

Effectiveness of Augmented Reality on Consumer Shopping Experience with Reference to Eyewear

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Abstract

Smart glasses are demonstrated to be one among the advanced figuring gadgets that join the people and machines with the assistance of Innovation and communication Technology(ICT).As of late, it's seen that smart glasses have been used in the clinical and gaming applications.Be that as it may, the highlights of smart glasses can contribute its services in different fields as well. Right now, study is done to investigateto explore the effectiveness of augmented reality on consumer shopping experience with reference to eyewear. Advancements made in the field of technology are applied to businesses to increase sales for brand building, so by enhancing human perception of reality with this application through contextualization of individual objects that we come across in the real world with their virtual matches so on to make the real objects more engaging and appealing.The most common application of AR is a virtual changing room - e-businesses showing their items by means of portable/web cameras as a 3D projection on an individual.This paper centers around the impact of augmented reality on the shopping experienceof the customers, the outlooks(attitude) of buyers towards Augmented Reality in relation to purchase of eyewear products and services.In the examination, most highlights were seen as in favour, with the prerequisites for shopping eyewear products. The results show that AR provides customer engagement by resulting in favourable shopping experience compared to the traditional shopping.

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I. INTRODUCTION

Creativity as we all know has no end. Innovation has taken a whirlwind swirl at the world in the form of artificial intelligence and augmented reality combined. Augmented reality, has taken over the technological world in a very short span of time. The discoveries and innovations in the field of augmented reality (AR) come with its own advantages and disadvantages. But, the very reason for its triumph is the enormous amount of support it gets from the people for all the advantages it carries.

Augmented reality is an exciting technology which is based on computer vision to augment sound, video, graphic images and other sensors. Augmented reality is a unique and interactive way to present the information in the real world. AR can provide users with sub immersive feeling by allowing interaction between the real and virtual worlds. Augmented Reality framework was first evolved by Ivan (Sutherland, 1965). From that point forward, a lot of research is being done to investigate Augmented Reality (AR).

As Smart Phone gadgets have gotten presentable in the entire world, Augmented Reality, browsers have been created to run on them. Smartphones have the whole essential equipment system for AR, for example, Camera, Graphics, GPS compass and accelerometer. AR browsers avail the gadget's sensors and superimpose valuable data as a layer on top of the image from the camera which, thus, is seen on the gadget's screen.

1.1 Mobile Augmented Reality

A couple of years back, in relation to the rapid development of smartphones, a new breed of AR entered the market. Augmented Reality applications in mobiles permit users to hold up their phones and see a heads up display-style and an AR model of data associated with their environment. Mobile Augmented reality Apps are intended to be useful for the mobile phone users and offer quality services and functionality. These applications utilize the phone's camera, GPS, touch screen component and other and other sensory and motion detectors to assimilate real images, video or scenarios within them. AR is an integral part of the marketing aspect of a company that seeks the attention of its consumers and hopes to gain their loyalty. Not only is it fun to use but is also a very helpful brand building technique. A qualitative focus group study conducted by Bulearca and Tamarjan(2010) on AREM concluded that it is an exciting and excellent tool to increase user interaction but is under researched. The study retailed glasses to 'Glasses Direct', a UK based company. The users tried glasses on through a computer Webcam. The aim of the research was to identify the qualitative and quantitative aspects of AR as a marketing strategy. Despite all the limitations and complications faced, the study displayed a good impression in regards to AREM. There were other comments relating the researcher who had a positively biased view when it came to using AR in marketing. Thus AR is capable of being a beneficial tool to the marketers and increasing user interaction to lead the new generation in moving forward.

1.2 Augmented Reality in Marketing

Marketers in companies employ many strategies to determine the value of a product or a service and communicate information to customers for the conduct of a better sale. Initially, the marketer should have the knowledge about the target customers so they focus on the campaign aim to satiate the customer to gain their loyalty. AR marketing can be added to another media be it print, television or real world. Social Media is the most popular example of AR, with the usage of camera masking filters allowing users to have fun while they augment their reality. There are only a few apps that AR is not suited for. It is a dynamic digital element and has made its way into industries such as healthcare, medicine, astronomy, education and business.

