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Analysis Factor of Consumer Behavior Related to the Usage of Pirated Software in Indonesia

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Abstract
Software piracy by end-users has recently become a complicated problem to overcome. Previous studies mentioned two factors that influence the interest in pirated software: the Theory of Planned Behavior (TPB) and Ethics Theory. This study aims to analyze the factors that most affect end-users using pirated software in Indonesia. This descriptive type of study employs a quantitative method. A sampling of 128 responses was taken through nonprobability and accidental sampling. The data is analyzed using Factor Analysis. The results showed that out of five factors (subjective norms, moral obligations, attitudes, behavioral control, and benefit), the benefit is the most influencing factor for end-users to use pirated software in Indonesia. The limitation of this study is that it only uses factor analysis to comprehend the factors that encompass the intention of end-user using pirated software. This study is expected to develop more variables and sophisticated analytical techniques such as Structural Equation Modeling.
Keywords
consumer behavior, theory of planned behavior, ethics theory, factor analysis

Abstrak
Pembajakan software akhir-akhir ini menjadi masalah yang rumit diatasi. Penelitian sebelumnya menyebutkan dua faktor yang memengaruhi minat terhadap software bajakan, yaitu *Theory of Planned Behavior (TPB)* dan *Ethics Theory*. Penelitian ini bertujuan menganalisis faktor-faktor yang paling memengaruhi pengguna akhir menggunakan perangkat lunak bajakan di Indonesia. Penelitian berjenis deskriptif ini menggunakan metode kuantitatif. Sampel penelitian berupa 128 tanggapan yang dikumpulkan dengan teknik *non probability* melalui *accidental sampling*. Data dianalisis menggunakan analisis faktor. Hasil penelitian menunjukkan bahwa dari lima faktor, yakni norma subjektif, kewajiban moral, sikap, kontrol manfaat, dan perilaku, manfaat merupakan faktor yang paling memengaruhi pengguna akhir menggunakan perangkat lunak bajakan di Indonesia. Penelitian ini memiliki keterbatasan, yaitu hanya menggunakan analisis faktor untuk memahami faktor-faktor yang memengaruhi pengguna akhir menggunakan perangkat lunak bajakan. Penelitian ini diharapkan dapat dikembangkan dengan lebih banyak variable dan teknik analisis yang lebih canggih seperti Structural Equation Modeling.
Kata kunci
perilaku konsumen, teori perilaku terencana, teori etika, analisis faktor

Introduction

As technology evolves, various copyright-protected products such as movies, books, music, and software have transformed into digital formats. Products formed into digital formats allow access over the internet to increase the number of downloads. Users must purchase the copyright to respect intellectual property rights to obtain such digital products. When users buy software, they buy a license to use the product. The license specifies how often you can use the software. A user is a pirate if he or she simply copies, shares, sells, or installs a copy of the software on multiple systems and violates the instructions in the license. Copyright infringement is the unauthorized use of a work in a way that infringes the exclusive rights of the copyright owner (Rishi & Mehra, 2017). Indonesia is one of the developing countries that cannot avoid the worst effects of criminal acts, one of which is software piracy. The use of pirated software in Indonesia occurs not only by the general public but even at the level of government or even law enforcement still have the opportunity to use pirated software.

Law of the Republic Indonesia Number 28 of 2014 on copyrights states that anyone without the right to commit acts of commercial use will get a maximum penalty of 2 (two) years in prison and or a maximum fine of Rp 300,000,000.00 (three hundred million rupiahs). Although Indonesia has the rule of law governing copyright

and also a practice of punishment if committing acts of digital piracy, it turns out that there are still many pirated software. According to data from Statista's Main Market Indicator (KMI) on pirated software, it is mention that the rate of software piracy in Indonesia reaches 82% (Statista, 2020). It explained that of the 100 pieces of installed software, 82 of them use pirated software. Even based on data from the BSA (Business Software Alliance), losses due to software piracy practices in Indonesia reached US$280 million.

Some studies have examined what factors influence a person's interest in using pirated software (Ahadiat et al., 2021; Jannah & Kholid, 2020b; Karahan & Kayabasi, 2019; Pham et al., 2020a). However, the results of all these studies resulted in different factors from each other. In addition, there has been no similar research conducted on end-users in Indonesia. The majority of the population of the study is a student. Research conducted by Ahadiat et al. (2021) under the title The Theory of Planned Behavior and Marketing Ethics Theory in Predicting Digital Piracy Intentions showed that moral obligations and perceived benefits directly influence digital piracy intentions. At the same time, Jannah & Kholid (2020), with the title Ethics Theory and Theory of Reasoned Action in digital piracy, showed that An Empirical Study of Accounting Students showed that perceived risk, subjective norm, attitude, moral obligation, and perceived benefit significantly influenced the intention of using digital piracy. Karahan & Kayabasi (2019), with the title "The Effect of The Theory of Ethics and The Theory of Planned Behavior in Digital Piracy", explained that subjective norm and attitude factors forming a theory of planned behavior influence digital piracy intention. Also, explain from the ethics theory which moral obligation factors affect software piracy. Pham et al. (2020), with the title "Factors Affecting on The Digital Piracy Behavior An Empirical Study in Vietnam", showed that the perceived behavioral control strongly influences the intention of digital piracy.

