

Conference Paper

Exploring the acceptance for pixel technology implementation in Facebook ads among advertisers in Indonesia

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Abstract

The business competition in the digital era is tighter and drives the entrepreneurs to optimize their efforts to win the game. Facebook ads as one of the biggest social marketing media provided a new technology called pixel which replacing conversion tracking pixel on February 15, 2017, for advertisers' advantages. The purpose of this study was to examine the factors influencing the usage of the pixel by the advertisers. This study adopted technology acceptance model (TAM) as a research framework and test it using structural equation modeling. One hundred and eighteen Facebook advertisers from Indonesia which are targeted by custom Facebook ads participated in this study. The findings of this study suggest that the attitude and perceived usefulness of the pixel significantly influence the behavioral intention of the advertisers on using the pixel. The research revealed that the perceived usefulness of the pixel is significantly influenced by the perceived ease of using the pixel. The results of this study will be useful for the Facebook as the provider to improve the technology usefulness and its user interfaces for its effective and efficient use for the Indonesian advertisers.

Keywords: pixel, Facebook ads, technology acceptance model

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1. Introduction

The rapid growth of Facebook as the biggest social media makes it as a favorable marketing media for businesses [1]. Many strategies used by marketers to optimize the advertisement so it can satisfy its objectives. It is not surprising since Facebook profoundly influence both the e-commerce system and broader use of digitalized business world [2]. As of January 2017, Facebook has over 1.8 billion users which are a huge amount of the world's 7.4 billion people. In total, there are approximately 2.34 billion social media users worldwide, which translates into a 31% global social network penetration. Some parts of the world have an even larger social network penetration of around 50% [3]. At this point, social media have undoubtedly become an integral part of today's society.

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Since almost everyone has a device that can access different social media, there is also no financial obstacle for having a social media presence. Marketing costs through social media are highly scalable, at its lowest, social media costs are only the time invested in them [4]. Social media channels are also important in a sense that they provide the company with the possibility to gain a plenty of customer insights. Learning who the company's customers are, what they like, and how they feel about the company is highly useful in making marketing decisions such as what kind of content generates the most leads or interest, and what type of real works for a particular type of audience. In addition to marketing decisions, the insight gained from social media can also be useful in making business decisions [5].

The understanding of technology acceptance is vital because the most significant benefit associated with access to the new technologies is the increase in the supply of information. Researchers are interested strictly in identifying why people accept information technology so that above processes for designing, evaluating, and predicting how users will react to new technology can be improved. This individual user acceptance of technology for intended purposes have been modeled and predicted using theories [6].

The primary objective of many of those studies is to investigate how to promote usage and also explain what hinders acceptance and usage of technologies. Therefore, the researchers have studied a range of issues related to technology acceptance from individual user characteristics such as the theory of planned behavior (TPB) [7, 8]; theory of reasoned action (TRA) [9] and; technology acceptance model (TAM) [10]. TAM is an adaptation of TRA for explaining the computer usage behavior. TAM uses TRA as a basis for specifying the causal linkages between two fundamental beliefs – perceived usefulness and perceived ease of use; attitudes of users; their intentions; and actual computer adoption behavior.

This paper adopts TAM as it is less general and provides insights to understand the relationship between perception and usage behavior of Facebook advertisers in Indonesia for pixel tracking. Empirical research on TAM and its application in the field of social media has been reported from studies such as: Facebook adoption in Tunisia [11]; MOOCs acceptance in China [12]; Facebook adoption in Pakistan [13]; social media and online purchase intention [14]; but no specific study in pixel tracking use in Facebook advertising, especially for Indonesian.

This paper attempts to explore the less researched area of the acceptance of pixel tracking among the Facebook advertisers in Indonesia. Research question has been formulated as "What factors affect acceptance and behavior of Indonesian Facebook

advertisers towards pixel technology?”. The research question seeks to examine the behavioral intention of the advertisers for using pixel technology. TAM helps in the above examination by attempting to understand: perceived usefulness, ease of use, attitude towards the usage and influences of these factors on behavioral intention to use the technology, of the Indonesian Facebook advertisers. TAM would aid in analyzing the reasons, whether resistance or towards the technology and would further enable actions in taking efficient measures to improve user acceptance of pixel technology.

The paper is organized in the following sections. A review of the literature is presented in the second section. The third section discusses the methodology adopted for conducting this research, while the fourth section discusses the analysis of data. Subsequently, the findings, conclusion and directions for further research are presented in the last section.

