

# A Study on the Effects of Sales Promotion on Consumer Involvement and Purchase Intention in Tourism Industry

Angela Ya-Ping Chang <sup>1\*</sup>

<sup>1</sup> Department of Tourism and Hospitality, Taipei City University of Science and Technology, TAIWAN

Received 11 July 2017 • Revised 18 September 2017 • Accepted 16 October 2017

## ABSTRACT

Sales Promotion has been the routine marketing of businesses appealing consumers to making orders and increasing media exposure in recent years. Sales Promotion is a tactic for the sales of goods with price or non-price discounts. There are various sales promotions in the market, but not all of them are effective in marketing, as brand image, perceived value, and purchase intention are also associated. Sales Promotion therefore has become a primary issue for marketing. Aiming at 2014 Kaohsiung International Travel Fair, 1000 copies of questionnaires are distributed to the customers, and 421 valid copies are retrieved, with the retrieval rate 42%. The research results present the significant correlations between 1. Sales Promotion and Consumer Involvement, 2. Consumer Involvement and Purchase Intention, and 3. Sales Promotion and Purchase Intention.

**Keywords:** leisure time, online marketing, travel, holiday, multimedia

## INTRODUCTION

### Research Motivation and Objective

There are often new competitors joining in the fiercely competitive travel market and the diverse channels in Taiwan, resulting in competitive situations. Moreover, the openness to cross-strait direct flights has ETholiday, Startravel, and CTS-Travel rush to attack the market. The largest online travel agent in Mainland China, Ctrip, also becomes the owner of ezTravel in Taiwan, raising the brand war. The draft of marketing strategies therefore becomes the focus of various travel businesses to guarantee the brand for the invincible status in the market (Barry, 2010). The factors in consumer Purchase Intention is the major factor in marketers drafting marketing strategies to promote the sales volume with Sales Promotion.

In such a competitive era, Sales Promotion becomes the most primary incentive to rapidly buying more specific products or services in a short period. After the attack of SARS, the businesses are making structural adjustments for the reorganization. Tourism industry is experiencing the low-profit time. Besides, online marketing channels in the fiber broadband era have resulted in the price transparency. When consumers haggle over the budget, Sales Promotion becomes the marketing tactic to enhance consumer Purchase Intention. The measurement being able to present the multiple attributes of promotion could effectively measure the most attractive promotion program to visitors.

With the cross application of sales promotions, such as membership promotion, preferential for the second customer, buy one get one free, schedule promotion, direct discount, and gifts, it is wondered whether consumers would present distinct perception and perceived value on preferring a tourism business. In such a trend of Sales Promotion, the businesses should select the most effective way for Sales Promotion to stimulate the sales performance.

#### **Contribution of this paper to the literature**

- Sales Promotion should be applied to reinforcing consumer knowledge about tourism products, allowing consumer appreciating the tourism products, shaping the unique property of the brand, connecting consumers with brand, and promoting the reputation.
- To reinforcing Consumer Involvement and Brand Attitude, consumer Purchase Intention could be further simulated and maintained.
- A positive appraisal from a consumer would be the optimal marketing advertising and guarantee for a tourism business.

## **Definition and Hypothesis**

### ***Sales promotion***

Promote is a part of promotion mix in marketing activities as well as the marketing tactic of a business entering the market or retaining customers (Berjani and Strufe 2011). The major function of Sales Promotion is to communicate with consumers and touch their hearts. Chang & Tsai (2011) proposed the communication tools for marketing including advertising, public relations, personal selling, sales promotions, and direct marketing to enhance consumer Purchase Intention for purchase behaviors. Sales Promotion is also a critical factor in consumer purchase behaviors (Dehkordi et al. 2012). Huang & Gartner (2012) regarded Sales Promotion as a direct stimulus to extra value of a product or an incentive to final consumers, salespeople, or distributors. Khajvand & Tarokh (2011) mentioned that Sales Promotion was composed of various temporary incentives, mainly to induce consumers or dealers purchasing certain products in advance or purchasing more quantity. Li et al. (2011) indicated that Sales Promotion was essentially a complimentary marketing effort, being practiced in limited time and tending to stimulate consumer purchase. The consumer market would change with changeable life styles and constantly present distinct promotion tactics, such as gift for a pair of sports shoes, cash refund, discount and coupon, prize, and cash or gift for returned certificate. It is what a marketer desires to know about which kind of promotion being able to enhance consumer evaluation on the brand of sports shoes and to appear preference and Purchase Intention on specific promotions (Mesforoush and Tarokh 2013).

