

2019

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### Recommended Citation

Raajpoot, Nusser and Ghilni-Wage, Beth (2019) "Impact of Customer Engagement, Brand Attitude and Brand Experience on Branded Apps Recommendation and Re-use Intentions," *Atlantic Marketing Journal*: Vol. 8 : No. 1 , Article 3.

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# Impact of Customer Engagement, Brand Attitude and Brand Experience on Branded Apps Recommendation and Re-use Intentions

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**Abstract** - This paper seeks to understand the impact of customer engagement, brand attitude, and brand experience on branded apps recommendation and re-use intentions. Using structural equation modeling we test a causal model to establish the direct and mediated paths between constructs under study. We found that contrary to popular perceptions, customer engagement does not load directly on the recommendation or re-use intention suggesting that engagement on its own may not be sufficient to elicit recommendation or re-use intention. Other factors and contexts will be necessary to elicit recommendation etc. We also found that recommendation mediates the relationship between brand attitude and re-use intentions.

**Keywords** - Customer Engagement, Brand Attitude, Brand Experience, Branded apps, Recommendation, Re-use Intentions, SEM

**Relevance to Marketing Educators, Researchers and/or Practitioners** - This paper is useful in expanding the understanding about the role of branded apps in marketing communications and brand management. Managers can focus on developing/using branded apps to improve customer experiences. Educators can also use this information to enhance class discussions on branded apps.

## Introduction

Mobile devices have become an integral part of customers' daily life and an important tool to express themselves (Bellman, et al., 2011). They act as important communication medium for customers who are spending more time on these devices than surfing the web (Kim, et al., 2013). Recently, the development and use of branded mobile apps have added to the increased utility of these devices. It has been reported that increased demand of mobile services can partially be attributed to the desire to use specialized apps (West and Mace, 2010). These apps are important both for marketers and consumers. Companies use them to accomplish specific marketing objectives such as branding, communication, sales, customer relations management, marketing research, and product innovations (Zhao and Balague, 2015); cumulatively resulting in the delivery of positive brand experience (Yang, 2013, Bellman et al., 2011). On the other hand, consumers use these applications to accomplish

variety of daily tasks including buying products, locating places, reviewing offers and playing games (Kim et al., 2013, Yang, 2013).

It is estimated that in 2014, there were about 4.55 billion users of mobile devices (Marketer.com, 2014) and the number is expected to increase to 5.13 billion users by 2017, corresponding to 69.4 percent of the world's population. The importance of these apps can be judged from the fact that 50 billion apps were downloaded from Apple's app store since the creation of the app store with more than 20 billion of them downloaded in 2013 alone, generating a revenue \$10 billion.

Most of the research on mobile apps is focused on identifying success factors through the applications of technology of adoption models (Sanakulov and Karjaluo, 2015). Only a few studies have addressed the impact of marketing apps on downstream marketing constructs such as satisfaction, loyalty, recommendation and re-use intentions. This is understandable as app based marketing is rather new development. Researchers have, however, started working on the downstream constructs. Shankar et al. 2010 allude to the possibility of using mobile marketing including the use of apps to enhance customer satisfaction and loyalty but provide no evidence. Bellman et al. 2011 experimental design study on the effectiveness of branded mobile apps report positive relationship between use of branded apps and re-use intention.

Developing branded apps require significant investments in time and money. Marketers are obviously interested in understanding the kind of return they can expect from their investment on these apps. Return on investment in this context means achieving important marketing objectives such as recommendation and re-use intention. What factors explain branded app recommendation and brand re-use intentions becomes an important research question. Although a large number of factors have indicated as antecedents to recommendation and re-use intentions, we find customer engagement, brand experience and brand attitude as most often cited in literature (Bellman et al., 2009). It is important to understand the mental paths consumers take when recommending and brand re-using intentions. Focus of this study is to explore the impact of customer engagement, brand attitude and brand experience on app recommendation and brand re-use intentions.

Below we briefly describe the criterion constructs in the study and develop appropriate hypotheses.

## **Customer Engagement**

Customer engagement is an important construct in marketing strategy as it is shown to be positively linked to other critical marketing constructs such as commitment (Chan and Li, 2010), trust (Casalo et al., 2007; Hollebeek, 2011), satisfaction (Bowden, 2009), and loyalty (Andersen, 2005; Casalo et al., 2007; Schouten et al., 2007). Customer engagement is ambiguous in nature and therefore difficult to define and operationalize. One important reason for this ambiguity is that it can only be contextually defined and, therefore, will mean different things in different contexts. For example, student engagement is different from customer engagement which in turn is different from community engagement. Student engagement is generally measured in terms of time and effort spent while customer engagement with a brand is measured in terms of information, utility, enjoyment and immersion.

