

CHAPTER VII: DISSCUSION

Summary

Despite the importance of assortment planning, a reliable process model for assortment planning activities is rarely found in either the industry or the academic arena. However, this is a critical function in retail. The purpose of this research was to develop an established assortment-planning model identifying procedures and activities for women's clothing retail buyers.

This exploratory research built three assortment-planning models: (a) a conceptual model based on secondary data analysis, (b) a practical-use model based on interviews using questionnaire and a set of activity cards, and (c) the suggested model based on the connection analysis of the previous two models. Integrated EDFinition (IDEF) Functional modeling method was used to describe procedures and variables of functional activities of assortment planning and to increase the consistency of a model developing process. The variables of functional activities were determined as input, mechanism, constraint, connection, and output based on IDEF0 diagram format.

In developing the conceptual model, this research categorized and organized the pieces of assortment planning activities illustrated in available literature. Many of these references were conceptual and lack of empirical evidence. The conceptual model contained abstract procedures and abstract concepts of assortment planning: problem recognition, information search, qualitative evaluation, quantitative evaluation, forecasting product selection, and forecasting sales plan.

In developing the practical-use model, ten women's dress buyers from department stores and specialty stores were interviewed. The company size of interviewees varied from small local companies with gross sales of 2.0 million dollars to big companies with gross sales of 501.0 million dollars. The job experience of interviewees was diverse ranging from three years to twenty-two years. An interview scenario and activity cards were used to control the direction and consistency of the interview. Interview records were transcribed as text, and activity cards were clustered in order by research variables. The contents of the text were classified and summarized by concepts and variables, and interviewees validated the summary. Validated summaries were combined and recontextualized for the practical-use IDEF0 model. The practical-use model was more detailed and included more qualitative mechanisms than the conceptual model. All terms

provided by the interviewers were included in the practical-use model.

To determine the final suggested assortment-planning model from this research, five experts compared the two models, adjusted the discrepancies, and combined the two models into the suggested model. A questionnaire including all functional activities for the final suggested model was sent to interviewees to ascertain the validity of the suggested model for their companies. Seven interviewees answered the questionnaire and validated all functional activities except one functional activity, observing street trend. Low validity of this functional activity was noted in the final suggested model. The abstract level (A0, A00) of the suggested assortment-planning model included the following concepts: (a) problem recognition, (b) information search, (c) qualitative evaluation, (d) quantitative evaluation, (e) product selection plan, and (f) plan sales.

Discussion

Differences between Conceptual and Practical-Use Assortment Planning Model

An abstract process figure (A1-A7) (Figure 2A) from the conceptual model was used as a reference figure for the interviews, and most interviewees validated the abstract figure. The abstract level of processes for the two models were not significantly different except for the changes made from forecasting product selection to product selection and from forecasting sales to determining order quantity. These changes were not conceptual changes. However, on the operational levels, the two models were significantly different. The practical-use model had more detailed activities, similar to an operation manual. As mentioned earlier, experts who participated in connection analysis suggested that they would adopt the abstract process of the conceptual model as the abstract process of the suggested model and the operational activities of the practical-use model as the operational activities for the suggested model. The experts' opinion meant that in the abstract process level, the conceptual model was more logically understood, but on an operational level, the practical-use model was more organized and easy to follow. The difference of operational activities between the two models might be caused by the following reasons: (a) some research references were not directly applicable to clothing retail buyers; (b) no empirical research was available about operational activities for assortment-planning; and (c) operational activities from the conceptual model were too abstract to be followed by clothing

retail buyers.

The inputs and constraints for problem recognition in the conceptual model were similar to those for problem recognition in the practical-use model; however, the mechanisms were very different. The mechanisms for problem recognition in the conceptual model, defining desired state and realizing discrepancy between desired state and current state (Wilkie, 1994), could be considered abstract mechanisms in the practical-use model. Defining desired state could be explained as realizing customer needs and considering factors of market change. Realizing discrepancy between desired and current state could be explained as realizing the reasons of over stock items. Experts who participated in connection analysis suggested that the mechanisms in the conceptual model were too abstract, but the mechanisms of the problem recognition in practical-use model could be classified into three or four functional activities. Wilkie's (1994) concepts were originally applied to consumer decision making process; Therefore, the concept might not be directly applied in retail decision making process. The adopted mechanisms of problem recognition from Wilkie's consumer decision making process (1994) could be partially applied to clothing buyer's assortment planning process but not exactly matched to the clothing buyer's concepts related to problem recognition.

As with problem recognition, inputs and constraints for fashion forecasting were similar between the two models, and the mechanisms were different. With no empirical research that clearly identified the mechanisms of fashion forecasting used by retail buyers, this researcher expected quantitative analysis method, similar to fashion life cycle analysis (Atkinson, 1995; Donnellan, 1996), to be part of the mechanisms of fashion forecasting; however, none of interviewees adopted quantitative analysis methods for fashion forecasting. This discrepancy could be caused by two reasons: (a) fashion trend analysis was not useful to the assortment-planning process by clothing retail buyers, or (b) clothing retail buyers felt that the trend analysis was a complicated activity that took too much time. The interviews showed that the mechanisms of fashion forecasting in the practical-use model were more applicable for information search than for fashion forecasting in the conceptual model, because of the similarity of functional activities and time constraints. For the final model, therefore, experts suggested that the information search include fashion forecasting. Because the mechanisms of fashion forecasting activity were classified and placed under style, color, and size information search in the connection analysis, the mechanisms of information search in the suggested model could be

classified as activities related to new trend, activities related to current and past situation, and summarization. This classification agreed with Shim and Kotsiopulos' (1991) suggestion that the information search process may be differentiated by type of buy, such as novel, modified, and straight rebuy.

Because much research related to information sources existed (Anthony & Jolly, 1991; Clodfelter, 1993; Francis & Brown, 1985; Kline et. al., 1990; Marzursky & Hirschman, 1987; Miller & Drake, 1987; Packard et. al., 1983; Shim & Kotsiopulos, 1991), the inputs and constraints of information search were very similar between the two models. However, the mechanisms of the information search in the conceptual model were still too abstract for clothing retail buyers to follow. Five experts agreed on the mechanisms in the practical-use model and wanted a more hierarchical structure with a more abstract level and operational levels. The information search mechanisms in the conceptual model were not as elaborate as in the practical-use model. The discrepancy between the two models was caused by the lack of detailed references and no empirical research for the conceptual model.