2. Literature Review

2.1. Facebook Pixel

The Facebook pixel is a piece of code that goes on a website and is connected to a Facebook ads to tell an advertiser which actions people take as a result of the ads. It is used to track the return on investment, run more efficient ads, and understand the real value of the campaigns. It replaced the famous conversion tracking pixel on February 15, 2017 [15]. The advertisers may use the Facebook pixel to target valuable audiences, gauge ad performance, advertise more efficiently and measure return on investment [16].

According to [17] which cited a report from Wishpond regarding on why the advertisers should consider using Facebook Pixel:

1. 72% of online shoppers (on average) will abandon their cart before checkout.
2. Without retargeting, only 8% of these customers will return to complete their purchase.
3. Website visitors who are retargeted with display ads are 70% more likely to convert.
4. Nearly 60% of online shoppers say they have noticed ads for products they have viewed after leaving a site.

5. 46% of Search Engine Marketing Pros think that retargeting is the most under-used marketing technology.

Those facts supported by [18] that showed that Facebook advertising significantly affected brand image and brand equity, both of which factors contributed to a significant change in purchasing intention. Advertisers may collect different types of data including demographic data (e.g. gender, date of birth, household income), psychographic data (e.g. personality type, interests, lifestyle) and behavioral data (e.g. loyalty, purchase history) [19] and retain data for varying periods of time and sometimes infinitely [20]. They may use the collected data for behavioral advertising and other purposes such as website analytics or marketing research and in some cases allow users to access profiles created about them [21].

Using pixel may contribute significantly to advertising revenue because of higher click-through rates compared to non-targeted ads [22]. However, whether pixel is always effective is questionable. In a study, it found that when pre-existing consumer interest is considered, pixel may not benefit the advertiser [23]. Further research also analyzed data from a travel website and discovered that general-audience, non-targeted ads performed better on average than targeted ads [24]. The research examined social advertising on Facebook and found that users responded more positively to social ads based on the standard Facebook algorithm than to targeted-ads based on Facebook social connections [25].

Many studies have found that users concerned about personalized advertising like The Facebook pixel. Many do not want third parties to track and profile them online [26] and users were particularly sensitive to being shown embarrassing ads as a result of it [27]. However, Ur et al. found that participants saw potential benefits of this technology for both users and companies, but they were concerned about the lack of transparency and control over its practices [28].

2.2. Technology Acceptance Model

The technology acceptance model (TAM) [10] is based on the theory of reasoned action (TRA) [9] a classical psychology approach, which explains how human behavior is mediated through the individual's belief system [29]. In comparison to the theory of reasoned action, which reveals many different human tendencies, TAM focuses on a particular kind of behavior: the rational acceptance of technology in the technology used. Evidence has shown that TAM is a strong and valid theory [30], and succeeds to consistently explain about 40 per cent of actual use [31].

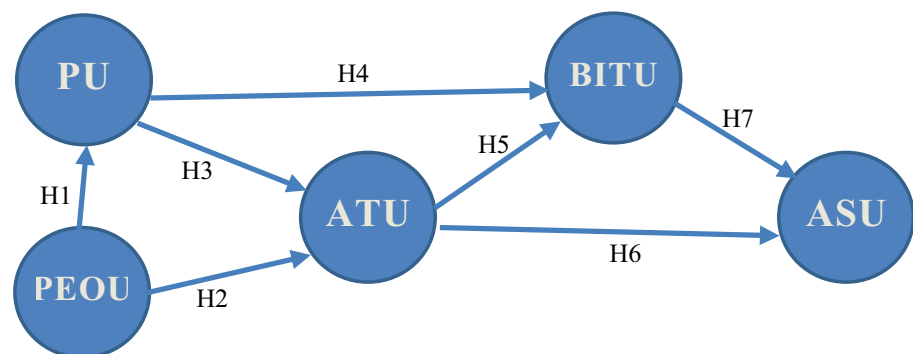


Figure 1: Technology Acceptance Model.

The purpose of TAM are (i) TAM predicts the user acceptance of computer-based information systems. (ii) TAM explains which modification ought to be brought to the particular computer-based information system to enhance its user acceptability [32]. TAM is constructed around two central concepts:

Perceived usefulness (PU), defined as: “the degree to which a person believes that using a particular system would enhance his or her job performance”.

Perceived ease of use (PEOU), defined as: “the degree to which a person believes that using a particular system would be free of effort”.

