

## SM Analytics: Impact of SM Engagement Metrics on Online Purchase Intention

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**Abstract:** Online sale is now the most targeted and striking selling strategy for most of the business enterprises. SM (Social Media) now is the most attractive segment to attract consumers and to contact them directly. Many researches have been conducted on identifying the importance of SM on purchase intention. In social media, users tend to do different types of activities, (e.g., comment, like, share, view) and these users actions create SM (Social Media) engagement metrics. Users of different Facebook fanpages tend to engage with different pages in different ways. Marketers definitely now need to explore the actual impact of social media engagement activities on online purchase intention and also they need to find out the consistency of online sales with social media engagement metrics. But yet no study explored the relationship of different user's engagement actions with online purchase intention. The study is based on an online survey conducted on Malaysian social media users (n = 410) to explore their purchase intention alongside their engagement activities. It will help the E-commerce marketers to identify the importance level of social media engagement metrics on online sales and also guide the e-marketers to decide on e-marketing tools to be encouraged particularly for engagement metrics to make online sales. A survey was conducted among the social media users and responses were recorded using the University of Malaya survey portal. Data was analysed using AMOS 23 and a best fitted model is suggested to be implemented in social media marketing policy. The study reveals a strong positive relationship between fanpage engagement metrics and online purchase intention. The results will guide e-commerce marketers identify the significance of social media engagement on online sales while helping e-marketers on their decision pertaining to e-marketing tools, particularly for engagement metrics in increasing online sales.

**Key words:** Social media, social media engagement, social media metrics analysis, online shopping behaviour, SM analytics

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### INTRODUCTION

Internet has formed an advanced economy which by its fiery evolution and absolute size already renewed our responsiveness of traditional way of doing business. Many small and mid-size companies started to form online businesses quite profitably. Companies can decrease more than five percents of their maintenance, repair and operation costs by accepting e-business solution and this five percent funds can turn into 50% of a company's net profit (Platz, 2015). And social media is the dynamic tool now to lift online sales and Social-driven retail sales and also referral traffic are growing at a quicker leap than all other online platforms (Smith, 2015; Hashem, 2016; Izhar *et al.*, 2016). Facebook commands 41% of all social networking traffic with >500 million members worldwide

and its rising fast. "Facebook is one of the best arenas for business to consumer sales" but it's all about engaging with the community (Smith, 2014). So user engagement is the vital term in social media to make online sales. Users can create their engagement or interaction by doing several types of actions. But all the user's actions don't carry similar weight to make an expected output or online sales. Previous studies have explored the types of posts or contents to generate the user actions or engagement. But it's now time to explore the issue whether these user actions are actually related to generate online sales. Besides this, marketers need to know which types of user action are more related to online purchase behaviour. And this knowledge will help the ecommerce marketers to design their SM strategy and to generate contents in social media according to their user behaviour. In the area

of social media, it is vital that marketers understand social media engagement metrics (Traphagen, 2015; Zoha, 2016) and to attach the power of social commerce, it is necessary to study the process and uniqueness of how consumers behave in this setting (Hennig-Thurau *et al.*, 2013; Zoha, 2016).

In our study we identified the types of online shopping behaviour and their relationship with the different SM user Actions (like, comments, shares, clicks, views, follow, ad clicks). We explored and identified the SM user's interaction's output on online purchase behaviour. An online survey was conducted to explore user's actions and Structured Equation Modelling (SEM) was analysed using AMOS 23.