Many definitions of engagement that exist in literature. It has been defined as the intensity of customer's participation (Vivek et al., 2012); the customer's cognitive and

affective commitment (Mollen & Wilson, 2010); interactive consumer experiences (Sashi, 2012, Brodie et al., 2011) and a state of being involved, occupied, fully absorbed, or engrossed (Higgins and Scholer, 2009). Brodie et al.'s (2011) reviews these different definitions and identifies five themes of customer engagement. First, engagement requires specific interaction between consumers and/or other actors and/or brand network. Second, consumer engagement takes place in a context-dependent motivational state characterized by a specific intensity level. Third, overall customer engagement consists of a series of engagements embedded within a larger process of experience with a start and an end. Fourth, customer engagement is a multidimensional concept comprising cognitive, affective and behavioral dimensions. Fifth, consumer engagement plays a central role in the process of relational exchange, where other relational concepts (e.g. participation, involvement) act as engagement antecedents and/or consequences in dynamic engagement processes.

In terms of measurement, marketing researchers have traditionally used modified scales from employee engagement or work engagement areas (Flynn, 2012). Recently, however, two important customer engagement scales have been published i.e. a generalized customer engagement scale by Vivek et al., 2014 and customer engagement in social media by Hollebeck et al., 2014. Both Vivek et al. (2014) and Hollebeck et al. (2014) measure engagement as three dimensional construct consisting of cognition, affect and behavior. For the purposes of our research we will be using the generalized scale by Vivek et al. (2014).

Interactivity is one of the most useful characteristics of mobile phone apps. This interactivity by default leads to greater customer engagement with advertising message conveyed by mobile apps and if the apps happen to be branded, then there is probability of greater engagement with message and brand. Of all the advertising media e.g. print, television, radio, web; mobile apps are perhaps the most interactive. Effects of this engagement are not expected to be limited to brand attitude but spill over, directly or indirectly, to constructs of interest such as re-use intention and recommendation (Bellman et al., 2009; Sundar and Kim, 2005).

We know that experience with branded apps have positive impact on brand attitude, re-use intention and loyalty. We also know that engagement with apps plays a part in this relationship. We are, however, less clear on the question of the exact role engagement plays in relationship between branded app experience and constructs of re-use intention and recommendation. Based on the discussion in this section we suspect that engagement plays both direct and indirect (moderating) roles and hence the following hypotheses:

H<sub>1</sub> = Customer engagement has a direct impact on brand attitude.

H<sub>2</sub> = Customer engagement has a direct impact on brand experience.

## **Brand Attitude**

Brand attitude is one of the most researched area in marketing because of its ability to predict consumer's actions and behaviors relating to brand. About 50% of the variance in consumers' behavioral intentions can be explained by attitude and subjective norms (Schaller and Malhotra, 2015). Brand attitude has generally been understood as consumers' summary evaluation of some degree of "goodness or badness" towards the brand (Eagly and Chaiken, 1993, p. 3). This conceptualization is based on the expectancy-value model; where a consumer's attitude toward a brand is shaped by the value delivered by brand attributes and the strength of attitude is influenced by the strength of beliefs about the attributes associated with brand.

Brand attitude has traditionally been seen as an outcome of evaluative judgements based on cognitive processes linking brand attitude to important attributes. Later, however, this view was expanded to include affect as the other important factor. Some researchers even believe that affect actually dominates the attitude formation and take precedence over cognition as explained in the affect primacy hypothesis of Zajonc (1980). It is now generally believed that attitudes are shaped by cognition, affect and experience (Vakratsas and Ambler, 1999).

For sometimes now, researchers have been debating the relative roles of cognition and affect attitude formation. What is more predictive of consumer behavior— cognition or affect? Does cognitive attitude dominate and does it mediate the relationship between affect and intent? We do not fully know if the brand evaluations are triggered by affective processes, cognitive processes, or both. The importance of affect, however, in attitude formation is well recognized. It is well known that compared to cognitive responses, affect responses to brand are faster; and more predictive of the number and valence of people's thoughts (Pham et al., 2001). Affective processes are automatic, less likely to be affected by availability of processing resources. Cognitive processes are more likely to be affected by the availability of processing resources. "If processing resources are low, then consumers are more likely to use affective reactions. If processing resources are high, then they are more likely to use cognitive reactions" (Malhotra, 2005).

