

Analysis of Information Technology User Behavior Model by Creative Economy-Based Entrepreneurs (A Study of Information Technology Application in Creative Industry in Bandung)

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ABSTRACT

The research aims to predict Internet technology acceptance by creative industry entrepreneurs in Bandung, by using Technology Acceptance Model (TAM) developed by adding social and self-efficacy variables. These variables were the antecedent of other TAM behaviors which were perceived usefulness and perceived ease of use of TAM. The research method used was descriptive survey and explanatory survey. The subjects of the research consisted of entrepreneurs in four superior creative industry clusters in Bandung, with 290 samples selected by using simple random sampling method. The data was analyzed by using descriptive and quantitative analysis. The descriptive analysis employd frequency distribution and percentage of Likert scale. While the quantitative analysis which was aimed to test hypothesis, employs Structural Equation Modeling technique. The result showed that respondents perceive Internet was not difficult to use and improve their performance. Respondents highly respected their ability in using internet and thought that the social influenced on their decision to use Internet is intermediary. Respondents had high level of acceptance in using Internet and showed high level of interest to use Internet, and show high level of actual Internet use. The Internet use behavior was much influenced by perceived usefulness and social influence. The interest of using Internet was mostly influenced by social influence and self-efficacy. Actual Internet use was dominantly influenced by social influence of Internet use. The positive attitude toward Internet used also contributes to actual Internet use through interest variables.

Keywords: *Technology Acceptance Model (TAM), self-efficacy, social influence.*

1. INTRODUCTION

Essentially, creative economy is an economic activity that is focused on creative thinking. As stated by reference [1], creativity is "thinking new things." The manifestation of creative thinking is various, such as thinking of new ways, models, designs, products and services, marketings, business, distributions, strategies, techniques, and commercialization. Reference [2,3] was defined creativity as a process of transforming ideas into

a form that has an added value. Creativity originally means creating something from nothing or reworking something that already exists.

The ability of creative thinking is possessed by someone or a group called entrepreneurs. Based on its definition, entrepreneurs are individuals or groups that have creative and innovative thinking which can create new and distinctive thins Reference [4] was said in The Rise of Creative Class, categorizes these individuals

into creative economics, or people who are studying physics, engineering and designs, education, arts, music and entertainment, whose their economic function is creating new ideas, new technologies, and new creative contents. These new ideas are also created by creative professionals or people who work in finance, legal, health product/service, and in other industries. In economics, UNCTAD calls it creative economics, which is "an evolving concept based on creative assets potentially generating economic growth and development"[2].

Creative economics can also be in form of "income generation, job creation and export earning, technology, intellectual property, and others." In "Creative Report" reference [3], creative economy is divided into four types of creativity: (1) Scientific creative, (2) Economic Creative, (3) Cultural creative, and (4) Technological creative. Scientific creativity is related to curiosity and willing to experiment in solving problems. Creative economy is a dynamic process that leads to technological innovations, business practice, marketing, and so on. It aims to achieve competitiveness in economics. According to reference [3], "the creative economy" is an evolving concept based on creative assets potentially generating economic growth and development.

Technology and information highly influence the ease of creating something. Creativity is the main ingredient in creative industry. Today, technology and information, such as Internet, computer, software, and other tools have been so advanced. However, whether such technology can be helpful or a hindrance depends on how we use them. For example, to be creative, we need Internet as an unlimited source of information. However, too much information may inhibit our creativeness.

Technology not only plays a part as a tool or a helping machine, but it also plays as a method, technique and ways to make our life easier. While the information can be knowledge, news, and useful data for certain purpose. Indeed, information technology and creative industry cannot be separated. Sometimes, lack of technology can be a form of limitation. It is expected that technology and information can improve creative industry's productivity and quality.

