Influence Of Augmented Reality On Purchase Intention

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Abstract

In today's business competitive environment, organizations are striving to discover innovative ideas in order to support and promote their offerings. In spite of the undeniable fact of traditional marketing to promote a product, it has gradually failed in meeting the prerequisites of the present markets. The association of augmented reality in developing customer brand engagement and purchase intention is the most highlighted element of this study. The purpose of the study is to explore the impact of augmented reality in the creation of customer brand engagement and purchase intention with the effect of value co-creation. The study was conducted through a questionnaire sent to the people living in Bangalore via google forms. Total of 514 data was collected from the people. AMOS was used for the study to come to the conclusion. The paper include the managerial implications, finding and recommendations in respect to the above study.

1.INTRODUCTION

When we look at the current generation it has been the demand of digital advertising and sale of product in order to promote the product with making the customer aware what the organization is offering along with the cost effectiveness. The current marketers are changing their promotional techniques from just providing product features and its advantages to customer oriented giving them feed back as well as solutions to their need.The market is competitive where in when we look towards customer they have distinguished features that include business necessities, their drive towards product purchasing behaviour, income level and distinctive static profile. We expect the market to offer us something more than what is provided to us. Currently, marketing channels are required to offer something beyond a single way of communication, at the same time creating valuable and customer-specific data (Preece et al., 2015). Acquiring such information should be possible from many sources including collection from both online and offline sources, following recent purchases, gift registries, personal shopper files, responses from quick response codes, digital channels brand engagement and many others. Researchers share a focus on the active role of consumers as a key component of value Co-creation. Consequently, the active role played by the 'free consumer 'is increasingly seen as a threat to marketers, who are losing the power to control the market .Furthermore, this active role is often seen to be transforming economic logic, and shifting power from producers to consumers. From this perspective, consumers often know best what they value. [1]

2.LITERATURE REVIEW

2.1 Interconnectivity between augmented reality and value co-creation

It's been obvious that augmented reality has been a change in the form of domain of way the marketing used to be done in the earlier days. . The customer they get trust to the product they purchase online only and when the customer get the product what it has told to deliver and show the same product the customer has purchase the product. This creates trust relationship and bring the benefit to the company from the customer side. The trust is created to the specific site and customer get attach to that brand bringing the engagement factor to the customer. Strategic moves has bought in bringing the customer brand engagement leading to creation of customer loyalty programs (Hollebeek, 2011). Stronger the brand engagement can bring and lead to stronger relationship between the company and customer in the form of membership, discounts and allowances with further offers to which the customer than inturncan result to purchasing intention with the brand in near future. [2]

2.2 Interconnectivity between value co-creation and customer brand engagement

The notion that is developed by value co-creation suggests that the value of a productor service is not just developed by a manufacturer or the seller but it is cordially created with the customers support. It is thus becomes important when the quality provided between the company,

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customer communities and customers is required for the value co-creation (Prahalad and Ramaswamy, 2004). At most often an interaction is needed to engage the customers and create the value co- creation process. The company should have adequate tool in order to get the customer actively participate in the product development and innovation of products. This co development of products can come from the company when they provide platform to the user to participate and encourage them to take decision. Interaction platforms are must for the user to get the situation and help the company to grow with the products. The purchase intention of a customer to buy a product depends on the customer loyalty,the trust he gets from the company,the promotional.Activity done by the company for the customer and the retention rate which bought by the customer from the company by providing various benefits, offers that attract the customer and creates an intention to get the product. [3]

2.3 Interconnectivity between augmented reality and customer brand engagement

The media representation is very important for the augmented reality. It is far more complex than the virtual reality wherein it requires digital content requirement with the real background where it can display the product. The reason why most of the task are now accomplished by the AR is that the system are information processing rather than virtual reality which is which is manipulative in nature and editable. The AR is having a system through which the customer is tracked with the given information he possess in while getting in touch with the AR. The input mechanism that is put discuss majorly the change it brings or the manipulation to the role. AR rather confines the data and wok accordingly for the growth of the information processed and track the behavior of the consumer with the preference it has and provide the relevant data to the customer.For all the online retailers,AR tools which is having a virtual reality try-ons which bring the capacity to increase the conversion rate and decrease the return accordingly. In order to be a successful in the market domain in this current digital environment both the virtual experience must have a proper and significant impact on augmented reality and the customer dimension that need to be accepted by the consumers. [4]