### **Literature review**

**SM engagement actions and its compulsion:** Facebook fanpage engagement is the sum of post clicks, likes, comments, shares, post hides, hides of all posts, reports of spam and page unlikes from a post (Donkor, 2013). According to simply measured (Link of information source) engagement is likes, comments and shares; however, according to Facebook, it's likes, comments and shares as well as clicks on the post, (e.g., opening a picture, clicking on 'play' on a video, clicking through a link). Researches established that the average Facebook user spends 40% of their online period watching at their news feeds. This news feed is created from what their Facebook friends pick to post, like, share and comment on at the period. As each of Facebook users involves on brand's page, these posts, likes, comments, clicks are shared with all their Facebook friends. In turn, these actions rise user reach and remarkably advance marketing competencies (Stewart, 2015; Intan, 2016; Luekveerawattana, 2016). Forrester Research recently finalized a study that truly identifies why all those Facebook likes, comments and shares are so important. The Forrester Research found that 70% of consumers trust brand recommendations from friends online while only 10% trust advertising (Wasserman, 2013). All the likes, comments and shares on Facebook pages are refined brand approvals and suggestions for the consumers to purchase products (Anderson, 2013). Regard with Forrester research, active users was described as users who have great regularity in visiting and interacting with social media (Haven, 2007). Stimulatingly, one research findings appositely showed that there was no sign that high frequency of visiting fanpage arouses purchasing behaviour (Wasupol, 2015).

**Explanations of online shoppers:** The dominance and consequence of e-commerce are pulling more and more

devotion on the research of online consumer behaviour. Although there are remarkable developments in diversity of business disciplines concentrating on that area, the studies are comparatively disjointed and there is not a well-developed form of online shoppers behaviours accepted by the researchers. In view of this, this article picks the literature and previous effort on building a framework in this area, tries to offer a more comprehensive and logical terms with three key building blocks of online shoppers in terms of situational influences and user % (online shopping lovers, online Fun seekers and suspicious learners) that can better guide the researches on online shopper behaviour.

**Online shopping lovers:** Online shopping lovers are knowledgeable and skilled computer users and will likely undergo their shopping behaviours. They also spread the experiences to others about enjoyments of online shopping whenever they have the chance. They denote an ideal target for retailers and they accounts about 24% of total online spending (Friesner, 2015). These types of shoppers appreciate buying online and do so repeatedly. According to Forrester Research, Inc., 70% of the overall growth in online sales in 2010 came from existing shoppers simply buying more online and savvy online shoppers (McPartlin, 2011).

**Fun seekers:** This online user finds fun in exploring online materials but seldom goes for online shopping. They see entertainment value in the Internet but buying things online alarms them. Fun seekers account for 2% of online spending (Friesner, 2015; Kim *et al.*, 2004). mentioned that consumer's examination or surfing at online store or brand pages does not divert them to a complete purchase or transaction of their actual needs (Kim *et al.*, 2004).

**Suspicious learners:** Their uncertainty to purchase online more often because of their lack of computer training but they are exposed to accept online shopping readily. In contrast to more fearful segments they don't have a problem giving a computer their credit card number. Additional guidance and training would aid them to move into online buying and they tend to learn more from online sources. 15% of online spending are occurred by these users and dictates another segment with growth potential (Friesner, 2015). Whereas online shopping may have gone conventional, quite of online shoppers are comparatively new comers and potential buyers (Lisa, 2012).

