Capturing Opportunities in the Industrial Revolution 4.0: E-Commerce, Digital Marketing, Prestige, and Instant Online Buying

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Abstract
This study aims to examined the effect of e-commerce, digital marketing, and consumer prestige on instant online buying decisions with perceived quality as an intervening variable on millennial generation. This research used survey design with purposive sampling. This research was conducted on 152 students in Yogyakarta who had already done online shopping in the marketplace. Data analysis was performed using Structural Equation Model (SEM) using Analysis Moment Structure (AMOS). This research proves that there is a positive influence on the use of e-commerce, digital marketing, and prestige on instant online buying decisions of consumers with perceived quality as an intervening variable on millennial consumers. The direct factor that influences instant online buying decisions is perceived quality, while e-commerce, digital marketing and prestige have an indirect effect on instant online buying because they have to pass through perceived quality. Theoretical and practical implications are discussed later.

Keywords: E-Commerce; Digital Marketing; Prestige; Instant Online Buying.
INTRODUCTION

New technology utilizing the internet has become a strategic point in the current process of the industrial revolution. Industrial revolution 4.0 is the integration of the use of the internet with production lines in the industrial world. Changes have also taken place in the industrial world today which is marked by changes in the business climate and an increasingly competitive industry due to the development of information technology. Industry 4.0 is an industry that combines automation technology with cyber technology. This includes trends in automation and data exchange in business technology which includes several parts, namely the Internet of Things (IoT), cloud computing, and cognitive computing.

The trend of online shopping and digital marketing is an opportunity for producers to welcome the industrial revolution 4.0 era. Online shopping or online shopping activities become a new lifestyle for Internet users. Parallel, flat, and wide open communication has opened unlimited possibilities for communication between Internet users, which in turn also opens up opportunities for buying or selling transactions. Platform or forum buying and selling channels that are most often used especially for male Internet users to shop online. While female Internet users are more likely to choose social networking sites that is equal to 50.6%, and 24% for men (Hausman & Siekpe, 2009). The internet shows various facets of the marketing function, works as a mechanism to build demand, direct consumers to purchase actions, fill orders, provide customer service, and also function as a multipurpose advertising medium. The internet is claimed to be a better communication medium because of its versatility and superiority in targeting consumers (Maoyan et al., 2014).

In addition to the above, Prestige consumers are considered to have an important role in making online shopping decisions. Baumeister (2005) states that self-concept is a value for individuals so that behavior is intended to protect and enhance self-concept. Buying, using, and displaying the consumer goods or services is a meaningful symbol for individuals and others. Individual consumptive behavior carried out to improve self-concept through the consumption of goods or services which are interpreted as a symbol. The symbol referred to here can be a symbol of self-esteem or social status (Lowrey et al., 2005).

The right advertising program must be supported by good advertising effectiveness. The effectiveness of advertising is not limited to purchasing products but is extended to various psychological and cognitive aspects related to awareness and intention that play an important role in purchasing decisions (Ramalingam et al., 2006). Therefore, the orientation of the effectiveness of advertising is not only about the purchase intention of the product but about the long-term relationship between consumer needs and the product being advertised.

Brand attitude and brand attachment with environmental consequences to testify the impact on the consumer purchase intentions (Saad et al., 2012). Does environmental consequences has some role while formatting purchase intention of the customer or people do not think about it. Either customers want to attach themselves with brand only or they also keep into account the corporate social responsibility index as well. Results show that core brand image and brand attitude has positive impact whereas environmental consequences have negative effect on the purchasing intention of customers (smokers show that consumer purchasing behavior takes place by stimulating customers with internal and external factors (such as choosing a product, brand, retailer, time, and quantity), and consumers make purchasing decisions based on their individual quality, personality, characteristics, and decision-making process. This means that consumers’ choices of products and brands have an impact on their buying behavior.

