The Effects of Marketing Related Activities on Brand Equity through Facebook

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**ABSTRACT**

**Purpose:** The study aims to examine and analyze the effects of various marketing related activities on brand equity through Facebook.  
**Methodology:** An online survey was conducted for this empirical form of research. Questions were designed on a five-point Likert scale and distributed through Google forms, Facebook, and emails. Out of 450 questionnaires 332 active users of Facebook responded. The data was analyzed in SPSS v.21 and AMOS v.22 for results and discussions.  
**Findings:** The research findings confirm that marketing related activities via social media platform specifically Facebook have positive effects on brand awareness and brand image which finally make brand knowledge and thus leading to building brand equity. Moreover, findings show that development in consumer brand relationship in social networking like Facebook needs to understand both goals (media system dependency) and needs (uses and gratifications).  
**Implications:** With the rapid change of technology, Facebook has served as the most attractive part in marketing products, services, and brands to increase sales and brand equity. A large group of brand managers are asking themselves. “How can we improve brand equity by Using Facebook as a marketing channel?” The results and findings in this research study answer this question and lead brand managers to save time and resources and presents some area of improvements related to their needs.

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Introduction

Facebook which is the world’s giant in terms of active users having more than 1.6 billion users, has significantly changed the business dimensions (State of Search, 2021). It also attracted marketing and brand managers to establish, promote and build brands online in social media environment. The most up to date social networking technologies are changing patterns of way of life and innovative corporate practices. Organizations have started to comprehend the significance of the Internet, also they have taken control of it by demonstrating attention, interest, and participation in online internet communities (Berthon et al., 2012). Having exposed brands to consumer’s viewpoint, comments, and participatory actions it is a challenge how to build and increase brand equity in this competitive global village which is most critical issue in the field of marketing in current era. The field of marketing is reactive and responsive to whatever it is going on in the marketplace and marketspace. With the emergence of internet many people joined social media platform to communicate and interact with brands on Facebook (Venkatraman et al., 2010).

Firms having strong brands having positive brand equity is an impression of having better market results (Wang et al., 2008). Facebook’s popularity expands the probability that a one like can raise an attention of hundreds of friends including friends on other network whose interests are same, which creates a social contagion effect (Kanwal et.al, 2013). Social Media Channels like Facebook provide an improved way of interaction both to customer and firms. Organizations are in struggle and expect to hold their loyal customer and inspire perception and observation of individuals about theirs services and products, spread word of mouth, and to get know from and about their listeners (Brodie et al., 2013). Apart from sales, social media channels like Facebook provides brands a wide range of benefits that is most important to companies, like leveraging social media communication and interaction of consumers on mediums like Facebook and twitters (Rohm et al., 2013). Those customers who are frequently engaged in online brand communities have a tendency to be more satisfied, loyal, and trustworthy toward brand owners (Brodie et al., 2013). In modern technological era social media participation led to exposed brand reputations, and authors arguably saying the more interactive the customer’s community with a brand is, the greater the chances of ownership of the brand identity will be contested by consumers (McCarthy et al., 2014).

In today modern business practices Facebook as a marketing tool is increasing business prospects, offer ease of reach to target customers and developing brands in specific geographical areas. Marketers and brand manangers realized the importance and productivity of Facebook and today most of the companies are integrating it as a tool to their marketing strategy to advertise and build brand equity in the online community. This study highlighted how one can better use Facebook as a marketing tool to increase brand awareness and brand image which are essential part of brand knowledge leading to building brand equity.