Among various promotions, Pinheiro et al. (2010) divided promotion incentives into price orientation and non-price orientation, including (1) monetary or non-monetary promotions, (2) instantaneous or delayed promotions, (3) acquiring product-related or price-related incentives, and (4) purely economic or psychological promotions. Sun (2010) regarded price orientation as inducing consumer purchase through discount, such as coupons and preferential. Zhou et al. (2012) pointed out Non-Price Promotion as the sales promotion irrelevant to product prices, such as gifts, prizes, competition, and lotteries being the incentives to consumers purchasing specific products. As a consequence, the measuring dimensions for Sales Promotion in this study are referred to Zhou et al. (2012), containing 1. Price Promotion, the example of cash discount and 2. Non-Price Promotion, the example of gifts.

### ***Consumer involvement***

Bhanot (2012) defined involvement as personal concerns of consumer about the purchased products. Involvement referred to concerns about or active actions for an event when the participant revealed curiosity or interests in a certain event, in which the higher concerns presented the more emphasis on the event, or the lower concerns showed the less attention. Chihani, Bertin, Jeanne & Crespi (2011) pointed out the occurrence of involvement when a product was involved in important value, demands, or self-concepts. Involvement therefore was individual attitudes and concerns about an activity or even that the higher concerns revealed the deeper involvement. It was mainly used for understanding personal consumption behaviors and decision processes. Delfos, Tan & Veebeedaal (2010) proposed that involvement was personal perception of an event under specific time and situations. Kao (2011) mentioned that involvement could affect consumer purchase decision and could be a moderator on the correlations between different variables and Purchase Intention. In general, involvement would affect consumer focus and subjective opinions of a product that a consumer would invest more efforts and concerns in evaluating the product with higher involvement (Kotler, Kartajaya & Setiawan, 2010). Li & Du (2012) defined involvement as consumer concerns about purchase. Molitor, Reichhart & Spann (2012) regarded the multi-dimensional effects of involvement on consumers, including the changes of attitudes, opinions, affection, and perception. Distinct Consumer Involvement would also influence the process of attitude change that consumer intention was proportion to the involvement in the product. Shrivastava, Boghey & Verma (2011) regarded involvement as the degree of personal correlation being able to affect the receipt and management of information. Theran et al. (2010) indicated that involvement was "the emphasis on various types of products, influencing

consumer attitudes towards product attributes and the preference in specific brand. Chihani, Bertin, Jeanne & Crespi (2011) pointed out distinct customer involvement in different products.

Bhanot (2012) considered the multiple, rather than single, dimensions of involvement and proposed the dimensions of Importance, Sign, Pleasure, and Risk, which are utilized for the measurement in this study.

1. Importance, product meaning and importance to an individual.
2. Sign, product presenting characters, identity and status, or social value.
3. Pleasure, emotional appeal of a product and the ability to offer pleasure and preference.
4. Risk, consumer perceived seriousness and probability of wrong purchase.

### *Purchase intention*

Bobadilla, Serradilla & MovieLens (2009) indicated that intention could predict behaviors that consumer Purchase Intention was used for predicting purchase intention in practice. Purchase behaviors were the decision process psychologically (Defever et al. 2011). With demands, a consumer would search for relevant information according to personal experiences and external environments in order to satisfy the demands (Mettas, 2011). Once the information was sufficiently collected, the consumer would precede evaluations and considerations and decide to purchase a product after comparisons and judgment. It was the Purchase Decision Process of a consumer (Dhar and Varshney 2011). In the decision process, a consumer would possibly take purchase behaviors on certain products when appearing demands and preference to the products (Karatzoglou et al. 2011).

