Factors Affecting Continuance Intention of ChatGPT as An AI Chatbot in Indonesia

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Research Aims: The transition from Industry 4.0 into Industry 5.0 is happening somehow. That case also appeared in Indonesia. Currently during 2023 there is this Artificial Intelligence Chatbot been developed by OpenAI and released at November, 2022. This AI Chatbot named ChatGPT mainly functioned to allow human for having conversation with Chatbot itself. The problem occurred in Indonesia is that whether personal information of the user given to this Chatbot secured or not and does the user is still willing to continue using this Chatbot after they know the security and risk of cybercrime for their own personal information.

Design/methodology/approach: This research used Quantitative-method and used an online survey to collect data with the total respondent of 30 respondents that used to get the Preliminary Data Analysis for the Paper. This paper is also using Smart PLS to calculate the data and the purpose of this research is to identify and test whether the factors between variables are having significant relation to the use of ChatGPT App in Indonesia.

Research Findings: Result showed that there were no significant relation between each variables towards the Continuance Intention of ChatGPT App in Indonesia.

Keywords: Intention, ChatGPT, AI Chatbot

Introduction

1.1 Background

Nowadays, the whole world is on the position where Industry 4.0 changed into Industry 5.0. This Industry 5.0 appears on the telecommunication technology supporting 5G, virtual world and Artificial Intelligence (AI). It is not really that different between 4.0 that talks on how us as human become more modern because we have access to technology and internet, and 5.0 talks on how technology and internet
is now just as information but become part of life for human. The implementation we might see that during pandemic, society do the works, going to school, ordering stuffs, consulting and many more from home by using internet as a communication tools with others. (kumparan.com)

What is actually Industry 5.0 and the advantages of it, (twi-global.com) stated that Industry 5.0, also known as the Fifth Industrial Revolution, is a new and emerging phase of industrialisation that sees humans working alongside advanced technology and A.I.-powered robots to enhance workplace processes. This is coupled with a more human-centric focus as well as increased resilience and an improved focus on sustainability.

The main advantage of Industry 5.0 is the creation of higher value jobs that afford greater personalisation for customers and improved design freedom for workers. By allowing manufacturing processes to be handled through automation, human workers are able to focus more of their time on delivering improved, bespoke services and products.

**Figure 1.1 Industry 5.0 Strategies**

Source: momenta.one

As mentioned above, Industry 5.0 is underpinned by three strategies: (twi-global.com)

1. Human-Centric

Industry 5.0 includes a strategy that moves people from being seen as resources to being genuine assets. In effect, this means that rather than people serving organisations, organisations will serve people. So, instead of talent simply being used to create a competitive advantage and value for customers, Industry 5.0 refocuses to also create added value for workers in order to attract and keep the best employees.

2. Resilience
As the world has become more joined-up over the years we have seen the widespread impact of global matters such as the Covid-19 pandemic and international supply shortages.

Whereas many businesses look to improving efficiencies and optimising profits, these factors do not improve resilience. In fact, there is a belief that a concentration on agility and flexibility can make companies less resilient, not more. Rather than focussing on growth, profit and efficiency, more resilient organisations would look to anticipate and react to any crisis to ensure stability through challenging times.

3. Sustainability

Industry 5.0 extends sustainability from simply reducing, minimising or mitigating against climate damage to actively pursuing efforts to create a positive change. Sometimes referred to as ‘Net Positive,’ this goal aims to make the world a better place with companies becoming part of the solution rather than being a problem or simply paying lip-service to sustainability goals through ‘greenwashing.’

Figure 1.2 ChatGPT Interface

Currently during 2023 there is this Artificial Intelligence Chatbot been developed by OpenAI and released at November, 2022. This AI Chatbot named ChatGPT mainly functioned to allow human for having conversation with Chatbot itself. What actually ChatGPT is, stated by (zdnet.com) a natural language processing tool driven by AI technology that allows you to have human-like conversations and much more with the chatbot. The language model can answer questions and assist you with tasks, such as composing emails, essays, and code.