In the digital age one of the best features of branding is the emergence of online brand communities which is interactive and participative (Holliman & Rowley, 2014). In the last 25 years internet has got a boom period and number of websites from 23000 in 1995 increased to 1.9 billion in 2020 (internetlivestats.com). Number of internet users has exceeded 64.2 % of world population. There is 887% of growth in number of internet users from 2000 to 2020 (internetworldstats, 2020). Research in the field of online marketing, social media, consumer interaction and engagement has become more important for consumers and marketers likewise (Pomirleanu et al., 2013). The interactive nature of the social sites to a much complex and multidirectional communication is becoming important for marketers and brand managers to increase their return on investments (ROI) and build brands online and it gives them a competitive advantage in the industry (Watson, 2002). From 2005 onward social media
marketing has remained second most desirable research area in interactive marketing that shows the importance and presence of social media in businesses and marketing practices (Pomirleanu et al., 2013). Past literatures stress the impact and significance of social media platform on brand equity (Kim and Ko, 2012). Marketers facing some of the problems are: “how they can measure social media efforts being carried out by organizations?” “where they would be successful?” People now a days are spending time on Facebook to connect and interact with their friends, read comment, participate and share; electronic social networking is the norm in current era (Venkatraman et al., 2010). Using Facebook successfully as an advertising platform, marketing and brand managers need to understand that why consumer interact with a Facebook brand page and what are the motive they stay with them (Gordon et al., 2016).

Research about the nature of brand consumer interaction driven by social media marketing is in developing process (Rohm et al., 2013). It is required that research should be done in all fastest developing area of marketing like social media marketing and network marketing which is likely to grow in near future. In future social media and networks is the likeable research areas that will grow and the continued progress inside the online marketing stories seems safe (Pomirleanu et al., 2013). Rana A., Bhat A.K., Rani L. (2019) found and identified fifteen different variables that has been extensively used in online marketing in previous literature as a source for building brand equity and information search. Electronic service quality are two of the variables under study in current research. They suggested these variables can be used in future on various marketing research areas; like in online environment i.e., Facebook.

Brand equity from online sources comprised of both old-style and internet related measures. The internet related measures contain online brand engagement and interactivity and quality of brand relationships between users and brand pages (Christodoulides and Chernatony, 2010). Dabrowski, (2016) found that social media brand communication positively and significantly influences or impact brand equity. Brand communication is combination of user-generated and firm created which has shown significant importance for brand equity while using Facebook as a marketing channel. He also suggests in his future research direction to incorporate (Keller, 1993) brand equity model which is comprised of elements like brand awareness, brand image and these two elements together make brand knowledge.

“How would we be able to increase brand Equity?” This question presents a remarkable challenge for experts, brand managers and marketers and establishes a never-ending exploration issue for scholars. In reply to the development of increasing brand competition and globalization, research has concentrated on understanding how one can build, measure, and manage brand equity that is significant and vital asset for any organizations (Keller, 2009). To effectively utilize Facebook as a promotional platform, brand managers need to understand that why consumer interact with a Facebook brand page and what are the motives they stay with them (Ross, 2015). Based on the background of the problem the researcher found the research gap in the knowledge as follows.

- While using Facebook as marketing tool, interactivity and brand engagement are the important indicators in promoting through online social media (Christodoulides and Chernatony, 2010).
- Facebook is widely used and brand managers are interested how to improve or build brand equity while using Facebook.
- Dabrowski, (2015) studied impact social media brand communication via Facebook on brand equity using Aakar (1991) model of brand equity and found these brand communication on Facebook positivel influence Brand equity and he further suggested to use Keller’s (1993) brand equity model to produce advance knowledge in the field of social media marketing.
While using Brand Engagement, information search and e-service quality as indicators of Facebook how it affects brand equity?

Marketing Activities on Facebook VS Brand Knowledge
Brand knowledge relates to what consumers has learned, seen, heard, sensed, and perceived as an outcome of their experiences with that brand. Even after strong marketing efforts and strategies brand equity depends on what the consumer has in their mind and heart and how they think about it (Keller, 2011: Winzar et al., 2018), and finding reflect that brand image and brand awareness to be the only two components of brand knowledge, where brand awareness is comprised of brand recognition and brand recall necessary for building brand image. Brand knowledge is thus the source of brand equity as it creates differential effect on the response of the consumer to the marketing of that brand. Previous studies found that frequency of brand post increase brand knowledge on Facebook (Schau et al., 2009). Other found that brand knowledge drives brand equity (Keller, 1993) and brand communication positively impact brand equity via Facebook (Dabrowski, 2015). Thus, this study assumes that marketing activities initiated on Facebook which is a marketing tool for brand managers have positive effects on brand knowledge.

H1: "Marketing activities on Facebook positively affect brand knowledge having a positive relation with it".