Lee & Olafsson (2009) defined Purchase Intention as the possibility of a consumer being willing to purchase certain products that the higher consumer Purchase Intention showed the higher purchase probability. Lin et al. (2011) considered Purchase Intention as the psychological state of a consumer planning to consume certain brand in a certain period of time as well as the probability and possibility of a consumer taking or presenting real purchase reaction (Ochi et al. 2010). Moreover, Stever (2011) pointed out the measurement of Purchase Intention depending on consumer intention to purchasing certain products that the higher Purchase Intention revealed the higher purchase probability. In other words, Purchase Intention was the possibility of a consumer purchasing certain products that the higher Purchase Intention presented the larger purchase probability (Yim et al. 2012).

With such literature review, Perceived Value, proposed by Yim et al. (2012), is utilized for measuring Purchase Intention, where 1.Possible to Purchase, 2.Intending to Purchase, and 3.Considering to Purchase are the dimensions for measuring consumer Purchase Intention.

### *Correlations between sales promotion and consumer involvement*

Researchers have proven the significant effects of Sales Promotion on consumer Purchase Intention (Dehkordi et al. 2012). In this case, an enterprise should have consumers be aware and perceive the products and services through promotion mix. Sales Promotion is the communication bridge between enterprises and consumers and provides some incentives to attract consumer curiosity or interests in the products or services and to enhance Consumer Involvement and Purchase Intention to the products and services (Kotler et al. 2010). Based on the above literatures, the following hypothesis is inferred in this study.

- H1** Sales Promotion presents significant correlations with Consumer Involvement.

### *Correlations between consumer involvement and purchase intention*

Aiming at Internet browsers, Bhanot (2012) pointed out the effects of involvement on online purchase. The Regression Analysis results showed that Internet browsers with higher involvement presented higher positive effects than the ones with lower involvement. Li& Du (2012) studied Product Involvement and Purchase Intention of mobile phone consumers and pointed out the remarkably positive correlations between Product Involvement and Purchase Intention. Stever (2011) regarded Consumer Involvement as individual interests in and knowledge of a product and different consumers presenting distinct involvement in various products. The research findings showed the positive effects of Consumer Involvement on Purchase Intention, revealing the increasing interests in and knowledge of the products. As a result, involvement could be the degree of consumer concerns that involvement showed close correlations with consumers. Accordingly, the following hypothesis is deduced in this study.

- H2** Consumer Involvement reveals remarkable correlations with Purchase Intention.

### ***Correlations between sales promotion and purchase intention***

In the public market, promotions are often the key factor in consumer purchase among plenty options of products and the high product homogeneity that manufacturers stress more on promotions (Dehkordi et al. 2012). Aiming at Sales Promotion and Purchase Intention, Lee & Olafsson (2009) found out the notably positive effects of Sales Promotion on Purchase Intention. Li et al. (2011) discovered the highest perception of promotion in consumer Purchase Intention, with significant effects. Bobadilla, Serradilla & Movie Lens (2009) aiming at Sales Promotion and Pinheiro et al. (2010) aiming at Brand Equity studied the effects of instantaneous Sales Promotion on Purchase Intention. Sun (2010) regarded the remarkable effects of promotions on Purchase Intention. Consequently, the following hypothesis is further deducted.

**H3** Sales Promotion shows notable correlations with Purchase Intention.

## **METHODOLOGY**

### **Research Sample and Subject**

Aiming at international travel fair, the customers of 2014 Kaohsiung International Travel Fair are distributed 1000 copies of questionnaires, and 421 valid ones are retrieved, with the retrieval rate 42%. Kaohsiung International Travel Fair, during June 13-16 of 2014, is hosted by Kuei Jung Exhib. Co., Ltd. and Wai Dain Exhibition Ltd. and coordinated by TTnews. With time segmentation, the questionnaires are evenly and randomly distributed to the attendees in the period.