Many researches found that the main cause of the failure of information technology system acceptance is not the poor quality of technical quality of a system nor poor information as the result from it, but the behavioral aspect of its users [5]. Reference [6] states that "IT development needs careful planning and implementation to avoid rejection of the developed system, and this is related to individuals' behavior change in performing their jobs." The rejection may result low utilization of information system that may lead to low return of

organization's investment on information technology [7].

In order to be well-accepted by its users, the rejection on new information technology system needs to be changed or the system itself needs to be well-prepared. Changing a behavior cannot be done by directly addressing the behavior. Instead, we need to address the cause of the behavior. Identifying the determinant factors of information technology acceptance/adoption is important to develop an information system. Hence, high investment on IT facility can create a value for the organization.

In this research, a measurement is conducted to predict the information technology acceptance, especially on Internet use by creative economy-based entrepreneurs, by using Technology Acceptance Model (TAM) approach, extended by adding social influence and self-efficacy variables. These variables are the antecedents of other TAM constructs, which are perceived usefulness and perceived ease of use on TAM.

The aims of the research is to elaborate the process of human behavior who integrates the information technology into his/her individual creative process. The research employs Structural Equation Modeling (SEM) to predict the behavior of using information technology media in performing business activities. The model used to predict this is Theory of Planned Behavior (TPB), developed by reference [8]. This model is a development of Theory of Reasoned Action (TRA), introduced by reference [9]. The development of the model of technology adoption intention is called Technology Acceptance Model (TAM).

TAM development is based on the Theory of Reasoned Action (TRA). TAM predicts the behavior of utilizing information technology intention, based on the attitude and perception of the ability to utilize particular technology. The outputs of this research are two models integrated and applied in measuring behavior of information technology utilization in performing business activity that improve creativeness quality continuously.

The benefits of the research are finding a generic model in predicting the intention of information technology acceptance in business activities in creative industry, through TAM (Technology Acceptance Model) and TPB (Theory of Plan Behavior) integration by employing SEM approach. While TAM predicts the intention of computer technology utilization, based on the attitude and perception of the ability of using technology, TPB measures the relationship between men's attitude and behavior in performing their creative process.

1.1. Technology Acceptance Model

One of the theory regarding the utilization of information technology system that is considered as the most influential and commonly-used to explain the individual acceptance of the utilization of information technology system is Technology Acceptance Model (TAM). The theory was introduced by reference [10] as an adaptation of Technology of Reason Action (TRA), a development of Theory or Reasoned Action or TRA, the main purpose of TAM is to provide a basis of investigation of external factors influence on users' belief, attitude, and purpose. TAM assumes that one's adoption of a technology is generally determined by a cognitive process and is aimed to satisfy the user needs or to maximize the benefits of the technology. In other words, the main key of information technology acceptance by its users is evaluation of the benefits of the technology as shown in fig.1.

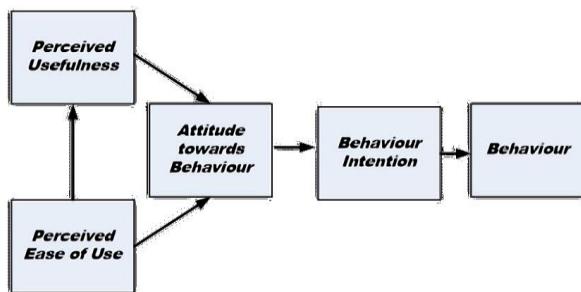


Figure 1. Technology acceptance model

1.2. Constructs of Technology Acceptance Model

There are five main constructs of TAM as following:

1.2.1. Perceived Usefulness

Reference [5] wad defined perceived of usefulness as the extent of one's belief that using a technology can improve his/her performance. The benefits of IT can be recognized from its user's confidence in IT acceptance decision, that such utilization provides positive contribution to the users. According to reference [10], the measurements of usefulness construct are: (1) work more quickly, (1) useful, (3) increase productivity, (4) enhance effectiveness and (5) improve job performance.

