however of a study that includes such a small sample of students may not be generalized to a larger population in society without caution. Studies in the literature nevertheless indicate the appropriateness of students in studies of online shopping, inasmuch as students are perceived as mature shoppers on the Web (McKnight, Choudhury, & Kacmar, 2002). Such literature further indicates methodologies similar to this study. The students in this study of virtual dress model sites were realistic subjects.

The 19 firms were examined for design factors that helped in intention to buy casual apparel on their dress model and picture Web sites. Each student was allocated a fictitious but adequate \$1,000 to buy casual apparel of personal choice from one or a number of the sites, but not from the physical stores, in an experimental goal-focused shopping task. The experimental project tasks are indicated in Table 2. Each of the 19 sites, irrespective of the students buying or not buying on sites, was evaluated for helpfulness in buying. The sites were evaluated by each of the 68 students in the Wolfinbarger and Gilly factors of accessibility and convenience, availability of information, lack of sociality and selection and of the impact on control and freedom in shopping. The students concurrently evaluated the Klein factor of media richness. They applied to the factors a six-point scale of 5 = very helpful in intention to buy to 0 = not at all helpful, as indicated in Figure 2, and the data from the evaluations were examined statistically by the authors in fall 2005.

**Table 2: Experimental tasks of e-commerce students as shoppers on the Web**

Task	Description
1	Assume that you are chosen for a casual interview with Mr. Donald Trump in 2005. The interview is for a position on Apprentice III in 2006. You are given \$1,000 to buy casual apparel for the interview. Because you are busy with your employer and with school, you have to buy the apparel from a choice of 19 apparel firm sites on the Web, but not from their physical stores.  (The 19 firms are defined in the distributed checklist instrument of the project.)
2	Consider the actual casual apparel that you desire to buy for the interview.
3	Evaluate each of the 19 apparel Web sites for experience and for online inventory of your desired casual apparel and indicate on the checklist instrument the apparel and the site(s) from which you desire to buy the apparel for the interview.  Take full advantage of the functionality of the sites, including dress models and rooms on the 19 sites.
4	Evaluate each of the 19 apparel sites for their helpfulness in your intention to buy or not buy from the sites. Evaluate the sites by the factors of accessibility and convenience, availability of product information, lack of sociality, media richness, product selection, and impact on your control and freedom in shopping on the sites. Apply an evaluation scale from 5 = very helpful in intention to buy to 0 = not at all helpful and indicate on the checklist instrument. Indicate your allocation of the \$1,000 to the apparel and your intent to buy from site(s) on the checklist instrument.  (The factoring and the scaling are defined in the checklist instrument and were discussed in the lectures of the course.)
5	Submit the completed checklist instrument to the instructor with your apparel choices, evaluations and allocations by the conclusion of the course.

The factoring and the scaling were defined from a checklist instrument, which was discussed and distributed in the course. The instrument was evaluated for the shopping task, by students and two other e-Commerce professors of the university, in the early period of the spring 2004 semester. From the evaluation, the instrument was edited by the authors prior to distribution in the semesters of the course.

Data sets from the examination of the design factors were pre-processed to screen for missing data and outliers and to determine normality (Tabachnick & Fidell, 2001). For a data set to have a normal distribution, it has to have a skewness of 0 and a kurtosis of 3, but none of the sets in the analysis summarized in Table 3 met these conditions and, as a result, were not normal. The general Chebyshev's rule (McClave & Sincich, 2006) suggests that for a given data set at least 0% of the data will fall within one standard deviation of the mean, at least 75% will fall within two deviations, and at least 88.9% will fall within three deviations. Each of 26 data sets in the analysis summarized in Table 3 conformed to Chebyshev's rule, as at least 99.46% to 100% of the sets fell within three standard deviations of the mean.

**Table 3: Analysis of evaluation factors**

	<b>Accessibility and Convenience</b>	<b>Availability of Information</b>	<b>Lack of Sociality</b>	<b>Media Richness</b>	<b>Product Selection</b>	<b>Control and Freedom</b>
<b>Mean</b>	3.9613	3.7647	2.2260	2.3303	3.3839	3.6370
<b>Standard Deviation</b>	0.9256	1.1497	2.0603	1.4695	1.1859	1.0527
<b>Percentage of Data Within One Standard Deviation of Mean</b>	27.16%	52.79%	36.65%	68.34%	52.79%	61.30%
<b>Percentage of Data Within Two Standard Deviation of Mean</b>	96.75%	96.13%	100.0%	100.0%	95.22%	98.14%
<b>Percentage of Data Within Three Standard Deviation of Mean</b>	99.46%	99.23%	100.0%	100.0%	100.0%	99.54%
<b>Skewness</b>	-0.3278	-0.5632	0.1382	-0.0913	-0.1171	-0.2916
<b>Kurtosis</b>	2.2580	2.7843	1.3792	2.2356	2.3484	2.6141