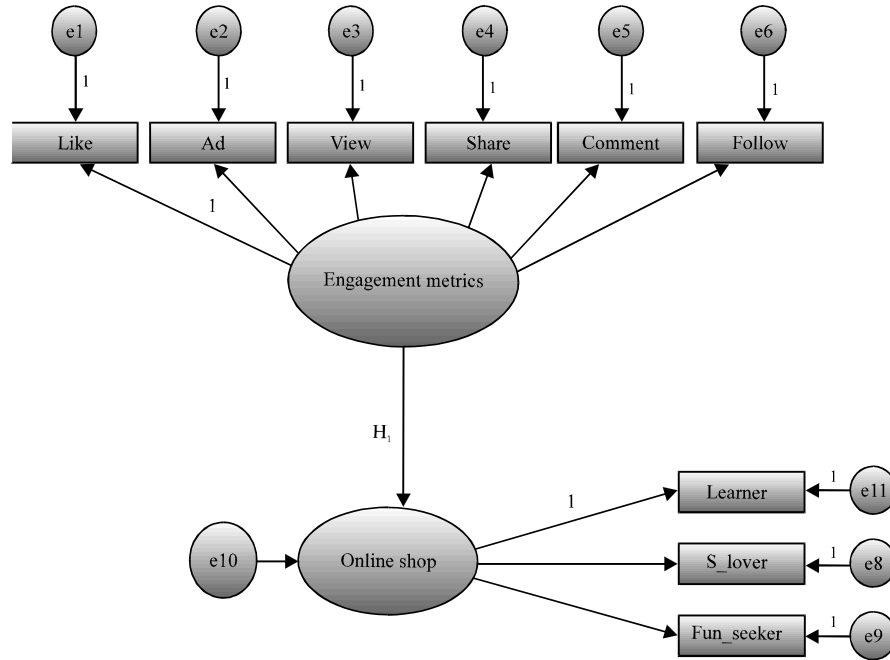


Fig. 1: Research model

**Conceptual framework and hypothesis development:**

Figure 1 represents the research model, developed based on literature review and previous study. In the study, we selected social media engagement metrics as independent variable construct and online shopping behaviour as dependent variable. The instruments of the two variables are determined according to the previous findings mentioned in the literature part. The instruments of the engagement metrics is selected as: like comments, shares, ad views, view (Video) and follow (fanpage). And instruments for the Online Shopping behaviour is determined as: Shopping Lover (S-lover) online Fun seeker (F-seeker) and Suspicious Learner (Learner). For our study we picked the most frequently conducted engagement actions and shopping behaviour of users to show their impact.

Studies show that the average Facebook user spends 40% of their online time looking at their news feeds (Stewart, 2015). This news feed is generating from what their Facebook friends choose to post, click/view, like, share and comment on at the time. As each of Facebook fans engages on brand's page, these comments, likes, posts, clicks are shared with all their Facebook friends. This will in turn expand the reach and significantly improve marketing output.

**Engagement exhibit online purchase:** Engagement metrics can deliver decisive information that can support companies advance marketing strategies, upsurge website

traffic and attain sales leads (Decisions, 2015). Study discloses that higher numbers of active users on the fan page rise the number of visits to the online shop and the User Generated Contents (UGC) in Fanpages have a strong relationship in creating a higher conversion rate (Ho *et al.*, 2013). It is a managerial approval for the marketers must to truly engage customers, hold technology and notify senior management about the openings of social media engagement to gain business (Berthon *et al.*, 2012). The fanpages benefits the managers to sustain a sustainable customer relationship management with their online consumers which can lift up the sales volume through encouraging the purchase intention of consumers (Ho *et al.*, 2013). So according to the above assessment and literature we can assume that:

- H<sub>1</sub>: Engagement metrics is significant to create online purchase intention

**MATERIALS AND METHODS**

**Sampling and data**

**Data collection procedure:** To collect data from viewpoint of social media user, the strategy of the research data collection is the online survey. To investigate user behaviours and purchasing decisions, a quantitative approach is used to analyse the results from the survey. Each respondent is asked to respond to the same set of questions, it provides an efficient way of collecting

responses from a large sample prior to quantitative analysis (Saunders, 2009). After finalising the questionnaire, before the distribution of them, the questionnaire presented to 15 participants to test it. Pilot test undertaken to receive suggestions from respondents to enhance the questionnaire.

**Sample selection justification:** In order to address the research aim the participants were selected using a non-probability sampling method. There are many different types of non-probability sampling methods and we used purposive sampling method. Purposive sampling provides us to use our judgement to select cases that will enable us to meet the objectives (Saunders, 2009). In our study we selected students of undergraduate and post graduates as the previous research indicated that online consumers are mostly educated and young consumers (Nagra and Gopal, 2013).