The roadmap for systems and technology development to realize Industry 4.0 is still unfocused (Nigappa & Selvakumar, 2016). This happens because Industry 4.0 is still as a general idea. The actual form is still blurry so it can bring up various possible directions for development.
The involvement of academics is needed in the form of research and development to realize Industry 4.0 (Lee et al., 2018). This article aims to examine, especially in the field of marketing, several aspects that can support business development, considered the increasing number of consumers using e-commerce applications. Consumers are increasingly interested in the existence of digital advertising, and positive trends in the consumers who buy online.

This research provides empirical support on how to respond and capture the opportunities in the industrial revolution era, especially in the marketing field (Ungerman et al., 2018). These opportunities can be built through the use of e-commerce applications, digital advertising concepts, building consumer prestige, and improving perceptions of quality when making online purchases.

The novelty of this study is to examine the effect of e-commerce, digital marketing, prestige on perceived quality, and its effect on instant online buying and test the effect of mediation. Based on this, it is expected to provide an overview of the opportunities of the industrial revolution 4.0 in terms of digital marketing and instant online buying for next-generation consumers millennial.

Hypothesis Development

**E-Commerce and Perceived Quality**

Service quality efficiency is used to measure the excellence and accuracy of services received by online customers. Previous studies have stated that the usefulness of opinions felt by consumers regarding the quality of online services is evidence of the importance of online services provided (Zeithaml et al., 2013).

The ease of use, design, responsiveness, and security of e-commerce led to an increase in perceived quality and value (Tzavlopoulos et al., 2019). Furthermore, ease of use, responsiveness, and personalization of e-commerce applications lead to increased customer satisfaction. A high perceived level of product quality leads to higher satisfaction and perceived value, reduces perceived risk, and positively impacts the adoption of consumer behavior. Also, Kim and Lennon (2013) stated that the reputation and quality of e-commerce websites affect perceived quality.

Chen and Dubinsky (2003) state that consumers’ perceptions of the overall quality of a product or service can determine the value of the product or service and directly influence consumer purchasing decisions and their loyalty to the brand. Based on this explanation, the first hypothesis proposed is:

\[ \text{H1: E-commerce positively affect perceived quality} \]

**Digital Marketing and Perceived Quality**

Digital marketing activities generally include or revolve around matters relating to the manufacture of advertising products, prospect or buyer search, and writing marketing sentences. This digital marketing covers the activities of making web design, advertising using banners, promotion of companies through information search engines, electronic mail, affiliate marketing, interactive advertising. E-commerce companies are currently developing using many digital marketing methods for promotion.

Product ads that are increasingly intense and creative in the digital era affect the behavior of consumers’ perceived quality levels. The sample used was 437 television commercials consisting of various products aired on German television. Other studies (Reinartz & Saffert, 2013; Liesander & Dharmayanti, 2017; Islami et al., 2020) show a positive and significant effect of digital marketing on perceived quality. Based on these explanations, the second hypothesis is proposed:

\[ \text{H2: Digital marketing positively affect perceived quality} \]

**Prestige to Perceived Quality**

There is a strong influence of brand prestige on the perception of product quality (Ardelia & Supriono, 2017). A teenager whose level of self-esteem is high enough will be able to make and make decisions for himself without being influenced by his social environment.
connection with consumptive behavior, young women can control the behavior without having to think about the use of items that can increase their self-esteem. Conversely, young women who have low self-esteem will seek recognition from others and their groups. One way to do this is to use goods that can increase their self-esteem (Erdoğan & Budeyri-Turan, 2012) successful branding requires building strong bonds with the consumers, by creating favorable, strong and unique brand associations in consumer minds. This study aims to identify the role of functional perceived quality.

