

OPENNESS TO EXPERIENCE AND ONLINE SHOPPING INTENTION: A META-ANALYSIS

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Abstract

Previous published research has shown a correlation between openness to experience and online shopping intention. However, there is no research that reveals how true r and size effect are from the correlation of the two variables. This meta-analysis aims to measure the correlation between openness to experience and online shopping intention by considering the effect size. The total sample of this research is 14747 people from 17 studies who are considered eligible. The findings of this meta-analysis show that openness to experience has a significant positive correlation with online shopping intention at a weak level with 95% CI (0.09; 0.33). Similar results were also found in the group of internet users (95% CI [0.10; 0.36]), and the group of college students (95% CI [-0.240; 0.320]). The heterogeneity test showed good results and there was no publication bias.

Keywords: *online shopping intention, openness to experience, meta-analysis*

INTRODUCTION

Technological developments bring changes in various aspects of life, one of which is in business and buying and selling transactions. The internet that continues to grow and advances in internet usage literacy also encourages the development of online shopping behavior (Venkatesh, Speier-Pero & Schuetz, 2021). Whatever the context of the situation, whether to facilitate transactions or because of limited physical access issues, online shopping is an important option for many individuals today (Gefen, Karahanna, & Straub, 2003). However, before arriving at purchasing behavior, individuals must first feel interested in shopping online so that they have the intention to transact and buy them.

The intention to buy online is certainly motivated by many different things for each person. One of the unique and interesting individual differences to discuss is personality. Involving personality is something that is considered important by many behavioral science researchers. One reason is because personality is related to individual needs and motives in displaying certain behaviors (Costa & McCrae, 1988), such as buying behavior (Gohary & Hanzee, 2014). One of the most popular personality traits is openness to experience and is said to be strongly correlated with online shopping intention (Hermes & Riedl, 2021). This trait encourages individuals to imagine and enjoy getting a variety of new experiences (Barrick & Mount, 1991). Therefore, these individuals tend to seek out new information while shopping, are dissatisfied with the routines of daily life, and constantly compare shopping on the Internet to get the latest and greatest or best value (Tsao & Chang, 2012).

In various previous studies, online shopping intention has been studied more by considering external factors such as the ease of use of the user interface (Jung, 2017; Patel, Das, Chatterjee, & Shukla, 2020; Yap, Tan, Tan & Chun, 2022). There are still not too many studies involving variables that represent internal factors. One of the internal

factors that has been studied extensively in influencing online shopping intention is personality such as the Big 5 (Bosnjak, Galesic, & Tuten, 2007; Lixandriou, Cazan, & Maican, 2021). One trait from the Big 5 that is often found to have a significant correlation with online shopping intention is openness to experience (Bosnjak et al., 2007; Lassitsa & Kol, 2019).

However, although there have been quite several previous studies that have been published regarding the Big 5, especially openness to experience and online shopping intention, there is no research that specifically examines the meta-analysis for both. At this point, a meta-analysis that plays a role in finding true r by considering the size effect becomes important (Borenstein, Hedges, Higgins, & Rothstein, 2009; Hunter & Schmidt, 2004). Several previous meta-analyses regarding online shopping intention have focused on green purchase issues involving planned behavior (Zhuang, Luo & Riaz, 2021), or more general and varied antecedent variables (Ahmed & Satish, 2015), or risk perception (Pelaez, Chen, & Chen, 2017). Therefore, this meta-analysis was conducted to fill the gap left by previous meta-analyses, especially those focusing on openness to experience and online shopping intention.

The purpose of this meta-analysis is to measure the effect size of the correlation between openness to experience and online shopping intention. In the meta-analysis, it will also be seen how the correlation exists after considering the effect size and the various variances that exist, as well as ascertaining the strength of the correlation, heterogeneity, symmetry or not distribution of scores, and publication bias.

LITERATURE REVIEW

One of the antecedents of behavior is intention. This basic concept applies to many forms of behavior, including economic behavior such as buying behavior (Ruangkanjanaes et al., 2020). Intention is personal resources prepared by individuals before they are manifested in certain behaviors (Hall, 2013). Intention is a factor that is considered before behavior appears. Based on Ajzen's Theory of Planned Behavior (1991) which has been widely used by various researchers in researching behavior, intentions are influenced by attitudes, subjective norms, and perceived behavioral control before influencing the behavior that will appear. Online shopping intention itself is the extent to which consumers willingly want to buy a product at an online store (Pena-García, Gil-Saura, Rodríguez-Orejuela, & Siqueira-Junior, 2020). Meanwhile, online stores rely on many things such as user interfaces and all the conveniences that can be provided to attract consumers to buy products (Hung, 2021; Monsuwe, Dellaert, & de Ruyter, 2004).

