

# Social Media Metrics Analytics: Study on B2C Fan pages

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**Abstract**—One of the most prominent way of connecting with customers via Social Networking Sites (SNS) is to generate a brand page in Facebook (called fan page) containing products contents and publish regularly postings on these pages. Customers will respond differently to these postings. In determining the efficiency of social networking sites, marketers are analyzing metrics to calculate the engagement rate (e.g. number of comments/share and likings in fan pages). The study applied Pseudo-theories and analyzed a total 3543 brand posts from 19 of the most popular B2C (Business to Consumer) fan pages of Malaysia. 12 months' worth of data (From September 2015- August 2016) were collected for analyses, which were available online from the Brand's fan pages. The Fan-page content was analyzed using Netnography and Cross Section Regression of the EVIEWS 9 software for its impact on multiple contents upon user's engagement actions. The study explored the descriptive statistics of online user's engagement actions, or PTA (People Talking About) metrics, and the findings specify that the diversity of different posts influences the number of comments, likes, and the number of shares differently. Our research explored the fact that not all contents are suitable for enhancing the number of likes, they increase the number of shares and comments, and vice versa. The findings of the study will allow e-marketers to update informational analyses upon the effectiveness of the posted contents and descriptive idea on users' preferred actions.

**Keywords**— Social media metrics analysis, Fan pages, PTA (People Talking about) metrics, Social Media Marketing, Social Media Content Analysis, and Social Media Engagement.

## I. INTRODUCTION

Facebook Fan pages is a present marketing tool and currently it is being combined as one of the chief components in the brand's marketing campaign to reach out to customers and fans (Zoha Rahman K. S., 2016). It is now very imperative for the companies to analyze the updated data to know the effectiveness of different posts of fan pages in order to increase

the fan responsiveness and engagement rate in the fan pages (Zoha Rahman, 2016). While previous research has been conducted on the realization of marketing activities on social media, little is identified about factors that impact brand post or contents popularity (Lisette, 2012). Moreover, the previous management-oriented studies on brand post popularity are mainly descriptive and do not formally test which contents actually improve user's actions (Lisette, 2012). De Vries, Gensler, and LeeFlang (2012) analyzed contents to show the impact of different characteristics of contents on the number of likes and comments. Reijmersdal (2012) also highlight the importance of interactive content on diverse cognitive, affective, and behavioral outcomes (Ransbotham, 2012). Berger and Milkman (2012) investigate which characteristics make online content go viral (Berger, 2010). Kozinets et al. (2010) categorize content in the context of online word-of-mouth in case of Blog contents (Kozinets, 2010). Another studies investigated the impact of Image and video post on user's action (Zoha, 2016), Impact of interactive contents on uer's online actions (Zoha R. K., 2016) But none of the previous study investigate the impact of all types of fan-page contents on the user's engagement actions (like, comments and shares). Thus the current study aims to fulfill this gap by identifying 19 popular fan-pages' 12 months contents or posts and analyzed the impact of all types of contents on user's online actions. Universal Researchers reserves the right to do the final formatting of your paper.

## II. REVIEW OF LITERATURE

### A. Fan page Engagement and PTA Metrics:

The PTA "People Talking About" metric only measures three types of actions: likes, comments or shares and this PTA is called the "viral" metric (Ernault, 2013). PTA (people talking about) action creates stories and A story is an item that is displayed in News Feed or News Ticker (until the old layout completely fades out). PTA counts user's interactions in posts (Ben, 2013). One of the drives for creating a Facebook Page is to connect with the friends of existing fans automatically. The PTA metrics is a useful tool for measuring how many users are interested or engaged in spreading words about the brand to their friends. In Fan pages, when a user likes, comments on or shares a post, Facebook may decide to publish this to this user's friends to show that this user liked, commented on or shared a piece of content from a particular Page (Ernault, 2013). So, managers should know which posts are encouraging users to do actions on likings, commenting or sharing

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### B. Pseudo-theories:

Carlene Li and Jeremiah Owyang from Altimeter Group argued that instead of studying the demographic, geographic, or psychographic profiles of your customers, businesses also need to develop social strategy termed socialgraphics (JOwyang, 2010). According to this concept, marketers need to find out the following questions: which websites are my customers on? What are my customers' social behaviors online? What social information or people do my customers rely on? What is my customers' social influence? The findings from these questions could identify the customers into layers of engagements: from curating, producing, commenting, sharing, to watching. The businesses then need to separate their customers into these layers and provide tools and platforms to facilitate their social interaction (Pan, 2012).