Marketing Activities on Facebook VS Brand Awareness
Brand Awareness can be described as an important dimension (Aaker, 1993) in brand equity model and from Keller (2013) perspective it drives brand knowledge and subsequently build brand equity. Brand equity is an extra influence on the response of the consumer to the brand that extends outside the product itself and its associated attributes (J Su, X Tong, 2015). Keller (1993) describes brand awareness as comprising of two things which is brand recognition and brand recall. Brand recall refers to capability of the consumers to retrieve a particular brand from their memory. On the other side brand recognition can be defined as the essential and initial phase in brand communication. (Aaker, 1991, p. 109). Keller (2013, p. 72) defines “Brand awareness” as “the strength of the brand node or trace in memory, which we can measure as the consumer’s ability to identify the brand under different conditions”. In modern technological era social media participation led to exposed brand reputations, and authors arguably saying the more interactive the customer’s community with a brand is, the greater the chances of ownership of the brand identity will be contested by consumers (McCarthy et al., 2013). Previous studies evaluated and found positive brand communication effects on brand awareness on Facebook (Dabrowski, 2015). Thus, we assume here that any effort undertaken, and activities carried out online on Facebook has positive effects on brand awareness.

H2: "Marketing activities on Facebook positively affect brand awareness having a positive relation with it".

Marketing Activities on Facebook VS Brand Image
Keller’s (1993: 3) describe brand image as "perceptions about a brand as reflected by the brand associations held in consumer memory". According to Keller (1993) that equity of a brand is impacted by brand image which is the congregation of associations which is found the memory of consumer about that particular brand. These collections of associations might be functional, symbolic, or attitudinal. Branding efforts require brand managers to make quality contents to mapping a good image (Zeglat and Tedmori, 2014) and valued information (Palmer and Koenig-Lewis, 2009) for consumer engagements which is crucial to make favorable, strong, and unique association in the mind of consumers (Keller’s, 1993). When such efforts are undertaken it increases relationship with consumers and the strength of associations and thus leads to building brand image. Thus, study assumes that marketing activities on Facebook have positive effects on brand image.

H3: “Marketing activities on Facebook positively affect brand image having a positive
relation with it”.

**Brand Awareness VS Brand Image**

This research uses the brand knowledge model of brand equity (Keller, 1993) which he mentioned as customer-based brand equity and described it as “differential effect that brand knowledge has on consumer response to the marketing of that brand” where brand knowledge is combination of brand image and brand awareness. Previous studies found effort being carried out to improve brand image will require to improve brand awareness which means brand image depends on brand awareness (Esch. et.al. 2006). Both are directly related to each other and any change in brand awareness will cause change in brand image (Keller, 1993). Thus, we assume that even marketing on Facebook to increase or build brand equity brand image will be a function of brand awareness which means brand image rely on brand awareness.

**H4: “Brand awareness has direct effect on brand image”**

**Methodology**

This study is constructed on the “Uses and Gratifications Theory” which states that in what way people use media to fulfil their needs (Katz & Blumler, 1974 & Blumler, 2019). Based on Keller (2013) brand equity model this research studies and investigate relationship between Facebook marketing and brand awareness from the perspectives of “Uses and Gratification Theory” and “Mass Media Dependency Theory”. The research is empirical form of research which studies to gain knowledge by means of indirect observations. Questions were designed on a five-point Likert scale and distributed through Google forms, Facebook, and emails. Out of 450 questionaries 332 active users of Facebook responded. Population of the study was big cities of Pakistan and sample was derived using non-probability sampling. To select the sample of the research, judgmental, convince and snowball sampling was used. There are three latent variables; marketing activities, brand awareness, brand image and eight observed variables or indicators which are brand engagement, information search, e-service quality, brand recognition, brand recall, strength of association, favorability of association and uniqueness of association. The first three observed variables are the indicators of marketing activities, the third and fourth are indicators of brand image and the last three observed variables are indicators of brand image. Brand knowledge will be a second order variable or factor that will integrate brand awareness and brand image. Data was collected from primary sources and were analyzed in SPSS v.21 for reliability, finding outliers, checking multicollinearity, and computing means. Then the data was analyzed in AMOS v.22 using “Confirmatory factor analysis (CFA)” for composite reliability, validity and fit of the model and to test the hypothesis the CFA model was transformed to structural model in AMOS v.22 that led to the results of this research.