On the other hand, personality has also long been referred to as an antecedent of various behaviors and intentions. One of the personality constructs that is widely used in various psychological research is the Big 5 (Kabigting, 2021). Big 5 consists of extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. Openness to experience itself is a personality type associated with tolerance, and appreciation for new ideas and experiences (Kabigting, 2021). People with a tendency to openness to experience are people with great curiosity, have a need for variety in life (Costa & McCrae, 1988). Such people will be open to new things and more tolerant of changes in life, including the use of technology (Siendermann, Riedl, & Montag, 2020).

METHOD

Protocol design

This meta-analysis study was conducted to determine the true r and effect size of various studies regarding the correlation of openness to experience and online shopping attention. The search was carried out until 2022, however studies that were found to be relevant only until 2021. The study selection was carried out through several stages, namely identification, screening, and eligibility. Study selection was carried out using PRISMA or Preferred Reporting Items for Systematic Reviews 2020 (Page et al., 2021).

Search strategy

Search efforts were made based on two major sources, namely the Google Scholar register, and from databases such as Elsevier, SAGE, EBSCO, Taylor and Francis, and Jstor. The keywords used are "online shopping intention", "openness to experience", and "personality". The literature found and eligible for use ranged from 2007 to 2019.

Inclusion criteria

The basic criteria used in this meta-analysis are (1) quantitative studies, (2) involving openness to experience as the independent variable and online shopping intention as the dependent variable, and (3) using English in the text.

Exclusion criteria

Several criteria were not included in the research search for this meta-analysis. Some of these criteria are (1) letters to editors, (2) undergraduate and master thesis studies, and (3) other gray literature such as proceedings. The additional considerations used are statistical results that do not generate r , t , F , or R^2 scores, or studies using Chi-Square are not used in the literature source of this meta-analysis.

Data collection and analysis

The literature search was carried out using a variety of keywords from source databases and registers. The studies found were then selected independently. The inclusion criteria that have been set previously are used to sort out which literature sources are eligible, and which are not, including considerations for statistical findings.

Data extraction

Data from the literature sources found were then extracted based on pre-determined criteria. Extraction is also done independently.

Statistical analysis

The study passed the initial selection and was selected and then analyzed and searched for the correlation coefficient and the number of participants. Statistical findings in the form of scores in the form of F , d , t or R^2 are then converted into r scores. The next step is to calculate the effect size (z), variance (Vz) and standard error (SEz) where the results are then processed using JASP. The main things to do are to find the calculation of heterogeneity test, summary effect size, forest plot, funnel plot, Egger's test, and fail-safe N test.

RESULT AND DISCUSSION

The demographic data in Table 1 shows that most participants are internet users from various age groups. There is only one study that specifically mentions college students who are also internet users. Some studies display data on the mean age of participants, and some do not. Because age only serves as support data and is not used in the meta-analysis calculations, this is not a problem. The source of the scale used for the two variables is varied. This happens because of the development of variable constructs in various research settings. Meanwhile, the national setting of these studies comes from several countries.

An early-stage search for this meta-analysis found 17 studies. After removing duplicates and considering inclusion and exclusion criteria, there are 17 studies from 7 literatures that are considered eligible. The total number of participants was 14757 people. There were 14509 participants from the general internet user group, and 248 people from the college student group.