Figure 1.3 The Platform Growth
Fig. 1.3 from Statista Research stated that the platform made by OpenAI which could interact with the users indicates that ChatGPT successfully become digital platform which could reached a million users in five days per 24 January 2023 from the first it was launched. *(Dataindonesia.id)*

1.2 Problem and Gap

There are many effects for using ChatGPT as a user in Indonesia, *(bppmpjateng.kemdikbud.go.id)* stated some of it, which are ChatGPT can be used to make some contents that might harmful and dangerous which document falsification, online fraud and pornography contents that might give negative effect for the user. ChatGPT might be used to create fake content or hoax content easily and fast. This might create false information and impacting others because of it. ChatGPT usage might threatened the privacy and data security of the user. As the example, ChatGPT can be used to gather all of the personal information and hack the social media of other users without any permission. Imagine if this happens and being used by the professional hacker in Indonesia.

Previous research has focused on several aspects of the UTAUT 2 model either the original or modified model, *(Putri and Indrawati, 2018)* analyzing the users of the Go-Jek App in terms of Go-Pay usage and adding a new variable in the framework such as Trust. Another previous research that uses the Modified UTAUT 2 model is *(Amalia and Indrawati, 2019)* by analyzing the Continuance Intention of Travel Mobile App and adding a new variable in the framework which is System Quality.

Most of the previous researchers that use the UTAUT 2 model to identify either the user behavior, behavioral intention, or continuance intention were using the Quantitative method by conducting a Questionnaire. *(Rahmadiani et al., 2021)* was using the Quantitative method in the research by conducting the survey. Most of the
subjects that were used by the authors were mostly about fashion, online transportation, and online foods but some had similar subjects in the Healthcare area of the App. Therefore, this Paper appears to answer the gap on the Continuance Intention towards Artificial Intelligence Chatbot named ChatGPT in Indonesia. By looking at the problem that happened which concern about data privacy and security also the risk of the user that use ChatGPT in Indonesia and after they know about it, are they willing to continue using it in the future.

Literature Review

The previous research used UTAUT 2 model and create some points of results that could be the importance of this research to adapt the UTAUT 2 model and use it in the consumer and behavior context. The theory of UTAUT 2 model is the developed model from the previous UTAUT model which was published by Venkatesh, Morris Davis, and Davis (2003) by Expanding and Identify Eight Main Theory as mentioned Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Technology Acceptance Model (TAM), Motivational Model (MM), Combined TAM and TPB, Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT), and Social Cognitive Theory (SCT). The topics of this research are the factors of Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Condition, Hedonic Motivation, Habit, Perceived trust, Perceived privacy, and Perceived risk as the Independent Variables towards Behavioral Intention as a Dependent Variable, and adding Gender and Age as Moderating Variable.

2.1 Operational Variables

a. Performance Expectancy

Performance Expectancy according to Venkatesh (2012) defined as the degree to which an individual believes that using the system will help him or her to attain gains in job performance. Marhaeni (2014) mentioned that communicating to access information in real-time.

H1. Performance Expectancy has significant relation positively towards Continuance Intention

b. Effort Expectancy

Based on Venkatesh (2012) Effort expectancy is defined as the degree of ease associated with the use of the system. Marhaeni (2014) stated that Effort Expectancy defined how long the User associated the Ease of Use in the Application.
H2. Effort Expectancy has significant relation positively towards Continuance Intention

c. Social Influence

Social influence according to Venkatesh (2012) defined as the degree to which an individual perceives those important others believe he or she should use the new system. Based on Marhaeni (2014) Social Influence has defined the Perspective of the User that Influence to use the Application of other People in Social Life, either friend or family.

H3. Social Influence has significant relation positively towards Continuance Intention

d. Facilitating Condition

Based to Venkatesh (2012) Facilitating conditions are defined as the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system. According to Marhaeni (2014) Facilitating Conditions defined User’s Trust the Factors as the Availability of Software, Knowledge, Instruction, and other People in Social Life are Available to support the other User of the Application.