Inputs, constraints, and mechanisms of qualitative evaluation were different between the two models. In the conceptual model, evaluation criteria alone were used as inputs, but in the practical-use model, merchandising concept, evaluation criteria, and opinions were used as inputs for qualitative evaluation. Interviewees confirmed the evaluation criteria from the conceptual model and additional inputs in the practical-use model. Regarding mechanisms for qualitative evaluation, rating satisfaction and ranking importance could be subconscious activities using evaluation criteria. When a clothing retail buyer predicts the product's sales ability, gathers opinions, and considers product price, the buyer may not actually rank importance and rate satisfaction of the product in a written format, but the buyer may rate satisfaction and importance of style in mind to form an opinion. As mentioned, none of the interviewees used an established evaluation sheet or report for qualitative evaluation.

The most notable difference between the conceptual model and the practical-use model was found in the quantitative evaluation stage. As mentioned in Chapter 5, interviewees were confused by quantitative evaluation and sales forecasting because they had already finished sales forecasting mechanisms of the conceptual model in the quantitative evaluation stage. After the quantitative evaluation stage, interviewees could get overall sales figure for each assortment, which meant that clothing retail buyers would use the mechanisms of sales forecasting from the

conceptual model in the quantitative evaluation stage in the practical-use model. Therefore, the mechanisms for quantitative evaluation in the conceptual model could be compared with the mechanisms for sales forecasting in the practical model. Forecasting sales in the conceptual model was labeled as determining order quantity in the practical-use model and contained concepts of specific quantity for ordering.

The mechanisms of sales forecasting in the conceptual model were adopted from sales forecasting methods used for other businesses (Gordon et. al, 1997; Goodman, 1954; Hurwood et. al, 1978; Key, 1972; and Khan & Mentzer; 1995). Interviewees did not mention these quantitative analysis methods as their mechanisms. Thinking that buyers might not know quantitative analysis methods, the researcher asked a person in the Inventory Control Department who took part in sales data analysis. This person did not use many analytical statistics except for decomposing and regression analysis. The person said, that decomposing sales record by style, color, and size and analyzing sales pattern by time frame, were the most advanced sales data analyses in his company. The person also explained that he could not determine the adaptability of advanced statistical methods for clothing products because he did not use it. The reason for discrepancy between the two models could not be identified from this research.

The inputs of product selection were similar between the two models. The mechanisms of product selection in the conceptual model were characterized as psychological selection rules. One psychological selection rule, a conjunctive rule, could be applied for the product selection in the practical-use model. Based on the mechanisms of product selection in the practical-use model, most clothing retail buyers adopted a conjunctive rule. Clothing retail buyers first decided merchandising concept, key items, price range, and quality range; second, eliminated alternative products in their selection process; and then selected the best products based on evaluation results. This finding supported Kang's research results (1995) that the conjunctive rule was the most frequently used product selection rule in the clothing buying process.

Influence of Company Type in Assortment Planning Model

This research found few differences in assortment planning process between different store types, with the exception of importance of the vendor's role. In department store companies, vendor reputation and vendor opinion were important inputs for evaluation. Buyers from specialty stores mentioned that vendor reputation did not focus on this input.

This research found differences in the assortment planning process, including inputs and constraints, by company size. This finding supported the research conclusion by Herbig, Milewics, and Golden (1993) that found significant difference in the buying process between large and small companies. However, sample size is small. Thus generalization are made with caution.

In big companies, clothing retail buyers focused more on basic products in their assortment because of the difficulty in adjusting to fast fashion change with a long time advance plan. To adjust to fast fashion change, clothing buyers in big companies had separate time schedules for basic products and trendy products. Therefore, clothing retail buyers in big companies could have difficulty in keeping a balance between trendy products and basic products in an assortment plan. Clothing retail buyers in big companies were cautious to analyze customer requests due to low reliability of these requests. In big companies, sales data analysis and size assortment planning was done by Inventory Control Department or Financial Department. Fashion forecasting was done by fashion forecasting teams. The sales record was kept of file for more years and considered to be more important in big companies than in small companies.

In small companies, buyers selected the minimum amount of products to see customer response at the beginning of the season in the evaluation stage and determined reorder quantity of successful products within a short time. Clothing retail buyers in small companies could be more flexible with assortment planning due to a short time buying schedule and frequent contact with customers. However, clothing retail buyers in small companies could have more limits in color and size selection due to vendor's regulations for small volume buying than big companies could have.

To compromise the difference of assortment planning by company size, the suggested model included all explanations of variables mentioned by interviewees with a notification of difference. Although differences are noted between big and small companies, the suggested model, which included all explanations of variables, was validated by interviewees from both big and small companies. To create a more refined model, the assortment-planning model could be developed for a company size cluster: assortment-planning process for big companies and assortment planning process for small companies.

Conclusion

To complete assortment planning, clothing retail buyers recognize problem (A1), search information to resolve the problem (A2), evaluate qualitative and quantitative value of products based on information search outputs (A3, A4), select product based on evaluation outputs (A5), and finally plan an assortment sales plan for the selected products (A6) (see Figure 9-2). The operational activities for A1, A2, A3, A4, A5, and A6 are categorized as style, color, and size related activities.

Differences between the conceptual model and the practical-use model existed. Inputs and constraints were similar for problem recognition, but mechanisms were different. The mechanisms for problem recognition were adopted from the practical-use model, but more hierarchically categorized as in the conceptual model. Inputs for information search were similar between two models; however, the mechanisms and constraints for information search in the suggested model followed those in the practical-use model. For the suggested model, information search included fashion-forecasting activities. Inputs, constraints, and mechanisms of qualitative evaluation in the practical-use model were used in the suggested model. The most significant differences between the two models were found in the stages of quantitative evaluation and sales plan. The inputs, mechanisms, and constraints for quantitative evaluation in the suggested model were adopted from the practical-use model. The inputs, mechanisms, and constraints for product selection in the suggested model were adopted from the practical-use model. The sales plan in the suggested model adopted the abstract level functional activity (A61, A62, A63) from the conceptual model and the operational level functional activity (A611, A6111 *et. al*) from the practical use model.