1.3 The Impact of Augmented Reality on E-commerce

The importance of E-Commerce has grown considerably over the last decade with the takeover of the electronic revolution throughout the world. The ability to connect, communicate, buy and sell over the internet has transformed business models and has resulted in lower costs, higher returns and has created an unparalleled reach to connect with potential consumers. Electronic transactions also enable several competitive advantages over traditional methods. E-commerce has grown tremendously and swiftly. It is predicted to continue at this rate, or even accelerate. The rate of increase in the number of people using smartphones, tablets and other electronic gadgets connected to the internet to attain access to information is a classic proof of the reach of the internet as the best medium of trade this era. Soon the distinction between "conventional" and "electronic" commerce will fade, as more and more businesses will convert their operations online. New marketing approaches through technology are being explored by entrepreneurs, one among which is Augmented Reality (AR). It is a live, direct/indirect, outlook of the physical, real-world environment, where the modules are augmented via computer-generated sensory inputs like sound, video, graphics or GPS data. As a result, the technological functions enhance one's current view of reality. With the help of advanced AR technology, the information

regarding the surrounding real world of the user becomes interactive and accessible in a digital medium. Artificial information about the environment and its objects are often superimposed on the real world. Researches show application of computer-generated imagery in live-video streams in order to enhance the view of the real world. Augmented Reality is an extended arm of Virtual Reality. AR involves video tracking of the real world to help with interaction of virtual objects, and provide 3D graphics that could be superimposed on any OS platform, on any device including a desktop, tab or a Smartphone. The necessary requirements essential for this, is a device with a camera and an internet connection. Augmented Reality operates with the help of a QR Code (Quick Response Code). A marketer can select a planar object in any medium that is recognized by the consumers, upload it to an AR technology provider servers to act as a fingerprint, the app takes over from hereon. The object can be anything from a poster, magazine or a small item, and the action can be anything from superimposing a 3-D graphic, playing a video file or sending one to a brand's website. The object itself is now the real world "tag," and visual perception lets the data associated with the tag be a lot more dynamic than a what a QR Code can offer.

1.4 Application of Augmented Reality in eyewear industry

Small products can be hard to sell as consumers choose to visualize it. Augmented reality apps allow consumers to visualize themselves wearing the products and buy it without leaving their homes. One of the revolutionary discoveries of augmented reality is the new AR based eye wears also known as smart glasses. Purchasing the right eye wear can be tedious task especially when you have a wide variety of shapes, designs and discounts available around you to attract the eye. It is also important to note that a wrong size or fit can leave the customer with a bad experience. Thus AR gives a clear picture of the eyewear when you wear it, which are wearable computer glasses that append information side by side or modify it to what the wearer sees. They are programmed to change tint by electronic means. The systems have the ability to emulate projected

digital images as well as allow the wearer to see better through it and with it. Few selective glasses have no restrictive touch buttons and can communicate with the internet through natural language voice commands while some use touch buttons. These glasses collect information from both internal and external sources. It is also reinforced with wireless technologies like Bluetooth, WiFi and GPS. This is a developing technology that intends to change the world as users see through it based on what they are looking at. It gives the same reality like effect as what the naked eye gives but with an added visual simulation of images or content to grant an enhanced view to the wearer. They are designed similar to the normal eye glasses except the lenses are made of transparent LCD. The headsets include an in-built microprocessor and storage. It combines lenses which allow natural light to pass through the eyes. These glasses need a camera to record images in the real world. The registration subsists of icons through which the computerized part of the glass plants an AR object in the real world. A suitable programme application or software is required to combine the image provided by the camera and the image generated by the registration. Field of view is one of the main things to consider in smart glasses as it what separates the usual human field of view and the augmented view.