2.4 Interconnectivity between value co-creation and purchase intention

To bring out the positive effect on the segment of customer behavior it is important to increase the product knowledge in the minds of the customer and bring the positive influence in the attitude towards the product, more of a direct experience with the product that need to be evoked by the technology up rooted.The online shopping has bought lot of changes in the market and customer buying through these technologies have also increased. The engagement it has bought to the customers is much more than what it is assumed to be. This has led to the growth and systematic development of AR and led to the customer brand engagement. The current trend has bought the changes in the mind set of the customers who are willing to purchase the product online and leading the change in the purchase behavior.Purchase intention gets generated when the customer get trust from the product he is buying.The millennials are connecting themselves with the mobile and the information they are getting related with those

technologies and providing solutions to themselves easing the out of doing shopping. [5]

2.5 Interconnectivity between customer brand engagement and purchase intention

The total accumulation of knowledge about product from the customer related with the product use and also the product information that totally indicates the total ability of the individuals or the customer to solve all the problems related to product. The customer have grown up getting a total 360 degree of information about the product before going for the buying decision made by them. The rate at which the consumer technology is being adopted is very high and growth has been recommendable. The new idea sand the products they spread at a higher speed than any other thing. It is because of the increase in the internet connected devices and the rationale at which these resources are being used. The adoption of augmented reality by the companies has grown at the larger pace than any other aspect. The virtual reality may be also the buzz but the things differ when the aspect changes in terms of the experience being provided by the company all along.Even looking at the technology at a bigger space the company has to work on the basis before getting it done any other aspect. The customization, ease of use, aesthetics has got up the changes to work on the forces. [6]

2.6 Research Gap and Research Problem

With the growing indulgence of Internet and the customers reaching for online shopping has bought the customers and the companies in the same platform. They have been able to bring and influence the need of the products. The problem statement identifies to what is the effect that augmented reality which is the growing concept in the field of virtual world that the company uses to attract and communicate to the customers in the new synergy. Thus what effect this augmented reality has on the purchase intention with the moderating effect of value co-creation and customer brand engagement. Much researches has been done only and understanding the effects the augmented reality plays in getting the customer engaged in the website but not much in the effect of combination of value co-creation and customer brand engagement. This study tends to identify the factors and the possibility of the effect of the variables which are used in the study. These question scan answer the query the marketer shave while connecting the customers for the solution to bring on the engagement along with fulfillment of the needs of the customer at a larger period. Identifying whether these technologies can be useful or not in longer time is questionable. The questions followed for the study is-

- What is the influence of augmented reality on customer brand engagement and purchase intention among online consumers of Bangalore,India?
- How does value co-creation effect the customer brand engagement and purchase intention among online consumers of Bangalore,India?

The earlier study examined role of interactivity as a moderator, finding that augmented reality generally has a positive impact on customer brand awareness and purchase intention. This means that augmented reality can

enhance purchase intention if consumers have proficiency in using such applications.(Kashif Abrar2018).Few other research papers have discussed about ARIT,value co-creation, customer brand engagement and purchase intention. The researches has shown some connectivity between the various variables used in the earlier research. [7]

3.Objective of the Study
The objective of the study follows as:
* To explore the relationship between augmented reality and customer brand engagement
* To identify the relationship between augmented reality and Value co-creation.
* To understand the relationship between customer brand engagement and purchase intention
* To identify the relationship between value co-creation and customer brand engagement
* To measure the significance of relationship between value co-creation and purchase intention

4.Research methodology Data source-
* Primary research- A sample response is undertaken from the individuals living across Bangalore.
* Secondary research- The identification of the factors which affect the variables is studied from the published journals and papers.

Research approach- Sampling method
Research instrument- Questionnaire Type of questionnaire-Structured
Type of question- Close ended

Sampling plan-
•Sampling size-514
•Sampling procedure- Convenient sampling

Mode of collecting data- Respondent is chosen on the random and information is filled by them in questionnaire sent them through Google forms. Few data was collected from the people filling the questionnaire in malls while explaining the study. Secondary qualitative data will be taken from journals, books, and websites.