In summary, the suggested model adopted the abstract process (A0, A00) of the conceptual model for logical explanation and the operational activities (A000, A0000, A00000) of the practical-use model for detailed activity instruction. Detailed processes and operational activities are illustrated by IDEF0 diagram (see Figure 9, 1 to 88). Inputs, functional name, mechanisms, constraints, outputs, and mechanisms are specified for each functional activity (see Figure 9, 1 to 88). The information is in more detail than found in any current academic textbook.

Store type did not significantly affect the difference assortment-planning process;

However, assortment planning was differentiated by company size. The suggested model included all explanations from big companies and small companies and categorized then by prevalent abstract concepts. Despite limits in the suggested model, validation survey results revealed that the suggested model was acceptable for both big companies and small companies.

Seven interviewees from both big and small companies participated in the validation survey. All four functional activities under problem recognition were validated by the participating interviewees. Style and color information activities in the suggested model, except for observing street trend, were accepted as search activities by participating interviewees. All activities in size information search were validated by a majority rule. Interviewees validated the functional activities for qualitative and quantitative evaluation and product selection. The functional activities of sales plan were validated by majority rule. Interviewees accepted the suggested model as their assortment-planning model. An interviewee participating in the validation survey commented on the suggested model, “This is an incredibly thorough study. I am really impressed.”

Limitations of Study

To build an assortment-planning model, exploratory research was required because no research was available for establishing a clothing assortment-planning model. Because of the characteristics of the exploratory research, this research is a descriptive indication of variables and factors for an assortment-planning model based on available literature and interviewees. The importance and relationship for levels of variables and factors in the suggested model were not tested in this research. Further research is also required to develop models for more specific applications. However, the trustworthiness of these results were verified by an interviewee validation process. The reliability of the model-developing process and research methodology was obtained by adoption of a research framework established by Regan (1997) and established data analysis methods, the IDEF0 model.

To obtain the depth of information for the practical-use model, this research adopted interviews as a data collection method. Sample size was limited due to long interview hours and validation process for each interviewee. The samples, including companies and buyers, were selected with judgement sampling criteria as validated in previous research. However, the

generalizability of this research could be limited due to a small sample size. As mentioned in the conclusion, interviewees in big companies did not take part in all activities in assortment planning process. For example, sales analysis could not be identified in detail because it was done by separate people. For future research, a company-wide assortment planning process could be developed with more detailed explanations.

The limitation of this research due to qualitative research are illustrated; However, limitations can provide direction for future research. The qualitative research provides a basis for many future research projects: (a) to develop better educational methods for a clothing buying process; (b) to develop more accurate assortment plans; (c) to reduce constraints in assortment planning of fashion sensitive goods; and (d) to develop a computer program for assortment planning.

Recommendation

Future research possibilities were revealed by this research. A major future research project is the quantitative investigation to refine the model and to confirm the generalizability of this model for clothing retail buyers. To refine the model, the research variables could be any of the following: (a) company type, (b) importance of each functional activity, (c) importance of inputs, (d) impacts of constraints, and (e) procedure of functional activities.

A company-wide case study of assortment planning could be valuable. From the case study, more detailed mechanisms and inputs could be revealed, and the applicability of the suggested assortment planning model could be tested. One interviewee who validated the suggested model wrote that she had already discussed with other buyers the use of the suggested model as a reference. If possible, the effectiveness of the suggested model in developing an assortment-planning model could also be tested.

This research adopted IDEF0 modeling methods. The suggested assortment planning model could be applied on different operational levels. At abstract level functional activities (*e.g.*, A0 level and A00 level), the model could be studied for the conceptual relationship among variables of the high operational activities: inputs, mechanisms, functional name, constraints, and outputs. At lower operational levels (*e.g.*, A000, A0000, and A00000), the models could be used as a manual to develop an assortment plan.

All interviewees mentioned that they did not use an established information organization

system or any established evaluation system. An established organization system might reduce time constraints to search and better analyze information. An established evaluation sheet might help to control the evaluation process and obtain more objective and accurate evaluation results. Development of the system could be a future project.

The quantitative evaluation methods in clothing retail companies were less advanced than ones in other industries; However, this researcher thought that would require the most advanced quantitative evaluation techniques would be the clothing retail companies. The lack of advanced quantitative evaluation methods could be caused by many reasons: (a) uniqueness of interviewees, (b) lack of advanced computers or software, (c) limited buyer knowledge related to sales forecasting, and (d) lack of previous research. Limited research directly related to sales forecasting methods for clothing assortment planning exists. Inventory Control Departments could be contacted for further research to identify detailed quantitative evaluation methods used by big companies and to identify the reason for discrepancies in quantitative evaluation mechanisms between the conceptual model and the practical-use model.

Many constraints in assortment planning were revealed. Constraints in assortment planning and strategies to reduce the constraints could be different by company type, store type, and company location. Research related to these variables may be interesting for buyers.

This research studied the assortment-planning process of clothing retail buyers. In small companies, the color and size selection and quality were controlled by manufacturer's pre-package. A study related to manufacturers pre-package would be valuable, especially if it reveals how to determine pre-package assortment and agreement with buyers. A study should also be done about assortment planning from the manufacturer's perspective.

In this research, taking time was explained as affecting assortment planning strategy and assortment plan. An interviewee said that application of POS data was limited by manufacturer's production schedule. A case study of a company who successfully applied Quick Response system into assortment planning activities would be a good reference for buyers.

Finally, an interviewee suggested a research project based on the customer demand of style, color and size by different geographic area. The interviewee said that research revealing the relationships between customer characteristics and geographic area would be very useful. The research, which could be a large research project or a small practical report, would certainly be beneficial to industry and academic field.

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APPENDIX

APPENDIX A

Data Collection Instruments

A-1: Interview Request Letter & Information Package

Department of Near Environments
College of Human Resources
Blacksburg, Virginia 24061-0410
FAX: (540)231-3250 E-Mail: kekang@vt.edu

April 30, 1997

Interview-Request Letter

Retail Company Manager Name
Company Name
Street Address
City, State, Zip code.

Dear manager's name:

Realistic demand forecasting for a fashion product is a challenging task in today's consumer environment. Buyers often state that assortment planning is the most difficult part for buying decision-making. In this age of computers and complex data analysis, assortment planning still depends on a retail buyer's intuition. When a buyer's judgement is not correct, the sales loss can be fatal for the company.