II. REVIEW OF LITERATURE

Review of a variety of Literature from various sources was undertaken. Various business models were undertaken to capture different target market segments, out of which the Ecommerce business models are more projecting having a distinct success rate which is why Ecommerce sites end up being more commercially more viable for companies, customers and prospects.

(Nallapaneni Manoj Kumar, 2018) This article talks about the use of smart glasses in education, its scope and challenges for the students and teachers, and has provided the difference of use and performance of other devices that are being used. It points out the multitudinous features and scope it provides such as documentation of lecture, on site report presentation, capturing of

videos and images, trainee evaluation, listener's experience tracking and real time teaching. One of the major challenges as mentioned in the article is the practical implementation, as it requires complex network, the others include lack of funds, social awareness, regulations and reforms etc. The article states that smart glasses have the ability to improve the education sector and transform the learning platform completely. The article further states that with more research and implementation of flexible features, it has a chance of wide applicability and also with slight improvement in features and working it could offer a full-fledged and a more effective service. Benefits derived from this technology, if implemented efficiently can affect multiple aspects of a business. In order to provide a richer, more targeted market experience the consumers have been taken as the main focus of research on the effects of augmented reality as well as to determine the gravity of e-commerce activities engaging customers, propensity of information, personalisation, experiential shopping preferred by consumers and explore the market potential of augmented reality and its benefits to E-Commerce.

(Anand Nayyar, 2018) This article talks about the usefulness of the application of Virtual Reality and Augmented Reality in attracting the attention of tourism researchers and other professionals and highlights the top technologies in regards to AR and VR used in Tourism and Hospitality. The emergence of AR and VR technologies has led to an increase of scientific applications, they have also proved to be extremely valuable in planning, marketing education and tourism as well as increasing awareness about sport preservation.

(ELHAM BARATALI, 2016) in their article identified AR as a new digital marketing technique which covers both the virtual and real world in targeting the "Big Idea", AR has been an ally to digital marketing that has helped digital marketing gain zeal. AR in marketing and advertising (ARMA) has been an innovative and interactive method to engage an audience with the company's brand. The primary intention was therefore to increase awareness on AR in the marketing and advertising field both for immediate as well as intended purposes.

(Abrar Omar Alkhamisi, 2013) In their article "Current and Future Application Areas", there is major focus on the various possible fields in which augmented reality could be applied in the future. Here, the authors have discussed about the history, architecture, challenges faced while framing policies and building the AR and its future trends. The major industries/fields where AR is applied are education, medical, advertising, entertainment, design, commerce which has gained significance from the discovery of e-commerce, which has made everything simple and effortless, for example, online shopping, product shopping etc. One of the major challenges faced by the augmented reality as stated in the article is the environment, the others include coping with problems arising out of display, managing content and location. The article also states that, augmented reality is in its initial stage of development and that with appropriate training and improvement it could be more easily accessible and convenient for the users.

Hidden in Mar 2011 in his report 'Augmented reality marketing strategies: the elementary guide for marketers helps in completely understanding the uses, opportunities and creative ideas for using AR in marketing of goods and services. Statistics published by the Hidden show that for an AR driven digital marketing campaign there are an average of 55000 unique users per month with onsite dwell timings with an average of 7 minutes and 45 seconds. AR provides robust interactivity, portability and 'on the go' mobile experiences by connecting augmented content to just about anything. AR also helps in collecting business intelligence through the point of sale interactions and also measures ROI manifesting in conversion to direct sales, dwell time, brand awareness and PR for the brand.

Aliya Khan, 9 Sept, 2010, business.wikinut.com in her article 'Why e-commerce works, and why more than ever...' talks about the advantages of online trading. The first concept discusses how the concept of E-commerce has been able to offer products online instantly while widening the reach of a company from beyond the whole neighbourhood to the

whole world. There is no need of large amounts of capital and there is quick receipt of payments in online businesses. Therefore the cost burden on an e-tailer is much lower. Ecommerce offers level playing field for big businesses and an one man operation, consumers only look at the efforts made by an e-tailer for their product or service.