### III. CONCEPTUAL FRAMEWORKS AND HYPOTHESIS:

The conceptual model of the study is developed according to the concept of pseudo theories (Pan, 2012). The model is designed to show the impact of all types of posted contents of fan-pages on the user's online engagement actions or PTA metrics (Like, comments, Shares).

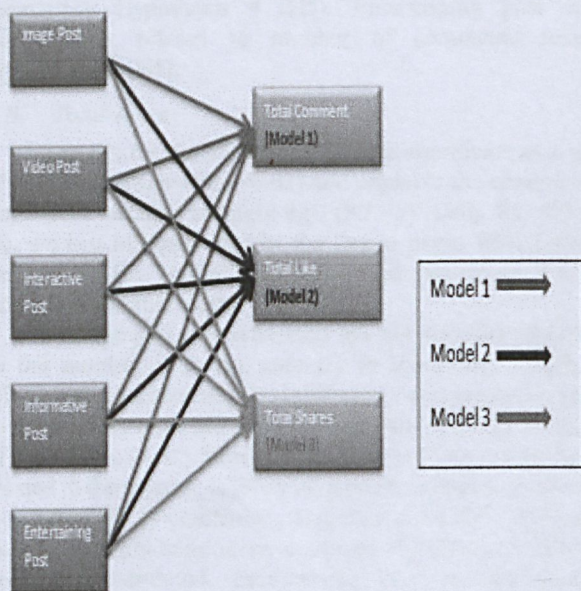


Figure 1: conceptual Model

### IV. SAMPLE SELECTION AND DATA:

For sampling, we followed non-probability sampling technique. In the study we investigated types of contents or posts of the Malaysian B2C (Business to Consumer) companies according to the number of user base. We filtered out the Fan-pages according to their variation in contents. We selected the Fan pages those are active in posting regularly. So we selected samples of Fan pages according to three criteria: 1) variation of contents 2) post regularity 3) number of users. Frequency data of posts and fans actions was recorded

day-wise. For data collection we followed Netnography technique, that is we started collecting data from 1st September 2015 until 30 August, 2016 from 19 Malaysian brands' Fan pages. So, we collected 12 months' data and explored total 3543 posts throughout the time duration. Besides posts' data, we collected number of Likes, comments and shares given for each post. After collecting data of one month, we re-checked data of users' actions (Comment, like, Shares) after completion of each month to ensure the actual number of users' action.. We collected post contents information manually and explored different variations in posts in the sector of fan pages.

The average number (M) of brand fans was 14,310,798 per brand; the number of posts taken into account in this research was, on average, 129.09 (SD=123.06) per Fan page; the average number of likes per brand post was 298123.7 (SD=387343.7), the average number of comments per brand post was 3876.1 (SD=6954.363817), the average number of shares per post was 8202.5 (SD= 21734.4). The data shows quite a degree of variation across and within categories of PTA metrics (Comments, likes, shares)

### V. METHODOLOGY

In the study, we collected data from each Fan pages according to date and clustered them into 12 months. And finally we selected Panel Data Multidimensional analysis to develop our regression model. We used panel data analysis here because the multiple observations on each unit can provide us superior estimates as compared to cross-sectional models of association (Greene, 2003)[17].

For panel data Multidimensional analysis, we checked following three models:

#### A. Pooled OLS Regression Model

Here we pooled 223 observations together and run the OLS regression model, neglecting the cross section and the time series nature of data. The major Problem with this model is that it does not distinguish between the various Fan pages that we have. In other words, by combining 19 Fan pages by pooling, we denied the heterogeneity or individuality that may exist among the Fan pages. Finally, we rejected pooled OLS model, because independently pooled panel assumes that there are no unique attributes of individuals within the measurement set. But in our study, all Fan pages were not same as the variation of the users in Fan pages were high. The Fan pages average user rate was 12,489,782 with a high SD (Standard Deviation) value 13036.17.

#### B. Fixed Effect or LSDV Model:

The fixed effect model or LSDV model allows for heterogeneity or individuality among 19 Fan pages by allowing to have its own intercept value (Cameron, 2005). The term fixed effect is due to the fact that although the intercept may differ across the Fan pages, but intercept does not vary over time, that is it is time invariant

#### C. Random Effect Model (REM):

This model indicated that for the 19 Fan pages we have



common mean value for the intercept as the REM allows for having a common mean value for the intercept.