Table 1. Characteristics of the Studies Used for the Meta-Analysis

Study	Sample Size	Age Mean	Participants	Openness to Experience Scale	Online Shopping Intention Scale	National setting
Bosnjak et al. (2007) - study 1	808	33.4	Internet users	Rammstedt & John (2003)	Ajzen (2002)	Croatia
Bosnjak et al. (2007) - study 2	808	33,4	Internet users	Rammstedt & John (2003)	Ajzen (2002)	Croatia
Habib, Aziz & Rahman (2017)	246	-	Internet users	John & Srivastava (1999)	Van Kleef et al. (2005)	Pakistan
Iqbal et al. (2018)	127	-	College students	Goldberg et al. (2006)	Chiu et al. (2005)	Pakistan
Lassitsa & Kol (2019) - study 1	1241	31.9	Internet users	John & Srivastava (1999)	Hernandez et al (2011)	Israel
Lassitsa & Kol (2019) - study 2	1241	31.9	Internet users	John & Srivastava (1999)	Hernandez et al (2011)	Israel
Lassitsa & Kol (2019) - study 3	1241	31,9	Internet users	John & Srivastava (1999)	Hernandez et al (2011)	Israel
Lassitsa & Kol (2019) - study 4	1241	31.9	Internet users	John & Srivastava (1999)	Hernandez et al (2011)	Israel
Lassitsa & Kol (2019) - study 5	1241	31.9	Internet users	John & Srivastava (1999)	Hernandez et al (2011)	Israel
Lassitsa & Kol (2019) - study 6	1241	31.9	Internet users	John & Srivastava (1999)	Hernandez et al (2011)	Israel
Lassitsa & Kol (2019) - study 7	1241	31.9	Internet users	John & Srivastava (1999)	Hernandez et al (2011)	Israel
Lassitsa & Kol (2019) - study 8	1241	31.9	Internet users	John & Srivastava (1999)	Hernandez et al (2011)	Israel
Lassitsa & Kol (2019) - study 9	1241	31.9	Internet users	John & Srivastava (1999)	Hernandez et al (2011)	Israel
Lixandriou et al. (2021)	121	-	College students	Goldberg et al. (2006)	Dodds et al. (1991)	Romania
Lu & Chen (2017) - study 1	400	-	Internet users	Hansen et al. (2012)	Fishbein & Ajzen (2010)	Taiwan
Lu & Chen (2017) - study 2	400	-	Internet users	Hansen et al. (2012)	Fishbein & Ajzen (2010)	Taiwan
Piroth, Ritter, & Rueger-Muck (2019)	678	-	Internet users	Schupp & Gerlitz (2008)	Hansen (2008)	Germany

Table 2 presents the results of the Q statistic for the heterogeneity test. Variations in the meta-analysis were carried out by considering three groups of participants, namely the overall participants, the internet user group, and college students. For all participants, it appears that the 17 studies were heterogeneous ($Q = 1049.276$; $p < .001$). Meanwhile, for the internet user group there were 15 studies with heterogeneous results ($Q = 1035.332$; $p < .001$), and for the college student group there were 2 studies with heterogeneous results ($Q = 4.904$; $p < .001$). The process of identification of studies and screening as seen in Figure 1.