Data processing- SPSS and AMOS

4.DATA ANALYSIS AND INTERPRETATION
4.1Structural equation modelling
The research model that has been used for the study has called for the mediation effect tests. The structural equation modelling approach has been used in this study. In the present context SEM model from AMOS has been used. The reliability and validity construct was used and evaluated accordingly. With the given sample size path analysis was conducted accordingly. We know that structural modelling equation is a total multivariate statistical analysis that we use to analyze the structural relationships.The SEM model is a technique for the overall study for the factor analysis and multiple regression analysis that we use to analyze the structural relationship between the various variables.
CMIN - CMIN is also called as the chi-square value. The chi square value is regarded as one of the important factor to understand the impact it has in the model.It is also called

as the discrepancy function with the goodness offit.Many researchers assume that if both the sample exceeds 200or so then it is not acceptable whereas other fellow researchers assume it to be acceptable. In our study of the model in the SEM, CMIN came to be 430.303 which is acceptable in this research study.
DF- The degree of freedom in our study turns to be 259 which is a good number.
CMIN/DF- CMIN/DF ($x2/df$) it is the minimum discrepancy which is being divided by its degree of freedom. The ratio should be less than 1 or near to 1 to get the correct models. Wheaton et.al (1977) suggest that a ratio of approximately 3 or less is assumed to be "reasonable". But with the studies from the Arbuckle (2005), it defines not clearly whether how much near to one it should be to get the best result for the model such that the model is assumed to be unsatisfactory. X2to
The degree of freedom with in the range from the 1to2 are assumed to be the acceptable fit between the hypothetical model and the sample data which is present. With respect to our study the model CMIN/DF turn out to be 1.6614 which is within the range from 1 to 2 and this proves to be an acceptable fit between the hypothetical model and sample data.
GFI- The goodness of fit index was designed by Joreskog and Sorbom (1984) for the terms maximum livelihood and unweighted least squares estimation which is absolutely generalized to the other estimation criteria which is used by the Tanaka and Huba (1985). From the earlier researchers it is assumed and proved that GFI should always be less than or equal to 1. GFI= 1 which indicates that it is a perfect fit. In case of our analysis GFI turned to be 0.912.
CFI-The comparative fix index which was given by Bentlerin 1990 which consist of discrepancy, degree of freedom and the non-centrality parameter estimate for the model that show the model being evaluated for the baseline model. In this context, fit refers to the difference between the observed and predicted covariance matrices, as represented by the chi-square index. In short, the CFI represents the ratio between the discrepancies of this target model to the discrepancy of the independence model. Roughly, the CFI thus represents the extent to which the model of interest is better than is the independence model. Values that approach 1 indicate acceptable fit. CFI values should be close to 1 which brings a very good model fit. In case of our study the model value of CFI came to be 0.954 which is close to 1 and thus it fits to our model showing a very good model fit.
RMS-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. Because the maximum is unbounded, the RMS is difficult to interpret and consensus has not been reached on the levels that represent acceptable models. Some researchers utilized the standardized version of the RMS instead to override this problem. According to some researchers, RMS should be less than .08 (Browne & Cudeck, 1993)--and ideally less than .05 (Stieger, 1990). Alternatively, the upper confidence interval of the RMS should not exceed .08 (Hu & Bentler, 1998). As per our study it is found that the value turns to be 0.041

which is less than 0.5 and is strategically fit.

RMSEA - According to Arbuckle (2005), the RMSEA value of about 0.05 or less would indicate a close fit of the model in relation to the degrees of freedom. This figure is based on subjective judgment. It cannot be regarded as infallible or correct, but it is more reasonable than the requirement of exact fit with the RMSEA = 0.0. The value of about 0.08 or less for the RMSEA would indicate a reasonable error of approximation and would not want to employ a model with a RMSEAgreater than0.1(BrowneandCudeck,1993). Asperourstudythevalueturnouttobe

0.047 which is a good value and is approximated to be a good fit.

Model validity measure- It is very important to measure the validity of the variables designed. Model validity provides the reliability with the observed input matrix is predicted by the estimated model. The components in the model validity measure consist of Cronbach Alpha, Composite reliability and Average variance extracted.