## VI. RESULT INTERPRETATION

The effects of the potential explanatory variable on the Fan pages PTA metrics (Like, Comment, shares) are evidently different.

### A. Total Comments

The model for the Total comments is significant as a whole ( $F\text{-value}=9.877$ ,  $p\text{-value}=0.000038$ ) and clarifies the variance of the dependent variable soundly well ( $R^2=87.80\%$ ,  $\text{adj.}R^2=79\%$ ). So, we can interpret that the overall 88% comments in a Fan page is because of the studied contents. And remaining 12 % comments come from other posts not found in the study.

The image post is significant and positively related to the number of Comments ( $\text{Beta}=0.37$ ,  $p\text{-value}=0.03$ ) in support of Hypothesis 1 (H1). The Video post is not significantly related to the number of comments, so we cannot accept Hypothesis 2 (H2). The interactive is also positively related to the number of comments significantly ( $\text{Beta}=0.59$ ,  $p\text{-value}=0.002$ ) supporting the Hypothesis 3 (H3). Informative post is significantly related to the number of comments ( $\text{Beta}=0.47$ ,  $p\text{-value}=0.003$ ) supporting Hypothesis 4 (H4). Entertaining post is not significantly related to number of comments rejecting Hypothesis 5 (H5).

### B. Total Likes

The model for the number of Likes is significant as a whole ( $F\text{-value}=33.28$ ,  $p\text{-value}=0.02$ ) and explains the change of the dependent variable strongly well ( $R^2=98\%$ ,  $\text{adj.}R^2=93.0\%$ ). So, we can interpret that in the Brand pages 98% Likes are because of the studies variables. And remaining 2% likes derives from other posts.

The Image post characteristics are not significantly related to the number of Likes, contrary to hypothesis 6 (H6). The Video post characteristic is significantly and positively related to the number of likes ( $\text{beta}=0.77$ ,  $p\text{-value}=0.012$ ), in support of hypothesis 7 (H7). Similarly, Interactive Posts is significantly related to the number of like with a positive impact ( $\text{beta}=0.832$ ,  $p\text{-value}=0.0012$ ) confirming Hypothesis 8 (H8). Informative post is strongly supportive to accept Hypothesis 9 (H9) and positively correlated. Entertaining post is also evidently significant to support Hypothesis 10 (H10) with a positive beta value ( $P=0.0024$ ).

### C. Total Shares

The model for the number of Shares is significant as a whole ( $F\text{-value}=5.231$ ,  $p\text{-value}=0.036$ ) and describes the adjustment of the dependent variable reasonably well ( $R^2=78.0\%$ ,  $\text{adj.}R^2=59.0\%$ ). From this analysis we can interpret that 78% of total shares of a Fan page is because of indicated contents.

Image posting is not significantly related to the number of Shares and we cannot confirm hypothesis 11 (H11). Besides, Video posts is significantly related to the number of shares having a positive impact ( $\text{beta}=0.53$ ,  $p\text{-value}=0.04$ ) confirming to accept the Hypothesis 12 (H12). Interactive posts

characteristics also positively and significantly related to the number of shares ( $B=0.63$ ,  $P\text{-value}=0.017$ ) supporting to Hypothesis 13 (H13). Informative posts are not significantly influential ( $P\text{-value}=0.12$ ) in generating shares leading to reject Hypothesis 14 (H14). Entertaining posts are also not significantly ( $P\text{-value}=0.23$ ) related to generate share, resulting to reject Hypothesis 15 (H15).

## VII. CONCLUSION

Our study explored the all types of content from the 19 global brand pages and showed the impact of all contents on generating PTA actions. Social networking Managers can be channelled by our findings in deciding which content to post in fan pages. The study explored that not all elements which are valuable for improving the number of likes do also have an effect on increasing the number of comments, shares and vice versa.

The study showed clearly overall how much percentage of total PTA actions is created because of which posts. If a manager want to increase the comments in a fan page, he need to publish more Interactive posts, as one post of interactive content, comments is expected to be increased by a significant amount. Also the Interactive posts in Brand pages increases the number of likes and shares most significantly. Similarly, Video posts play the most important role in increasing number of Shares in case of Fan pages. Informative post is essential to generate both likes and comments. Image postings are not valuable in producing likes or shares. Entertaining contents are not influential in generating comments and shares. This may be because of consumers are more interested towards the product related information rather than unrelated funny post. So in case of entertaining posts, users just consume the post by putting likes, but not contribute by putting comments or shares.

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