Previous research shows that perceived usefulness construct positively and significantly influences the utilization of information system. In addition, perceived usefulness construct is the most important and significant factor that strongly influences attitude, behavioral intention, and behavior in using information technology among other constructs.

1.2.2. Perceived Ease of Use

Ease of use is defined as the extent of one's belief that using a technology will relieve them from efforts [5]. Based on the definition, it can be concluded that ease of use will minimize one's efforts to learn computer. IT users believe that more flexible, easier to understand, and easier to use is the characteristics of ease of use. Reference [10] was reveals several indicators of ease of use construct, such as (1) easy to learn, (2) controllable, (3) clear and understandable, (4) flexible, (5) easy to become skillful (6) easy to use. Previous research showed that ease of use construct influences attitude, behavioral intention, and actual usage.

1.2.3. Attitude toward Behavior

Attitude toward behavior is defined by reference [11] as one's positive or negative feeling when he/she has to perform a determined behavior. Several researches show that attitude positively impacts behavioral intention. However, some researches reveal that attitude does not significantly influence behavioral intention, that those researches do not include attitude construct in their model.

1.2.4. Behavioral Intention

Behavioral intention is one's intention to do something or show particular behavior. Someone will show a behavior when he/she has intention to do it [5]. Previous research show that behavioral intention is the best prediction in terms of technology usage by system users.

1.2.5. Behavior

Behavior is an action performed by someone. In the context of information technology system, behavior is the actual usage of technology [5]. In many researches, since the actual usage cannot be observed by researchers who employ questionnaires, actual usage is substituted by perceived usage. Reference [11] was used actual usage, while reference [12] uses perceived usage, measured as the total amount of time in interacting with a technology and the frequency of its usage.

1.3. TAM Extension

TAM has developed since it was introduced for the first time. The model development is divided into four stages: (1) model introduction, (2) model validation, (3) model extension, and (4) model elaboration. At the stage of model extension, there are researches and developments by adding several external variables that further explain or become the cause of perceived usefulness and perceived ease of use.

These external factors are categorized as individual, organization, culture, and job characteristics variables. Among the external variables are self-efficacy and social influence. The following is the explanation of the two external variables as shown fig. 2.

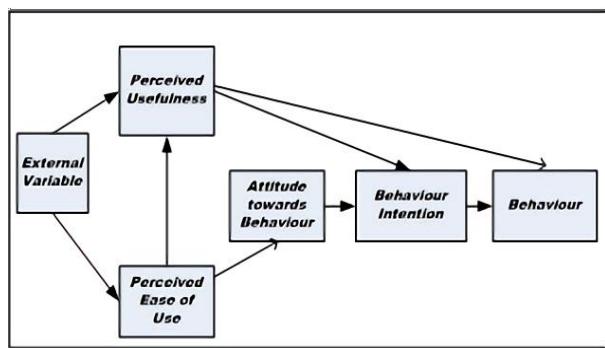


Figure 2. Developed TAM

1.3.1. Self-Efficacy

Reference [13] was defined self-efficacy as man's considerations regarding his ability to organize and conduct activities needed in order to achieve determined performances. This is not related to skills possessed by someone, but rather to considerations on what can someone do with whatever skills he/she has.

In defining self-efficacy, it is also important to review the dimensions of relevant self-consideration. There are three dimensions of self-efficacy:

Magnitude

The magnitude of self-efficacy is related to the level of difficulty of the task that can be accomplished by someone. Those with high level of self-efficacy will think that they are able to complete difficult tasks, while those with low level of self-efficacy can only complete simple tasks.

Strength

Strength of self-efficacy is related with the extent of belief of consideration. The strength of self-efficacy also reflects the rejection of uncertain information. People with weak self-efficacy will be easily frustrated by obstacles and in turn will perceive that their ability is declining. On the contrary, people with strong self-efficacy will not be afraid of difficult situations and will maintain their self-efficacy that they will keep their persistence and solve the problems.