### **Test of Reliability and Validity**

Validity refers to the measuring instrument being able to really measure the questions. Validity is generally divided into content validity, criterion-related validity, and construct validity. The questionnaire items in this study are referred to domestic and international researchers, and a pretest is discussed with professors and further preceded that it presents certain content validity. The casual relationship among Sales Promotion, Consumer Involvement, and Purchase Intention is further verified with Linear Structural Relation where the data are based on the correlation matrix of above variables. The analysis with Linear Structural Relation Model shows the overall model fit achieving the reasonable range that it reveals favorable convergent validity and predictive validity. According to Kerlinger's (1986) suggestion to verify the construct validity of the questionnaire content with item-to-total correlations, i.e. the reliability analysis, the item-to-total correlations could be used for judging the questionnaire contents. The item-to-total correlations of the dimensions in this study are larger than 0.4, showing certain construct validity.

To further understand the reliability and validity of the questionnaire, reliability and validity analyses are further preceded. Cuieford (1965) indicated that the higher Cronbach's  $\alpha$  revealed the better reliability and the high reliability appeared when the Cronbach's  $\alpha$  achieved above 0.7, while it should be deleted when the Cronbach's  $\alpha$  was below 0.35; and, the value appeared in 0.7-0.98 was regarded with high reliability. What is more, the item-to-total correlations have to be higher than 0.4, or it should be deleted. The formal questionnaire is developed based on the above standards that the measured Cronbach's  $\alpha$  appears in 0.73-0.87, which apparently conforms to the reliability range.

## **RESULTS**

### **Assessment Indicator in LISREL Model**

LISREL (linear structural relation) model, combining Factor Analysis and Path Analysis in traditional statistics and integrating with simultaneous equations in Econometrics, is able to calculate multiple factors and multiple casual paths. Regarding the assessment of model fit, Bagozzi (1998) considered the evaluation from preliminary fit criteria, overall model fit, and fit of internal structure of model.

The data are organized in **Table 1**. The descriptions of preliminary fit criteria, internal fit, and overall goodness-of-fit are summarized as below.

**Table 1.** Overall analysis of linear structural model

Evaluation item	Parameter/evaluation standard	Result	t	
Preliminary fit	Sales Promotion	Price Promotion	0.722	13.33**
		Non-Price Promotion	0.816	14.56**
	Consumer Involvement	Importance	0.583	7.63**
		Sign	0.627	8.28**
		Pleasure	0.546	7.17**
		Risk	0.689	7.06**
	Purchase Intention	Possible to Purchase	0.735	8.92**
		Intending to Purchase	0.624	8.34**
		Considering to Purchase	0.803	9.62**
Internal fit	Sales Promotion → Consumer Involvement	0.822	5.77**	
	Consumer Involvement → Purchase Intention	0.891	6.83*	
	Sales Promotion → Purchase Intention	0.796	6.42*	
Overall goodness-of-fit	$\chi^2/Df$		1.375	
	GFI		0.943	
	AGFI		0.922	
	RMR		0.008	

From the entire model analysis in **Table 1**, the preliminary fit achieved the significance ( $t > 1.96$  and  $p < 0.05$ ) between the two factors in Sales Promotion (Price Promotion and Non-Price Promotion) and Sales Promotion, between the four dimensions in Consumer Involvement (Importance, Sign, Pleasure, and Risk) and Consumer Involvement, and between the three dimensions in Purchase Intention (Possible to Purchase, Intending to Purchase, and Considering Purchasing) and Purchase Intention. Apparently, the overall model presented favorable preliminary fit criteria.

The internal fit appeared significantly positive correlations between Sales Promotion and Consumer Involvement (0.822), between Consumer Involvement and Purchase Intention (0.891), and between Sales Promotion and Purchase Intention (0.796) that hypotheses 1, 2, and 3 were supported.