TAM theorizes that PU and PEOU are related to a positive use-performance relationship. That will say: if a system is perceived as more useful, on the one hand, and easier to use than another system, on the contrary, then the former system is more likely to be accepted by the user [10]. TAM furthermore hypothesizes that PEOU affects PU positively: the easier the use of a system is being perceived, the more useful it is likely to be [33]. In addition, TAM theorizes that the model does not exist in a theoretical vacuum. Divergent external factors are theorized to affect PU and PEOU. Depending on the effect of the external factor, the external factor will enhance or decrease the user’s attitude towards using the system (ATU) and behavioral intention to use (BITU); which implies a possible decrease or increase of an actual system use (ASU), which follows by the theory of reasoned action [9]. Figure 1 depicts the model which is employed in the study followed by the hypotheses:

- H1: PEOU has a direct influence on PU
- H2: PEOU has a direct influence on ATU
- H3: PU has a direct influence on ATU
- H4: PU has a direct influence on BITU
- H5: ATU has a direct influence on BITU

H6: ATU has a direct influence on ASU

H7: BITU has a direct influence on ASU

3. Methods

This study is quantitatively focused on to examining the usage of Facebook pixel by advertisers in Indonesia using TAM. The researcher used Facebook ads to invite the Facebook user to participate in the study by filling the questionnaire. Target audiences are the Indonesian who liked Facebook Business page and Advertising in Facebook interest. The online survey instrument was offered to 46,940 Facebook users who are reached by the ads from the researcher. The total number of questionnaires submitted was 322, out of which the ads received 7,576 audiences' engagement. 204 questionnaires were not usable because they never heard about the Facebook pixel.

The survey instrument consists of two distinct parts. The first part included subject information and consent letter and the second part included the main questionnaire which is composed of 30 items that represented five constructs: perceived usefulness (PU), perceived ease of using (PEOU), attitude towards using the pixel (ATU), behavioral intention towards use the pixel (BITU), and actual system usage (ASU) were adapted from earlier studies. The items were rephrased to make relevant to the context of this study. All the five construct were measured using a 5 point Likert scale, where 1 being 'strongly agree,' and 5 being 'strongly disagree.' 118 advertisers from the target audiences from Indonesia participated in this survey.

This study employed partial least square (PLS) approach as the model development method and was calculated with SmartPLS V3.2.6 software [34]. The PLS was used to explore the relation among constructs complexity and the constructs with its indicators which is formed by two equations, inner model, and outer model. The inner model specifies the relation of a construct with another one, and the other hand, outer model defines the relation of a construct with its indicators. SEM is also employed to specify confirmatory factor analysis models, regression models, and complex path models [35].

4. Results

Data analysis with the SmartPLS describes the TAM structure shown in Figure 1. The confirmatory factor analysis was used to verify the factor structure of the measurement instrument. All 30 indicators were significantly loaded onto the respective constructs. The loading fell above 0.7 except for ATU₃ (0.680) which was removed for further analysis in the measurement model.

The discriminant validity assessment has the goal to ensure that a reflective construct has the strongest relationships with its own indicators in the PLS path model. The evaluation result using Fornell-Larcker Criterion in table 1 shows that all values are above 0.7 which offer evidence that the data collected supports the model.

TABLE 1: Fornell-Larcker Criterion Value.

	ASU	ATU	BITU	PEOU	PU
ASU	0,829				
ATU	0,801	0,842			
BITU	0,862	0,864	0,847		
PEOU	0,711	0,688	0,708	0,844	
PU	0,715	0,713	0,757	0,881	0,862

The measurement model was further tested for assessing construct validity and convergent validity. Cronbach's alpha was calculated to assess the reliability of each construct and have a score at least 0.70 to be considered as acceptable for internal consistency. The construct validity was inspected by examining the convergent validity and was assessed by the score of Composite Reliability (CR) and Average Variance Extracted (AVE). The value of CR and AVE should be at least 0.741 and 0.5 respectively to suggest the adequate convergent validity. The results confirmed the reliability of the scales. The constructs of the proposed research model also show the acceptable convergent validity and discriminant validity (Table 2).

TABLE 2: Validity and Reliability Evaluation Result.