For my dissertation research, I am developing an assortment-planning model that can be used to quantify decision-making and to reduce the risk in buying. I have working experience with two women's clothing companies and have finished course work in Clothing and Textiles and retail management. I know that input from active buyers is vital to the success of the model.

The research project is guided by Dr. Doris H. Kincade, Associate Professor of Clothing and Textiles at Virginia Tech. Dr. Doris H. Kincade is a distinguished researcher regarding Quick Response systems and retail management. She has supervised several projects that have proven beneficial to the participating retailers.

Please read carefully the attached prospectus about the project and recommend one of your women's dress buyers to participate in this research. The dress buyer should have more than 3 years experience in women's clothing buying and have attended at least one retail-management education program. When you have selected the buyer, send me a fax of the attached approval form.

By participating in this research, you have the opportunity to contribute to this groundbreaking model. If you have questions about this project, you may contact me at 540 231-6179 or Dr. Kincade at 540 231-7637. If you have questions about the research, you may contact Tom Hurd, Virginia Tech Research Office at 540 231-9359.

Sincerely
Keang-Young Kang ABD
Ph.D. Candidate

Doris H. Kincade Ph.D.
Associate Professor

Protocol for “Development of An Assortment Planning Model for Fashion Sensitive Products ”

I. Justification

Many sophisticated information-search techniques have been applied to the forecast of consumer wants for product development in recent years; however, retail buyers have difficulties in organizing, analyzing, and implementing the data for an assortment plan. Assortment planning processes of fashion-sensitive products for a season still depend heavily on retail buyer's intuition. No research related to an effective assortment-planning model is found in the literature.

II. Purpose of Study

This study is designed to develop an assortment-planning model for women's clothing retail buyers by integrating the conceptual assortment-planning process with the practical-use assortment-planning process. From this research, an assortment-planning model will be developed to assist clothing retail buyers.

III Sample & Audio Tape Recording

The researcher will interview one women's dress buyer in ten selected retail companies. The retail companies will be purposively selected for their product types, location, and size. The interviewee will be the person who has responsibility in buying women's dresses, has more than three years women's clothing buying-experience, and is recommended by the manager. Interview and Observation will be audio recorded. These tapes will be heard only by Ms. Keang-Young Kang (principal investigator) and Dr. Doris Kincade (Ph.D. advisor). The tapes will be stored in the researchers' office during transcribing process. The tapes will be destroyed after completion of the Dissertation.

IV. Procedures

This research has three phases: (a) conceptual assortment-planning model development by secondary data analysis, (b) practical-use assortment-planning model development by interview, and (c) suggested model development by connection analysis of previous two models.

The data collection with interviewees will be as following:

1. Interview
 - Flexible interview with open-end questions (10 to 15 minutes) (Sample attached).
 - Q-Sorting with a set of activity cards developed from the conceptual planning model (20 to 25 minutes) (Sample attached).
 - In-depth interview with specific questions regarding each activity (90 to 100 minutes) (Sample attached).
2. After finishing interviews, the researcher will send a summary of the transcript for validation. After validation, the researcher will develop the practical-use assortment-planning model.
3. The researcher will revisit interviewees and ask for validation of the new model (combination of conceptual model and practical-use model) with a simple evaluation questionnaire (about 60 minutes) (Sample attached).

V. Extent of Anonymity and Confidentiality

1. There is no risk to the interviewees.
2. The individual results of this study will be held confidential by the researcher and her adviser.
3. Subjects will be informed of the project and asked to their willingness for interview by interview-request letter.
4. The researcher and her adviser will be the only persons to have information about individual companies and the identifying data from interview.
5. Interviewees will receive consent information regarding the research and will sign before participating in the study (Approval form attached).
6. Interviewees will not receive any information about the other individual interviewees.
7. Published information will only contain aggregate data.
8. Virginia Polytechnic Institute and State University will keep an intellectual properties copyright.
9. The researcher and advisor will publish research from the Dissertation. This will be written in a non-proprietary manner, and if indicated as necessary at the time of consent for the research, data will be cleared with the appropriate manager, before publication.

VI. Benefit of This Research

This research will provide several benefits for the participants:

1. The participating companies will gain the researcher's expertise to the assortment-planning process.
2. The final suggested assortment-planning model could be groundwork for developing an effective assortment-planning model for any participating company.
3. The final suggested assortment-planning model could provide a foundation for building specialized software for any participating company.
4. The participating companies can gain important knowledge of retail buying with no cost for relatively short time spent with the researcher.
5. Industry consultants and academic researchers can use this model as a foundation for future research, because it will be the first empirically tested model.

VII. Biography of Researchers

The investigator is Keang-Young Kang, a Ph.D. candidate, in the Clothing and Textiles program area within the Department of Near Environments. She finished graduate studies and is conducting her dissertation. Her major interest is clothing industry business management. She has work experience in two apparel companies. She has received training for interview techniques in EDRE 6614, Qualitative Research Method class.

The advisor investigator is Dr. Doris H. Kincade, Associate Professor in the program area of Clothing and Textiles with the Department of Near Environments. Dr. Kincade has been conducting research with the clothing industry for 10 years. She has supervised dissertation projects with both qualitative and quantitative research methods.

Sample Flexible Interview Questions

1. Could you draw arrows to connect the activities to indicate your clothing buying process?
Please use this red pen and this flow-chart.
2. How can you define the assortment planning process? Please write your definition in this notecard.
3. How long does assortment-planning take? How frequently do you develop an assortment plan within one year?

Sample Q-Sorting Cards

CompanyNo.:1		Constraint	
information search outputs	Qualitative Evaluation - Style -		Selection a line
Inputs		Outputs	
No.____	Mechanism Rating preference	Connection Color selection	A0 No.:____

Sample Specific Interview Questions

1. Could you describe the inputs for this activity?
2. What can be the outputs of this activity? What are the results of this activity?
3. Could you describe the detailed mechanism of this activity?
4. This question is regarding the number of this card. If this activity is connected with other activities or can be done at the same time with the other activities, what can be the other activities?
5. Is this activity necessary for the assortment planning? If necessary, why?
6. If there is constraint or limit for this activity (for example, limited price range decided in previous stage, target market consideration), what is that constrain?