Cronbach Alpha- Used to measure the reliability of two or more construct indicators. Usually a good Cronbach Alpha should be more than 0.7. A good measure shows the reliability aspect the variables have within them.

Composite reliability- It is much of internal consistency between the scale items, which is much more like a Cronbach Alpha.It shows the consistency aspect of the scale items.Many researchers have believed that composite reliability of 0.6 and above is assumed to be much of better source to understand the internal consistency of the scale items.

Average Variance extracted- It is a measure of the amount of variance that is captured by a construct in relation to the amount of variance due to measurement error. The average variance extracted has often been used to assess discriminant validity based on the following "rule of thumb": Based on the corrected correlations from the CFA model, the AVE of each of the latent constructs should be higher than the highest squared correlation with any other latent variable. If that is the case, discriminant validity is established on the construct level. Researchers have assumed that AVE should be more than 0.5 to get a better measure of the variance.With the table below the scale variants and the constructs fulfill the above criteria and the model is fit for the research.

4.7 CFA Loadings

The loadings give us some indication, which of the underlying factors appear in which of our observed variables. The confirmatory factor loadings should be within the range of 0 to 1 and it should not exceed 1 as the model fit will not be present. All the data constructs within the scale was in the range of 0 to 1.The square of factor item can be translated into the reliability factor and higher it is the better the modelis.It is the part of the out come of the factor analysis,which in turn act as adatar eduction technique method to explain the correlation between the observed variables using a small number of factors.

We almost see that all the values are above 0.7 and is a good measure for the data to study and see the confirmatory factor loadings with the positive co-relation between the constructs.

The model construct

The given figure we found that the model fits the data very well with all the sample variables with the co-relation not exceeding the data by 0.8 which states the model to be relatively fit for the study.The independent variables account for the variance of the dependent variables.It simplifies that 48% of the Customer brand engagement is explained by the augmented reality as well as the value co-creation. 47% of the Value co-creation is explained by the augmented reality where as the final purchase intention of which 59% was explained by the combination of value co-creation and customer brand engagement. This all explained the total variance it has influenced on the given variables.

When interpreted at the customer brand engagement which has a direct impact from the augmented reality shows a beta value of 0.19 wherein with the indirect of value co-creation the beta value turn sout to be {0.68*0.55}which is 0.373 i.e. the beta value which is much higher than the direct impact it gets from the augmented reality and thus value co-creation act as an mediating effect in this model proceeding the higher impact it has on the model for the customer brand engagement. The total effect with the combination of augmented reality and customer brand engagement with the beta values turn out to be (0.373+0.19) i.e. 0.567 which has much higher impact on the customer brand engagement with the combination of both augmented reality and value co-creation. So it can be interpreted that value co-creation has partially mediating impact on the customer brand engagement.Similarly when interpreted at the direct impact from the Value co-creation to the purchase intention as a direct impact of 0.53beta value but with the indirect effect of customer brand engagement to the purchase intention {0.53*0.31}which turns out to be 0.165 bet a value.Thus the total effect it has on the purchase intention is (0.53+0.165) i.e. 0.695 which has much higher impact on the purchase intention. But single alone value co-creation has much higher impact on the purchase intention. Thus it is found that major impact for the purchase intention is visible from the value co-creation playing a significant role for the study not much from the customer brand engagement.

Hypothesis testing
H1-Augmented reality has an influence on customer brand engagement

The first hypothesis is accepted with the augmented reality has an influence on customer brand engagement. The beta value though turned out to be less influential with 0.19** has direct impact and rest 48% of the CBE was explained by the augmented reality showing that it has significant and positive impact in CBE.The CR value tends to be positive with the beta values more than0.7 as we can see in the figure 7 of the model construct and beta value turning to be positive. Thus, H1 is accepted.