**Sample size determination:** A study on determining sample size requirement based on power, bias, solution property and changes in parameters, revealed that a range of (30-460 cases) sample size is required (Michael, 2013). And another study summarized the most valid conclusion regarding sample size is that “more is always better” (Cohen, 2004). Comrey and Lee (1992) suggest that “the adequacy of sample size might be evaluated very roughly on the following scale: 50-very poor; 100-poor; 200 fair; 300 good; 500 very good; 1000 or more excellent” (Comrey and Lee, 1992). Considering the above matter, our sample size is total 410.

**Sample statistics:** About 400 and 10 responses were recorded of which largest age group was 25-40 year old. Regarding the education group 53% was undergraduate students and 47% was postgraduate students.

**Methods of spreading the questionnaires:** Since the topic deals with behaviour of online consumers, online questionnaires were used. A free service website, Google spreadsheets, used for the survey and allow participants to answer the questionnaire online. Online survey link was put on the University of Malaya Student portal and each student was allowed to participate in the survey only by using the student ID no and student email ID. The results are then recorded into an Excel document by the Google spreadsheet. The survey link was opened from December 26-30 March, 2016 on the university student portal.

**Components of the questionnaire:** The questionnaire adapted items from previous literature. Various statements offered to the respondents on their activities regarding

social media engagement and online shopping and asked to rate them on a Likert 5-point scale from 1 = strongly disagree and 5 = strongly agree. Both a pre-test and pilot test was used to validate the instrument. The pre-test involved fifteen respondents, each with >1 year of using SM. Respondents were asked to comment on the format, length of the instrument, scale wordings. The pilot test involved fourteen respondents selected from the university according to researcher convenience. Based on the respondent's feedback, several items of the questionnaire were modified (Crobach's alpha above 0.80) and item loaded in the correct factors in confirmatory factor analysis (with loadings of 0.60 or more). So, the instrument confirmed content validity and reliability.

## RESULTS AND DISCUSSION

We followed two step approach (Anderson and Gerbing, 1988) to test convergent validity and discriminant validity of the measurement model, followed by testing research hypothesis and structural model framework. To explore the model's internal consistency Reliability analysis (Crobach's alpha) and Composite Reliability (CR) was used. The Crobach's alpha for each construct ranged from 0.80-0.93. Every CR scored above 0.8, indicating fitted reliability and stability for items of the construct. To test the convergent validity we tested the factor loading of all indicators and the factor loading exceeds 0.42 and the CR value was above 0.7. In the analysis, the Average Variance Extracted, AVE of each construct also exceeds 0.5 ranging from 0.5-0.99. The correlation coefficient between the two constructs is smaller than the unite root of the AVE for the construct, indicating two constructs in this model carrying sufficient discriminant validity. So the measurement model in this study shows satisfactory reliability, convergent validity and discriminant validity. The output of the model is shown on (Fig. 2).

**Test of the Structural model:** Structured model is tested by AMOS 23 and the model fit indices for the model indicated support of good model fit ( $\chi^2/df = 3.201$ , GFI = 0.93, AGF I = 0.90, NFI = 0.97, CFI = 0.921, RMSEA = 0.063) after modifying the model according to modification indices. Table 1 indicating the model fit indices. The  $R^2$  of the latent dependent variable was 93% indicating the best explanatory power of the research model. In the modification indices model is suggesting to connect Follow and learner, indication a regression effect of follow on learner. The modified model is shown