**Results And Analysis**

This section shows the result of all descriptive statistical analysis with discussion and comparison with past research. Out of 322, it was found that 9 questions were causing highest variance errors. Although the data reliability test was fine and yielded a good model fit but it was leading to discriminant validity problems in the model and was dropped. Therefore, the definitive sample size for testing stood at 313 respondents, establishing a response rate of 69.55 percent.

| Variables | Sample Size | Percentage |
|-----------|-------------|------------|
| 1. Gender |             |            |
| Male      | 192         | 61.3       |
| Female    | 121         | 38.7       |
| Total     | 313         | 100        |
| 2. Age    |             |            |
| 15-24     | 151         | 48.1       |

Table 1: Descriptive Statistical Analysis
Table 1 shows that (61.3%) of our respondents were male; while, remaining (38.07%) were female. Further, majority of our respondents were students (42.5%), followed by private sector employees (27.8%) and self-employed (13.1%), while the govt. sector employees were (7.3%) and NGO employees were (5.4%). Business was least represented in this sample with (3.9%). Likewise, (41.8%) of our respondents have master’s degree, (30.9%) have bachelor’s degree and the remaining (21.5%) have MS/Mphil degree. While (4.5%) have intermediate and (1.3%) have matric degree, respectively. Our results further reflect that the respondents under the age bracket of 15-24 years of experience are significant (48.1%) followed by 25-34 years of age group with (40.9). Furthermore, most of our respondents were from Khyber Pakhtunkhwa (31.4%), followed by Sindh (30.9%) and Punjab (28.4%), respectively. No body took part in the survey from Azad Kashmir.

Reliability analysis (Cronbach alpha)
Initially reliability was analyzed using Cronbach Alpha in SPSS Version 21. To assess the items in order to further rectify it. All the factors yielded values in the accepted range except for “Favorability of association”. Factors E-service quality, Information Search, Brand Engagement, Brand Recognition, Brand Recall, Strength of Association, and Uniqueness of association yielded Cronbach alpha values in the range of 0.738 to 0.790 which are greater than 0.7 threshold. The Cronbach Alpha value for the reliability of “Favorability of Association” factor is
0.68 which lower than 0.7 as per rule of thumb but it can be taken into consideration and not removing from the model as Spector et.al (2015) found that the reason for lower values of Cronbach Alpha is the diversity of culture, people and geographical position to like or dislike thing. Connecting Spector et.al (2015) statement with current research it is obvious that the factor is related to favorability of people and data was collected from people all over Pakistan so the element of diversity in culture, geography, and people do exist, so the item can be used. An indicator with reliability value of 0.68 can be used because the value of the reliability test also depends on number of items in it. Value of Cronbach Alpha increases as the number of items in an indicator are increased (Field.A, 2009).

Table 3: Reliability Analysis of the Final Instrument

| E-Service Quality                      | Total Correlation | Cronbach's Alpha if Item Deleted | Cronbach's Alpha |
|----------------------------------------|-------------------|----------------------------------|------------------|
| Item/s                                 | -Corrected Item   |                                  |                  |
| 1. Facebook marketing creates more popularity about a brand. | .587              | .661                             |                  |
| 2. I consider Facebook as a useful marketing tool for creating brand awareness. | .652              | .642                             |                  |
| 3. Marketing related activities on Facebook creates a good image of brands and Products. | .573              | .670                             |                  |
| 4. Facebook can be used to achieve certain goals. | .428              | .725                             |                  |
| 5. People now a day depend on Facebook for some of their needs. | .336              | .762                             |                  |
| **E-Service Quality**                  |                   |                                  |                  |
| **Information Search**                 |                   |                                  |                  |
| 6. I can find useful information on the Facebook Brand pages. | .488              | .782                             |                  |
| 7. I engage myself to brand and products Facebook page to get information. | .689              | .682                             | **.786**         |
| 8. The Facebook page of Brand/product is a quality and best source of up-to-date brand/product information. | .547              | .756                             |                  |
| 9. I found detailed information on Facebook related to the product/brand I was interested in buying. | .661              | .697                             |                  |
| **Brand Engagement**                   |                   |                                  |                  |
| 10. I use Facebook, when I need to look for brands and products. | .467              | .739                             | **.754**         |
| 11. I comment, share, and like posts on Facebook Brand pages. | .549              | .704                             |                  |
| 12. I participate when people are talking about the brands/products on Facebook. | .573              | .686                             |                  |
| 13. Because of Facebook I am closely associated with brands/products and companies. | .629              | .653                             |                  |
| **Brand Recognition**                  |                   |                                  |                  |
| 1. I am aware of the particular brand or product that usually appears on Facebook. | .624              | .720                             |                  |
| 2. I have an opinion about those brands/Products that usually appear on Facebook. | .620              | .723                             | **.787**         |
| 3. I may easily recognize a brand or product on Facebook in comparison with other brands or products. | .657              | .702                             |                  |
| 6. I notice most of the brands on Facebook | .493              | .792                             |                  |
that I am using currently.