Koo and Shavitt (2010) state that self-esteem influences buying behavior. Teens with low self-esteem will tend to be more easily influenced than people with high self-esteem. If the level of self-esteem of young women is high enough, then they will be able to make and make decisions for themselves without being influenced by their social environment. This is reinforced by the statement that the tendency to have a new product is usually seen in people who have self-confidence and low self-esteem (Ardelia & Supriyono, 2017). Based on these explanations, the third hypothesis proposed is:

H3: Prestige positively affect perceived quality

Perceived Quality and Instant Online Buying

Consumer buying behavior is influenced by many factors. Personal and psychological factors of consumers have an important role in consumer purchasing decisions (Niazi et al., 2012). Based on this, high effectiveness of advertising is needed to attract the attention of consumers and cause purchase intentions of an advertised product. High effectiveness of advertising will have a positive effect on online shopping intention (Zhu, 2012).

In essence, perception will be related to one's behavior in making decisions about what is desired. One way to find out consumer behavior is to analyze consumer perceptions of products. With consumer behavior, perception can show things that become strengths, weaknesses, opportunities, or threats for a product. Based on these explanations, the fourth hypothesis proposed is.

H4: Perceived quality positively affect instant online buying

Researchers want to develop hypotheses by analyzing direct and indirect effects between variables. The perceived quality variable mediates the effect of e-commerce, digital marketing, and prestige on instant online buying. Based on this, the successive hypotheses proposed are:

H5: Perceived quality mediates the positive relationship of e-commerce, digital marketing, and prestige to instant online buying.

METHOD

The ads used for this study sample are all online store site advertisements that are displayed in Indonesian digital media, namely: berniaga.com, olx.co.id, tokopedia.com, ele-vania.com, and bukalapak.com. Primary data sources needed in this study were obtained by giving questionnaires directly to respondents. We conducted survey design and data collected by self-administrated. The population in this study is millennials online shopping consumers born between 1980 and 2000. Sampling is done by purposive sampling, namely sampling with certain criteria so that the samples taken are following the research objectives. Respondents in this study drawn from students of a private university in Yogyakarta. Considerations in choosing student subjects because they belong to the middle class, are critical and can understand advertising messages, also can understand products that are related to the sample ad.

All items measured on Likert-type scales from 1 (strongly disagree) to 5 (strongly agree). E-commerce was measured with six-items adapted from Zeithaml et al. (2002) that explain four dimensions include (1) ability, (2) benevolence, (3) integrity, (4) trust. Sample item include “I believe that e-commerce provider vendors deliver comfort in the transaction”. Digital marketing was measured with seven-items adapted from Reinartz and Saffert (2013). Sample item include “Digital marketing makes it easy to find products’. Prestige was measured with six-items adapted
from Koo and Shavitt (2010). Sample item is “Having a prestigious product gives a sense of pleasure”. Perceived quality was measured with six-items scale from Niazi et al. (2012). Sample item is “The comfort and safety of shopping in the marketplace is guaranteed”. Online buying was measured by scale from Zhu (2012). Sample item include “Online shopping is the main alternative for buying products”.

Data analysis was performed using the Structural Equation Model (SEM) in the model and hypothesis testing. SEM or structural equation model is a set of statistical techniques that allow testing a series of relatively complex relationships, simultaneously. What is meant by complicated are simultaneous models formed through more than one dependent variable at the same time acting as independent variables for other tiered relationships.

In this study, researchers will use SEM to test hypotheses 1-4 tested with path analysis, which is to determine the level of significance between variables, hypotheses 5a, b, and c using mediation testing. In the mediation test, if in model 1 there is significant beta while in model 2 there is no significant beta value, then perfect mediation (full mediation). However, if the alternative model has significant beta value while in the research model there is a significant beta value but the value is smaller than the alternative model, then partial mediation.

RESULT AND DISCUSSION

A total of 152 respondents (response rate 95%) participated in this study. Participating respondents were students in Yogyakarta. Male respondents numbered 66 people with a percentage of 43.42% and female respondents numbered 86 people with a percentage of 56.58%. This means that female respondents participated in this study more than male respondents.

Validity test is used to measure the ability of the scale used to measure the concept in question, the aim is to test the component questions in the questionnaire and ensure that the measuring instrument used matches the object being measured. Factor analysis is valid if Factor Loading > 0.5.