The overall model fit showed  $\chi^2/Df$  1.375, lower than the standard 3, and the RMR 0.008 revealed the appropriateness of the  $\chi^2/DF$  and RMR results. Furthermore, the chi square value was sensitive to sample size that it was not suitable for the direct judgment. However, the overall model fits, GFI 0.943 and AGFI 0.922, were larger than 0.9 (the closer GFI and AGFI to 1 presenting the better model fit) that this model appeared favorable goodness-of-fit indices.

## DISCUSSION

### Hypothesis Verification of the Overall LISREL Model

The path relations in this study, **Figure 1**, showed the estimates between dimensions and variables being significant. The hypothesis verification results are showed in **Table 2**.

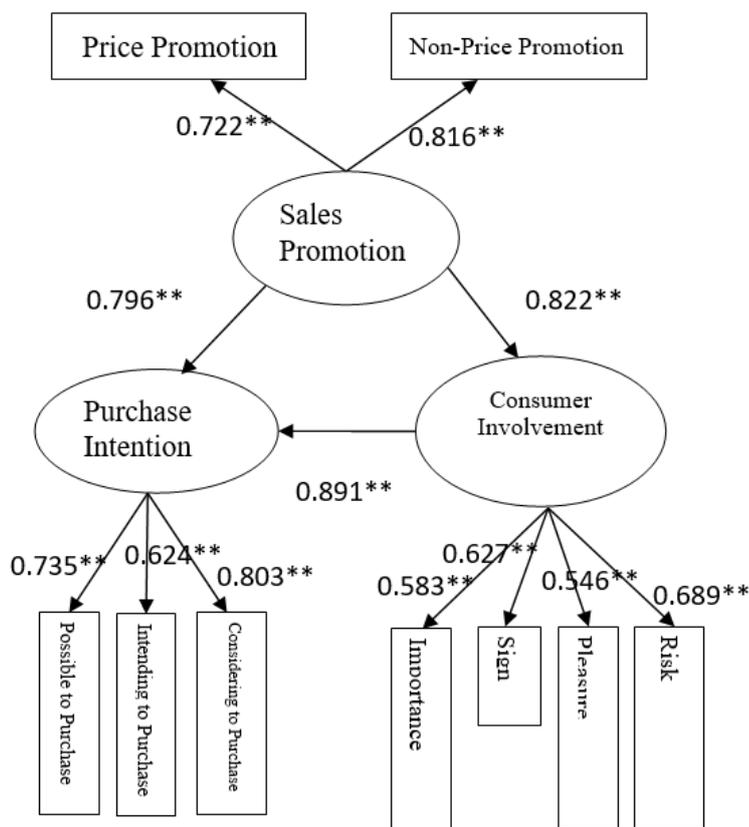


Figure 1. Path relations

Table 2. Hypothesis verification

Research hypothesis	Correlation	Empirical result	P	Result
H 1	+	0.822	0.00	Supported
H 2	+	0.891	0.00	Supported
H 3	+	0.796	0.00	Supported

### CONCLUSION

The research results present the remarkably positive effects of Sales Promotion on Consumer Involvement and Purchase Intention, revealing that consumers with high involvement appear more awareness and concerns about Sales Promotion of a tourism business than the ones with low involvement do. The preference would further affect the brand attitudes which would cause higher prediction of Purchase Intention. To enhance consumer Purchase Intention, Sales Promotion is preceded from the aspects of Consumer Involvement and Brand Attitude to create the senses of belongings and participation with the orientation of consumers as partners. It is because higher involvement could enhance Purchase Intention and be further applied to making more suitable Sales Promotion strategies. In addition to the innovation of Sales Promotion, the thresholds which the competitors cannot cross should be created. Tourism businesses should stress on the control of brand-related factors to make the products be more valuable and important for consumers. A tourism business should take consumers into pleasant shopping situations so that the consumers could interact with the service personnel and perceive the fun of consumption. Sales Promotion could bring pleasant perception for consumers. The sign value could result in favorable word-of-mouth of a tourism business to further enhance Consumer Involvement and Purchase Intention.