H2- Augmented reality has an influence on value co-creation

The second hypotheses is talks for the influence of augmented reality ithason the value co-creation, which shows the significant and positive influence on value co-creation with the CR values greater than0.7which we can see in the scale constructs in figure 7 and also the beta value turns out

to be 0.68** which is also much better and less than 1 showing a significant impact and R2that turns out to be 0.47 proving that 47% of the variable was explained from the impact of augmented reality. Thus, H2 is accepted. [7]

H3- Value co-creation has an influence on Customer brand engagement

Third hypothesis talks for the influence of value co-creation it has on the customer brand engagement, which shows value co-creation has positive and significant influence of customer brand engagement as the CR values is higher than0.7,which we can see that in the scale constructs in the figure 8 and also the beta value 0.55** which shows that the value is much better and also less than 1 which shows the significant impact and also the R2 turns out to be 0.48 proving that 48% with the variable was explained by value co-creation. The value co-creation has higher beta value than the augmented reality signifying the major impact of value co-creation than the augmented reality. Hence, H3 is accepted. [8]

H4- Value co-creation has an influence on purchase intention

The fourth hypothesis talks for the influence of value co-creation it has on the purchase intention, which shows that value co-creation has positive and significant influence on the purchase intention as the CR value is much above than 7 and less than 1 which can be seen in the construct from the scale design in the figure 7 and also the beta value turns out to be 0.53** where in the value is much higher and also less than 1 that brings the significant impact on the purchase intention. The R2 turns out to be 0.59 which proves that 59% of the variable or reliability is explained by the value co-creation. The value co-creation has a major impact on the purchase intention than the other variable hat is customer brand engagement. The value co-creation has higher beta value than the customer brand engagement and the direct impactisals overy high as compared to thecustomer brand engagement beta value and thus H4 is accepted. [9]

H5- Customer brand engagement has an influence on purchase intention

The fifth hypothesis talks for the influence of Customer brand engagement it has on the purchase intention,which shows that Customer brand engagement has positive and significant influence on the purchase intention as the CR value is much above than 7 and less than 1 which can be seen in the construct from the scale design in the figure 7 and also the beta value turns out to be 0.31** where in the value is much higher and also less than 1 that brings the significant impact on the purchase intention.The R2 turns out to be 0.59 which proves that 59% of the variable or reliability is explained by the value co-creation. The customer brand engagement does not have a major impact on the purchase intention than the other variable that is Value co-creation. The value co- creation has higher beta value than the customer brand engagement and the direct impact is also very high as compared to the customer brand engagement beta value. But since, the beta value is positive and less than 1 we can accept the hypothesis. Thus, H5 is accepted.

5.Finding

The result that we have provided has helped us with the

aspect that augmented reality has a relatively low impact on the customer brand engagement as compared to the value co-creation. But this is very vital for all of us to know the significance of all the factors to the augmented reality. This study is all about he online shopping of commodities that uses augmented reality interactive technology in the websites with all the useful devices into the picture. So, all the devices that uses the augmented reality technology plays a significant aspect and has an effect on the customer brand engagement, value co-creation and return finally on the purchase intention. Here on we find that value co-creation act as a moderating variable in the augmented reality and the customer brand engagement. The study has identified that augmented reality has bought the significant aspect and identified it has major impact on the customer brand engagement and the purchase intention with the mediation effect to f value co-creation. Here it is found that if the customer is well educatedand is been using the platform to connect with the products online through the smart devices and the application, so we can say that the customer can design its own pros and cons of purchasing with the value co-creation while reviewing the information present in the platform, which in turn influence the purchase decision with the effect of customer brand engagement.Augmented reality does not limit the customer effect and it changes the way concept is being designed.If the customer does not have enough knowledge about the platform they are then they cannot survive and won't be able to make impacts about the products. The customer cannot surface the relation and would not be able to go through the interaction and this would not be able to lead to the customer purchase intention with the effect of customer brand engagement and value co-creation. Value co-creation moderates the relation between the augmented reality and with the customer brand engagement. [10]

6.Managerial implications and recommendations

The current trending topic across the top organization is about the proper use of these technologies in gaining the top market share and gather the product to the customer such that customer can look form or e purchase and be benefited from the product.It also talks about how the social technology has evolved over the years leading the customer choose the product with influencing the purchase decision. Additionally we see that the product alignment through the augmented reality has grown at the larger space. With the companies such as lens kart, Nike has been using to increase the sale at the larger growth. This study has shown the aspect of the experimental endeavor to satisfy all the gaps that were generated over the period in various research paper being published. The given study has proved that the resources can be vitally used on those who strategically puts the information with repositioning of the brands with the use of better technology while experiencing minimum sales across the period.But with the technology growth more of growth has taken place with the fierce competition in the market. [11]