The dominance of cognition over affect or vice versa will vary along brand categories along personal and contextual factors. When individuals have the motivation and the opportunity they are deliberative and engage in attribute level processing and they lack motivation or opportunity to process deliberatively, consumers are likely to use affective categorization of brand attitude. It has also been suggested affect can influence attitude both directly (Brown and Stayman, 1992) and indirectly where cognition drives the affect (Holbrook and Batra, 1987).

H<sub>3</sub> = Positive brand attitude leads to stronger brand re-use intention.

H<sub>4</sub> = Positive brand attitude leads to stronger recommendation.

H<sub>5</sub> = Recommendation moderates the relationship between brand attitude and re-use intention.

## **Brand Experiences**

Brand experience is considered a key construct in predicting marketing outcomes such as re-recommendation and re-use intention. These experiences have traditionally been delivered through customers' interaction with product / service attributes. These interactions may be direct or indirect; may occur during search, examination, evaluation, purchase and consumption. Experiences have also been delivered through atmospherics and personnel. Since the advent of internet, WWW and mobile devices, experiences have also been delivered online. More recently, branded apps on mobile devices has been used with some success to deliver memorably positive experiences.

Although the concept of brand and customer experience seems recent, it has, in fact, been around for quite some time under the term consumption experience and in recent times has become central theme in marketing management. This focus on experiential aspect started in parallel with the focus on services marketing where experiences were easily measurable via customer-provider interaction. As European and American economies became more and more service based, the ability to create unique brand experiences was reported to be the key factor in success of marketing campaigns (Pine and Gilmore, 1999).

Brand experience has been defined as “subjective, internal consumer responses (sensations, feelings, and cognitions) and behavioral responses evoked by brand-related stimuli that are part of a brand’s design and identity, packaging, communications, and environments” (Brakus et al., 2009, p. 53) and has been measured in terms of 4-5 operational dimensions (Hirschman and Holbrook, 1986, Pine and Gilmore, 1998, Schmitt, 1999, Brakus et al., 2009). The Sense, Think, Feel and Act dimensions suggested by Schmitt (1999) are very similar to Sensations, Feelings, Cognitions, and Behavioral responses suggested by Brakus et al. (2009). The fifth dimension of Relate suggested by Schmitt (1999) is extremely relevant to measuring online brand experience. The social identity experience delivered via branded apps fulfill consumers’ need to be perceived positively by individual others.

There is a difference of opinion as to how customers experience brands. For some it is the sum of all direct and/or indirect experiences with product/service or its attributes (LaSalle and Britton, 2003, Carù and Cova, 2007) and is stage managed by the company. The competing point of view is that experience construction is not sole domain of company but a joint venture between provider and customer where provider supplies the context and tools for customers to design their own unique experiences (Prahalad and Ramaswamy, 2004). These two perspectives are not mutually exclusive. It will, therefore, be useful view customer experiences along a continuum with self-created experiences (co-creation) on one end and company staged experiences on the other end.

The importance of brand experience has also paralleled the understanding that consumer decisions are not totally rational but a combination of cognitive and affective components and in most cases the affective component of decision making dominate the rational one. Also the fact that larger number consumers lead hedonistic lifestyles actively seeking pleasurable experiences forces them to focus more on experience quality as way to satisfaction, loyalty and profitability. Significant amount of research supports the above assertion that brand experiences are strongly associated with satisfaction and loyalty (Ramaseshan and Stein, 2014, Iglesias, Singh, and Batista-Foguet, 2011, Hong-Youl and Perks, 2005). Since consumers seek sensory stimulation and pleasure that are primarily driven by emotional states, consumers will likely to seek the repetition of memorable experiences delivered by brands (Brakus et al., 1009).

This research expects to find that brand experience will manifest directly in recommendation, brand attitude and re-use intentions.

H<sub>6</sub> = Positive brand experience leads to greater brand recommendation rate.

H<sub>7</sub> = Positive brand experience leads to stronger brand attitude.