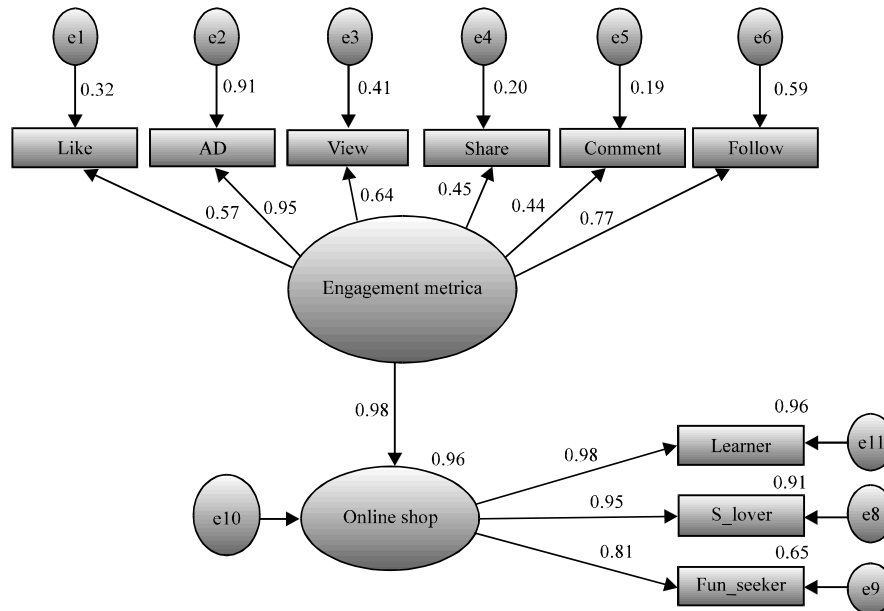


Fig. 2: Structural model

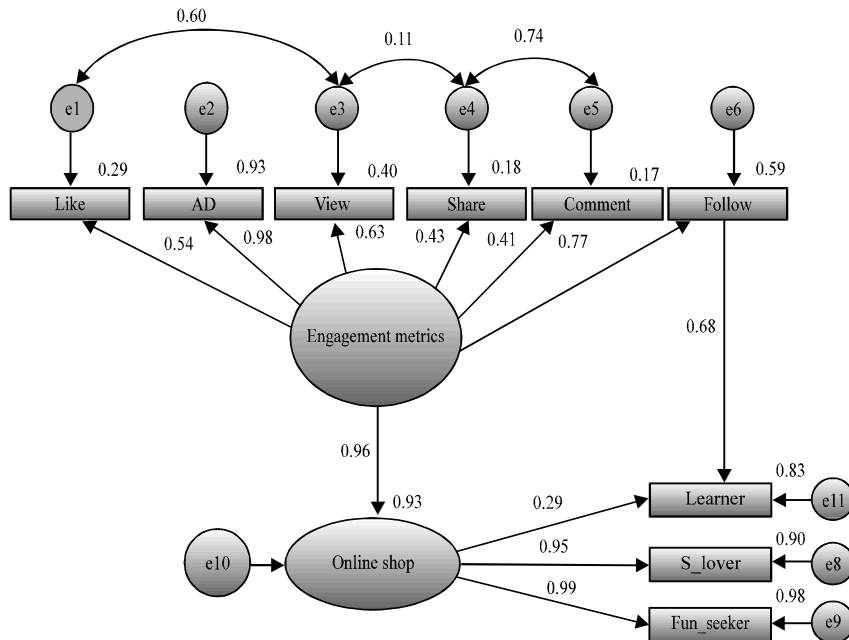


Fig. 3: Modified model

Table 1: Model fit indices

Indices	Recommended value (Hair, 2010)	Model fit indices
GFI	>0.9	0.930
CFI	>0.9	0.921
Chisq/df	<5.0	3.201
AGFI	>0.9	0.901
RAMSEA	<0.08	0.063

on Fig. 3. For a best fitted model we modified the model according to modification indices suggestions of AMOS Software and a strong relation was suggested to connect follow and learner variable. There is a significant

relationship between follow and learner having beta value of 0.68. The finding indicates that that following particular fan page make the users to be interested to learn more on online products. A strong positive and significant relation is found between engagement metrics and online purchase behaviour having a beta value 0.96, permitting to accept  $H_1$ . The finding confirms that the increment of SM engagement leads the users to behave positively towards online shopping.

