## Consumer Behaviour towards Acceptance of Image Interactivity Technology

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## Abstract

The purpose of this paper is to understand the factors influencing Consumer Behaviour towards Acceptance of Image Interactivity Technology" in North Gujarat specifically in Ganpat University. A model has been proposed based on the Technology Acceptance Model (TAM). Primary data relates to the variables affecting technology adoption and demographic profile are collected using a questionnaire survey. Data were collected from 100 individuals who are students of Ganpat College. Multiple regressions was used to identify the important factors affecting behavioural intention towards online retailers.

*Key words:*

Image Interactivity Technology, TAM, Perceived Usefulness, Perceived Ease of Use, perceived Enjoyment, Attitude towards Online Retailer, Behavioural Intention,

### Introduction

The internet has been adopted as an important shopping medium with an increasing amount of online sales every year. While some product categories, such as apparel, have enjoyed increased online sales, other product categories, such as small appliances, have experienced a slow increase in online sales. For example, the searcher/buyer conversion rate for apparel was 17 per cent whereas the conversion rate for consumer electronics was just 7 per cent in 2008 (Internetretailer.com, 2008). According to Internetretailer.com (2006), 77 per cent of consumers research consumer electronics online before making a purchase. Time spent searching for product information online was proportional to the price of the product, and nearly half of those who spent average of 12 hours in online research still purchased offline.

In order to provide more accurate product information and an entertaining shopping experience, many online retailers are turning to product virtualization technology (PVT) that allows online shoppers to interact with a product and examine the product online. Wide spread high-speed internet connections in homes and offices, as well as advances in technologies, have made product virtualization technologies more widely available in the online retail environment. Online shoppers can now zoom in on product features, rotate the product from360 angles, and examine the product inside and outside. In addition to the visual examination, the shoppers can even try some basic functions of the product using PVT as if the actual product is right in front of them.

Thus, PVT can deliver more accurate product information than the information obtained from static image and standard descriptors. Furthermore, the interactivity and customer involvement created by PVT can

enhance the entertainment value of the online shopping experience. When customer wants to purchase the products like, jewellery, apparels, spectacles, they need more to be get experienced to the product. For these there is a extended "Image interactivity technology through online shoppers experienced rather than visualised the product environment.

Interactivity has been considered a critical concept and a primary advantage of the internet (Morris and Ogan, 1996; Pavlik, 1996; Rafaeli and Sudweeks, 1997). Interactivity is the "extent to which users can participate in modifying the form and content of a mediated environment in real time" (Steuer, 1992, p. 84). The importance of interactive functions and their impact on the appeal of e-commerce has been emphasized (Bauer et al., 2000; Coyle and Thorson, 2001; Fiore and Jin, 2003; Joines et al., 2003; Ghose and Dou, 1998; Kim, 2002; Page and Lepkoska-White, 2002; Palmer, 2002; Shim et al., 2001; Srinivasan et al., 2002). Interactivity of a web site facilitates communications, customizes presented information, allows image manipulation, and creates entertainment for the customer (Fiore et al., 2005a,) Web site interactivity has been recognized by online marketers as a valuable enticement for the consumer to visit the site, purchase online, and be satisfied enough to become a repeat visitor/customer (Gehrke and Turban, 1999; Li et al., 2001, 2002; Mathwick, 2002). Empirical research (Klein, 2003; Schlosser, 2003) shows that simple technologies providing interactivity have positive effects on consumers' attitudes. "Image interactivity" has been described as interactivity from web site features that enable creation and manipulation of product or environment images to simulate (or surpass) actual experience with the product or environment (Fiore and Jin, 2003).