H<sub>8</sub> = Brand experience has indirect impact on re-use intentions

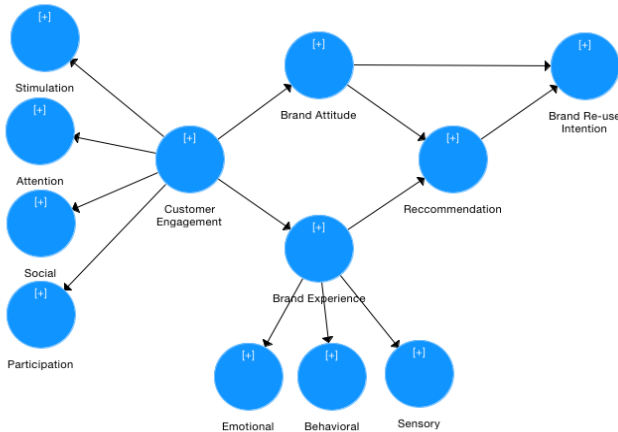
## **Hypothesized Model**

There is a general agreement that branded apps have the capacity to deliver intense, memorable and enjoyable consumption experiences. These apps engage users and make these experiences worthwhile. We also know that customer engagement has a strong influence brand awareness and brand attitude. There have been few recent studies that link branded apps to satisfaction and loyalty (Ramaseshan and Stein, 2014, Iglesias, Singh, and Batista-Foguet, 2011, Hong-Youl and Perks, 2005). Similarly, customer engagement has also been shown to impact satisfaction and loyalty (Bowden, 2009, Casalo et al., 2007, Schouten et al., 2007, Andersen, 2005). The links between experience and satisfaction and between engagement and satisfaction have been studied separately. We suspect that these three

constructs i.e. brand experience, brand engagement and satisfaction-loyalty are interrelated and to fully understand the impact of branded apps on satisfaction-loyalty we need to study all these constructs in one study. We suspect that engagement moderates/mediates the relationship between brand experience and satisfaction-loyalty.

Additionally, we want understand the relationships between brand experience and brand attitude and between engagement and brand attitude. Both of these relationships are expected to be positive. Specifically, posit the following hypothesized model.

Figure 1: Hypothesized Model



## Data

102 undergraduate students responded to an online survey about the recent use of branded mobile app(s) followed by questions on brand experience, customer engagement, brand attitude, recommendation of focal brand to others, and re-use intention. An app having been used in last three days was considered recent. 5 of the responses were incomplete, leaving us with 97 usable responses. Starbucks, Dunkin Donuts, Bank of America, Nike, Amazon and Snapchat were most mentioned apps. Sample was evenly divided between male and female respondents. Both measurement and structural models were tested using SmartPLS, a variance based partial least square (PLS) tool. In view of the small sample size, selection of PLS tool was most appropriate.

## Measures

Multi-item measures were used to measure the constructs on customer engagement, brand experience, brand attitude, recommendation and re-ruse intention.

### Brand Engagement

We used a modified Vivek et al. (2014) engagement scale. Original scale consists of three dimensions of conscious attention, enthused participation and social connection. Intellectual stimulation, that has been cited as one the most important motivation for the use of branded apps (Zhao and Balagué, 2015, Ho and Syu, 2010). We therefore added a couple items related to intellectual stimulation. We used items like “This app does not make me think” and “This app stimulates my curiosity”. Four dimensions of attention, social, participation, and stimulation had Chronbach  $\alpha$  values of 0.815, 0.900, 0.880, and 0.542; AVE values of 0.73, 0.834, 0.736, and 0.683 respectively.

### Brand Experience

We used a modified Brakus (2009) three dimensional scale. Behavioral dimension contained items such as “This app is not action oriented” and “I engage in physical actions and behaviors when I use this app”. The emotional dimension was represented by items such as “This app induces feelings in me” and “I do not have strong emotions for this app” while the sensory dimension was measured with items like “This app does not appeal to my senses” and “I find this app interesting in a sensory way”. Reliability values of Chronbach’s  $\alpha$  for behavioral, emotional, and sensory dimensions were 0.788, 0.669, 0.711 while respective AVE values were 0.825, 0.747, and 0.775.

### Brand Attitude

We used the 5 item scale by Spears and Singh (2004). The reliability (Chronbach’s  $\alpha$ ) and AVE values turned out to be 0.900 and 0.715 respectively.



## Brand Re-Use Intention

We used modified repurchase intention scale by Spears and Singh (2004). The reliability (Chronbach's  $\alpha$ ) and AVE values turned out to be 0.875 and 0.800 respectively.