### Brand Recall

| 7. I may easily remember slogan/logo/symbol of the product/brand that showed on Facebook. | .609 | .689 | .766 |
| 8. I may easily recognize the qualities and characteristics of a certain brand/products that showed on social media. | .713 | .636 |
| 9. I often notice those brands on Facebook that I have used in the past. | .452 | .772 |
| 11. I know that how a certain brand/product seems because it is in my memory. | .518 | .736 |

### Strength of Associations

| 14. Facebook Marketing is a good sources of building brand image. | .628 | .726 | .790 |
| 17. Sometime on Facebook I say this brand is totally awesome. | .653 | .710 |
| 23. Brands on a Facebook page leads to good image about those brands. | .598 | .739 |
| 17. Following a particular Brand looks valuable to me. | .524 | .776 |

### Favorability of Associations

| 13. I like brands that I see on Facebook. | .427 | .633 |
| 19. The brand has high quality. | .508 | .582 |
| 20. The brand is very user friendly. | .506 | .586 |
| 22. I like the Brand very much. | .417 | .647 |

### Uniqueness of Associations

| 15. I consider those brands as the leading brand in the market that appears on Facebook. | .522 | .749 |
| 16. I observe unique characteristics of brands/products on Facebook compared to competing brands. | .665 | .674 |
| 18. The brand makes me different from others. | .590 | .713 |
| 21. The values that of particular brands give me confidence about their products. | .540 | .738 |

### Computation of means

In order to test the model fitness and test hypothesis in AMOS Software it was important to calculate mean for each factor from their respective items. E-Service Quality had five items and remaining 7 Factors had four items in their list. All the means were calculated through SPSS v.21 computation command.

### Outliers and multicollinearity

The data was checked for any outliers using boxplot option in SPSS v.21 that could cause problems in later analysis and there were a few values that were slightly on extreme. The researcher did not exclude as there are some opposing views for removal of outliers in the Likert scale data which has extremes from the 1 to 5 I the current research. The researcher replaced them with the median value in order to consider every respondents response in the model. Multicollinearity test was run on the data to find the accepted values of VIF and Tolerance.

#### Table 4: Multicollinearity analysis

| Collinearity Statistics |
|-------------------------|
| Factors                |
| E-Service Quality      |
| Tolerance              |
| VIF                    |
| .249                   |
| 4.017                  |
Multicollinearity test seems very nice for the sample data. As per rule of thumb the values of VIF should be less than 5 for a small sample size. In the current data the values of VIF are in the accepted range and all of them are below 5. The VIF value for Strength of Association is higher among all factors and Brand Recognition has a better value than any other in the factors which is computed 2.9.

Another way to check Multicollinearity is to look at values of tolerance which should not be less than 0.2 threshold. All the values are here are above 0.2 and hereby accepted. Brand Recognition has the highest value which is an indication of good data. Overall, there are no Multicollinearity issues in the data.