One findings conducted by Forrester research in 2007 confirmed that interaction with social media was not related to the purchase intention. However, in our study, the research findings showed supporting evidence of the relationship between interaction with fan page and online shopping behaviour. Reason behind our findings is the time duration and recent data. Recently because of the high social media consumption habit, consumers are tending to behave positively towards online shopping associated with SM engagement. Some responses in our study observed that fan page had been very effective to create brand or product's online awareness. When launching new products or brands, users could learn strengths and weaknesses of new products via discussion on the fan page. Moreover, when consumers follow a particular brand, they tend to learn more about the particular brand leading them finally to purchase the brand. We consider that the result of this revised study have both theoretical offerings and managerial suggestions to SNS research. First, our result can fill the research gap in SNS research and support marketing and information systems researchers to gain a better understanding on how the consumer interaction in fan pages affects purchase intention. In managerial perspectives, our result can help firms to better manage their fan pages and increase the purchase intention of their consumers.

### CONCLUSION

In the study, we empirically tested model signifying the engagement metrics related actions on user's online purchase intention. The study also established a theoretical framework on fan page engagement metrics and their relationship with user's online purchase intention. The study improves and supplements literature by linking the concepts of fan page's engagement activities with purchase intention. Underlying these findings is that social media engagement infuses a sense of empowerment over social media activities which is consistent with Kang (2014)'s definition of engagement. The empirically-tested model would guide the marketers in understanding the impact of fan page engagement on their client's purchase intention and identify their targeted user's actions on their respective fan pages. Although, the study explored a new area, there are some limitations that simultaneously open new scopes for future research. The current study shows the impact of engagement metrics on online purchase intention. In the future, it will be very effective if the direct impact of each engagement action upon multiple behaviours be identified.

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### REFERENCES

- Anderson, J.C. and D.W. Gerbing, 1988. Structural equation modeling in practice: A review and recommended two-step approach. *Psychol. Bull.*, 103: 411-423.
- Anderson, T., 2013. Why Facebook Likes, Comments and Shares are so Important. *Social Media Social Hour Podcast*, Sunny San Diego, California. <http://www.tylerjanderson.com/why-facebook-likes-comments-and-shares-are-so-important/>
- Berthon, P.R., L.F. Pitt, K. Plangger and D. Shapiro, 2012. Marketing meets Web 2.0, social media and creative consumers: Implications for international marketing strategy. *Bus. Horiz.*, 55: 261-271.
- Cohen, D., 2014. Facebook likes, comments, shares are important but don't forget post clicks, other clicks. *Live Ramp*, San Francisco, California. <http://www.adweek.com/socialtimes/jim-belosis-shortstack-post-clicks-other-clicks/436975>
- Comrey, A.L. and H.B. Lee, 1992. *A First Course in Factor Analysis*. 2nd Edn., Erlbaum Press, New Jersey, ISBN: 9780805810622, Pages: 430.
- Decisions, PAD., 2015. 19 Essential tips for an engaging facebook business. *Care.com Corporation*, Waltham, Massachusetts. <http://blog.hubspot.com/marketing/how-to-create-facebook-business-page-ht>
- Donkor, B., 2013. Engagement vs. consumption: The facebook dilemma. *Everything Digital*, Rocky Mount, Carolina. <http://brnrd.me/engagement-vs-consumption-the-facebook-dilemma/>
- Friesner, T., 2015. *Situational Influences and The 8 Traits of Online Shoppers*. Survey Monkey Company, San Mateo, California.
- Hashem, T.N., 2016. The impact of social media on customers image for mobiles. *J. Adv. Humanities Soc. Sci.*, 2: 269-277.
- Haven, B., 2007. *Marketings New Key Metric: Engagement*. Forrester Research, New York, USA.
- Hennig-Thurau, T., C.F. Hofacker and B. Bloching, 2013. Marketing the pinball way: Understanding how social media change the generation of value for consumers and companies. *J. Int. Marketing*, 27: 237-241.