With image interactivity technology (IIT) the user can alter a product's design features, background, context, viewing angle or distance, and simulate the product's operation on a web site, leading to enriched product information through visual (non-textual) cues (Fiore and Jin, 2003; Li et al., 2001, 2002). Mix and match technology that simulates how products will look together and virtual model or virtual try-on technology (e.g. My Virtual Modelw, imaginary) that simulates the appearance of apparel product combinations on a body form are two types of IIT for apparel web site (Fiore et al., 2005a,) According to Li et al. (2001), IITs are among the most visited features of some online stores and IITs that simulate the familiar shopping experience are likely to represent the future of online consumer marketing. Li et al.'s qualitative study also indicated that IIT enhances enjoyment from interacting with the virtual products. Li et al. (2002) found using IIT in marketing of products elicited favourable brand attitudes and purchase intentions during online shopping and suggested that using IIT leads to multi-sensory online experiences of products and store environment.

IIT basically works on augmented Reality, Augmented Reality (AR) can be defined as a real-time direct or indirect view of a physical real world environment that has been enhanced / augmented by adding virtual computer generated information to it [65]. AR is both interactive and registered in 3D as well as combines real and virtual objects. Milgram's Reality-Virtuality Continuum is defined by Paul Milgram and Fumio Kishino as a continuum that spans between the real environment and the virtual environment comprise Augmented Reality aims at simplifying the user's life by bringing virtual information not only to his immediate surroundings, but also to any indirect view of the real-world environment, such as live-video stream. AR enhances the user's perception of and interaction with the real world. While Virtual Reality (VR) technology or Virtual Environment as called by Milgram, completely immerses users in a synthetic world without seeing the real world, AR technology augments the sense of reality by superimposing virtual objects and cues upon the real world in real time. Note that, as Azuma et al. 2004, we do not consider AR to be restricted to a particular type of display technologies such as head-mounted display (HMD), nor do we consider it to be limited to the sense of sight.

AR can potentially apply to all senses, augmenting smell, touch and hearing as well. AR can also be used

to augment or substitute users' missing senses by sensory substitution, such as augmenting the sight of blind users or users with poor vision by the use of audio cues, or augmenting hearing for deaf users by the use of visual cues. Azuma et al. [4] also considered AR applications that require removing real objects from the environment, which are more commonly called mediated or diminished reality, in addition to adding virtual objects.

Indeed, removing objects from the real world corresponds to covering the object with virtual information that matches the background in order to give the user the impression that the object is not there. Virtual objects added to the real environment show information to the user that the user cannot directly detect with his senses. The information passed on by the virtual object can help the user in performing daily-tasks work, such as guiding workers through electrical wires in an aircraft by displaying digital information through a headset.

The information can also simply have an entertainment purpose, such as Wikitude or other mobile augmented reality. There are many other classes of AR applications, such as medical visualization, entertainment, advertising, maintenance and repair, annotation, robot path planning, etc. "Image interactivity" has been described as interactivity from web site features that enable creation and manipulation of product or environment images to simulate (or surpass) actual experience with the product or environment (Fiore and Jin, 2003). With image interactivity technology (IIT) the user can alter a product's design features, background, context, viewing angle or distance, and simulate the product's operation on a web site, leading to enriched product information through visual (non-textual) cues (Fiore and Jin, 2003; Li et al., 2001, 2002). According to Li et al. (2001), IITs are among the most visited features of some online stores and IITs that simulate the familiar shopping experience are likely to represent the future of online consumer marketing. Li et al.'s qualitative study also indicated that IIT enhances enjoyment from interacting with the virtual products.

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We have found no studies that examine the application of TAM to an effect of attitude towards online retailer on behavioural intention. Therefore in the present study we have explored whether TAM helps explain the effect of attitude of online retailer on behavioural intention.

In TAM, perceived usefulness, perceived ease of use (Davis, 1989) and perceived enjoyment (Davis et al., 1992) are key determinants of behaviour intentions. Perceived usefulness and perceived ease of use are seen as instrumental in achieving valued outcomes, while perceived enjoyment is regarded as having no apparent reinforcement other than the activity itself (Davis et al., 1992).