## Recommendation

Recommendation consisted of two item; "After using this app, I do not hesitate to say good things about the brand" and "After using this app, I strongly recommend buying this brand". The reliability (Chronbach's  $\alpha$ ) and AVE values turned out to be 0.739 and 0.793 respectively.

## Results

Hypothesized model as shown in Fig.1 was analyzed using SmartPLS version 3, a PLS SEM tool. Reinartz et al. (2009) showed that that variance PLS methods perform better than covariance based methods in cases of small sample. They demonstrated that cases of small sample sizes, PLS has greater statistical power than covariance based SEM. Since we had a rather smaller sample size (n=97), variance base PLS model was a better choice than covariance based SEM. First, we assess the psychometric properties of the measurement model, and then estimates the parameters of the structural model.

### The Measurement Model

Reliability results for all constructs are given in Table 1. Composite reliability tested the internal consistency of the latent constructs. The composite reliability scores for all constructs ranged between 0.811 to 0.938, well above the adequate scores of 0.70 (Fornell & Larcker, 1981). These results indicate that measures are robust enough to accurately capture the construct well. Table 1 also reports the average variance extracted (AVE) and all of the values are above 0.5 confirming the convergent validity (Fornell & Larcker, 1981)

Table 1: Construct Reliability & Convergent Validity

Construct	Cronbach's Alpha	Composite Reliability	AVE
Attention	0.815	0.890	0.730
Behavioral	0.788	0.904	0.825
Brand Attitude	0.900	0.926	0.715
Brand Re-use Intention	0.875	0.923	0.800
Emotional	0.669	0.855	0.747
Participation	0.880	0.918	0.736
Recommendation	0.739	0.884	0.793
Sensory	0.711	0.873	0.775
Social	0.900	0.938	0.834
Stimulation	0.542	0.811	0.683

Tables 2 & 3 report two tests of discriminant validity of measurement scales. Table 2 present inter-correlation between constructs where diagonal values represent the square roots of the AVEs, which are greater in all cases than the off-diagonal elements in their

corresponding row and column, supporting the discriminant validity of our scales. Henseler et al., 2015, demonstrated that inter-correlation criterion does work well with covariance based SEM but not so well with variance based SEM and proposed an alternate method called Hetrotrait-Monotrait Ratio (HTMT). Table 3 present the bootstrapped HTMT results. The HTMT values in upper CI column are below 1, suggesting that HTMT values are significantly different from 1, thereby firmly establishing the discriminant validity.

Table 2: Discriminant Validity (Fornell larcker Criterion)

	1	2	3	4	5	6	7	8	9	10
1. Attention	<b>0.85</b>									
2. Behavioral	0.17	<b>0.90</b>								
3. Brand Attitude	0.45	0.11	<b>0.84</b>							
4. Brand Re-use	0.08	0.26	0.40	<b>0.89</b>						
5. Emotional	0.19	0.22	0.16	-0.23	<b>0.86</b>					
6. Participation	0.71	0.05	0.47	-0.09	0.30	<b>0.85</b>				
7. Recommendation	0.31	0.27	0.64	0.45	0.10	0.24	<b>0.89</b>			
8. Sensory	0.40	0.15	0.42	0.05	0.41	0.43	0.42	<b>0.88</b>		
9. Social	0.51	0.14	0.42	-0.03	0.32	0.56	0.25	0.54	<b>0.91</b>	
10. Stimulation	0.67	0.11	0.38	-0.05	0.37	0.60	0.21	0.51	0.41	<b>0.82</b>

Table 3: Bootstrapped Discriminant Validity Hetrotrait-Monotrait Ratio (HTMT) Method - HTMT Confidence Interval Bias Corrected