7.Limitation and direction for future research

The framework that has been used in this study to administer the self–administered questionnaire. Some

of the biased respondents were recorded and also people were not able to understand the concept of augmented reality integrative technology. In this some additional survey should be conducted to get one better result.The sampling study has been from the Bangalore but we should look for more study from across the states to get the general opinion. The study has been generalized to online shopping and can be applied to other aspect to understand the concept from the other areas. Convenience sampling was used in this study but rather probability study should have bought a better understanding in this research. Probability sampling would bring more reliability to the study. [12,13,14,15,16]

The role of consumer brand engagement has been used as a direct impact from the augmented reality and bringing the purchase intention. Other factors such as interactivity,

familiarity can be used as a moderator in future studies. Several other factor can be used between the augmented reality and value co-creation which infactlead to purchase intention.In this case all the hypothesis were accepted but there were few whose values were little less but even they were accepted being positive. It is believe that future studies will address this issues and gather to tackle the issues. [17,1819,20]
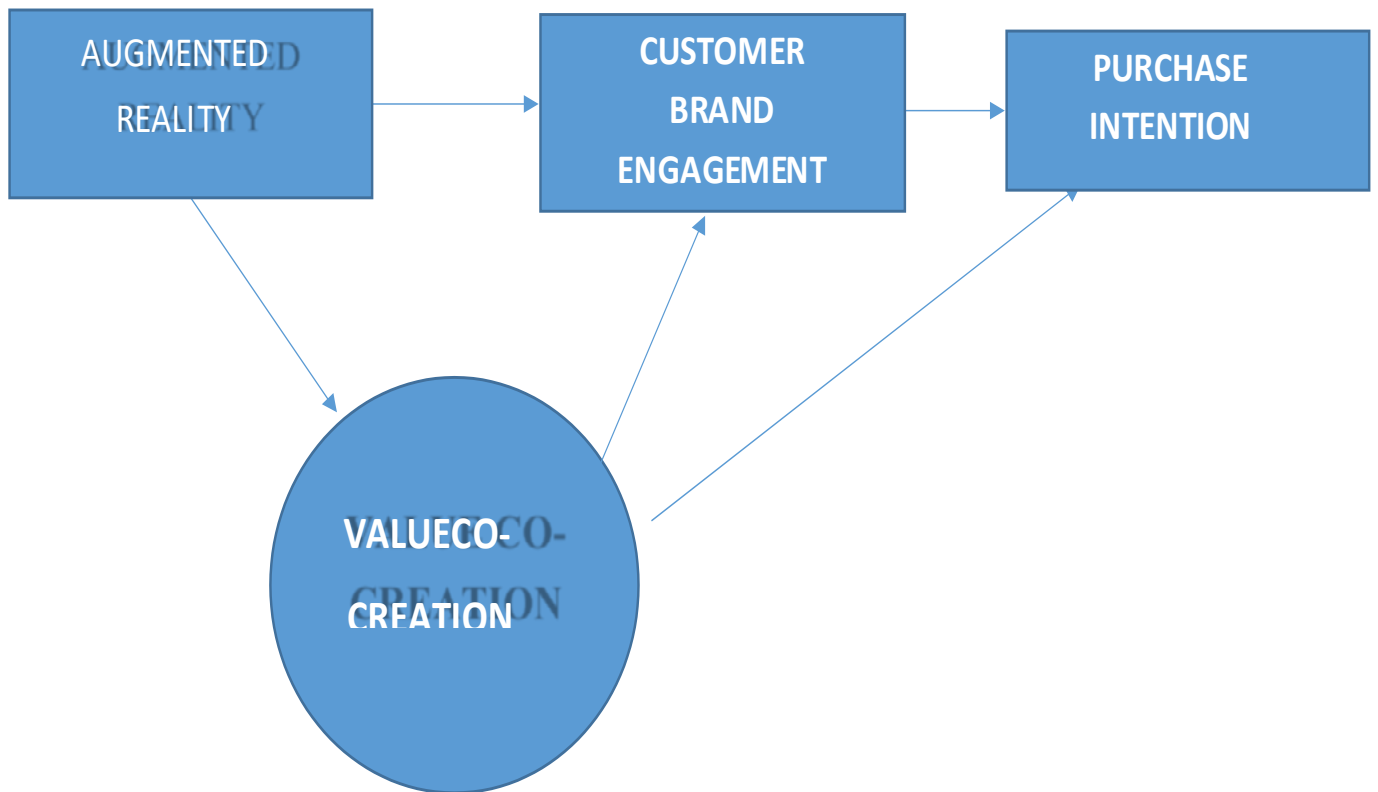
RESEARCH MODEL