### RECOMMENDATIONS

Aiming at the research results and findings, practical suggestions are proposed as following.

1. A tourism business should devote to exploring consumer demands, constantly innovate, provide competitive products conforming to consumer demands, offer consumers with favorable Sales Promotion experiences, and accumulate and reinforce consumer trust in the brand. Furthermore, Sales Promotion

should be applied to reinforcing consumer knowledge about tourism products, allowing consumer appreciating the tourism products, shaping the unique property of the brand, connecting consumers with brand, and promoting the reputation.

2. Tourism businesses are suggested to design diverse Sales Promotion connected with various demands, reinforce Sales Promotion related to the members, or enhance consumer motivation to join in the membership, and even properly adjust the thresholds to become members, and arrange cross Sales Promotion for different members. In addition to reinforcing Consumer Involvement and Brand Attitude, consumer Purchase Intention could be further simulated and maintained.
3. Tourism businesses should focus more on visual advertisement and channels, such as oral spreading on the Internet, connection with online shops, and the applications of online functions, in order to connect national member data and potential members. Besides, the database marketing could be applied to various Sales Promotion strategies so as to enhance Consumer Involvement and Purchase Intention and draw in potential consumers from existing consumers to develop more new customers. After all, a positive appraisal from a consumer would be the optimal marketing advertising and guarantee for a tourism business.

## REFERENCES

- Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structure equations models. *Journal of Academy of Marketing Science*, 16(1), 74-94.
- Barry, M. P. (2010). Why Enforcing its UNCAC Commitments Would be Good for Russia: A Computable General Equilibrium Model. *Eurasia Journal of Business and Economics*. Retrieved from <http://ejbe.org/EJBE2010Vol03No05p93BARRY.pdf>
- Berjani, B., & Strufe, T. (2011). A recommendation system for spots in location-based online social networks. *Proceedings of the 4th Workshop on Social Network Systems*, Salzburg, Austria.
- Bhanot, S. (2012). Use of social media by companies to reach their customers. *SIES Journal of Management*, 8(1), 47-55.
- Bobadilla, J., Serradilla, F., & MovieLens, A. H. (2009). Collaborative filtering adapted to recommender systems of e-learning. *Knowledge-Based Systems*, 22, 261-265.
- Chang, H. C., & Tsai, H. P. (2011). Group RFM analysis as a novel framework to discover better customer consumption behavior. *Expert Systems with Applications*, 38, 14499-14513.
- Chihani, B., Bertin, E., Jeanne, F., & Crespi, N. (2011). Context-aware systems: A case study. Paper Presented in *The International Conference on Digital Information and Communication Technology and Its Application*, Dijon, France, 1-15.
- Cuieford, J. P. (1965). *Fundamental Statistics in Psychology and Education*, 4th Ed. NY: McGraw, Hill.
- Defever, C., Pandelaere, M., & Roe, K. (2011). Inducing value-congruent behavior through advertising and the moderating role of attitudes toward advertising. *Journal of Advertising*, 40(2), 25-37.
- Dehkordi, G. J., Rezvani, S., Rahman, M. S., Fouladivanda, F., Nahid, N., & Jouya, S. F. (2012). A conceptual study on e-marketing and its operation on firm's promotion and understanding customer's response. *International Journal of Business and Management*, 7(9), 114-124.
- Delfos, J., Tan, T., & Veebeedaal, B. (2010). Design of a web-based LBS framework addressing usability, cost, and implementation constrains. *World Wide Web Internet and Web Information Systems*, 391-418.
- Dhar, S., & Varshney, U. (2011). Challenges and business models for mobile location-based services and advertising. *Communication of the ACM*, 54(5), 121-129.
- Huang, H., & Gartner, G. (2012). Using Context-aware Collaborative Filtering for POI Recommendation in Mobile Guides. In *Advances in Location Based Services. Lecture Notes in Geoinformation and Cartography*. Berlin: Springer Berlin, Heidelberg, 131-146.
- Kao, D. T. (2011). Message sidedness in advertising: The moderating roles of need for cognition and time pressure in persuasion. *Scandinavian Journal of Psychology*, 52, 329-340.
- Karatzoglou, A., Baltrunas, L., & Bohmer, M. (2011). Collaborative context-aware preference learning. *NIPS Workshop*, Sierra Nevada, Spain.
- Kerlinger, F. N. (1986). *Foundations of Behavioral Research*, 3rd ed. FL: Harcourt Brace Jovanovich.
- Khajvand, M., & Tarokh, M. J. (2011). Estimating customer future value of different customer segment based on adapted RFM model in retail banking context. *Procedia Computer Science*, 3(1), 1327-1332.
- Kotler, P., Kartajaya, H., & Setiawan, I. (2010). *Marketing 3.0: From Products to Customers to the Human Spirit*, 1st Edition. New York: John Wiley & Sons.