This study aims to analyze the factors that most affect end-users in using pirated software in Indonesia. So it is expected to provide benefits in the form of thought donations for companies, business owners, and governments in the technology area to consider decisions using software in the future. Based on the phenomenon and some previous research, researchers intend to conduct a study entitled Analysis Factor of Consumer Behaviour Related to the Usage of Pirated Software in Indonesia. Once the background of the research problem is explained, the next step is to discuss a literature review on the factors of each theory and previous research. Furthermore, the research methodology, population, sampling techniques, and data analysis techniques will be used. The next stage is to process questionnaire data, whose results will be explained in the results and discussion. The last step is to describe the conclusions from this research.

Literature review

Digital Piracy

Digital piracy is still a growing problem in this digital age (Karahan & Kayabasi, 2019). Digital piracy has been defined as an act of someone making an illegal copy and uploading some digital products that have copyright, like multimedia files and software (Cronan & Al-Rafee, 2008; Pham et al., 2020). Conscious or unconscious piracy behavior is a violation of copyright (Camarero et al., 2014). Software piracy occurs in different forms. As defined by Microsoft, the most basic type is known to be End-User Piracy. It happens when individuals and corporations make copies of software without a legal right to do so. Some people copy software and give it to others without knowing that this is software piracy (Roland et al., 2020). Some factors that affect an individual's behavior in software piracy depend on the theory of planned behavior and ethics theory (Ahadiat et al., 2021; Jannah & Kholid, 2020b; Karahan & Kayabasi, 2019; Pham et al., 2020a).

Theory of Planned Behavior

The theory of planned behavior argues that an individual's behavior is to adhere to their intention to behave or take action (Arli et al., 2018). This theory is rooted in the Causal Action Theory developed in 1975 and tried to explain which variables may cause particular behavior. According to the idea, an intentional behavior or action is caused by subjective norms and perceived behavioral control, which then influences the attitude of the individuals (Karahan & Kayabasi, 2019). In this study, the factors used are subjective norms and perceived behavioral control.

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Subjective Norms

Subjective norms describe as social factors, namely an action to do or not to do any behavior. It suggests that one's environment influences one's actions. Subjective norms are put forward because attitude itself is inadequate in explaining behaviors (Ajzen, 1991; Karahan & Kayabasi, 2019). Karahan & Kayabasi's (2019) research **showed that subjective norms influence digital piracy intention.**

Perceived Behavioral Control

Perceived behavioral control is an **individual's abilities and perceptions of how they control while performing specific behavior (Karahan & Kayabasi, 2019). In this research, perceived behavioral control refers to the level of easiness of conducting particular behavior based on an individual's capability or technology (Karahan & Kayabasi, 2019; Pham et al., 2020). Research conducted by Pham et al. (2020) showed that the perceived behavioral control determines the intention to run digital piracy.**

Ethics Theory

Ethics can be defined as some standards that guide the selection of an individual's behavior and moral standards (Karahan & Kayabasi, 2019). An ethical decision model from Shelby D. Hunt & Scott Vitell (1986) is widely used in research. This theory proposes that someone who uses the reasoning process determined by teleological evaluation as their ethical judgment. It is also called the consequentialist and deontological approaches (Arli et al., 2018; Jannah & Kholid, 2020; Karahan & Kayabasi, 2019; Yoon, 2011). In teleological theory, individuals will evaluate their actions or behavior based on the result. Meanwhile, in the deontological approach, the act of conduct is based upon the motivations of the individuals (Arli et al., 2018). In the study of digital piracy, this theory consists of perceived risk, perceived benefit as in teleological theory, and moral obligation, which explain the deontological approach (Jannah & Kholid, 2020; Karahan & Kayabasi, 2019; Yoon, 2011).