	Standardized	Lower	Upper
Behavioral -> Attention	0.212	0.116	0.529
Brand Attitude -> Attention	0.520	0.334	0.694
Brand Attitude -> Behavioral	0.132	0.118	0.425
Brand Re-use Intention -> Attention	0.120	0.100	0.465
Brand Re-use Intention -> Behavioral	0.319	0.141	0.543
Brand Re-use Intention -> Brand	0.453	0.225	0.663
Emotional -> Attention	0.265	0.185	0.627
Emotional -> Behavioral	0.289	0.132	0.653
Emotional -> Brand Attitude	0.229	0.175	0.631
Emotional -> Re-use Intention	0.296	0.107	0.574
Participation -> Attention	0.839	0.731	0.934
Recommendation -> Attention			
Recommendation -> Behavioral	0.358	0.152	0.610
Recommendation -> Emotional	0.145	0.123	0.598
Recommendation -> Participation	0.316	0.211	0.566
Sensory -> Attention	0.523	0.314	0.737
Sensory -> Behavioral	0.202	0.079	0.519
Sensory -> Brand Attitude	0.523	0.332	0.727
Sensory -> Participation	0.544	0.338	0.741
Sensory -> Recommendation	0.583	0.406	0.786
Social -> Attention	0.590	0.407	0.737
Social -> Behavioral	0.180	0.074	0.443
Social -> Brand Attitude	0.461	0.293	0.621
Social -> Re-use Intention	0.075	0.166	0.420
Social -> Emotional	0.403	0.180	0.672

Social -> Recommendation	0.318	0.202	0.550
Social -> Sensory	0.677	0.500	0.851
Stimulation -> Recommendation	0.335	0.167	0.759

In addition to looking for AVE we also looked at cross loading to further confirm convergent validity. These results, presented in Table 4, indicated that all items loaded; on their respective construct from a lower bound of 0.70 to an upper bound of 0.95; and more highly on their respective construct than on any other. Furthermore, each item's factor loading on its respective construct was highly significant ( $p < 0.0001$ ) as indicated by the t-statistics of the outer model loadings. These t-values ranged from a low of 2.9 to a high value of 41.4. The highly significant t-statistic for each individual item loading confirm the convergent validity of these indicators as representing distinct latent constructs.

Table 4: Cross Loadings, t-Values & p-Values

Behavioral	Emotional	Sensory	B. Attitude	Attention	Stimulate	Participation	Social	Re-use	Recom	t- value	P value
0.901	0.217	0.115	0.101	0.117	0.101	-0.027	0.157	0.203	0.24	5.68	0.000
0.916	0.190	0.163	0.099	0.194	0.110	0.119	0.114	0.280	0.25	2.897	0.004
0.096	0.819	0.229	0.163	0.165	0.331	0.226	0.204	-0.170	0.09	8.729	0.000
0.266	0.908	0.464	0.125	0.177	0.323	0.287	0.337	-0.222	0.08	27.32	0.000
0.087	0.420	0.868	0.270	0.258	0.360	0.279	0.397	-0.094	0.36	22.74	0.000
0.180	0.323	0.892	0.470	0.449	0.543	0.481	0.560	0.171	0.39	41.43	0.000
0.163	-0.006	0.330	0.828	0.391	0.320	0.476	0.355	0.307	0.52	20.17	0.000
0.061	0.168	0.332	0.884	0.400	0.365	0.421	0.372	0.343	0.51	28.74	0.000
0.089	0.188	0.317	0.840	0.213	0.187	0.210	0.291	0.391	0.52	20.87	0.000
0.041	0.076	0.380	0.890	0.405	0.321	0.372	0.345	0.417	0.58	41.59	0.000
0.115	0.263	0.430	0.780	0.475	0.404	0.522	0.402	0.251	0.54	16.1	0.000
0.111	0.315	0.377	0.386	0.828	0.607	0.675	0.439	0.036	0.18	25.66	0.000
0.112	0.126	0.280	0.363	0.862	0.594	0.527	0.329	0.079	0.28	26.18	0.000
0.217	0.061	0.376	0.405	0.873	0.541	0.623	0.530	0.113	0.33	35.26	0.000
0.143	0.281	0.443	0.338	0.680	0.874	0.547	0.434	0.029	0.19	24.33	0.000
0.035	0.351	0.412	0.291	0.415	0.775	0.443	0.235	-0.138	0.16	12.00	0.000
0.065	0.290	0.342	0.377	0.499	0.480	0.844	0.454	-0.080	0.14	16.57	0.000
0.022	0.204	0.387	0.467	0.657	0.517	0.901	0.491	-0.049	0.25	43.71	0.000
0.129	0.209	0.404	0.587	0.635	0.566	0.874	0.477	0.072	0.37	36.17	0.000
-0.038	0.341	0.361	0.185	0.662	0.505	0.811	0.516	-0.301	0.04	19.98	0.000
0.091	0.311	0.508	0.353	0.486	0.361	0.521	0.906	-0.088	0.13	37.81	0.000
0.221	0.298	0.458	0.330	0.424	0.343	0.460	0.897	0.029	0.23	30.91	0.000
0.101	0.278	0.529	0.459	0.487	0.436	0.560	0.936	-0.019	0.32	80.36	0.000
0.330	-0.245	0.064	0.332	0.035	-0.039	-0.094	0.009	0.866	0.42	25.16	0.000
0.210	-0.175	0.091	0.430	0.100	-0.034	-0.039	-0.004	0.916	0.40	37.28	0.000
0.176	-0.198	-0.027	0.314	0.103	-0.070	-0.136	-0.090	0.900	0.38	33.68	0.000
0.198	0.133	0.516	0.647	0.31	0.276	0.300	0.359	0.321	0.90	46.48	0.000
0.289	0.048	0.237	0.488	0.242	0.104	0.127	0.083	0.495	0.88	20.66	0.000