The item for using the e-commerce application is described in code EC1 to EC6. The loading factor value is greater than 0.5 so that all are valid. The digital marketing question items are described in code DM1 to DM7. The loading factor value > 0.5 so that all are valid. Prestige question items are described in P1 to P6. Perceived quality question items are described in code PQ1 to PQ6. Instant online buying question items are described in code OB1 to OB7. The loading factor value > 0.5 so that all are valid. Cronbach’s α score is used to check the reliability of the measures (≥ 0.70). Table 1 (listed in the diagonal in parentheses) shows that the Cronbach’s α score for each variable exceeds the cut-off value 0.70. Thus, the items can be used for further analysis. The means, standard deviations, and inter-correlation for the study variables are found in Table 1.

The average score of e-commerce applications of 3.812 shows that, on average, respondents rated e-commerce applications as widely known and used by students. The average score of prestige of 4.131 indicates that on average respondents have a high self-concept. The average score of digital marketing of 3.362 shows that, on average, respondents rated valuing inte-

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>S.D</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. e-commerce app</td>
<td>3.81</td>
<td>.223</td>
<td>(.71)</td>
<td>.309&quot;</td>
<td>.442&quot;</td>
<td>.545&quot;</td>
<td>.630&quot;</td>
</tr>
<tr>
<td>2. Prestige</td>
<td>4.13</td>
<td>.341</td>
<td>-</td>
<td>(.75)</td>
<td>.331&quot;</td>
<td>.432&quot;</td>
<td>.411&quot;</td>
</tr>
<tr>
<td>3. Digital Marketing</td>
<td>3.36</td>
<td>.412</td>
<td>-</td>
<td>-</td>
<td>(.71)</td>
<td>.337&quot;</td>
<td>.438&quot;</td>
</tr>
<tr>
<td>4. Perceived Quality</td>
<td>4.01</td>
<td>.311</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>(.79)</td>
<td>.402&quot;</td>
</tr>
<tr>
<td>5. Instant online buying</td>
<td>3.79</td>
<td>.424</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>(.77)</td>
</tr>
</tbody>
</table>

*Cronbach alpha coefficient is listed in the diagonal in parentheses; **p ≤ 0.01 (2-tailed)*

Table 1. Means, Standard Deviations, and Correlation among Variables
resting digital advertising content. The average perceived quality score of 4.012 indicates that, on average, respondents have a high perception of quality. Finally, the average score of Instant online buying for millennial generation consumers is 3.798, indicating that, on average, respondents consider a high purchasing decision to appear after seeing the online store.

**Table 2. Fit Model Test**

<table>
<thead>
<tr>
<th>Goodness-of-fit Index</th>
<th>Criteria</th>
<th>Results</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi Square</td>
<td>Expected to be small</td>
<td>38.9; NotSig</td>
<td>Good</td>
</tr>
<tr>
<td>CMIN/DF</td>
<td>1-2 over fit, 2-5 liberal limit</td>
<td>6.321</td>
<td>Good</td>
</tr>
<tr>
<td>GFI</td>
<td>&lt; 1</td>
<td>.897</td>
<td>Marginal</td>
</tr>
<tr>
<td>AGFI</td>
<td>&gt; 0.80</td>
<td>.882</td>
<td>Marginal</td>
</tr>
<tr>
<td>TLI</td>
<td>&gt; 0.90</td>
<td>.759</td>
<td>Marginal</td>
</tr>
<tr>
<td>CFI</td>
<td>&gt; 0.90</td>
<td>.863</td>
<td>Marginal</td>
</tr>
<tr>
<td>RMSEA</td>
<td>&lt; 0.08 upper limit &lt; 0.1</td>
<td>.221</td>
<td>Marginal</td>
</tr>
</tbody>
</table>