**The effect of image interactivity technology**

Previous studies have indicated the importance of individual differences in technology usage and its acceptance (Agarwal and Prasad, 1999; Kwon and Chidambaram, 2000; Venkatesh and Davis, 2000). These studies found that individual differences (e.g. prior experiences with similar technology, participation of training for technology, gender, and education) had direct and meditating effects on TAM

framework. Li et al. (2002) suggested further investigation of the impact of utilitarian and hedonic shopping orientations on information processing styles during IIT usage.Thus, in this study, we incorporate shopping orientation to examine the roles of individual differences and TAM constructs on consumer responses toward ITT and an online retailer.

**Review of Literature**

*Technology acceptance model*

Davis et al. (1989) adapted the Theory of Reasoned Action (Fishbein and Ajzen, 1975)to develop TAM, which predicted use of technology systems in the workplace. The Theory of Reasoned Action proposed that beliefs influence attitudes, and TAM assumes that beliefs about usefulness and ease of use are the key determinants of information technology (IT) adoption (Davis et al., 1989).

Since, then, TAM has been effective in the modelling of acceptance of IT and has received extensive empirical support through studies predicting the use of information systems (Adams et al., 1992;Agarwal and Prasad, 1997; Chau, 2001; Davis, 1989, 1993; Davis and Venkatesh, 1996;Davis et al., 1989; Mathieson, 1991; Taylor and Todd, 1995; Venkatesh, 1999;Venkatesh and Davis, 1996; Venkatesh and Marris, 2000).

Whereas perceived usefulness and perceived ease of use were two initial constructs in TAM, Davis et al. (1992) added perceived enjoyment and they found that increased enjoyment from using technology affected its acceptance.

*Technology acceptance model and image interactivity technology*

*Perceived usefulness*. IIT has been credited with improving consumer responses towards an online retailer or a product (Fiore and Jin, 2003; Li et al., 2001; Wu, 1999) .These positive response may be due to the usefulness of the technology at providing information similar to what is found in a bricks-and-mortar store without expending the physical effort to shop in the store. IIT permits the viewer to simulate his/her navigation through an environment, such as walking through an online store, to examine products together or on the body, and to gather sensory information about product qualities.

For instance, IIT close-up images enrich product search attribute information (e.g. color and texture) and virtual model technology enriches visual information about product fit. Therefore, a high level of IIT may be useful for retailers because it provides needed information for confidence in the evaluation of the online product, resulting in enhanced willingness to purchase from the site (Li et al., 2001).that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320) IIT would be perceived as useful in online shopping if it helps consumers make decisions about an online retailer or product.

Perceived usefulness of IIT may increase when offering rich information about products (e.g. quality, variety, price, appropriate fit) (Chen et al., 2002). The enhanced information of the online retailer would affect consumer perception of usefulness'. 320). IIT would be perceived as useful in online shopping if it helps consumers make decisions about an online retailer or product. Perceived usefulness of IIT may increase. When offering rich information about products (e.g. quality, variety, price, appropriate fit) (Chen et al., 2002).
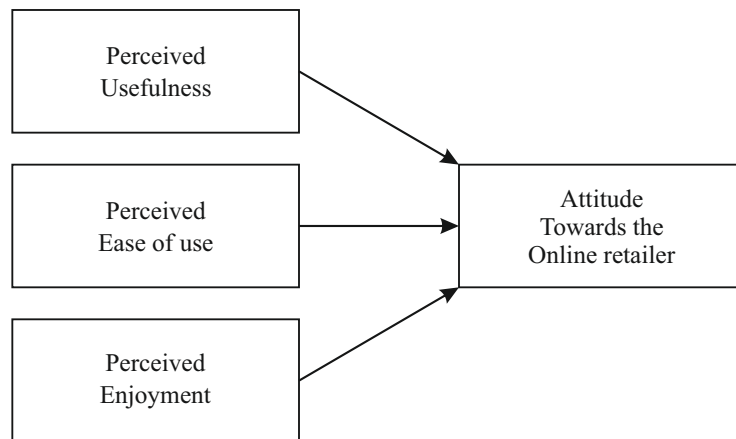
*Perceived ease of use.* Perceived ease of use in TAM is defined as "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989,p. 320). In TAM, ease of use is an important determinant of use of technology or systems, as is perceived usefulness (Davis, 1989, 1993; Davis et al., 1992; Mathieson,1991). The construct "perceived ease of use" in TAM coincides with "complexity" in Innovation and Diffusion Theory (Rogers, 1995). Venkatesh and Davis (1996) reinforced the importance of ease of use in TAM, since many types of technology were rejected due to poor user interface design.