H4. Social Influence has significant relation positively towards Continuance Intention

e. Hedonic Motivation

Hedonic Motivation as mentioned by Marhaeni (2014) defined as Joy and Comfort Feeling which is felt by the Users of The Application.

H5. Hedonic Motivation has significant relation positively towards Continuance Intention

f. Habit

Based on Marhaeni (2014) Habit defined the range or depth of the People using the Application.

H6. Habit has significant relation positively towards Continuance Intention

g. Perceived Trust

Khalizadeh et al. (2017) define Perceived Trust as “the belief that vendors will perform some activity in accordance with customer expectations”.

H7. Perceived Trust has significant relation positively towards Continuance Intention

h. Perceived Privacy
Lalie et al. (2022) defined this as “the belief that user’s privacy will not be safeguarded if they use an app”

**H8. Perceived Privacy has significant relation positively towards Continuance Intention**

i. Perceived Risk

Slade et al. (2015) suggest that “a consumer’s perception of risk is derived from feelings of uncertainty or anxiety about the behavior, and the seriousness or importance of the possible negative outcomes of that behavior”.

**H9. Perceived Risk has significant relation positively towards Continuance Intention**

j. Continuance Intention

Putri D.A (2018) stated that Continuance Intention definition is adapted from the Behavioral Intention definition of Venkatesh et al., (2012) [10]. Therefore, continuance intention is defined as the degree to which a person has formulated plans to continuously perform some specified future behavior.

**Method**

Based on Previous Research mostly uses the Quantitative research method in their Research that including the same several variables with a similar model and different objects of study. A quantitative research method is a method of research that is used to perform an accurate measurement of the behavior, knowledge, opinions, or attitudes (Cooper & Schindler, 2011). Quantitative methods are widely used in various studies of their suitability for testing the model or hypothesis (Indrawati, 2015).

This research used probability sampling combined with simple random sampling in order to get respondents. Not only that, since this research is targeting to conduct pilot study, therefore the respondents that been collected during data collection is around 30-40 respondents as minimum of respondents to make pilot test. (Sekaran, 2003)
4. Result and Discussion

4.1 Basic Information

SmartPLS 3.0 will be utilized to perform partial least squares structural equation modeling (PLS-SEM) for the purposes of this study. This research is similar in its early stages, with 30 data samples PLS-SEM is thus ideal for predicting and testing the hypotheses proposed. This research was conducted in Indonesia, with the questionnaire being issued to ChatGPT users who had used the app at least once. This study still relied on 30-person pilot data.
Table 4.1. Respondents Information

<table>
<thead>
<tr>
<th>Items</th>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>17</td>
<td>61.9%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>13</td>
<td>38.1%</td>
</tr>
<tr>
<td>Age</td>
<td>17-25</td>
<td>13</td>
<td>42.9%</td>
</tr>
<tr>
<td></td>
<td>25-35</td>
<td>13</td>
<td>42.9%</td>
</tr>
<tr>
<td></td>
<td>&gt;35</td>
<td>4</td>
<td>14.3%</td>
</tr>
<tr>
<td>Place</td>
<td>DKI Jakarta</td>
<td>4</td>
<td>14.3%</td>
</tr>
<tr>
<td></td>
<td>West Java</td>
<td>15</td>
<td>47.70%</td>
</tr>
<tr>
<td></td>
<td>Center Java</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>East Java</td>
<td>1</td>
<td>4.8%</td>
</tr>
<tr>
<td></td>
<td>Outside Java</td>
<td>10</td>
<td>33.2%</td>
</tr>
<tr>
<td>Usage Frequency</td>
<td>Rarely</td>
<td>7</td>
<td>19.2%</td>
</tr>
<tr>
<td></td>
<td>1 time</td>
<td>15</td>
<td>52.4%</td>
</tr>
<tr>
<td></td>
<td>2 times</td>
<td>5</td>
<td>14.3%</td>
</tr>
<tr>
<td></td>
<td>3 times</td>
<td>2</td>
<td>9.3%</td>
</tr>
<tr>
<td></td>
<td>&gt;3 times</td>
<td>1</td>
<td>4.6%</td>
</tr>
</tbody>
</table>

According to the Table 4.1 indicates that 85 % most of the respondents in the range of age between 17-35 years old which define as young adult and adult itself. The respondents mostly came from 47.70% of West Java and also 33.2% of respondents came from outside Java Island and the usage frequency shows that 52.4% of respondents only use the ChatGPT for one time in a day.