**Confirmatory Factor Analysis (CFA)**

**Composite Reliability, Convergent and Discriminant Validity in CFA**

In the next stage the scale was validated using confirmatory factor analysis and all the data was selected in the model and all dependent and independent latent variables were organized in one multifactorial model in statistical software AMOS V.22. Convergent and discriminant validity was established using CR- Composite Reliability, AVE- Average Variance Extracted, ASV- Average Shared Squared Variance and MSV- Maximum Shared Squared Variance. The CR values resulted in a ranged from 0.860 to 0.925, which surpassed the (Bagozzi and Yi, 1988) mentioned 0.70 threshold value. The values of average variance extracted are more than 0.5 threshold for all the latent variables in the model and thus leading to correct convergent validity (Fornell and Larcker, 1981). The AVE values ranged from 0.755 to 0.804 and all these values were less than values of CR- composite reliability. The values of MSV ranged from 0.741 to 0.745 and the values of ASV were ranged from 0.659 to 0.743. According to Hair Jr. et al., (2010) the values of AVE were greater than MSV and ASV and square root of AVE were higher than inter-construct correlation which leads to discriminant validity and thus finally from all these observations the researcher established a good Composite Reliability, and construct validity. The values of reliability and validity which resulted from the confirmatory factor analysis (CFA) are shown in Table 5.

**Table 5: Composite Reliability, Convergent and Discriminant Validity**

|                      | CR  | AVE | MSV | ASV  | Marketing Activities | Brand Awareness | Brand Image |
|----------------------|-----|-----|-----|------|----------------------|-----------------|------------|
| Marketing Activities | 0.925 | 0.804 | 0.741 | 0.659 | 0.897                |                 |            |
| Brand Awareness      | 0.860 | 0.755 | 0.745 | 0.661 | 0.760                | 0.869           |            |
| Brand Image          | 0.908 | 0.768 | 0.745 | 0.743 | 0.861                | 0.863           | 0.877      |

CR>0.7, AVE>0.5, AVE>MSV, AVE>ASV, CR>AVE.

**Model Fit in Confirmatory Factor Analysis (CFA)**

The confirmatory factor analysis resulted in good model fit and most of the values obtained were sufficient to accept the overall model fit.
The value of Chi-square/df, \((C_{min}/df)\) was computed 2.715 which is less than 5 and in the acceptable range, the values shown for CFI-comparative fit index was 0.975, GFI-Goodness of Fit Index value was 0.935, AGFI-Adjusted Goodness of Fit Index value was 0.854 the value resulted for TLI-Tucker-Lewis Index was 0.957, the RMSEA-Root Mean Square Error of Approximation value was 0.091; 90% C.I. 0.05, 0.133, and the value of SRMR-Standardized Root Mean Square Residual or Standardized RMR was equal to 0.0287. All the observed values indicated a good model because they were very close to specifies threshold (Hair Jr. et al., 2010). The value for the model fitness is represented in table 6.

### Table 6: Model fitness during Confirmatory Factory Analysis

| Measure               | Resulted Value | Threshold                                      |
|-----------------------|----------------|------------------------------------------------|
| Chi-square/df, \((C_{min}/df)\) | 2.715          | 1-3(Very Good Fit), <3 and 5< (Good Fit)       |
| CFI                   | 0.975          | 1=Perfect Fit, <.95 (Great Fit)                |
| GFI                   | 0.935          | 1 indicates a perfect fit, greater than 0.90 shows a good fit |
| AGFI                  | 0.854          | Greater than 0.80 shows a good fit             |
| TLI                   | 0.957          | TLI values near to 1 indicate a very good fit  |
| RMSEA                 | 0.091          | Value near to or less than 0.5 shows a good fit. Value up to 0.10 is fine. |
| SRMR                  | 0.0287         | A value close to Zero shows a good fit         |

The table values were mentioned in (Gaskin, J., 2012) online tutorial and AMOS v.22 Help Index.

### Correlations between Latent Variables

The correlation was estimated during CFA and 0.760 (76%) is the estimated correlation between Marketing Activities and Brand Awareness and 0.861 (86.1%) is the estimated correlation between Marketing Activities and Brand Image whereas 0.863 (86.3%) is the estimated correlation between Brand Awareness and Brand Image. The values of correlation indicate how strongly these latent variables are connected and related to each other presented in the table 7 are the correlation values between these variables.