*Perceived enjoyment*. Davis et al. (1992) proposed the concept of perceived enjoyment that occurs in the inherent performance of an activity. Perceived enjoyment is the extent to which the activity of using the computer is perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated (Davis et al.,1992, p. 1113).Davis et al. (1992) found that enjoyment, along with perceived usefulness, were significant determinants of attitude toward adoption of a technology. In online shopping, enjoyment has positive effects on consumer attitude toward the online retailer (Eighmey and McCord, 1998; Mathwick, 2002; Jarvenpaa and Todd, 1997).

**Objective of the study**

*1. To investigate the factors affecting Acceptance of Image Interactivity Technology*

**Conceptual model**



$H_1$: Perceived usefulness of the IIT will positively affect attitude toward the online retailer.

$H_2$: Perceived ease of use of the IIT will positively affect attitude toward the online retailer.

$H_3$: Perceived enjoyment of the IIT will positively affect attitude toward the online retailers.

**Research Methodology**

The aim of the paper is to investigate the factors affecting the Acceptance of Image Interactivity Technology and to check the effect of the TAM model. For this, structured questionnaire was developed to gather data and administered on 100 respondents. However, 96 final usable responses were used for final data analysis and the remaining 4 respondents did not replied to the questions which were asked to them.

A questionnaire comprising of several sections was developed. The various sections of the questionnaire relate to general information Image Interactivity Technology. The first part of the questionnaire includes the demographic characteristics of respondents. In the present study, the TAM model was used which was given by Davis 1989 and measured on a five-point Likert scale (1 strongly agree to 5 strongly disagree).

**Data Analysis**

**Respondents Profile**

Respondent are required to provide his/her demographic and socioeconomic data that includes gender, age group, education, occupation, individual income. Do they have visited the website, have they have visited other website, have they used the similar technology.

| Variables | Categories | Frequency | Percentage |
|---|---|---|---|
| Gender | Male | 63 | 65.6 |
| | Female | 33 | 34.4 |
| Education | Undergraduate | 64 | 66.7 |
| | Postgraduate | 32 | 33.3 |
| Occupation | Student | 96 | 100 |
| Individual Income (Per month) | Below 20000 | 21 | 21.9 |
| | 20001-30000 | 39 | 40.6 |
| | 30001-40000 | 20 | 20.8 |
| | Above 40001 | 16 | 16.7 |
| Have you ever visited the website of Lenskart? | Yes | 96 | 100 |
| | No | 0 | 0 |
| Have you ever visited the other website other than Lenskart? | Yes | 0 | 0 |
| | No | 96 | 100 |
| Have you ever used the similar technology before? | Yes | 0 | 0 |
| | No | 96 | 100 |

As outline the respondents profile, this analysis shows that in gender, most of those respondents are male and while the age group is dominated by average group of *19 to 23* years old and their education category mainly are *undergraduate.* The highly propionate of individual's monthly income group falls between *Rs. 20,001 to Rs. 30,000*. The distribution of sample respondents on the basis of occupation structure is heavily dominated by *student*.