Fig 1- Research model

Table 1. Model validity measures

| Model Validity Measures			
	Cronbach Alpha	CR	AVE
Physical space	0.761	0.762	0.616
Perceived ease of use	0.754	0.760	0.613
Aesthetics	0.7	0.708	0.551
Customer involvement	0.72	0.720	0.563
Cognitive processing	0.713	0.716	0.558
CBE affection factor	0.671	0.672	0.506
Self-brand connection	0.671	0.677	0.514
Brand usage intent	0.714	0.729	0.579
Learning	0.737	0.744	0.593
Social integrative	0.686	0.689	0.526
Personal integrative	0.736	0.737	0.584
Hedonic integrative	0.7	0.707	0.549
User willingness to buy	0.712	0.718	0.561
User information privacy Control	0.698	0.687	0.523
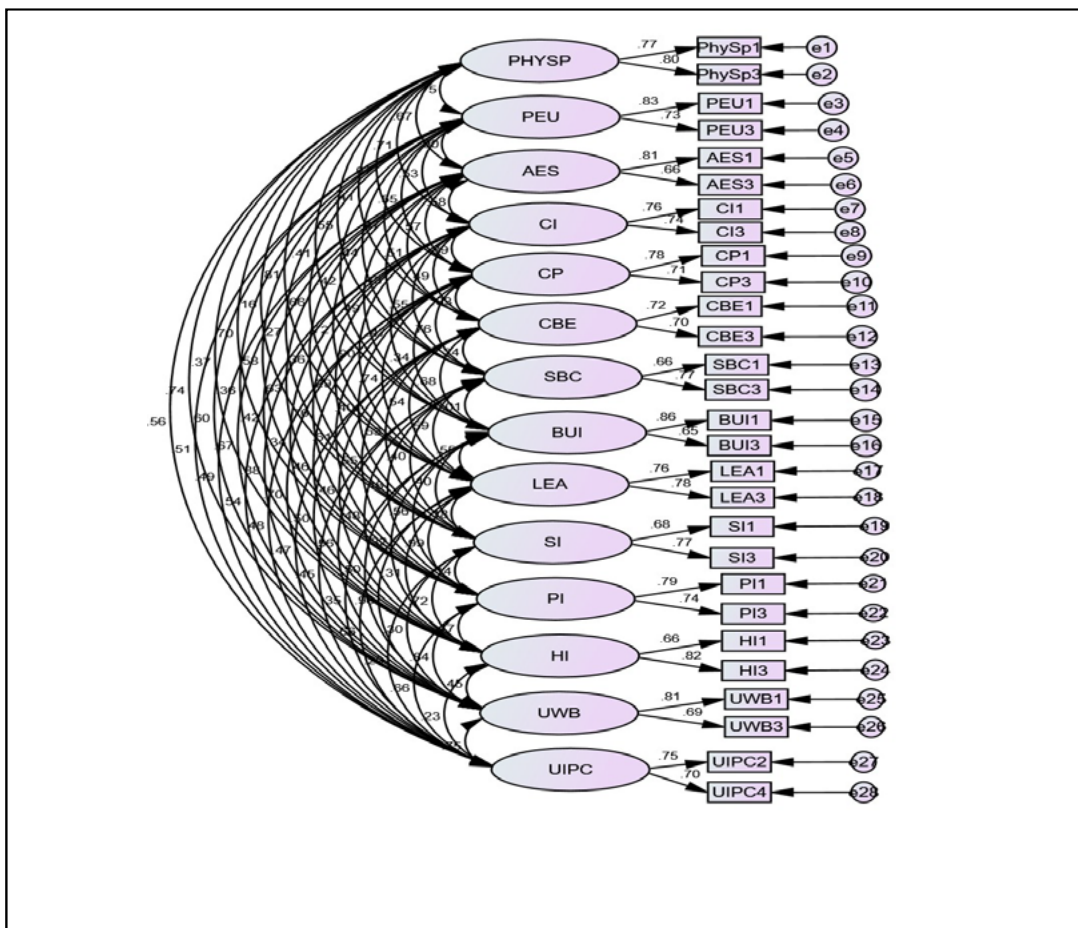
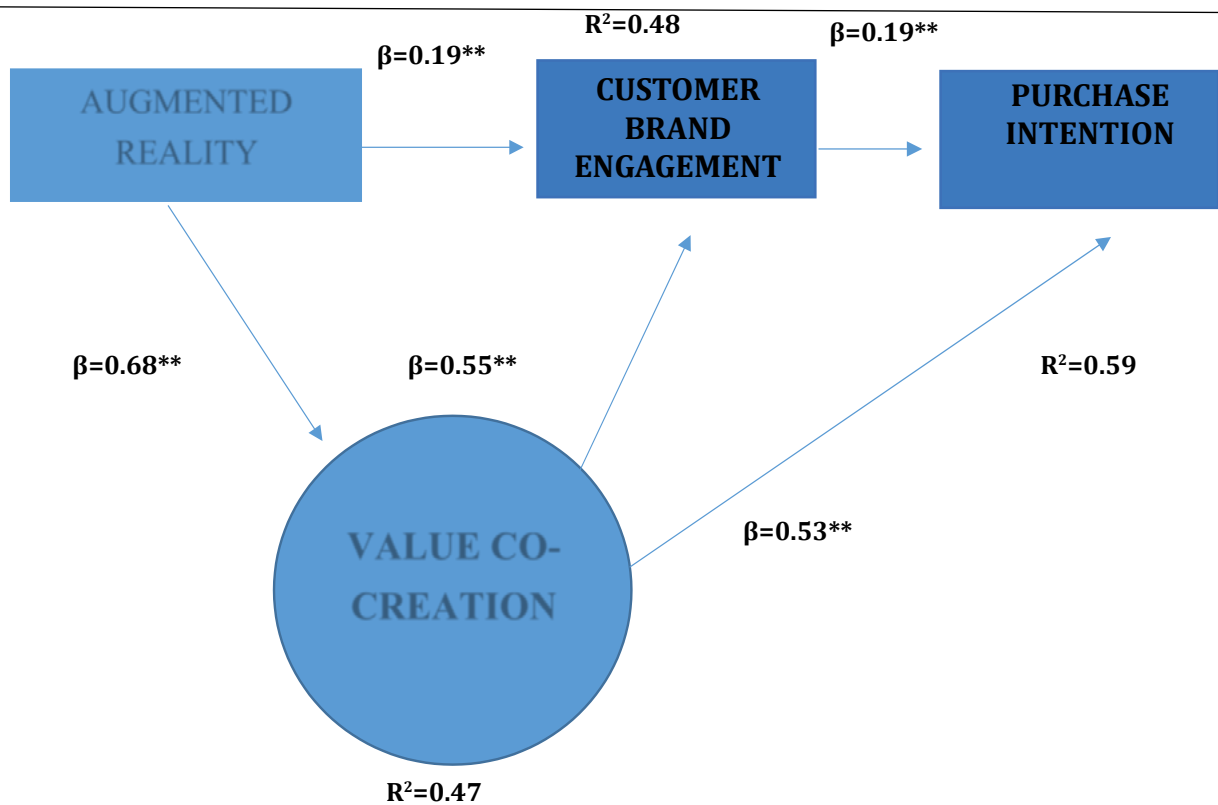**Fig 2. CFA loadings with beta values within constructs**

Fig 3. The model construct

Conclusion

The present study has shown that the augmented reality has a major impact on the value co-creation and thus it has high reliability with the purchase intention.This all has been under the expectation that the online customer experience has grown over the years and thus having as light impact from the customer brand engagement. To bring to the end, the current study brings out the moderating role of customer brand engagement and value co-creation in the study that reveals the higher impact of value co-creation having an impact on the purchase intention. The study opt to identify which has major impact on the purchase intention and which could highly impact the growth in the business. It is found that augmented reality has an impact on the customer brand engagement and in value co-creation. The customer brand engagement does not directly show the growth aspect and the control it has or the direct impact on the purchase intention which shows the activation brand love on the products.

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