### Table 7: Correlations between Latent Variables in CFA

| Variables         | Estimate | |
|-------------------|----------|---|
| Marketing Activities --- Brand Awareness | .760     | |
| Brand Awareness   |          | |
| Brand Awareness   | .863     | |
| Marketing Activities --- Brand Image | .861     | |

### Structure Equation Modelling (SEM)

#### Model Fitness

To test the hypothesis Structure Equation Modelling (SEM) were used in AMOS v.22. Here marketing activities is an unobserved exogenous variable and brand knowledge, brand awareness and brand image are unobserved endogenous variables. All the indicators are observed endogenous variables. First brand knowledge was treated as second order factor for brand awareness and brand image and then latent variables were individually analyzed. After the analysis were done the model led to a good fit and values yielded were in the acceptable ranges. The value of Chi-square/df, \((C_{min}/df)\) was computed 2.82 which is less than 5 and in the acceptable range, the values shown for CFI-Comparative Fit Index was 0.972, GFI-Goodness of Fit Index value was 0.929, AGFI-Adjusted Goodness of Fit Index value was 0.849 the value resulted for TLI-Tucker-Lewis Index was 0.954, the RMSEA-Root Mean Square Error of Approximation value was 0.080; 90% C.I. 0.036, 0.121, and the SRMR-Standardized Root Mean
Square Residual or Standardized RMR value was equal to 0.0294. All the model fitness values were remained the same during treating brand knowledge as second order factor. All the observed values indicated a good model fit because they were very close to specifies threshold (Hair Jr. et al., 2010). The value for the model fitness is represented in table 8.

Table 8: Structure Equation Modelling

| Measure                      | Resulted Value | Threshold                                           |
|------------------------------|----------------|-----------------------------------------------------|
| Chi-square/df, (Cmin/df)     | 2.82           | 1-3(Very Good Fit), <3 and 5< (Good Fit)            |
| CFI                          | 0.972          | 1=Perfect Fit, <.95 (Great Fit)                     |
| GFI                          | 0.929          | 1 indicates a perfect fit. Greater than 0.90 shows a good fit |
| AGFI                         | 0.849          | Value greater than 0.80 shows a good fit           |
| TLI                          | 0.954          | TLI values near to 1 show a very good fit.          |
| RMSEA                        | 0.080          | Value near to or less than 0.5 shows a good fit. Value up to 0.10 is fine. |
| SRMR                         | 0.0294         | A value near to Zero shows a good fit               |

**Standardized Regression Weights and total effects during SEM Model**

**Standardized Regression Weights**

When a marketing activity raises by 1 standard deviation on Facebook, brand knowledge raises by 0.875 standard deviations. When a marketing activity raises by 1 standard deviation, brand awareness speeds up by 0.76 standard deviations. When brand awareness raises by 1 standard deviation, brand image speeds up by 0.474 standard deviations. When marketing activity raise by 1 standard deviation, brand image speeds up by 0.501 standard deviations.

**Total effects in Structural Model**

The total (direct and indirect) effect of marketing activity on brand knowledge is .816. That is, due to both direct (unmediated) and indirect (mediated) effects of marketing activity on brand knowledge, when marketing activity goes up by 1, brand knowledge goes up by 0.816. The total (direct and indirect) effect of marketing activities on brand awareness is .705 unit. That is, due to both direct (unmediated) and indirect (mediated) effects of Marketing activities on brand awareness, when Marketing activities goes up by 1 unit, brand awareness goes up by 0.705 unit. The total (direct and indirect) effect of marketing activities on brand image is .816 unit. That is, due to both direct (unmediated) and indirect (mediated) effects of Marketing activities on brand image, when Marketing activities goes up by 1 unit, brand image goes up by 0.816 unit. The total (direct and indirect) effect of brand awareness on brand image is .484 unit. That is, due to both direct (unmediated) and indirect (mediated) effects of brand awareness on brand image, when brand awareness goes up by 1 unit, brand image goes up by 0.484 unit (Kline, 2005).