Sheth and Parvatiyar (1995) in their article studied that an online shopping brand focuses on the target consumer in order to select the kind of business model to be used as different consumer segments react differently to each type of business model. Relation marketing literature suggests that consumer characteristic e.g., sociological orientation plays a crucial role in a consumers' intensity to engage in online transactions. Retailing literature also suggests that a consumers' characteristic and behaviour indicate their probability of deciding to make purchases online.

Yuzhu Lu and Shana Smithon 'Augmented Reality E-Commerce: How the Technology Benefits People's Lives' a couple of years ago examines the user reactions to traditional ecommerce systems, virtual reality systems and augmented reality systems. Experiments were conducted on a group of people revealing that people gained better user confidence and gained most of their information through AR systems online which also enhances their interaction as opposed to tradition ecommerce systems or even a VR system. Feedback collected from participants revealed that 95.8% mentioned AR has the capability to help users visualize information on how the product fits in the real and physical environment. It presents products in a real scale, relative to the environment, and renders a multi view perspective. Site visitors are able to efficiently evaluate important product information like size and colour and make a decision as to if the purchase would be worthy. AR provides an interesting experience and helps people obtain more information and make precise judgements while shopping online.

III. RESEARCH METHODOLOGY

3.1 Research Objective

Primary objective: *To analyse the influence of augmented reality on consumer shopping experience with reference to eyewear product.*
Secondary objective: *To identify the key factors that, affect the customer in using augmented reality apps to shop eyewear products.*

The primary objective of this research will focus to study the effect of commercialized mobile AR application in marketing and also to compare the impact of mobile AR application in shopping of eyewear products.

The secondary objective will be on the effectiveness of AR on consumer purchase decision with reference to eye wear. The idea is to prove that the purchase of augmented reality (AR) based on eyewear leads to customer satisfaction which further leads to favourable shopping using AR application. Keeping in mind the factors such as, strong social influence, habitual experience, value for price, successful performance and efforts it also encourages customer engagement based on the core drives such as quality and trust.

3.2 Sample Size

Convenience sampling was used to select for collecting the responses from the respondents. A total of 100 customers were sampled to represent the population.

3.3 Data Collection

This research used primary data by way of questionnaires to collect data from customers. The questionnaire used was structured to ensure uniformity of responses and contained both open-ended and closed-ended questions. Five-point Likert scales with ends starting from strongly disagree to strongly agree was used to collect responses from customers using augmented reality for shopping eyewear products.

3.4 Validity and Reliability of Measurement

In order to ensure the reliability of the measurement instrument, the data was compiled and analyzed to test the scale for internal consistency using the techniques Cronbach's alpha. The value of Cronbach's alpha obtained (0.924) indicated a high level of internal consistency for the study scale.