## Findings

The analysis of the evaluations of the students consisted of mean, median, standard deviation, coefficient of determination, and frequency distribution. The data of each of the experience factors of accessibility and convenience, availability of information, lack of sociality, media richness, selection, and control and freedom was analyzed overall and in detail by each of the 68 students on each of the 19 sites and by each of the genders and by each of the semesters. This analysis generated 26 data distribution sets. From the summary of the data analysis, accessibility and convenience (means = 3.9613) in faster response on the sites, availability of information (3.7647) on the sites, product selection (3.3839) on the sites, and control and freedom (3.6370) of the students had higher relative importance than media richness (2.3303), in helpfulness in the intention of the students to buy on the Web sites. The importance of lack of sociality compared to media richness was found to be inconclusive, as lack of sociality (2.2260) had less importance than media richness (2.3303), which was not anticipated by the authors from their literature review. Students, in short, were demanding subjects and were disappointed in non-empathic, non-responsive or slow chat, e-mail or 1-800 interaction on order fulfillment inquiry, on the bulk of the sites.

Lack of sociality and media richness or sophistication had however the lowest mean and the highest standard deviation in most instances of detailed analysis. Media richness had the lowest means in 8 instances and the highest deviations in 11 instances; lack of sociality had the lowest means in 11 instances and the highest deviations in 7 instances. To illustrate, dress model sites 4, 7, 14, 16 and 17 had the lowest means (2.9412, 2.7647, 3.1176, 3.4853 and 2.1765) and the highest standard deviations (0.9756, 1.2231, 1.1529, 1.1907 and 1.1837) in media richness; sites 4 and 16 had the second lowest means (4.1618 and 3.9265) and the second highest deviations (0.9402 and 1.1105) in lack of sociality. Indication is that both of these factors were not helpful in inten-

tion to buy on the sites. A summary of the evaluation of the factors and the means is in Table 3 and of the sites in Figure 2.

Evaluation of the median of the factors indicated that its behavior was influenced by the behavior of the mean, and the mean by the median, as expected. This is the impact of the data set. If a data set is normally distributed, mean and median are equal. However, if a data set is skewed to the left, the median is greater than the mean, and if it is skewed to the right, the reverse is true (McClave & Sincich, 2006). This behavior was evident in the data set of the study, as summarized in Table 3: accessibility and convenience (mean = 3.9613; median = 4), availability of information (3.7647; 4), lack of sociality (2.2260; 2), media richness (2.3303; 3), product selection (3.3839; 3), and control and freedom (3.6370; 4).

Coefficient of determination was additionally analyzed to measure the amount of spread around the mean of one data set attributable to the spread around the mean in another data set of the study. The authors applied a lower limit of coefficient of determination 38.44%, corresponding to a correlation coefficient of absolute value 0.62. Two data sets with at least an absolute value 0.62 and corresponding to at least a coefficient of determination 38.44% was deemed as a meaningful relationship. From the summary of this analysis, 39.21% of the spread around the mean in accessibility and convenience can be explained by its relationship to availability of information, 41.27% and 50.43% of the spread of availability of information can be explained by its respective relationship with selection and control and freedom, and 49.60% of the spread of selection can be explained by its relationship with control and freedom. Further analysis by gender and semester conformed to the correlation criterion. A summary of the coefficient of determination of the factors is in Table 4a.

**Table 4a: Coefficient of determination of evaluation factors**

	Accessibility and Convenience	Availability of Information	Lack of Sociality	Media Richness	Product Selection
Availability of Information	0.3921				
Lack of Sociality	0.0730	0.1542			
Media Richness	0.0739	0.1398	0.1266		
Product Selection	0.1740	0.4127	0.1555	0.1293	
Control and Freedom	0.3412	0.5043	0.2749	0.2522	0.4960