Please send a fax of following 2 pages after answering all questions:

Fax No: (540) 231-3250

Mail: Virginia Tech, Dept. of Near Environments, 101 Wallace Hall, Blacksburg, VA 24061

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Informed Consent for Participants of Investigative Projects

Title of Project: Development of An Assortment-Planning Model for Fashion Sensitive Products

Principal Investigator Keang-Young Kang

I. THE PURPOSE OF THIS RESEARCH/PROJECT

You are invited to participate in a study about Assortment Planning. This study involves experimentation for the purpose of Retail management development.

This study involves 10 subjects in addition to yourself.

II. PROCEDURES

The procedures to be used in this research are Interviews that are audiotape recorded.

The time and conditions required for you to participate in this project are 120 minutes over 2 interviews.

The possible risks or discomfort to you as a participant may be: No Risk.

Safeguards that will be used to minimize your risk or discomfort are: You DO NOT put your name on the Tape recording. Only the researcher and her advisor have access to the Tapes. You cannot be identified in the results.

III. BENEFITS OF THIS PROJECT

Your participation in the project will provide the following information that may be helpful: Retail assortment planning process. No guarantee of benefits has been made to encourage your to participate.

You may receive a synopsis or summary of this research when completed.

Please write your name and address on the space indicated

Company Name: _____ Interviewee's Name: _____

Company Address: _____

FAX: _____ E-mail: _____ Phone: _____

Please provide more information about the interviewee. It will be helpful to select participants.

Interviewee's Job Experience: _____ Interviewee's Job Position: _____

Retail Educational Program Attended: _____

IV. EXTENT OF ANONYMITY AND CONFIDENTIALITY

The results of this study will be kept strictly confidential. At no time will the researchers release the results of the study to anyone other than individuals working on the project without your written consent. The information you provide will have your name removed and only a subject number will identify you during analyses and any written reports of the research.

V. COMPENSATION

You will receive compensation for your participation.

VI. FREEDOM TO WITHDRAW

You are free to withdraw from this study at any time without penalty.

VII. APPROVAL OF RESEARCH

This research project has been approved, as required, by the Institutional Review Board for projects involving human subjects at Virginia Polytechnic Institute and State University, by the Department of Near Environments.

VIII. SUBJECT'S RESPONSIBILITIES

I know of no reason I cannot participate in this study.

Signature

Please send a fax of above two pages including this page

Fax No: (540) 231-3250

Mail: Virginia Tech, Dept. of Near Environments, 101 Wallace Hall, Blacksburg, VA 24061

Please keep this sheet for your questions.

IX. SUBJECT'S PERMISSION (*Provide tear-off for human subject to keep*)

I have read and understand the informed consent and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent for participation in this project.

Should I have any questions about this research or its conduct, I will contact:

<u>Keang-Young Kang</u> Student Investigator	<u>231-6179</u> Phone
<u>Doris Kincade</u> Faculty Investigator	<u>231-7637</u> Phone
<u>Rebecca Lovingood</u> Department Reviewer	<u>231-6179</u> Phone
<u>Tom Hurd</u> Chair, IRB - Research Division	<u>231-9359</u> Phone

Appendix A-2: Appointment Letter

Department of Clothing and Textiles
College of Human Resources
Blacksburg, Virginia 24061-0410
FAX: (540)231-3250 E-Mail: kekang@vt.edu

Retail Company Manager XXX
XX Company
Street Address, City,
State, Zip code. FAX: 000-000-0000

Dear Interviewee's name: I appreciate your reply to my interview-request letter. I believe that the interview will provide considerable benefits for academic research and for your company. I would like to make an appointment for the interview. Will you be available to meet with me at your company on one of the following days: 6/23, 6/25 or 6/27/98? I can meet with you any time after 2:00 p.m. on one of these days. Please give me a phone call (540 231-6179) or fax me (540 231-3250) to tell me the exact time.

The initial interview will take approximately two hours. The interview will include the following contents.

1. Brainstorming for assortment planning (15 min.):

We will discuss what is your buying process and the difficulties of assortment planning.

2. Q-Card sorting for assortment planning model development (25 min.)

You will reorganize detailed assortment planning processes by using pre-developed activity cards.

3. Specific Questions (70 min.)

You will be asked to explain the inputs, outputs, mechanism, and constrain for each activity in the reorganized assortment-planning model.

We will schedule the follow-up interview when we first meet. Thank you for your participation. I believe our discussion will provide profound insights into the buying process for your company and for academic research.

Sincerely

Keang-Young Kang, ABD
Ph.D. Candidate
Professor

Doris H. Kincade, Ph.D.
Associate

APPENDIX B

Sample Interview Script

I. Flexible Interview Questions

Flexible Interview Time: Total 15 minutes

Equipment: Figure 1 & 2/ A pencil and empty notecards/ Red Pen/ Audio Tape Recorder and audiotapes.

Welcome

(Total 3 minutes).

Hello.

Thanks for your willingness to serve as a participant in this research.

My name is Keang-Young Kang. I am a Ph.D. student at Virginia Tech.

As you know, the purpose of this research is to investigate the assortment-planning process by women's clothing retail buyers.

The information that you share is very important and will be used to improve your assortment planning process and the women's retail industry. The results of the final assortment-planning model developed by this research can be sent to you at the conclusion of the research.

It is very important that during this interview you be completely honest. I hope you will share your opinions openly. Please consider that there are no right or wrong answers, rather your accurate job experience.

During the discussion, feel free to ask anything for clarification when necessary. Confidentiality is important. Any information reported in the analysis will be reported under a company number not under a company name. Your demographic information will be used only for validation of research subjects. After finishing this research, the tapes will be erased.

Introduction

(Total 15 minutes)

As I have already mentioned, my purpose today is to investigate your assortment planning for women's dress buying. SHOW FIGURE A1 & A2 TO PARTICIPANT

The clothing retail buying process can be categorized as planning sales goal, planning stock, planning inventory control, assortment-planning process, and vendor selection. In this research the early stages of buying process do not have details because this research only investigates how you make quantity decisions and qualitative decisions for product mix arrangements or assortment planning.