Reliability Statistics

Cronbach's Alpha	N of Items
.924	31

3.5 Proposed augmented reality Adoption model – Conceptual framework

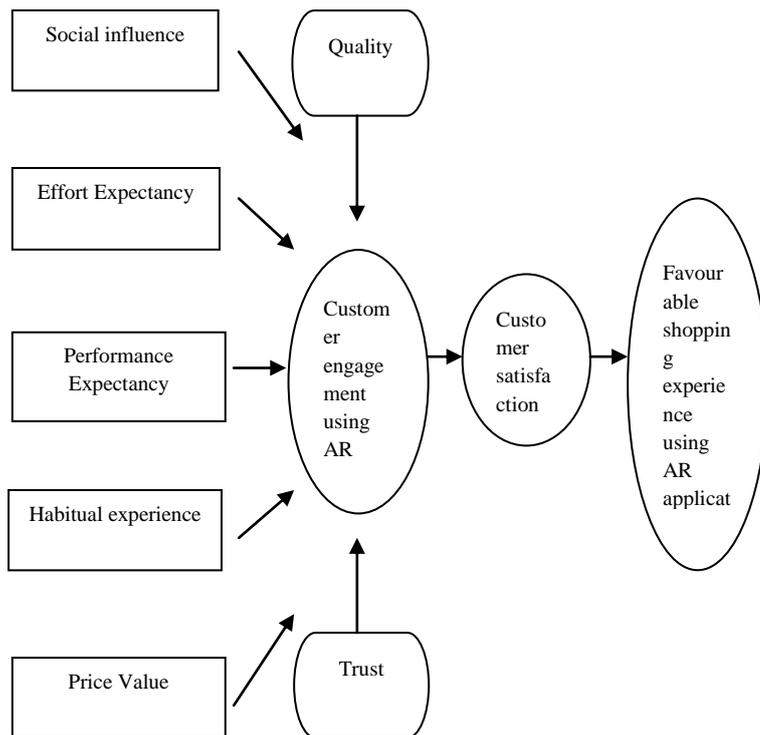


Fig 1: Proposed Augmented Reality Adoption Model

3.6 Concepts in the Augmented Reality Adoption Model

1. **Social Influence:** Social Influence can be defined as the degree of influence of the

choices, recommendations and opinions through friends, family and the peer group. Social influence in this research includes social factors like known people who influence the use of AR application for shopping eyewear products

2. **Effort Expectancy:** Effort expectancy refers to the level of effort which a consumer has to make to utilise the available technology. In this research it explains that the customers using AR for shopping eyewear did not find many difficulties in using it. The AR application was user friendly.

3. **Performance Expectancy:** It is the degree to which an individual believes that using the technology will help him to complete a particular task. It simply refers to the level of technology expected by the consumers to do what it is intended for. In this research, performance expectancy describes a user’s belief that use of AR on shopping eyewear provides many benefits and assists them in completing their shopping.

4. **Price value:** Price value refers to the value which the consumer perceives to receive in return for the price paid by him. The price value is positive when the benefits of using a technology are identified to be greater than the monetary cost.

5. **Habitual Experience:** Habits refers to the practices and routines of a person which will affect the behaviour and the attitude of a person. Habits are the main factors that will decide a person’s intention to behave in a particular manner.

Table1: Showing List of hypothesis

S.no	Factor	Hypothesis
1.	Social Influence	H0: Social influence has no significant relationship with shopping eyewear products using AR .
		H1: Social influence has a significant relationship with shopping eyewear products using AR .

2.	Effort Expectancy	H0: Effort expectancy has a significant relationship with shopping eyewear products using AR.
		H1: Effort expectancy has no significant relationship with shopping eyewear products using AR .
3.	Performance Expectancy	H0: Performance expectancy has no significant relationship with shopping eyewear products using AR.
		H1: Performance expectancy has a significant relationship with shopping eyewear products using AR
4.	Price value	H0: Price Value has no significant relationship with shopping eyewear products using AR.
		H1: Price Value has a significant relationship with shopping eyewear products using AR.
5.	Habitual Experience	H0: Habitual Experience has no significant relationship with shopping eyewear products using AR.
		H0: Habitual Experience has a significant relationship with shopping eyewear products using AR.

IV. Data Analysis and Interpretation

Table 2: Demographic profile of respondents

Factors	Frequency	Percent
Gender		
Male	26	26%
Female	74	74%
Total	100	100
Age		
18-22	54	55
23-27	33	16
28-35	13	29
Total	100	100
Employment Status		
Homemakers	4	4%
Student	76	76%
Working	20	20%
Total	100	100
Marital Status		
Married	10	10%
Unmarried	90	90%
Total	100	100

Weighted average of the constructs and moderators

The following table provides the details of the weighted average scores for each of the statements used in the questionnaire and also the combined weighted average for each of the factors of the model. The weights allotted as below 5-Strongly agree, 4- agree, 3-neutral, 2- disagree and 1- strongly disagree.

Table 3: Table of weighted average scores.