Moral Obligation

Moral obligation can be defined as the feeling of guilt or whether an individual's life principle hinders or promotes a particular behavior (Arli et al., 2018; Cronan & Al-Rafee, 2008; Yoon, 2011). When the moral judgment or perceived guilt around digital piracy is low, or whether the digital piracy is against one's principle, the more negative the attitude towards digital piracy (Arli et al., 2018; Cronan & Al-Rafee, 2008). Karahan & Kayabasi (2019) and Pham et al. (2020) showed that moral obligation factors from the ethics theory affect digital piracy.

Perceived Benefit

Arli et al. (2018) and Yoon (2011) define perceived benefit as someone's belief about the consequences or benefits received when doing digital piracy. We argue that perceived benefit, such as the ability to save time or money and to improve one's performance, can contribute to the intention to use pirated software, as have been suggested in previous research (Arli et al., 2018; Jannah & Kholid, 2020b; Karahan & Kayabasi, 2019; Pham et al., 2020a; Yoon, 2011). In perceived benefit, the more likely it is that someone will have a positive attitude toward digital piracy because of seeing the benefits (Arli et al., 2018; Yoon, 2011). Jannah & Kholid (2020) have shown that perceived benefit affects the intention of carrying out E-book piracy. In line with that, Karahan & Kayabasi (2019) and Pham et al. (2020) also demonstrate their significance in the intention of conducting digital piracy.

Perceived Risk

Perceived risk in this research indicates how an individual perceives the risk associated with owning or using pirated software. It means how likely they will be punished by law. Different from perceived benefit, in perceived risk, if someone has a higher perceived risk, it will be less likely that they are associated with software piracy. Numerous previous researches have confirmed that perceived risk could determine the intention of digital piracy (Hati et al., 2020; Karahan & Kayabasi, 2019; Pham et al., 2020; Yoon, 2011). Karahan & Kayabasi (2019) and Pham et al. (2020) try to investigate its role in software piracy, while Jannah & Kholid (2020) explained the perceived risk influence on the intention of conducting E-book piracy.

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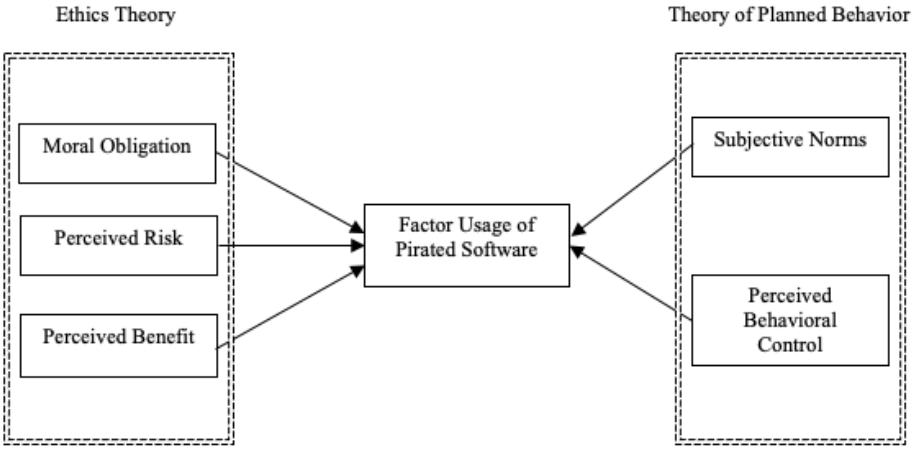

Figure 1. Conceptual Framework

Method

The population in this research are all end-user of pirated software in Indonesia. The questionnaire was distributed to pirated software users via email and social media platforms. The questionnaire is started with a filtering question to ensure that the respondents are pirated software end-users. From these efforts, 132 responses were collected. However, there are only 128 responses that can be used for further analysis. 4 of the responses were deleted because they contained missing values of empty responses. The demographic data of those respondents can be seen in table 1.

Table 1
Respondent Demographics Data

Respondent Profile		Percentage
Gender	Female	33%
	Male	67%
Age	15 - 22	38%
	23 - 29	41%
	30 - 45	21%
Education	High School	32%
	Diploma	8%
	Bachelors Degree	48%
	Masters Degree	12%
Amount of expense for a software	< Rp. 1.000.000,-	73%
	≥ Rp. 1.000.000,- < Rp. 3.000.000,-	22%
	≥ Rp. 3.000.000,- - < Rp. 5.000.000,-	4%
	≥ Rp. 5.000.000,-	1%

This response data is then analyzed using factor analysis using IBM SPSS software version 28. The factor analysis procedures used in this research are as explained in Joseph F. Hair et al. (2013) and also used in Alias et al. (2015) and Hyland et al. (2018).