The assortment planning process can have four stages: problem recognition, information-search, qualitative evaluation or quantitative evaluation, and selection of a product line and quantity decision for a specific brand, color, and style. Problem recognition represents the first step of a decision-making process. Information search means the activity to reduce the uncertainty associated with assortment planning. Qualitative evaluation is the desired solution to a problem which involves establishing qualitative criteria for selecting products. Quantitative evaluation is the desired solution to a problem which involves establishing quantitative aspects of product evaluation. Fashion forecasting can be involved with both qualitative evaluation and quantitative sales forecasting. Forecasting product selection means determining combination of styles, depth and width of assortment which can satisfy target consumers. Forecasting short term sales means determining quantities of styles, color, and sizes. I would like to ask you some questions regarding this figure.

Q: Could you draw arrows in this figure to draw your clothing buying process. Please use this red pen.

GIVE RED PEN AND THE FIGURE 1 (2 MIN.)

IF THE PARTICIPANT CHANGED SOMETHING IN THE PROCEDURE ASK THIS QUESTION.

(TAPE RECORDING SHOULD BE STARTED AT THIS TIME)

Q: You changed the procedure, please explain why you changed procedure.

Q: How do you define assortment planning? Please write your definition.

GIVE A PENCIL AND AN EMPTY NOTECARD (2 MIN.)

EXPLAIN: This research investigates how you decide the quantity and variety of goods that a

retail company offers for sale at any time.

Q: How long does one assortment planning process take? How frequently do you develop an assortment plan within a year?