Statement		Score
1. SOCIAL INFLUENCE		
I got to know about EYEWEAR AR through friends and family	3.78	3.94
Social media and pop up ads influenced me	4.10	
2. EFFORT EXPECTANCY		
Ordering through AR doesn't require much effort	3.95	3.94
Lesser effort required than other method	3.96	
Find AR clear and understandable	3.88	
Its easy to use and customer friendly	3.99	
3. PERFORMANCE		

EXPECTANCY		4.09
Very beneficial for shopping	4.12	
Enable me to choose from best brand available	4.13	
It enables me to satisfy my interest	3.99	
It enables me to save much time	4.13	
4. HABITUAL EXPERIENCE		3.67
It has become a habit for me to order through AR, whenever I need to get an eyewear	3.41	
It has become a habit for me to do the ratings and/or review, everytime ,after getting the product delivered	3.56	
I have the habit of checking the ratings and reviews in the app before trying out a new one	4.06	
5. PRICE VALUE		3.62
Ordering through AR app is cost effective / price saving	3.56	
Reasonable delivery charges	3.68	

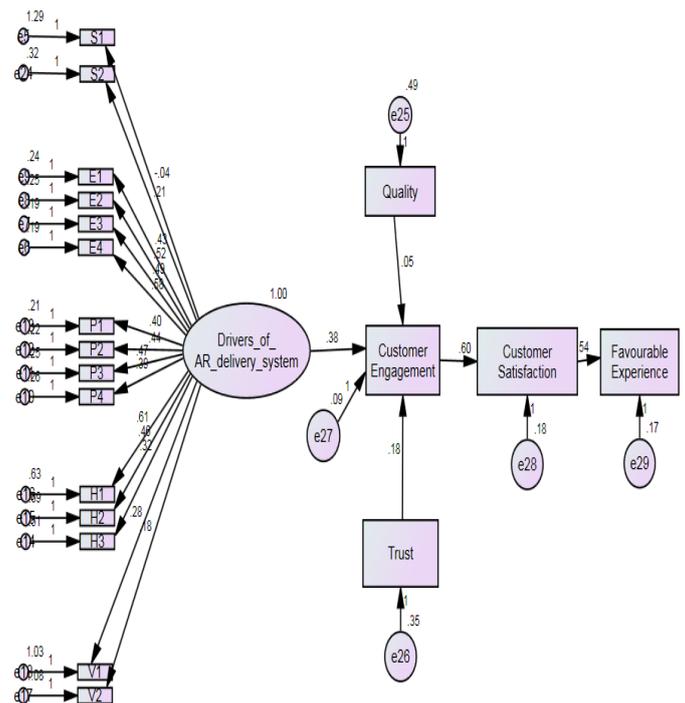


Fig 2: Customer Shopping Experience Model (CSEM) using AMOS

From the above table we can understand that highest weightage is for performance expectancy (4.09). Hence we can say that performance expectancy plays an important role in the minds of the respondents when shopping eyewear using AR application. The least weightage is for price value factor (3.62). Therefore the factor price value has no severe influence in the decisions of the respondents in using the AR app for shopping.

Fig 2: Customer Shopping Experience Model (CSEM) in AMOS

The previous diagram is the Consumer Purchase Decision model created in AMOS software in ordered to find the relationship between all the factors. In this model the relationship is tested between each factor.

Table4:CMIN

Model	NP AR	CMI N	D F	P	CMI N/D F
Default model	40	527.514	170	.00	3.103
Saturated model	210	.000	0		
Independence model	207	114.449	190	.00	6.024

The chi-square for the model is also called the discrepancy function, likelihood ratio chi-square, or chi-square goodness of fit. In AMOS, the chi-square value is called CMIN. If the chi-square is not significant, the model is regarded as

acceptable. In SEM a relatively small chi-square value supports the proposed theoretical model being tested. In this model, the value is 527.514 and is small compared to the value of the independence model (1144.497). Hence the value is moderately good.