It is concluded from the table that the respondents have visited the website and they haven't used these kind of similar technology before and also they haven't visited other website.

**Reliability Analysis:**

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**Table 2 Reliability**

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| Variable | Cranach's Alpha | Items |
|---|---|---|
| Perceived Usefulness | 0.855 | 6 |
| Perceives Ease of Use | 0.817 | 5 |
| Perceives enjoyment | 0.820 | 6 |
| Attitude toward the online retailer | 0.887 | 5 |

**Regression:**

Some of the most interesting questions of statistical analysis revolve around the Relationship among the variables, which is established by regression analysis. Regression analysis is a tool with several important

applications.

The multiple regression analysis was done to measure Attitude towards Online retailer (AOR) (dependent variable), based on Perceived Ease of Use, Perceived Usefulness, Perceived Enjoyment (independent variables).

**Table 3 Model fit Summary for Attitude towards Online retailer**

| Model | Sum of Squares | DF | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 59.559 | 3 | 19.853 | 390.369 | 0.000[a] |
| Residual | 4.679 | 92 | 0.051 | | |
| Total | 64.238 | 95 | | | |

*Sig at $p > 0.05$; **R-Square= 0.927**

**Table 4 Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | 0.963[a] | 0.927 | 0.925 | 0.22552 |

a. Predictors: (Constant), PE, PU, PEU

**Table 5 Coefficient of Attitude towards Online retailer**

| | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
|---|---|---|---|---|---|
| Model | B | Std. Error | Beta | | |
| (Constant) | 0.059 | 0.114 | | 0.522 | 0.603 |
| PU | 0.976 | 0.057 | 0.893 | 17.238 | 0.000 |
| PEU | -0.252 | 0.068 | -0.240 | -3.694 | 0.000 |
| PE | 0.358 | 0.051 | 0.351 | 6.966 | 0.000 |

In the present regression analysis, the measure of strength of association is given by the coefficient of determination denoted by R-square. From above Table, it can be seen that the R-square value is 0.927, which shows 92.7 % of variance is explained in customer AOR by two independent variables.

The last column of the Table 4 shows standard error of estimation that provides a measure of how accurately the regression equation predicts values of dependent variable. The smaller the value of standard error of estimation is, better one can predict that the independent variable account for the variance in the dependent variable.

Table 3 shows that statistically significant with a value of 0.000, which is less than 0.05.so we can say that the model fit and its significance as well. From above Table shows that Attitude towards Online retailer and is statistically significant with a value of 0.000, which is less than 0.05. The result of F-test shown is also significant with value of 0.000, which allows a researcher to determine whether the linear regression was statistically significant. This indicates that model is statistically significant at a confidence level of 95%.

## Discussion and conclusion

The objective of our research was to identify the factors that motivate customers behaviour towards Acceptance of Image Interactivity Technology" in India which can be of great importance to online retailers.

The study validates the applicability of TAM in understanding the Customers Behaviour towards Acceptance of Image Interactivity Technology. The study posits that acceptance of Image Interactivity Technology is based on Perceived usefulness, Perceived ease of use, Perceived Enjoyment Attitude towards online retailer and Behavioral Intention. The results of the study will provide managers the information about the Behaviour of Consumers towards Purchasing from online retailers.

This study has two limitations. First, the sample size is not large enough to generalize results to the entire country, as India is a huge country and a substantial proportion of the population resides in rural areas. Generalizing results for the entire country would entail conducting similar studies in different parts of India.

Second, there exists much scope to analyze image interactivity technology acceptance comprehensively, more than or less than as the current model Additional factors that may be potentially used by future researchers can include trust, perceived cost, perceived value, security and customer loyalty.

Finally, Image Interactivity Technology in India is still in its initial stages, and more research in this field is needed. The proposed model is a systematic attempt in this direction to explore customer Behaviour towards acceptance of Image Interactivity Technology in India and can form a useful basis for future empirical studies.

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