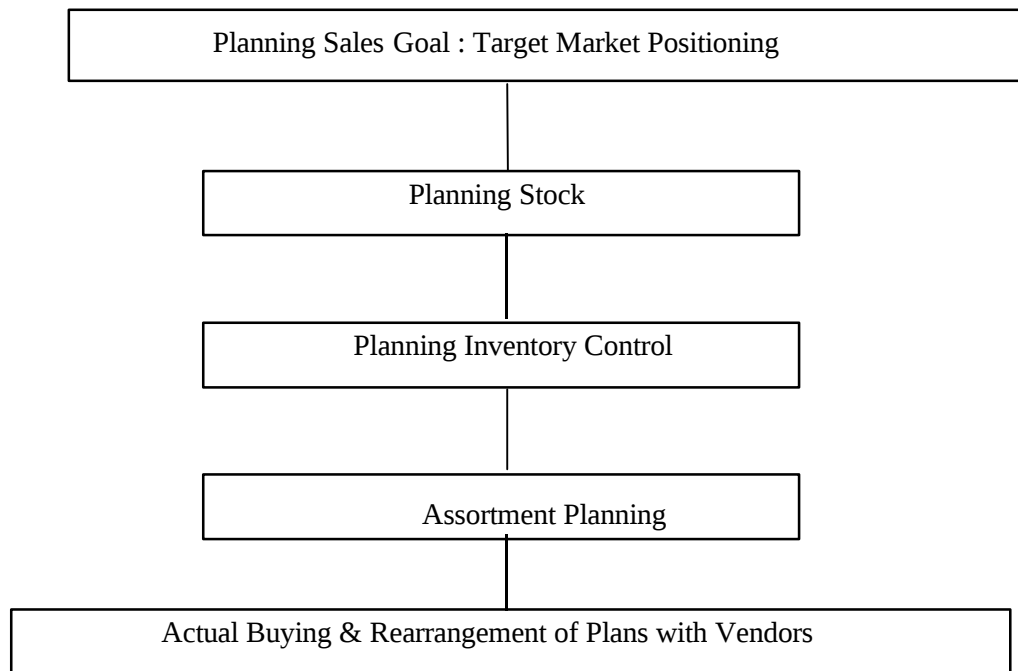


Figure A1. Retail of Retail Clothing Buying Process Model

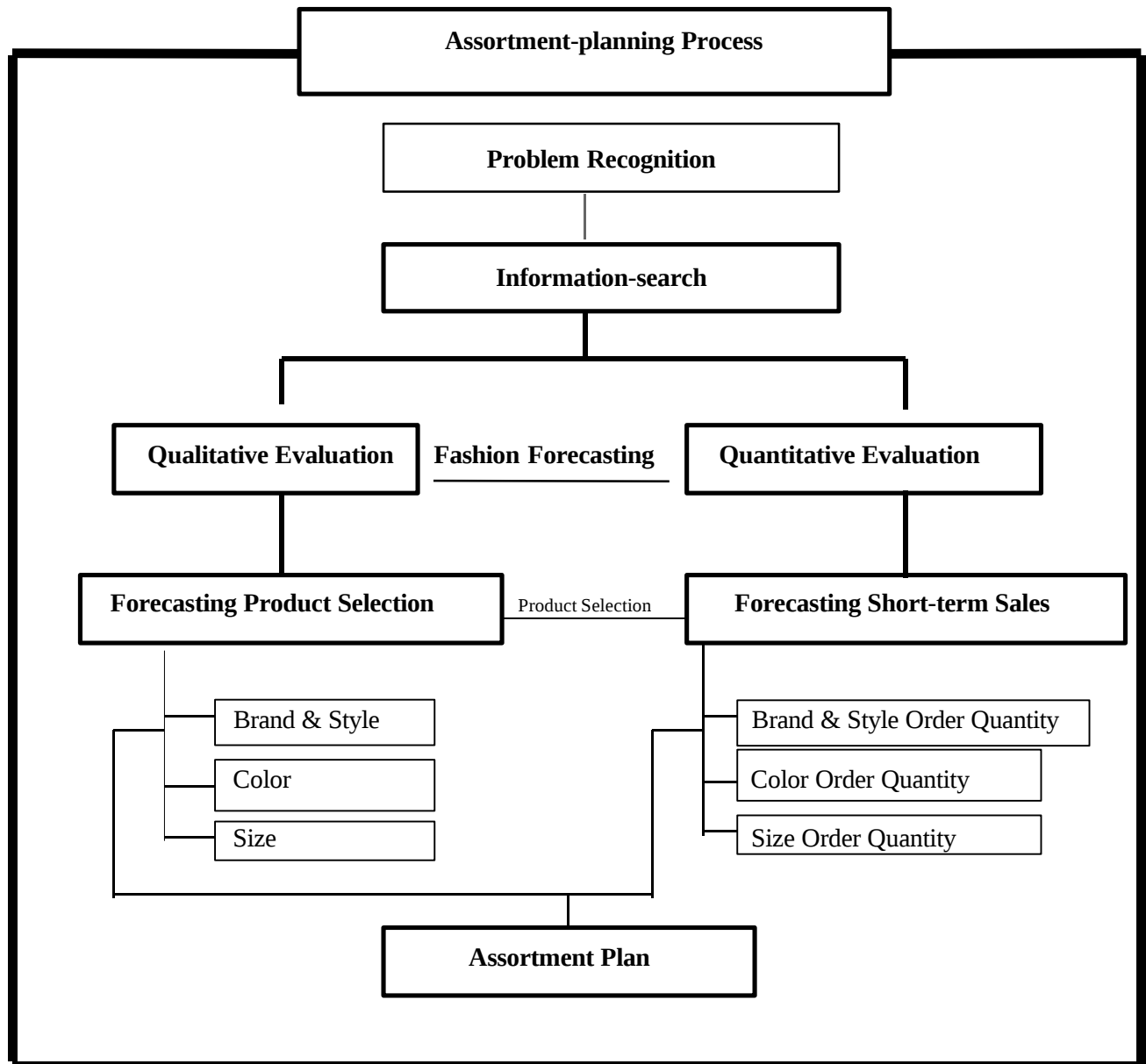


Figure A2. Assortment Planning Process Model

Closing Flexible Interview

Q: What are difficulties in assortment planning based on your experience? Could you give me an example of that? (Total 2 -3 minutes). QUIT TAPE RECORDING

EXPLAIN: That's why this research is necessary for retailers.

II. Q-Sorting Cards Example (Tape Recording & Writing)

TIME: Total 25 minutes.

EQUIPMENT: Figure A3/ Activity Cards/ Empty Activity Cards/ Construct-Consistency board/

Pencil for numbering and writing.

Explanation of IDEF0

(Total 5 minutes.)

I will create the assortment-planning model by using IDEF0 diagrams after all the interviews. For your understanding, I will briefly explain this IDEF0 activity card.

SHOW A SIMPLE ACTIVITY CARD.

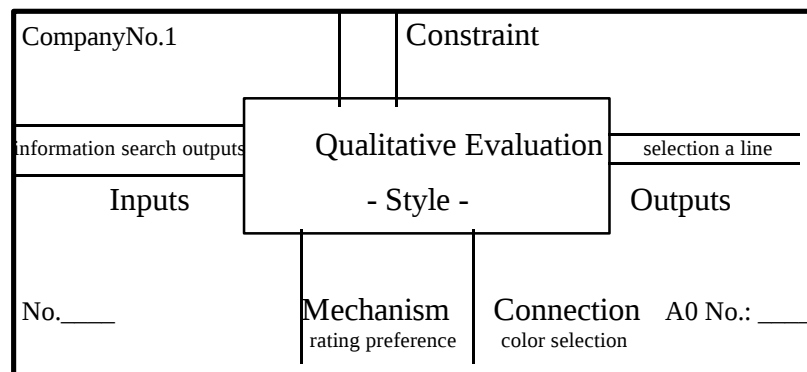


Figure A3. Sample Activity Card

The name in the center box represents a functional activity unit of an assortment planning. The number on the bottom-left is a sign for the order of the activity. The number on the bottom-right means the operational level of the functional activity. For example, qualitative evaluation can be an abstract term, and qualitative evaluation can be categorized to style, color, and size specific for the store.

Don't change the number of upper-left, because the number represents your company number.

The left arrows of the center box illustrate inputs for the activity. The right arrows of the center box explain outputs for the activity. The under-left arrow of the center box illustrates the

mechanism of the activity. The under-right arrow of the center box illustrates connection with other diagrams. I will show an example of an IDEF0 model.

SHOW FIGURE A4. SAMPLE IDEF0 MODEL

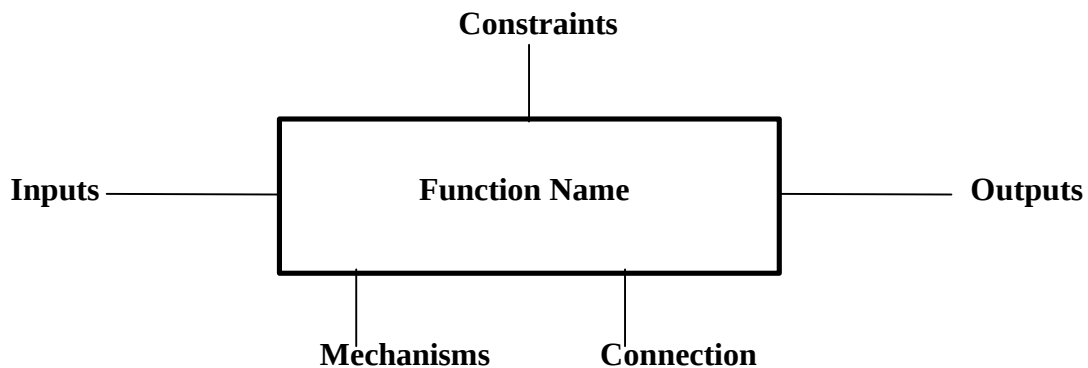


Figure A4. Conceptual Framework of an IDEF0 Diagram Unit (IDEF World Wide Web, 1998).

Ordering Activity Cards

SET A CONSTRUCT CONSISTENCY BOARD.

GIVE ALL ACTIVITY CARDS. PREPARE EMPTY CARDS AND A PENCIL

I have already made a set of activity cards for the assortment-planning model based on textbooks and research articles. This time I would like to ask you to sort these cards and order these cards on this construct consistency board. An IDEF0 model includes several pages of charts. This construct consistency table represents a page or a chart of the IDEF0 model. If you finished a page for the IDEF0 model, please give me the activity cards. You rearrange the cards for developing your assortment-planning model.

If you want to insert an activity in addition to the prepared activity cards, please use an empty card and write a name on it that you want to call the activity. If you want to discard cards, please let me sign the card as '*Discarded.*'

IF FINISHED, WRITE NUMBERS ON CARDS AND GIVE THE INTERVIEWEE
OPERATIONAL ACTIVITY CARDS.

Thanks for your help. I think we can have some rest for ten minutes.

STOP RECORDING

COLLECT THE ACTIVITY CARDS, WRITE NUMBERS, AND BIND THE CARDS.

III. Specific Questions (Tape Recording)

TIME: 70 minutes.

Equipment: Activity Cards/ Tape Recorder

TAPE RECORD WILL BE STARTED AT THIS POINT AGAIN.