Result and discussion

From the factor analysis procedure, the Kaiser-Meyer-Olkin (KMO) value, which measures whether the correlated variables are sufficient, was 0.750. This value indicates that the adequacy of the correlation was middling by Erik Mooi et al. (2018) and Joseph F. Hair et al. (2013), also deemed acceptable for further analysis. Meanwhile, the Bartletts test for sphericity shows a significance of 0.000 (< 0.05). Therefore, there are sufficient correlations exist among the variables, and the factor analysis technique was suitable for the dataset. From the

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scree plot produced (figure 2), it can be seen that five components have eigenvalues higher than 1.00 (Joseph F. Hair et al., 2013). Thus, for this dataset, there are five factors created.

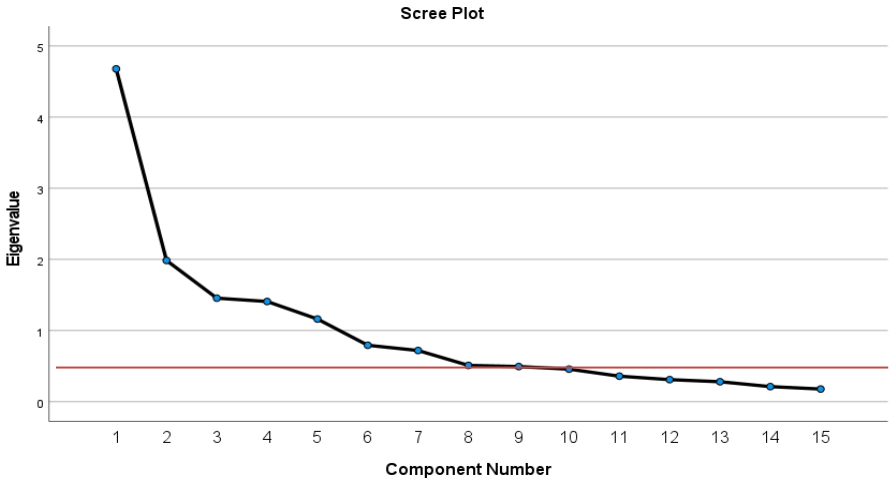

Figure 2. Scree Plot

An unrotated factor matrix was used to understand the correlation between each variable to the factors in conducting factor analysis,. Since factor loadings in the unrotated component matrix produced by this procedure were difficult to interpret, we use varimax rotation to provide the best interpretation of the variables (Joseph F. Hair et al., 2013). The factors resulting from this procedure can be found in Table 2. It also can be seen from table 2 that all factor loadings produced are more significant than 0.50. From guidelines in Joseph F. Hair et al. (2013) for sample size 128, the factor loadings higher than 0.50 and above are significant. Therefore, none of the variables in this research is omitted for further analysis. The factors created here can explain about 71.258% of the variance in the dataset.

Table 2
Factor Loadings, Eigenvalues, and Percentage of Variance Explained by the component formed

Component	Item	Factor Loadings	Eigenvalue	% of Variance Explained	Cumulative %
1	P2	0.662	2.383	15.885	15.885
	P5	0.808			
	P6	0.787			
	P7	0.576			
2	P1	0.773	2.304	15.361	31.246
	P3	0.850			
	P4	0.754			
3	P13	0.773	2.261	15.071	46.317
	P14	0.872			
	P15	0.762			
4	P8	0.780	1.925	12.832	59.149
	P9	0.764			
	P10	0.682			
5	P11	0.897	1.816	12.11	71.258
	P12	0.872			

After producing the factor model, the next step is labelling the factor based on the variables explaining that factors. Labeling for each factor can be seen in table 3. It can be seen in this table that the factors produced

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are perceived benefit, subjective norms, perceived risk, perceived behavioral control, and moral obligation. Therefore, for Indonesian people, five factors determine the intention of using software piracy: perceived benefit, subjective norms, perceived risk, perceived behavioral control, and moral obligation. This result is similar to the previous research by (Jannah & Kholid, 2020b; Karahan & Kayabasi, 2019; Pham et al., 2020a).

Table 3
Factor Labeling

Factors	Descriptions
Perceived Benefit	I use illegal software because my environment also uses illegal software
	If I use illegal software, I can save money
	If I use illegal software, I can save time
	If I use illegal software, I can improve my performance
Subjective Norms	I feel that people in my environment do not judge me badly as a user of illegal software
	I feel that people in my environment do nott judge illegal software users badly
	My environment does not feel that software piracy is wrong
Perceived Risk	If I use illegal software, I will not be caught
	I will not be arrested for violating copyright law if I use illegal software
	If I am arrested for violating the copyright law, I do not feel that I will be given a severe penalty
Perceived Behavioral Control	I know how to get illegal software
	I have experience in using illegal software
	I can find any illegal software if I want
Moral Obligation	I feel guilty about using illegal software
	I feel that using illegal software is against my life principles

The first factor that is somewhat dominant from other factors is perceived benefit. Perceived benefit explained 15.9 percent of the variance in this data. This result can also be found in (Jannah & Kholid, 2020b; Karahan & Kayabasi, 2019; Pham et al., 2020a). However, the main difference found here is that I use illegal software for the variable item P2 because my environment also uses unlawful software, which is supposed to be subjective norms. However in this research, it was categorized as a perceived benefit.