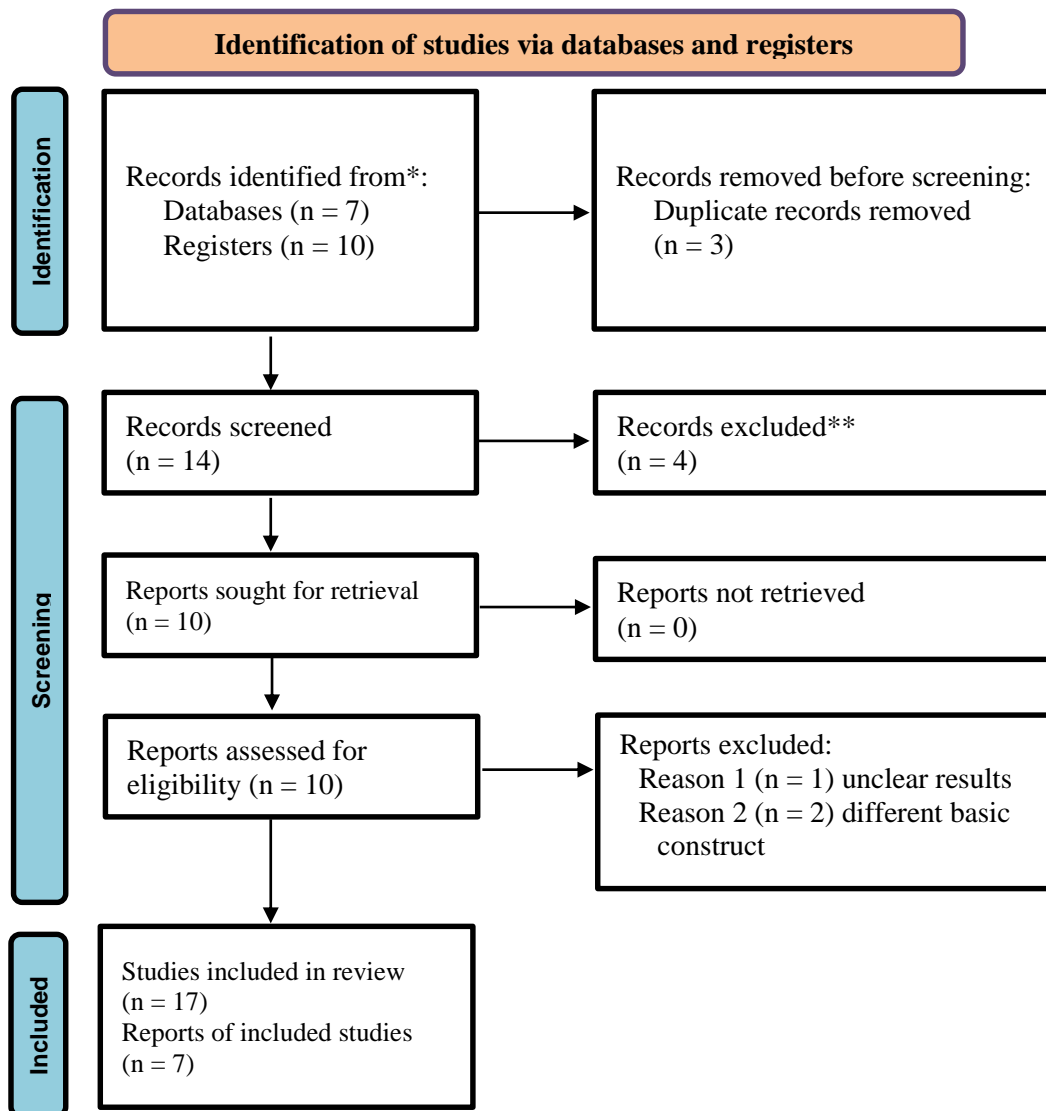


Figure 1. PRISMA for Depicting the Screening Process

Table 2. Fixed and Random Effects

Categories	Test	Q	df	p
All sample	Omnibus test of Model Coefficients	12.190	1	< .001
	Test of Residual Heterogeneity	1049.276	16	< .001
Internet users	Omnibus test of Model Coefficients	12.675	1	< .001
	Test of Residual Heterogeneity	1035.332	14	< .001
College students	Omnibus test of Model Coefficients	0.092	1	< .001
	Test of Residual Heterogeneity	4.904	1	< .001

Random effect showed a significant positive correlation between openness to experience and online shopping intention ($z = 3.491$; $p < .01$; 95% CI [0.090; 0.333]). The relationship between openness to experience and online shopping intention is $r = 0.211$. Similar results were found in other sample groups, namely internet users ($z = 3,560$; $p < .01$; 95% CI [0.100; 0.360]) with $r = 0.231$, and college students ($z = 0.303$; $p < .01$; 95% CI [-0.240; 0.320]) with $r = 0.043$. These three results have scores that are classified as weak (Cohen, 1988). A clearer explanation is shown in Table 3.

Table 3. Coefficients Score for All Participants

	Estimate	Std. Error	z	p	95% Confidence Interval	
					Lower	Upper
All sample	0.211	0.061	3.491	< .001	0.090	0.333
Internet users	0.231	0.065	3.560	< .001	0.100	0.360
College students	0.043	0.142	0.303	< .001	-0.240	0.320

Note. Wald test

The effect sizes of the studies in this meta-analysis have varied in magnitude. Most studies showed an effect size with strong significance with scores ranging from $z = -0.23$ with 95% CI (-0.28; 0.17) to $z = 0.59$ with 95% CI (0.53; 0.64). Meanwhile, the summary effect size is $z = 0.21$ with 95% CI (0.09; 0.33). The results are more clearly seen in Figure 2.

Similar results are found in Figure 3. Most studies show an effect size with strong significance with scores ranging from $z = -0.23$ with 95% CI (-0.28; 0.17) to $z = 0.59$ with 95% CI (0.53; 0.64). Meanwhile, the summary effect size is slightly larger with a score of $z = 0.23$ with 95% CI (0.10; 0.36). Figure 4. shows forest plot for college students participants.

Weaker results were found in the group of college students. Effect size ranged from $z = -0.10$ with 95% CI (-0.28; 0.07) to $z = 0.18$ with 95% CI (0.01; 0.36). The summary effect size obtained is very small, namely $z = 0.04$ with 95% CI (-0.24; 0.32).