Table 5: RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.100	.690	.617	.558
Saturated model	.000	1.000		
Independence model	.177	.268	.191	.243

The RMS, also called the RMR or RMSE, represents the square root of the average or mean of the covariance residuals--the differences between corresponding elements of the observed and predicted covariance matrix. Zero represents a perfect fit, but the maximum is unlimited. Hence it is not a bad fit but a moderately good fit.

The goodness of fit index (GFI) was the very first standardized fit index. It is analogous to squared multiple correlations except that the GFI is a kind of matrix proportion of explained variance. Thus, GFI = 1.0 indicates perfect model fit, GFI > .90 may indicate good fit, and values close to zero indicate very poor fit. In this model, it can be seen as a moderately good fit.

Table 6 : RMSEA

Model	RMSE A	LO 90	HI 90	PCLOSE
Default model	.146	.132	.160	.000
Independence model	.225	.213	.238	.000

Root Mean Square Error of Approximation (RMSEA)

This absolute measure of fit is based on the non-centrality parameter. Its computational formula is:

$$\frac{\sqrt{(\chi^2 - df)}}{\sqrt{[df(N - 1)]}}$$

where N the sample size and *df* the degrees of freedom of the model. The measure is positively biased (i.e., tends to be too large) and the amount of the bias depends on the smallness of sample size and *df*, primarily the latter. The RMSEA is currently the most popular measure of model fit and is now reported in virtually all papers that use CFA or SEM and some refer to the measure as the "Ramsey." In the above table, the RMSEA for default model is 0.146 which is a moderately fit model.

Table 7:Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
CE <--- Q	.051	.046	1.114	.265	
CE <--- Avg_T	.177	.054	3.255	.001	
CE <--- Drivers_of__AR_delivery_system	.384	.042	9.188	***	
Avg_cs <--- CE	.599	.085	7.055	***	
S1 <--- Drivers_of__AR_delivery_system	-.043	.119	-.362	.717	
S2 <--- Drivers_of__AR_delivery_system	.208	.062	3.371	***	
E1 <--- Drivers_of__AR_delivery_system	.435	.060	7.236	***	
E2 <--- Drivers_of__AR_delivery_system	.521	.064	8.115	***	
E3 <--- Drivers_of__AR_delivery_system	.486	.058	8.447	***	
E4 <--- Drivers_of__AR_delivery_system	.579	.062	9.291	***	
P1 <--- Drivers_of__AR_delivery_system	.397	.056	7.108	***	

		Estimate	S.E.	C.R.	P	Label
P2	<--- Drivers_of__AR_delivery_system	.443	.058	7.585	***	
P3	<--- Drivers_of__AR_delivery_system	.474	.062	7.621	***	
P4	<--- Drivers_of__AR_delivery_system	.390	.061	6.435	***	
H1	<--- Drivers_of__AR_delivery_system	.609	.094	6.458	***	
H2	<--- Drivers_of__AR_delivery_system	.462	.093	4.941	***	
H3	<--- Drivers_of__AR_delivery_system	.319	.079	4.046	***	
V1	<--- Drivers_of__AR_delivery_system	.281	.108	2.594	.009	
V2	<--- Drivers_of__AR_delivery_system	.183	.110	1.660	.097	
avg_fe	<--- Avg_cs	.537	.081	6.623	***	

From this table we can conclude by saying for every 1 unit increase in Drivers of AR delivery system there will be 0.208, 0.435, 0.521, 0.486, 0.579, 0.397, 0.443, 0.474, 0.390, 0.609, 0.462, 0.319, 0.281, 0.183 unit increase in Effort expectancy, Performance expectancy, habitual experience and price value and finally for every 1 unit rise in Social influence there is a 0.043 unit decrease in consumer shopping experience.