	Cronbach's Alpha	Composite Reliability	AVE
ASU	0,885	0,916	0,687
ATU	0,862	0,907	0,709
BITU	0,934	0,947	0,718
PEOU	0,919	0,937	0,712
PU	0,942	0,953	0,743

To test the hypothesis, a structural model (Figure 2) was built and shows the results. The test offers the standardized path coefficients between model constructs and also

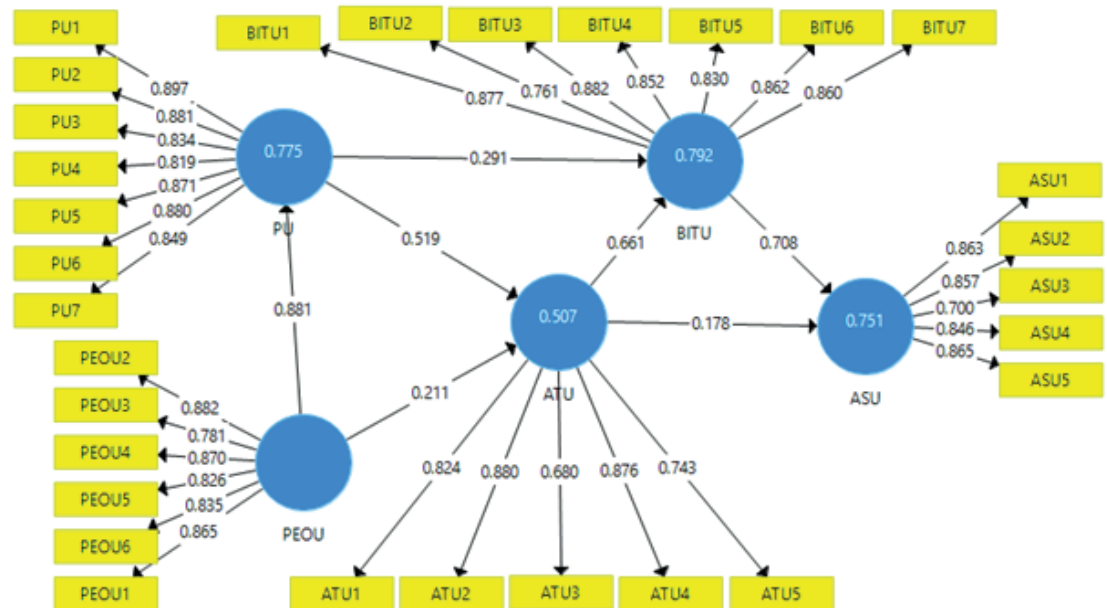


Figure 2: Calculation Result of the Framework.

their statistical significance. The test also produces the squared multiple correlations (R^2), which indicates the variance of the dependent constructs. Perceived usefulness of the Facebook pixel was predicted by perceived ease of use ($\beta = 0.881$, $p < 0.000$), resulting in R^2 of 0.775, which means PEOU accounted for a 77.5% variance in PU. Therefore, H1 is supported. Attitude towards using the pixel was predicted both by PU ($\beta = 0.519$, $p < 0.000$) and PEOU ($\beta = 0.211$, $p < 0.000$) resulting in R^2 of 0.507, which means PU and PEOU jointly accounted for 50.7% of the variance in ATU. Therefore, H2 and H3 are supported. Behavioral intention of advertisers using pixel was predicted by their perceived usefulness of the pixel ($\beta = 0.291$, $p < 0.000$) and advertisers' attitude towards the pixel use ($\beta = 0.661$, $p < 0.000$). The resulting R^2 of 0.792, indicates that the perceived usefulness of the pixel and advertisers' attitude together accounted for 79.2% of the variance in BITU. Therefore, H4 and H5 are supported. The actual use of the pixel by the advertisers was predicted by their BITU ($\beta = 0.708$, $p < 0.000$) and ATU ($\beta = 0.178$, $p < 0.000$) resulting in R^2 of 0.751, which means the behavioral intention of advertisers in using pixel was accounted for 75.1% of the variance in actual usage of the technology.

5. Conclusion

The research examines the factors that influence advertisers' actual system usage of Facebook pixel and the causal relationships amongst the constructs utilizing the proposed research framework based on TAM. The study results supported the proposed model significantly. The results of this study find that PU and ATU are the significant factors in determining BITU. These two constructs together explained 79.2% of the variance of behavioral intention. Also, there is a significant relationship amongst ASU and BITU and ATU which formed 75.1% of the variance of actual technology use.

The results reveal that the attitude and perceived usefulness of the internet significantly influence the behavioral intention of advertisers in using the Facebook pixel. Actual system usage of pixel is significantly predicted by the behavioral intention and the attitude of advertisers. The advertisers' attitude towards the pixel is significantly predicted by perceived ease of use and perceived usefulness of pixel. Based on the findings of this study, it can be concluded that the use of pixel technology is determined by the four constructs as proposed in TAM. The findings of this study also suggest that Facebook should educate the advertisers that the pixel will give many advantages to the advertisers to create a profitable ad as an effort to improve the perceived usefulness and increasing the use of Facebook Pixel in Indonesia.

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