**Table 4b: Correlation matrix of evaluation factors**

	Accessibility and Convenience	Availability of Information	Lack of Sociality	Media Richness	Product Selection
Availability of Information	0.6261				
Lack of Sociality	0.2702	0.3926			
Media Richness	0.2719	0.3739	0.3557		
Product Selection	0.4172	0.6424	0.3944	0.3596	
Control and Freedom	0.5842	0.7102	0.5243	0.5022	0.7042

Correlation between any two of the accessibility and convenience, availability of information, lack of sociality, media richness, product selection and control and freedom factors was also analyzed by the authors and was disclosed to be significant with probabilities less than 0.01. Correlation coefficients of the factors are summarized in Table 4b. Finally, frequency distributions were analyzed (see Table 5). The pattern of responses for accessibility and convenience and availability of information in navigational search tools on the sites was similar, with “very helpful” (5 on

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the 1-5 point scale) in intention to buy most frequently chosen, the highest 5 in the study. Selection and control and freedom were similar, with “frequently helpful” (point 3 on the scale) most frequently chosen by the participants in the study. Though evaluation of media richness was responded with “frequently helpful” most often chosen, its “highly helpful” (point 4) and “very helpful” (point 5) responses were evaluated the lowest in the study. Lack of sociality was responded with “not at all helpful” (point 0) most frequently chosen by the subjects, the highest 0 in the study.

**Table 5: Frequency distributions of evaluation factors**

	Value	Frequency	Percentage
<b>Accessibility and Convenience</b>	0	1.0000	0.0774
	1.0000	6.0000	0.4644
	2.0000	35.0000	2.7090
	3.0000	428.0000	33.1269
	4.0000	352.0000	27.2446
	5.0000	470.0000	36.3777
<b>Availability of Information</b>	0	9.0000	0.6966
	1.0000	41.0000	3.1734
	2.0000	83.0000	6.4241
	3.0000	456.0000	35.2941
	4.0000	226.0000	17.4923
	5.0000	477.0000	36.9195
<b>Lack of Sociality</b>	0	511.0000	39.5511
	1.0000	56.0000	4.3344
	2.0000	87.0000	6.7337
	3.0000	212.0000	16.4087
	4.0000	120.0000	9.2879
	5.0000	306.0000	23.6842
<b>Media Richness</b>	0	211.0000	16.3313
	1.0000	188.0000	14.5511
	2.0000	170.0000	13.1579
	3.0000	525.0000	40.6347
	4.0000	82.0000	6.3467
	5.0000	116.0000	8.9783
<b>Product Selection</b>	0	11.0000	0.8514
	1.0000	45.0000	3.4830
	2.0000	229.0000	17.7245
	3.0000	484.0000	37.4613
	4.0000	198.0000	15.3251
	5.0000	325.0000	25.1548
<b>Control and Freedom</b>	0	6.0000	0.4644
	1.0000	18.0000	1.3932
	2.0000	133.0000	10.2941
	3.0000	468.0000	36.2229
	4.0000	324.0000	25.0774
	5.0000	343.0000	26.5480

Rating Scale: (0) – Not at All Helpful in Intention to Buy, (1) – Somewhat Helpful, (2) – Helpful, (3) – Frequently Helpful, (4) – Highly Helpful, and (5) – Very Helpful

In summary, the analysis of the evaluations disclosed in summary that accessibility and convenience ( $m = 3.9613$ ), availability of information (3.7647), product selection (3.3839) and control and freedom (3.6370) have higher importance than media richness (2.3303) in helpfulness in the intention of goal-focused students to buy on the dress model sites. Lack of sociality (2.2260) has lower importance than control and freedom, selection, media richness, availability of information, and accessibility and convenience. Evaluations of the factors by gender indicated that male stu-

dents rated accessibility and convenience ( $m = 4.0118$ ), availability of information (3.8250), selection (3.4566) and lack of sociality (2.2461) higher than the female students, though the females rated media richness (2.3703) and control and freedom (3.6429) higher than the male students. Further analysis of gender differences could be initiated in another study, as such differences are considered to impact the intention to buy on the Web (Van Slyke, Comunale, & Belanger, 2002). Results of the evaluations by semester were indistinguishable from those discussed in this section. Overall, the results of the statistics in this section confirm the sufficiency of the survey of the students and of the strategy of the study.