4.2 Validity and Reliability

The suggested model's reliability and validity were assessed using composite reliability (CR) and average variance extracted (AVE). The conceptual framework contained nine independent variables with one dependent variable which are Performance Expectancy with four indicators, Effort Expectancy with four indicators, Social Influence with three indicators, Facilitating Conditions with four indicators, Hedonic Motivation with two indicators, Habit with four indicators, Perceived Trust with three indicators, Perceived Privacy with two indicators, Perceived Risk with two indicators and Continuance Intention with three indicators.

The CR and AVE did not satisfy the necessary threshold value of 0.7 and 0.5, respectively, in the baseline model (Hair, Hult, Ringle, & Sarstedt, 2017). As a result, the indicator's outside loadings below 0.40 are deleted from the model to boost CR and AVE. The indicator's outer loading should be more than 0.70, and values between 0.40 and 0.70 should be removed if the CR and AVE values increase after removal (Hair et al., 2017). After the removal, the variables with indicators reduced where Effort Expectancy became three indicators, Facilitating Conditions became two indicators, Habit became three indicators, Perceived Risk became one indicator and Continuance Intention became one indicator. The heterotrait- monotrait ratio (HTMT) is a measure
of discriminant validity. The coefficient of correlation between variables should be less than 0.90. (Hair et al., 2017). All structures' CR, AVE, and HTMT results are listed in Table 4.2.

<table>
<thead>
<tr>
<th>Construct Variables</th>
<th>Indicators</th>
<th>Convergent Validity</th>
<th>Discriminant Validity (HTMT Matrix &lt; 0.85)</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Indicator</td>
<td>Reliability</td>
<td>AVE (0.50)</td>
<td>PE</td>
</tr>
<tr>
<td>Performance</td>
<td>PE1</td>
<td>0.920</td>
<td>0.659</td>
<td>0.865</td>
</tr>
<tr>
<td>Expectancy</td>
<td>PE2</td>
<td>0.882</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PE3</td>
<td>0.882</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PE4</td>
<td>0.882</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effort</td>
<td>EE1</td>
<td>0.873</td>
<td>0.600</td>
<td>0.845</td>
</tr>
<tr>
<td>Expectancy</td>
<td>EE2</td>
<td>0.611</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EE3</td>
<td>0.611</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social</td>
<td>SI1</td>
<td>0.949</td>
<td>0.856</td>
<td>0.945</td>
</tr>
<tr>
<td>Influence</td>
<td>SI2</td>
<td>0.870</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SI3</td>
<td>0.817</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilitating</td>
<td>FC1</td>
<td>0.787</td>
<td>0.858</td>
<td>0.817</td>
</tr>
<tr>
<td>Conditions</td>
<td>FC2</td>
<td>0.818</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FC3</td>
<td>0.818</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hedonic</td>
<td>HM1</td>
<td>0.982</td>
<td>0.333</td>
<td>0.981</td>
</tr>
<tr>
<td>Motivations</td>
<td>HM2</td>
<td>0.988</td>
<td>0.333</td>
<td>0.981</td>
</tr>
<tr>
<td></td>
<td>H1</td>
<td>0.719</td>
<td>0.425</td>
<td>0.949</td>
</tr>
<tr>
<td></td>
<td>H2</td>
<td>0.717</td>
<td>0.460</td>
<td>0.949</td>
</tr>
<tr>
<td></td>
<td>H3</td>
<td>0.872</td>
<td>0.404</td>
<td>0.949</td>
</tr>
<tr>
<td>Perceived</td>
<td>FT1</td>
<td>0.828</td>
<td>0.707</td>
<td>0.949</td>
</tr>
<tr>
<td>Trust</td>
<td>FT2</td>
<td>0.956</td>
<td>0.707</td>
<td>0.949</td>
</tr>
<tr>
<td></td>
<td>FT3</td>
<td>0.891</td>
<td>0.707</td>
<td>0.949</td>
</tr>
<tr>
<td>Perceived</td>
<td>FP1</td>
<td>0.313</td>
<td>0.315</td>
<td>0.949</td>
</tr>
<tr>
<td>Privacy</td>
<td>FP2</td>
<td>0.313</td>
<td>0.315</td>
<td>0.949</td>
</tr>
<tr>
<td>Perceived</td>
<td>FR1</td>
<td>0.313</td>
<td>0.315</td>
<td>0.949</td>
</tr>
<tr>
<td>Risk</td>
<td>FR2</td>
<td>0.313</td>
<td>0.315</td>
<td>0.949</td>
</tr>
<tr>
<td>Continuance</td>
<td>BI1</td>
<td>0.313</td>
<td>0.315</td>
<td>0.949</td>
</tr>
<tr>
<td>Intention</td>
<td>BI2</td>
<td>0.313</td>
<td>0.315</td>
<td>0.949</td>
</tr>
</tbody>
</table>