Table 9: Standardized Regression Weights and total effects during SEM

| Variables                  | Estimate | Total Effects |
|----------------------------|----------|---------------|
| Marketing Activities → Brand Knowledge | 0.875    | 0.816         |
| Marketing Activities → Brand Awareness       | 0.76     | 0.705         |
| Brand Awareness → Brand Image                | 0.474    | 0.484         |
| Marketing Activities → Brand Image           | 0.501    | 0.816         |

**Factor Score weights of indicators with latent variables**

Factor scores or loading are the resulted values in structural model where a one unit increase in an indicator shows change in its respective and other factors. It can be interpreted as when the
measured variable Information Search, brand engagement and E-service Quality raises by 1 unit, the predicted value for the latent variable marketing activity speeds up by 0.216, 0.346, and 0.259 units, respectively. When the measured variable brand recognition and brand recall raises by 1 unit, the predicted value for the latent variable brand awareness speeds up by 0.395 and 0.306 units, respectively. When the measured variable strength of association raises by 1 unit, the predicted value for the latent variable brand image speeds up by 0.376 units. Each value must be interpreted the same way as it is interpreted for above variables. The shaded cells represent associated indicators of each factor.

| Factors            | Indicators     | Marketing Activities | Brand Awareness | Brand Image |
|--------------------|----------------|----------------------|-----------------|-------------|
| Information Search| 0.216          | 0.017                | 0.037           |             |
| Brand Engagement   | 0.346          | 0.028                | 0.06            |             |
| E-service Quality  | 0.259          | 0.021                | 0.045           |             |
| Brand Recognition  | 0.022          | 0.395                | 0.068           |             |
| Brand Recall       | 0.017          | 0.306                | 0.053           |             |
| Strength of Association | 0.075   | 0.108                | 0.376           |             |
| Favorable Association | 0.036     | 0.052                | 0.18            |             |
| Unique Association | 0.037          | 0.054                | 0.186           |             |

**Results and Analysis**

Marketing related activities showed a positive relationship with brand knowledge the value of t-state was 14.5, \( \beta = 0.875 \), p-value=0.001 confirmed rejection of Null Hypothesis and thus leading to have a positive relationship. Previous studies found that frequency of brand post increase brand knowledge on Facebook (Schau et al., 2009). Other found that brand knowledge drives brand equity (Keller, 1993) and brand communication positively impact brand equity via Facebook (Dabrowski, 2015).

Marketing related activities on Facebook showed a positive relationship with brand awareness as it is confirmed from the values of t-statistic which is 11.01 more than threshold of 2 with 99% confidence interval with a \( \beta \)-value of 0.76. This led us to the acceptance of Hypothesis 1 (H2). The results are in line with previous studies conducted where it is found that more interactive the customer’s community with a brand is, the greater the chances of ownership of the brand identity will be contested by consumers (McCarthy et al., 2013). The results also support the previous study conducted which shows positive brand communication effects on brand awareness on Facebook (Dabrowski, 2015).

Marketing related activities on Facebook also showed a positive relationship with brand image and thus confirmed the second hypothesis, H3 (\( \beta = 0.47 \); t-value 5.2; p-value 0.001). Similar results were found in a research conducted by Zeglat & Tedmori (2014), where it is found that brand managers require to make quality contents (marketing activity) to map brand image. The results are also in line with another study by Palmer & Koenig (2009) that valued information (marketing activity) for consumer engagement which is crucial to make favorable, strong, and unique association in the mind of consumers.

The relationship between brand awareness and brand image showed to be a positive relationship which confirmed the third hypothesis. The value of the t-stat was 6.2, \( \beta = 0.501 \), p-value-0.001 and thus confirming H4. Previous studies found effort being carried out to improve brand image will require to improve brand awareness which means brand image depends on brand awareness (Esch. et.al. 2006). And the research also confirms Bowie & Buttle (2004) that a higher level of
brands will be required with higher level of brand image to be successful. Brand Image and awareness are directly related to each other and any change in brand awareness will cause change in brand image (Keller, 1993).

Limitation And Study Forward
This research contributes to the existing literature by pointing out marketing tools/variables into the model and additionally recommends that upcoming research studies need to investigate and explore more variables to assess their contribution towards overall brand equity. The measure used in this study should be further replicated to confirm the results. Future research needs to identify how marketing tools can be efficiently and effectively executed in social site networking. The study is also limited to Pakistani sample which make it hard to generalize the same study to other countries. The researchers may take economic, cultural and social differences into the account for the purpose to perfectly analyze the validation and generalization of the results and findings.

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