This research also looks at findings related to the evaluation of publication bias. The first is to look at the funnel plot as shown in Figure 5 to consider whether the distribution of scores is symmetrical or asymmetrical. Publication bias is not found when the distribution of scores in the funnel plot is symmetrical. However, the distribution of scores in the funnel plot sometimes cannot be justified as symmetry or asymmetry. The solution is that other techniques are needed to determine the evaluation of publication bias.

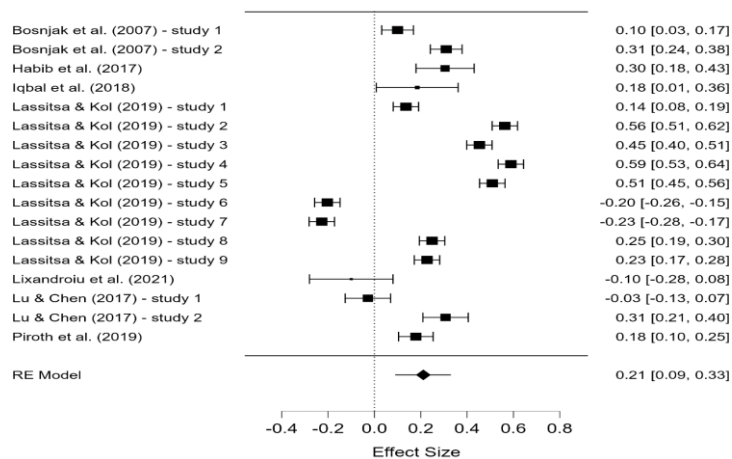


Figure 2. Forest Plot for All Participants

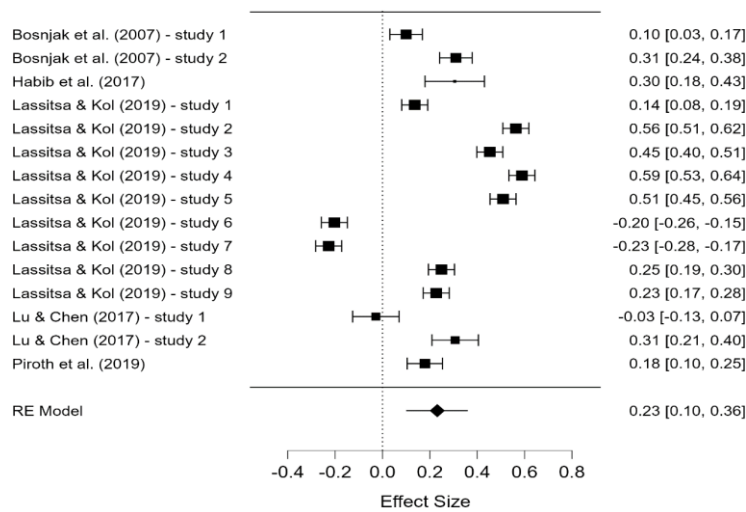


Figure 3. Forest Plot for Internet User Participants

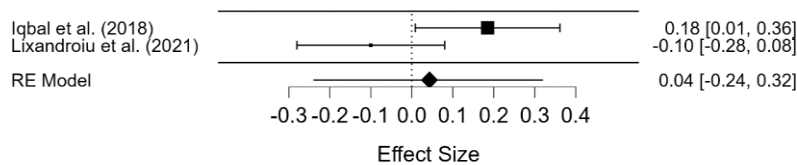


Figure 4. Forest Plot for College Students Participants

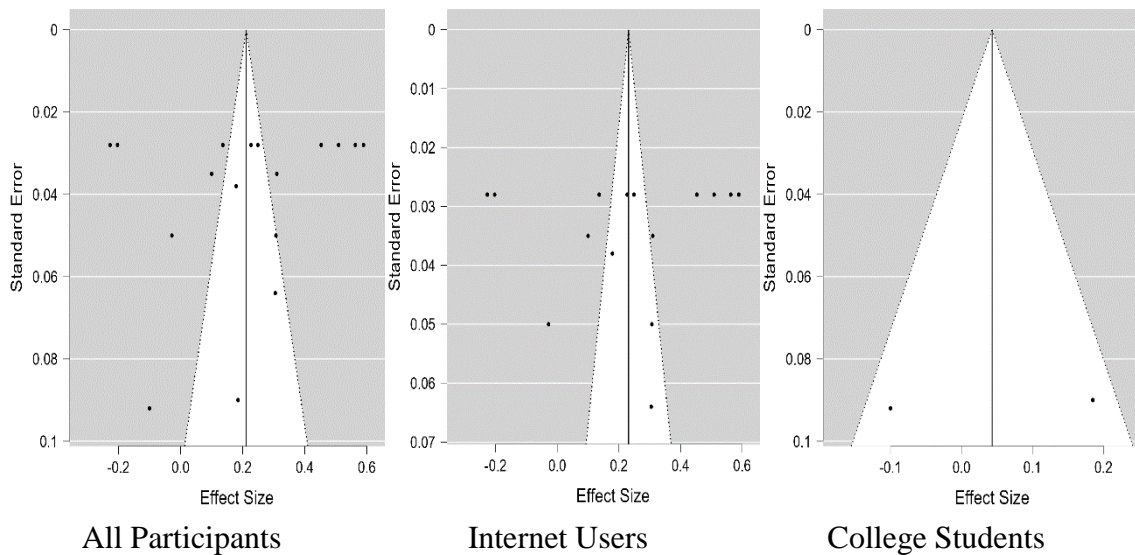


Figure 5. Funnel Plots

In Table 4 through Egger's test, it is known that $z = -0.957$ ($p > .05$). This means that the distribution of scores in the meta-analysis for all samples related to the relationship between openness to experience and online shopping intention is symmetrical. The same thing can also be seen for internet users, namely $z = -0.216$ ($p > .05$). However, for the group of college students the results did not appear considering the number of studies was only two so it could not be observed.

Table 4. Regression Test for Funnel Plot Asymmetry ("Egger's Test")

	z	p
All sample	-0.957	0.338
Internet users	-0.216	0.829
College students	-	-

Another way related to publication bias can be found through Fail-safe N. In Table 5 the score obtained for all participants is 4435 ($p < .01$) which is greater than $5K + 10 = 95$. Meanwhile, for the internet users group the score. The score obtained is 4358 which is greater than $5K + 10 = 85$. As for the common group and workers the score obtained is 4000 and is greater than $5K + 10 = 20$. This means that there is no publication bias in the meta-analysis study of the relationship between openness to experience, and online shopping intention for all sample groups.

Table 5. File Drawer Analysis for Rosenthal's Formula

	Fail-safe N	Target Significance	Observed Significance
All sample	4435	0.050	< .001
Internet users	4358	0.050	< .001
College students	4000	0.050	< .001