- Ho, K.K., T.E.W. See and G.T. Chiu, 2013. How does a social network site fan page influence purchase intention of online shoppers: A qualitative analysis. *Int. J. Soc. Organizational Dyn.*, 3: 19-42.
- Intan, W.S., 2016. The analysis factors of experiential marketing, product quality and customer satisfaction of motor bike as a main transportation mode in Bandung-Indonesia. *Int. J. Bus. Administrative Stud.*, 2: 6-8.
- Izhar, T.A.T., M.F. Baharuddin, A.N. Mohamad, A.A.M. Ramli and M.S. Shoid *et al.*, 2016. Using ontology for goal-based query to evaluate social media data. *J. Adv. Humanities Soc. Sci.*, 2: 108-118.
- Kang, M., 2014. Understanding public engagement: Conceptualizing and measuring its influence on supportive behavioral intentions. *J. Public Relations Res.*, 26: 399-416.
- Kim, J., H. Lee and H. Kim, 2004. Factors affecting online search intention and online purchase intention. *Seoul J. Bus.*, 10: 28-28.
- Lisa, F.D., 2012. *Understanding how Online Shoppers are Reshaping Online Shopping*. Pricewaterhouse Coopers, New York, USA.
- Luekveerawattana, R., 2016. Relationship between personal factors and marketing mix satisfaction of the tourists at Don Hoi Lot in Samutsongkhram province, Thailand. *J. Administrative Bus. Stud.*, 2: 113-120.
- McPartlin, S., 2011. *US online retail forecast*. Forrester Research, New York, USA.
- Michael, S.V.D., 2013. *Awareness, Interest and Purchase: The Effects of User and Marketer-Generated Content on Purchase Decision Processes*. Universität Augsburg, Rome, Italy.
- Nagra, G. and R. Gopal, 2013. An study of factors affecting on online shopping behavior of consumers. *Int. J. Sci. Res. Publ.*, 3: 1-4.
- Platz, B., 2015. ARTICLE: 10 reasons why companies should start doing business online. WebMD Corporation, New York, USA., [http://www.dbwebdoctor.com/article\\_why\\_companies\\_need\\_a\\_website.asp](http://www.dbwebdoctor.com/article_why_companies_need_a_website.asp)
- Saunders, M.L., 2009. *Research Methods for Business Students*. 5th Edn., Pearson Education, Essex.
- Smith, 2014. How to use social media to make sales. Forbes Ranked list, New York, USA., <http://www.forbes.com/sites/jacquelynsmith/2014/01/10/how-to-use-social-media-to-make-sales-2014/>
- Smith, C., 2015. It's time for retailers to start paying close attention to social media. Business Insider, Petaling Jaya, Malaysia. <http://www.businessinsider.my/social-commerce-2015-report-2015-6/?r=US&IR=T#oDkjuik3Egi4Q7dD.97>
- Stewart, N., 2015. Why facebook engagements are more important than your fans. Alkemi, Coslada, Spain. <http://blog.alkemi.com.au/facebook-engagements-important-fans/>
- Traphagen, M., 2015. Why engagement DOES matter as a social media metric. Marketing Land, Tarragona, Spain. <http://marketingland.com/engagement-matter-social-media-metric-114497>
- Wasserman, T., 2013. We couldn't find the page you were looking for. Mashable Website, New York, USA., [http://mashable.com/2013/03/21/70-percent-brand-recommendations-friends/?utm\\_medium=feed&utm\\_source=feedburner&utm\\_campaign=Feed%3A+Mashable+%28Mashable%29#UnkKn2Mu4aqO](http://mashable.com/2013/03/21/70-percent-brand-recommendations-friends/?utm_medium=feed&utm_source=feedburner&utm_campaign=Feed%3A+Mashable+%28Mashable%29#UnkKn2Mu4aqO)
- Wasupol, T.D., 2015. *The Process of Consumer Engagement on Facebook Fanpage*. Srinakharinwirot University, Bangkok, Thailand.
- Zoha, R.K., 2016. A study on fanpage interactive contents. *Int. J. Appl. Bus. Econ. Res.*, 14: 1405-1415.