## The Structural Model

Since variance based SEM does not provide overall model fit statistics, we analyzed the explanatory power of the model by examining amount of variance explained ( $R^2$ ) by the constructs along with the path loadings ( $\beta$ ) and their respective statistical significance (p-values) for the paths related to our hypotheses.

The interpretation of  $R^2$  in PLS is similar to that in regular regression analysis. Our model explained about 43% ( $R^2 = 0.429$ ) of the variation in recommendation branded apps, suggesting model has substantial explanatory power. Similarly, 34% of variation in brand

experience ( $R^2=0.345$ ) and 31% of variation in brand attitude ( $R^2=0.308$ ) can be explained by customer engagement, while 21% of the variation can be explained by combined effect of recommendation and brand attitude.

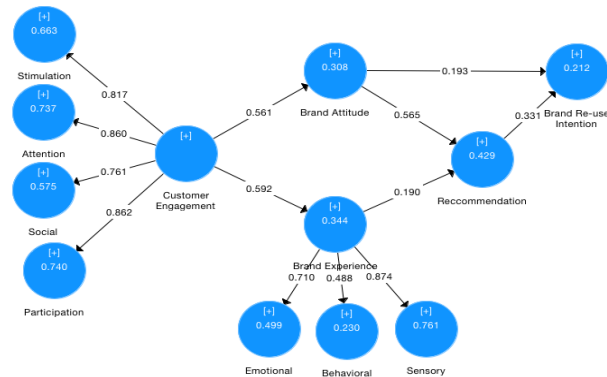
All standardized  $\beta$  path coefficients were positive (i.e. in the expected direction) and statistically significant (at  $p < 0.05$ ) except the one from brand attitude to re-use intentions ( $p < 0.137$ ). Next we used bootstrapping procedure with 5000 subsamples to obtain t-statistics and p-values to test the statistical significance of the paths between constructs. All t-values were greater than t-critical and all p-values were below the acceptable  $\alpha$  level of 0.05, except one. The causal path from brand engagement to brand experience ( $t=7.36$ ,  $p < .000$ ) was strongest and significant while the path from brand attitude to re-use intention was weakest and non-significant ( $t=1.5$ ,  $p < .134$ ). Other strong and significant paths were from brand attitude to recommendation ( $t=6.472$ ,  $p < .000$ ); from customer engagement to brand attitude ( $t=8.153$ ,  $p < .000$ ) and from recommendation to re-use intention ( $t=3.38$ ,  $p < .000$ ). Contrary to our expectations, the path from brand experience to recommendation ( $t=1.9$ ,  $p < .051$ ) was barely significant.

Table 5: Bootstrapped Results

Causal Paths	Standardized $\beta$	t-values	p-values	F2: Effect Size
Recommendation -> Brand Re-use Intention	0.331	3.380	0.001	0.084
Brand Attitude -> Brand Re-use Intention	0.193	1.500	0.134	0.028
Brand Attitude -> Recommendation	<b>0.565</b>	<b>6.472</b>	<b>0.000</b>	<b>0.480</b>
Brand Experience -> Behavioral	0.488	3.047	0.002	0.313
Brand Experience -> Emotional	0.710	9.098	00.00	1.015
Brand Experience -> Recommendation	0.190	1.897	0.051	0.055
Brand Experience -> Sensory	0.874	23.167	0.000	3.222
Customer Engagement -> Attention	0.860	32.793	0.000	2.839
Customer Engagement -> Brand Attitude	<b>0.561</b>	<b>8.153</b>	<b>0.000</b>	<b>0.460</b>
Customer Engagement -> Brand Experience	<b>0.592</b>	<b>7.360</b>	<b>0.000</b>	<b>0.541</b>
Customer Engagement -> Participation	0.862	27.341	0.000	2.893
Customer Engagement -> Social	0.761	14.580	0.000	1.378
Customer Engagement -> Stimulation	0.817	18.893	0.000	2.001