The findings of this meta-analysis show that the true r of openness to experience and online shopping intention is of moderate strength. This can happen because individuals with openness to experience become open to new experiences, more sensitive to the emotional stimulation of existing products when shopping and fulfill their hedonic needs, so that they get satisfaction from shopping online (Matzler, Wurtele, & Renzl, 2006; Putra & Fariz, 2020). Bosnjak et al. (2007) stated that individuals with openness to experience tendency will develop a positive attitude towards online buying and selling transactions. This positive attitude can refer to the product to be purchased, the service, the buying process, to the online store that provides the product (Das, 2014; Pavlou & Fygenson, 2006; Taylor & Cosenza, 2000). The more attractive these things are perceived by consumers, the stronger the perceived intensity for shopping online. Another thing that also explains the true r of the correlation between openness to experience and online shopping intention is trust. Openness to experience encourages people to believe in many things more easily. Trust is an important basis for individuals with an openness to experience tendency to explore many new things, including becoming more interested in and intending to shop online (Hsu, Chuang, & Hsu, 2014; Zhou & Lu, 2011).

CONCLUSSIONS AND SUGESTIONS

The practical implication of the findings of this meta-analysis is that online stores can find out and consider the personality profiling of their consumers. This is useful for marketing development, both in terms of the ease of use of online store applications, or other things such as colors, icons, and so on that match the characteristics of personality traits such as openness to experience. The theoretical implication of this meta-analysis study is that openness to experience can be considered as one of the internal antecedents in understanding online shopping intention in subsequent research. The other suggestion is to consider other internal variables, whether it is personality traits such as extraversion or emotional stability, or privacy and perceived risk as antecedents of online shopping

intention. This is important before other researchers ascertain whether external factors such as the user interface and ease of use of the computer have a greater role than internal factors on online shopping intention.

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Note: *articles for meta-analysis