- Lee, J. S., & Olafsson, S. (2009). Two-way cooperative prediction for collaborative filtering recommendations. *Expert Systems with Applications*, 36(3), 5353-5361.
- Li, D. C., Dai, W. L., & Tseng, W. T. (2011). A two-stage clustering method to analyze customer characteristics to build discriminative customer management: A case of textile manufacturing business. *Expert Systems with Applications*, 38(1), 7186-7191.
- Li, L., & Du, T. C. (2012). Building a targeted mobile advertising system for location-based services. *Decision Support Systems*, 54(1), 1-8.
- Lin, J., Li, X., Yang, Y., Liu, L., Guo, W., Li, X., & Li, L. (2011). *A Context-Aware Recommender System for M-Commerce Applications*. Berlin: Springer-Verlag Berlin Heidelberg, 217-228.
- Mesforoush, A., & Tarokh M. J. (2013). Customer profitability segmentation for smes case study: network equipment company. *International Journal of Research in Industrial Engineering*, 2(1), 30-44.
- Mettas, A. (2011). The development of decision-making skills. *Eurasia Journal of Mathematics, Science and Technology Education*, 7(11), 63-73.
- Molitor, D., Reichhart, P., & Spann, M. (2012). Location-based advertising: what is the value of physical distance on the mobile internet? *Institute of Electronic Commerce and Digital Markets*, 1-14.
- Ochi, P., Rao, S., Takayama, L., & Nass, C. (2010). Predictors of user perceptions of web recommender systems: How the basis for generating experience and search product recommendations affects user responses. *International Journal of Human-Computer Studies*, 68(8), 472-482.
- Pinheiro, M. K., Carrillo-Ramos, A., Villanova-Oliver, M., Gensel, J., & Berbers, Y. (2010). Context-aware adaptation in web-based groupware systems. *Web-Based Support Systems, Advanced Information and Knowledge Processing*, 1, 3-32.
- Shrivastava, V., Boghey, R., & Verma, B. (2011). A framework for improving target marketing using collaborative data mining approach. *International Journal of Information and Communication Technology Research*, 1(2), 69-72.
- Steuer, G. (2011). Celebrity worship: Critiquing a construct. *Journal of Applied Social Psychology*, 41(5), 27-35.
- Sun, T. (2010). Antecedents and consequences of parasocial interaction with sport athletes and identification with sport teams. *Journal of Sport Behavior*, 33, 194-217.
- Theran, S. A., Newberg, E. M., & Gleason, T. R. (2010). Adolescent girls' parasocial interactions with media figures. *The Journal of Genetic Psychology*, 171(3), 270- 277.
- Yim, M. Y. C., Cicchirillo, V. J., & Drumwright, M. E. (2012). The impact of stereoscopic three-dimensional (3-D) advertising: The role of presence in enhancing advertising effectiveness. *Journal of Advertising*, 41(2), 113-128.
- Zhou, D., Wang, B., Rahimi, S. M., & Wang, X. (2012). A study of recommending locations on location-based social network by collaborative filtering. *Advances in Artificial Intelligence Lecture Notes in Computer Science*, 7310, 255-266.

<http://www.ejmste.com>