## Discussion

*The immediate implication of this study is the higher importance of accessibility and convenience, availability of information and product selection as factors in the intention of goal-focused shoppers to buy on dress model and picture sites.* Immediate inventory of products on most of the sites, improved information on the products, and savings of time on the sites contributed discernibly to control and freedom of the shoppers. Interaction with service or sales staff as needed by students on the sites, as defined in the factor of lack of sociality, contributed less discernibly than the other factors. Findings from the students indicated lower importance in media richness. Study is indicating that further focusing on the fundamental functionality of selection, availability of information, and accessibility and convenience, on simply designed pages of sites (Koufaris, 2002), may be more fruitful for managers, than increased investment in novelty of technology.

*Though media richness is indicated lower in importance in the intention of goal-focused shoppers to buy on the Web, the factor continued as an influence on shoppers.* Multimedia representations of products contributed to control and freedom of the shoppers. Realistic representations (Tamimi, Rajan, & Sebastianelli, 2003) and simple and sophisticated simulations enabled immersion of the student subjects in the mediated setting of the Web (Lombard & Ditton, 1997). Interestingly, the subjects often indicated sophistication of the simulations on specific sites to be indistinguishable from simplicity on other sites in subsequent intention to buy on the sites. Study is indicating that, for marketers, promotion of products to goal-focused shoppers may have to be improved in decreased overload of sophisticated media technology on dress model retail sites on the Web.

*Implications of the study further include the importance of self-service on dress model sites.* Selection of products, availability of information on the products, and convenience contributed to the self-service functionality of the sites. Navigation and product search tools on the higher rated sites of the students contributed distinctly to higher freedom in their intention to buy from the sites. Studies indicate increased investment in self-service systems on the Web, though the investment is lower in retail than in other industries (Alter, 2005, p. 67, 69, 76). This study is indicating that marketers and managers may have to further invest in self-service technologies not only for cost savings, but also for improving the intention to buy of shoppers on the Web.

*The importance of performance management of self-service systems on dress model sites is an implication of the study.* Service on lower rated malfunctioning and response slower sites contributed to limited accessibility and convenience and lower freedom and control for the independent students. Slowness was evident for greater than 12 seconds on these sites, during downloads of poorly designed, compressed or cached images of the models and products and during the initial simulated steps to buy the products. Standards of 12 seconds are indicated in the literature to be a threshold beyond which shoppers discontinue interaction on the sites (Gann, 1999). Such slowness is further indicated in industry studies (Schuman, 2005). Students experienced instances of slowness not only from infrequent analog dial-up, but also from frequent broadband lines at their offices and at School. The study is indicating that managers and Webmasters may

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have to improve monitoring of the reliability and performance on virtual dress model and picture sites, as non-broadband and broadband goal-focused shoppers are on the sites.

*The last implication of this study is the indication that the factors studied serve as a foundation to enhance the experience of goal-focused shoppers on dress model sites.* Firms in the clothing industry are in intermediate if not early stages in implementation of satisfactory shopping and buying sites that simulate stores. Insight from innovation in multimedia technologies and in interaction processes with responsive service and sales staff on shopping sites may help in improving the sites.

## Conclusion

The study furnishes a framework for further exploring factors that impact experiences of shoppers on dress model sites, although the implications of a small sample of students have to be interpreted cautiously. Choice of students inevitably biases implications, as younger age consumers might not appreciate the clothing features of different models. Mid-age and older age consumers might better appreciate enhancing dress models for frequently less than perfect physiques. Richness of the technology might be more important in a sample that includes mid-age and older age consumers. A larger random sample of national consumers of diverse age segments has to be, therefore, considered in a future study. Such a survey may have to distinguish customers who have bought on or have experienced the sites of study from consumers who have not experienced or have not bought from the sites or the stores. Distinction of broadband from non-broadband consumers may have to be considered in a future survey. Inclusion of other factors as price and risk may have to be considered in a survey. The next study may be finally improved in the inclusion of more retailers that are investing in the richness of sites on the Web, not only in apparel but also in other industries.

This study of goal-focused shoppers on virtual dress model Web sites contributes insight into the criticality of differential design factors. Media richness is imputed to be less important than fundamental functionality of product selection, availability of information and convenience and accessibility on the sites. Lack of sociality is also indicated to be less important in the study. Implications of the study include the importance of self-service and the performance management of self-service systems on dress model sites. These implications may be of interest for general management as well as marketing and information systems strategy making.

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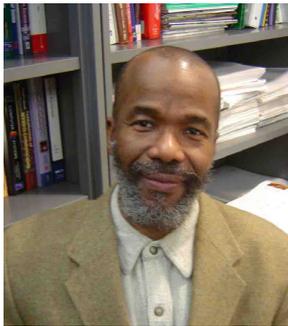
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