Subjective norms also become the determinant of end-user in using pirated software. Software piracy practices are standard in Indonesia. Since no strict action is imposed on pirated software from the government or the justice systems, there is no pressure from the environment to stop using pirated software. This result resonates with the research of (Jannah & Kholid, 2020b; Karahan & Kayabasi, 2019; Pham et al., 2020a). This factor explains 15.36 of the overall data in this research.

The third factor found is perceived risk. Since there is practically no severe punishment for pirated software usage, most people in Indonesia do not perceive using it as risky behavior. This result is similar to the effect found in (Jannah & Kholid, 2020b; Karahan & Kayabasi, 2019; Pham et al., 2020a). Like the previous factors, perceived risk also explained about 15% of the variance in this data. Since the risk of using pirated software, the usage itself became higher.

Another factor contributing to software piracy is perceived behavioral control. End-user who know where to find and how to use pirated software tend to see that there is nothing wrong with using it. The same result can also be found in (Jannah & Kholid, 2020b; Karahan & Kayabasi, 2019; Pham et al., 2020a). Both research and this research showed that perceived behavioral control affects the intention of pirated software.

The last factor found is a moral obligation. Some studies (Jannah & Kholid, 2020b; Karahan & Kayabasi, 2019; Pham et al., 2020a) also showed that moral obligation determines the use of pirated software. Someone

who values moral, feels guilty when using pirated software or perceives that software piracy is against one principle. They tend to avoid the practice of software piracy. Previous research by Jannah & Kholid (2020b), Karahan & Kayabasi (2019), and Pham et al. (2020a) indicate that moral obligation is related to perceived behavioral control. Both factors explain about 12 percent of the overall variance in this research.

Based on the explanation above, it can be concluded that the factor that most affects end-users to use pirated software in Indonesia is the perceived benefit. In this sense, we can see that end-users still maintain the use of pirated software because it is considered more useful in terms of time, money, and performance in doing their work.

Karahan & Kayabasi (2019) sees that individuals in Turkey are not afraid to engage in digital piracy behavior and have no concerns about criminal sanctions. It is because users do not have sufficient information about the perceived risk when doing piracy. The concept of digital piracy needs to be well explained by all stakeholders in society, especially in the digital world. Civil society organizations, legislators, producers, and related scholars are invited to demonstrate the work needed to prevent piracy in a social media environment.

In addition, most people in Vietnam who have hijacked digital products do not know it is illegal. Therefore, if intellectual property protection rules are created, implemented, and disseminated to everyone, they will help prevent the intention to commit digital piracy. Information and news about legal sanctions for digital piracy can also help reduce this behavior (Pham et al., 2020).

Conclusions

The result of factor analysis using principal component analysis in this research is that five factors measure the intention to use pirated software for end-user: perceived benefit, subjective norms, perceived risk, perceived behavioral control, and moral obligation. This result is similar to previous research with minor differences in the variable grouping. In this research, the item I use illegal software because my environment also uses illegal software falls in the perceived benefit factor instead of subjective norms. Therefore, the behavior of Indonesian software end-users toward pirated software is similar to users in Turkey (Karahan & Kayabasi, 2019; Pham et al., 2020).

This result can be used in making strategies related to digital piracy or, specifically, software piracy. The related stakeholders should consider these factors while formulating strategies, such as making harsher laws for this practice and ensuring that law enforcement is in action. Policymakers can also make a campaign that conveys that digital piracy is outdated, wrong, and *not cool*, especially to the younger generation. Besides that, policymakers should make it difficult for end-users to find pirated software by blocking pirated software sites or closing the shops that sell pirated software.

This research only used factor analysis to understand factors that include end-user intent to use pirated software. More research should have to do to understand more about the interrelationship of these factors of pirated software by adding more variables, such as attitude, intention to use pirated software, and the actual behavior of end-users (Karahan & Kayabasi, 2019; Pham et al., 2020). It recommends using more advanced analytical techniques such as Structural Equation Modeling because of a combination of regression analysis and factor analysis that analyzes the two-way relationships that often appear in the social and behavioral sciences (Imam Ghozali, 2014).

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