I would like to ask you more specific questions regarding each activity cards. IDEF0 diagrams will be used to illustrate your assortment-planning model. Therefore, it is important to identify the variables of IDEF0 diagrams for each activity card.

PICK THE FIRST ACTIVITY CARD AND ASK QUESTIONS.

READ THE FUNCTION NAME AND NUMBER.

I will ask six questions for each activity card within the limited 70 minutes. We have almost 20 cards. For each card, the expected time of answering questions is 3 minutes. Please give short and clear answers.

Q: Could you describe the inputs for this activity?

Q: What can be the outputs of this activity? What are the results of this activity?

Q: Could you describe the detailed mechanism of this activity? How can you do this activity?

Q: This question is regarding the number of this card. If this activity is connected with other activities and can be done at the same time with the other activities, what can be the other activities?

Q: Is this activity necessary for assortment planning? If necessary, why?

Q: If there is a constraint or limit for this activity, (for example, limited price range decided in previous stage, target market consideration), what can be the constraint of this activity?

ASK THESE QUESTIONS FOR EACH CARD UNTIL THE LAST CARD

BE CAREFUL TO READ THE CARD NAME AND NUMBER

You answered every question regarding the cards.

I would like to discuss what you answered. When I develop a model from textbooks and research articles, several questions remained unclear. May we discuss the questions?

Example Question regarding Design Qualitative Decision to Quantitative Decision

Q: How do you translate from the qualitative decision to quantitative decision? For example, if you think the design of A product is more excellent than others, B,C, or D, you may order more of the A product. However, if you decide the balance of the product mix based only by your intuition, it may be risky. How do you reduce the risk?

Q: How do you decide the color variation ratio? Do you have an established ratio for color variation? For example, basic color (50%), contemporary color (25%) and trendy color (25%) for every season.

Q: How do you decide the size variation? In the textbooks, size variation is decided by demographics of your target market. Based on my experience in a company, the silhouette of a product is an important factor for size variation. Please explain how you decide on size mix.

Q: You said you used a pilot consumer test. How do you select the sample consumers for this pilot test? Do you use this pilot test every season? Please explain the consumer test.

IF THE TIME IS OUT. ASK THE INTERVIEWEE IF MORE TIME IS NEEDED TO
EXPAND. IF THE INTERVIEWEE WANTS TO QUIT, QUIT TAPE-RECORDING.

Thanks for your time and patience. Your information will provide profound insights for my dissertation.

I will send you a summary of this transcript of this interview within 60 days. Please validate the summary and return to me.

ASK FOR TIME FOR FOLLOW-UP INTERVIEW.

VITA

KEANG-YOUNG KANG

Ph.D.

Department of Near Environments

Virginia Polytechnic Institute and State university

Blacksburg, VA (540)231-7637

EDUCATION

Ph.D. Candidate. - Clothing & Textiles	5/96 - Present
Virginia Polytechnic Institute and State University	
Dissertation: Development of An Assortment Planning Model for Fashion Sensitive Products.	
M.S. - Clothing & Textiles	1/94 – 5/96
Virginia Polytechnic Institute and State University	
Completion – Clothing & Textiles Field Expert Training	3/89 – 2/90
Kolon Fashion Institute.	
Area of Specialization: Apparel Merchandising and Fashion Design.	
B.S. - Clothing & Textiles	3/85 – 2/89
Yonsei University, Seoul, Korea	

PROFESSIONAL EXPERIENCE

Graduate Research Assistant	9/96 – 6/97
Virginia Polytechnic Institute and State University	
Conference Guide	
Modaprima America & Samsung Trading Co.	95, 96, & 97.
Designer & Merchandiser	6/91 – 10/91
Kumkyung Co. Seoul, Korea	
Merchandiser & Fashion Forecaster	3/90 – 6/91
Kolon Co. Seoul, Korea	

REFEREED ABSTRACTS WITH PRESENTATIONS

Chen-Yu, J.H. & Kang, K. (1998). The influence of extrinsic cues on consumer expectations: A comparison of students in the clothing/textiles major and engineering major. Abstract to be printed in ITAA Proceedings, 1998, 55

Kang, K. & Kincade, D.H. The comparison of Information search formats for apparel decision making. Annual National Meeting, Washington, D.C. 1998. Paper available from American Collegiate Retailing Association Clearinghouse Conference

ABSTRACT OF RESEARCHES

1998/11/20

Presentation in International Textiles and Apparel Association Annual Conference

Author: Chen-Yu, J. H. & Kang, K.

Title: Extrinsic Cues and Consumer Expectation

Abstract: The purpose of this study was to investigate whether extrinsic cues also affect consumer expectation. Studies showed that extrinsic cues, such as store name and brand name are used by consumers in forming perception of product quality.

1998/4/17

Presentation in American Collegiate Retailing Association Conference

Author: Kang, K. & Doris H. Kincade

Title: Comparison of Information Search Formats for Apparel Decision Making

Abstract: Decision makers were affected by the information quantity and quality that were generated by specific information format. Retail buyers must have reliable and efficient ways to handle data. The purpose of this study was to identify a useful information search format for apparel retail buyers.

1996/7/1-7/30

Press Release in TexHerald Weekly in Korea

Author: Kang, K.

Title: Four series of Advanced Apparel Retailing and Manufacturing Systems, Quick Response System.

Abstract: Those four articles illustrated the definition, operational concepts, usages, advantages and disadvantages, and effectiveness of Quick Response system including human resource management, manufacturing system, communication system, and management information system.

1995 5

Thesis

Author: Kang, K

Title: Perceived Risk Level of Purchase Decision Making Within Product Specific Factors: A Comparison between Apparel Retailers and Customers

Abstract: The purpose of this study was to compare levels of perceived risk between apparel retail buyers and consumers to make a purchase decision of women's pantsuit within product specific criteria. The comparison of product risk was identified as product category risk (PCR), product specific risk (PSR), and acceptable risk to want to buy (AR), acceptable risk to need more information (ARI). There were difference with (a) PCR, (b) AR, (c) decision frequency, (d) the interaction effect of PSR with design and information card, (e) the information source, (f) the choice of the best item, and (g) the decision rule. Retailers and customers perceived different product category risk to buy a pantsuit category, but they had similar tendency of product specific risk to each pantsuit through directed search stage.