- ▶ H1a: Social influence has a positive impact on Consumer Shopping Experience. The 'p' value is greater than 0.05 which suggests that there is no statistically significant impact on consumer shopping experience of eyewear products. Therefore we accept the null hypothesis.
- ▶ H1b: Effort Expectancy has a negative impact on Consumer Shopping Experience. The 'p' value is lesser than 0.05 which suggests that there is a statistically significant impact on consumer shopping experience of eyewear products. Therefore we reject the null hypothesis.
- ▶ H1c: Performance Expectancy has a negative impact on Consumer Shopping Experience. The 'p' value is lesser than 0.05 which suggests that there is a statistically significant impact on consumer shopping experience of eyewear products. Therefore we reject the null hypothesis.
- ▶ H1d: Habitual Experience has a negative impact on Consumer Shopping Experience

The 'p' value is lesser than 0.05 which suggests that there is a statistically significant impact on consumer shopping experience of eyewear products. Therefore we reject the null hypothesis.

- ▶ H1e: Price Value has a positive impact on Consumer Shopping Experience. The 'p' value is greater than 0.05 which suggests that there is no statistically significant impact on consumer shopping experience of eyewear products. Therefore we accept the null hypothesis.

V. FINDINGS & SUGGESTION

FINDINGS

- Almost 87% of customers are doing shopping very often. Products like fashion and electronics are frequently bought online and closely followed by services like music/video, software downloads and paid online subscriptions like magazine subscriptions, job/marriage portals, etc.
- People falling between age group 18-22 prefer shopping eyewear products online.
- 80% of respondents use a smartphone and remaining customers use laptop/PC to go online on these devices almost every day. This indicates the rapid use of gadgets by consumers to stay connected.
- To find the relationship between the dependent variable and the independent variable, Multiple Linear regression was done. Even though all the Drivers of AR delivery system had a positive impact on the Consumer shopping experience, they

were not significant enough except for Social influence in purchasing which had a negative impact on Consumer shopping experience. But the Performance expectancy and Effort Expectancy had a statistically significant impact on the Consumer Shopping experience.

- When the CSEM is considered as a whole, with the help of AMOS the relationship is found to be statistically significant towards Performance Expectancy.

SUGGESTIONS AND RECOMMENDATIONS:

Through this research, the factors that impact the consumer shopping experience were analyzed through Customer Shopping Experience Model (CSEM). This can be used as a basis for several further types of research. This leads us to the further understanding of customer engagement and satisfaction and how it is driven by augmented reality. Well informed customers are proved to have favourable shopping experience purchasing eyewear products using AR applications. The only drawback is that the customer is expected to be rational and literate enough to be able familiarise himself with smart devices and applications.

CONCLUSION

This research draws a parallel between AR customer engagement and AR favourable shopping experience. As already concluded the most rational determining factors leading to customer engagement as briefly pointed out, Social influence, Effort expectancy, performance expectancy, Habitual experience and Price value. The research methodology was purely inclined to quantitative approach to arrive at a statistical conclusion, but the additional comment and insights expressed by the participants from the experimental group. Most participants were taken a back while first trying out the application especially by the way it replicated the real pieces of eyewear in front of their mobile camera display, and making similar exclamations like in the AR study by Javornik (2017) such as "Wow!" or "This is so cool." Recent studies have pointed out that even though this technology has been prevalent for quite some time, considerable

amount of customers between the age group 28-35 still lack the technical know-how of such technology. Nevertheless, few participants detailed at the end of the experiment that they appreciate the fun side of the augmenting experience and they desire to adopt this as part of their shopping process in the future. Such positive reviews provide further assistance to the concerns regarding the practicality of AR applications widely used for shopping. Keeping in mind that the usefulness the users perceive depends on how the app is capable of performing. Despite not being the main essence of this research, subsequent research practices led us to the study of outcome with respect to both genders, a portion of the outcome established that the effect of shopping experience were similar for both genders. However as in line with the previous research by Reidsma (2013) and Schumacher and Morahan-Martin (2001) Women are more apprehensive towards the technology than their male counterparts. In addition to this Women are indulged in shopping for pleasure whereas men are inclined to make rational and balanced purchasing decisions (Dennis et al., 2010).

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