Standardized  $\beta$  coefficients must be interpreted in conjunction with the predictive relevance of constructs as shown by  $f^2$  values. Path from customer engagement to brand experience has both the strongest coefficient (0.592) and strongest effect size ( $f^2=0.541$ ). Henseler et al. (2009) consider  $f^2$  values of 0.02, 0.15, and 0.35 as indicating weak, medium and strong predictive relevance respectively. Based on this criterion, two other causal paths display strong effect sizes i.e. from brand attitude to recommendation ( $f^2=0.480$ ) and from customer engagement to brand attitude ( $f^2=0.460$ ). The paths from recommendation to re-use intentions, from brand experience recommendations and from brand attitude to re-use intentions show weak effect sizes.

Figure 2: Standardized Path Coefficient



Initial model specified in figure 1 contained one mediated path. Following the guidelines provided by Hair et al. (2017), for testing mediation in PLS, we calculated significance test for indirect effect using bootstrapped procedure. Indirect effect of brand attitude on re-use intention through recommendation turned out to be significant ( $t=2.9$ ,  $p<0.004$ ). As we noticed earlier the direct impact of brand attitude on re-use intention was non-significant. Mediated models, where direct paths are insignificant but indirect paths are significant are termed as indirect-only mediation (Zhao et al., 2010) which “closely correspond to Baron and Kenny’s (1986) concept of full mediation” (Hair et al., 2017). In our case, we can claim full mediation where recommendation act as mediator between brand attitude and re-use intentions.

## Discussion & Managerial Implications

Focus of this study was to explore the impact of customer engagement, brand attitude and brand experience on app recommendation and brand re-use intentions. Results showed all three of them impacted, directly or indirectly, recommendation and re-use intention. What is interesting in results is the configuration in which these three constructs load on each other and on recommendation and re-use intentions.

Literature review indicated a possible strong and direct impact of customer engagement on recommendation and re-use intentions. This supposition is based on the fact that use of branded apps by default implies some level of engagement i.e. superficial or deep engagement. Our results show no direct impact of engagement on either recommendation or re-use intention. We, however, did find significant indirect effects via brand attitude and brand experience. It appears that customer engagement alone is not sufficient to impact recommendation and re-use intention. Other factors and contexts will be necessary to elicit recommendation and re-use intentions.

The role of attitude in general and of brand attitude in particular, on marketing behaviors such as loyalty & recommendation is well documented (Dwivedi, 2015). Relationship between engagement, which also been defined as an attitude (Laborie, 2006), and brand attitude is a circular one, where engagement the brand improves attitude towards brand. At the same time, strong brand attitude is likely to encourage greater engagement. Our results indicate a strong loading of engagement on brand attitude. Finding ways to encourage greater engagement with branded apps is managerial challenge. As suggested by

Kim et. al. (2013) developers of branded apps should consider the use of graphics, animation, and sound appealing to customers' aesthetic senses and their desire for novelty. Managers should also focus these apps user friendly and provide greater customer control through customization.

The link between engagement and brand and between experience and recommendation is significant. In order to deliver memorable brand experiences, marketers should focus on the following six characteristics of great experiences as suggested by Ismail et al. (2011). Great experiences are 1) memorable 2) unique and extra ordinary 3) engage all the customer senses on a personal level 4) focused on physical and social interaction 5) subjective in nature 6) emotional in nature. Most of these characteristics are interrelated. For example, we know that memorability has a lot to do with emotions. Studies have shown that the most vivid memories tend to be of emotional events and are likely to be recalled more often. Generation of emotions in turn is based on the level of interaction and engagement.

Finally, we discuss the mediating role of recommendation between brand attitude and re-use intention. Does recommendation precede re-use intention or is it the other way around? Most marketing researchers consider recommendation as the step in consumer purchase process. In context of branded apps, which are high involvement personal offering, customers seem to talk about these frequently to others. Most of the users seem to engage in recommendation process. This word of mouth seems to firm up the reuse intentions. From managerial perspective, one should provide platform for existing customers to express reviews, feedback and recommendation to current or potential users, directly or indirectly. This could include blogs and feedback pages.

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