Table 4.2 depicts the structural model. Hair et al. (2017) recommended methods for evaluating the structural model, which were followed. The importance of correlations is measured using the bootstrapping process, which gives the path coefficient. The hypotheses show H1. Performance Expectancy has no significant relation towards Continuance Intention (P-Value = 0.593), H2. Effort Expectancy has no significant relation towards Continuance Intention (P-Value = 0.902), H3. Social Influence has no significant relation towards Continuance Intention (P-Value = 0.405), H4. Facilitating Condition has no significant relation towards Continuance Intention (P-Value = 0.192), H5. Hedonic Motivation has no significant relation towards Continuance Intention (P-Value = 0.405), H6. Habit has no significant relation towards Continuance Intention (P-Value = 0.544), H7. Perceived Trust has no significant relation towards Continuance Intention (P-Value = 0.598), H8. Perceived Privacy has no significant relation towards Continuance Intention (P-Value = 0.578) and H9. Perceived Risk has no significant relation towards Continuance Intention (P-Value = 0.931). The coefficient determination evaluation (R2) The endogenous construct, Continuance Intention, has
a score of 0.419, indicating that the (R2) has low correlation. This R2 value is deemed significant (Hair et al., 2017).

**Conclusion**

According to UTAUT (Venkatesh,2012), Continuance intention to utilize a technology is influenced by performance expectancy, effort expectancy, and social influence, whereas behavioral intention and facilitating conditions dictate technology use. Individual differences, such as age, gender, and experience (notice that the author excludes voluntariness from the original UTAUT) 2 are also thought to influence certain UTAUT interactions. The growth of AI Chatbot as a Platform nowadays becoming more and more updated. Especially during this transition from Industry 4.0 to Industry 5.0 era. As one of the results between the combination of Artificial Intelligence and Chatbot Platform is this ChatGPT App. This study suggest variables in the conceptual framework has significant relation positively towards the Contiuance Intention of ChatGPT App. The Hypotheses doesn’t show the variables has significant relation positively towards Continuance Intention.

The implication of this research found out that the variables have no relation towards the Continuance Intention in term of ChatGPT app. Future research might trying to find another theories or variables that could combined with UTAUT 2 original model. Another finding is that this study was only using preliminary data to create result with the total respondents were 30 people. Therefore, future research may conduct and collect data with a greater number of respondents related to the population of AI Chatbot users in Indonesia. There were three new variables such as Perceived Trust, Perceived Privacy and Perceived Risk that need to be developed more from previous journal to get more understanding and comprehensive theories.

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