Result of fit model test can be seen in Table 2. The GFI (Goodness of Fit) score is 0.897. A good GFI value is approaching 1, so the suitability value of the model with the data in this study can be said to be good. CFI (Comparative Fit Index) score of 0.863. A good CFI value is approaching 1, so the value of the suitability of the model with the data in this study can be quite good. The TLI (Tucker Lewis Index) value of 0.759 is quite good because the score is close to 1. The AGFI (Adjusted Goodness of Fit) value of 0.882 slightly meets the minimum limit below 0.8. The CMIN requirements for SEM analysis, although the values for GFI and AGFI do not exceed 0.9 (threshold), they still meet the requirements suggested by Baumgartner and Homburg (1996) and Doll et al. (1994), if the values above 0.8.

Hypotheses H1, H2, H3, and H4, were tested by looking at the path analysis in the study. The results of hypothesis testing can be seen in Figure 1. The e-commerce applications have a positive effect on perceived quality (β = 0.618, P < 0.01). The results of this analysis support the first hypothesis. Digital marketing has a positive effect

![Figure 1. Result of Hypothesis](image)
on perceived quality ($\beta = 0.226, P < 0.05$). The results of this analysis support the second hypothesis. Prestige has a positive effect on perceived quality ($\beta = 0.199, P < 0.05$). This result supports the third hypothesis. Perceived quality has a positive effect on instant online buying Millennial generation consumers ($\beta = 0.885, P < 0.01$). This result supports the fourth hypothesis.

Hypothesis 5a was tested by comparing beta values between beta 1 (Figure 2) and beta 2 (Figure 3). In model 1, there is a significant beta, while in model 2 there is no significant beta value, so mediation is perfect (full mediation).

The results of the analysis of mediation testing show that e-commerce applications affect instant online buying with a value of $\beta = 0.698; P < 0.05$. When perceived quality mediates the effect of e-commerce applications on instant online buying, the effect of e-commerce applications on instant online buying becomes $\beta = 0.000; P > 0.05$. This means that perceived quality mediates the effect of e-commerce applications on instant online buying perfectly.

Hypothesis 5b was tested by comparing beta values between beta 1 (Figure 4) and beta 2 (Figure 5). In model 3 there is a significant beta while in model 4 there is no significant beta value so the mediation is perfect (full mediation).

The results of the analysis of mediation testing show that digital marketing has an influence on instant online buying with a value of $\beta = 0.413; P < 0.05$. When perceived quality mediates the effect of digital marketing on instant online buying, the effect of digital marketing on instant online buying becomes $\beta = -0.112; P > 0.05$. This means that perceived quality mediates the effect of digital marketing on instant online buying perfectly.
Hypothesis 5c was tested by comparing beta values between beta 5 (Figure 6) and beta 6 (Figure 7). In model 5 there is a significant beta, while in model 6 there is no significant beta value, so mediation is perfect (full mediation).

**CONCLUSION AND RECOMMENDATION**

This research proves that there is a positive influence on the use of e-commerce, digital marketing, and prestige on instant online buying decisions of consumers with perceived quality as an intervening variable on millennial generation consumers. The direct factor that influences instant online buying decisions is perceived quality, while e-commerce, digital marketing, and prestige have an indirect effect on instant online buying because they have to pass through perceived quality. In other words, perceived quality perfectly mediates e-commerce, digital marketing, and prestige on consumers’ instant online buying decisions.

The limitation of this study is the limited number of samples, so it affects the results of statistical tests conducted. In addition, the limitations of the scope of the sample are still narrow. This study only took a sample from the background of educational organizations. In future studies, it is necessary to add samples from organizations with more varied backgrounds so that data and results can be processed. Some suggestions for future research are increasing the number of variables that can see the model more fully, adding variations in organizational background, and increasing the number of samples sufficient to meet the requirements for using SEM analysis. The results of this study along with various limitations in order to be used as a source of ideas and input for research development, especially related to the field of consumer behavior and marketing.

In addition, it can be used as a reference material for the practical world of companies.

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