Generalizability

Generalizability of self-efficacy shows the extent of the self-efficacy perception is limited to certain conditions. Some individuals may believe that they can show several behavior, but only in particular situations. It is fair to say that these individuals has low generalizability. On the contrary, individuals with high

generalizability will be able to perform certain behaviors in any situations.

In terms of the ability to use computer, this kind of self-efficacy is called computer self-efficacy. Hong as cited by reference [5], defines computer self-efficacy, which is conceptualized based on self-efficacy theory, as a self-evaluation regarding to one's ability to use computer. Reference [14] categorizes this into self-efficacy judgment and outcome judgment. Outcome judgment is related to the extent of a behavior and its relationship with its results. Further, Bandura believes that behavior can be well predicted by efficacy. As well as the dimension of self-efficacy, computer self-efficacy dimensions are:

- Magnitude of computer self-efficacy reflects the extent of expected capability in performing computer-related tasks.
- Strength of computer self-efficacy is related to the extent of consideration or efficacy of individual about his/her ability to perform computer-related tasks.
- Generalizability of computer self-efficacy reflects the extent of judgment is limited to certain computing domain activities. Individuals with high generalizability is expected to be able to operate different software packages in different computer systems. Those with low generalizability will perceive themselves as people who are limited to certain software packages or computer systems.

1.3.2. Social Influence

TAM was initially considered as lack of one important thing. TAM did not explain the social influence of adoption and utilization of new information system. Many researches have been conducted to extend or develop TAM by developing the theory of social influence process by reference [15], which called psychological attachment. This theory explains the social influence on behavior intention and attitude toward using.

Social influence is defined as the extent of an individual perceive him/herself that an interest believed by others will influence the use of new system [5]. Reference [16] was used social norms in defining this construct and acknowledges that this construct is similar to subjective norm in TRA.

The social influence gives impacts on individual behavior through three mechanisms. Reference [15] noted that social influence gives impacts on individual behavior through three mechanisms:

- Compliance, that occurs when individuals receive influence from other individuals or groups. They

want to get rewards or avoid punishments from those who influence them. People accept suggested behavior not because they believe in it, but because such behavior will help them to get satisfying social effects from their environment.

- Identification, that occurs when individuals adopt behavior from other individuals or groups because such behavior is related to satisfying self-defining relationship with other individuals or groups.
- Internalization, that occurs when individuals accept influence because such suggested behavior is in accordance to their value system. We accept other's ideas, thoughts, or suggestions because they are helpful in solving problems, important in pointing a direction, or in accordance to our value system.

Based on reference [15] framework, reference [11] was stated that the social influence can influence behavioral intention indirectly through attitude toward using in relation to internalization and identification or influence behavioral intention directly through compliance.

Several researches that extend TAM and include external variables of computer self-efficacy and other following social influences.

Reference [17] was noted that there are two characteristics of user that give big impacts on computer usage perception, which are innovation and computer self-efficacy. The research results show that both characteristics are closely related to information technology acceptance. Meanwhile, reference [18] concludes that computer self-efficacy has a positive relationship with the utilization of desktop information system.

Reference [19] was stated that computer skills are the moderator factors for PEOU. Reference [2] was found that computer skills are predictor variables in adopting e-library since their correlation values are positive.

Reference [21] was suggests that social influence plays an important role in determining the behavior of new users toward the acceptance and usage of new IT. They have proven that perceived usefulness, perceived ease of use, and psychological attachment factors have positive influences on attitude toward behavior in terms of internalization and identification. Meanwhile, compliance gives impacts on attitude toward behavior. In addition, they reveal that perceived usefulness and attitude toward behavior positively influence behavioral intention, while psychological attachment does not influence behavioral intention. Psychological attachment indirectly influence behavioral intention in

terms of internalization and identification. To explain further, see on fig. 3.

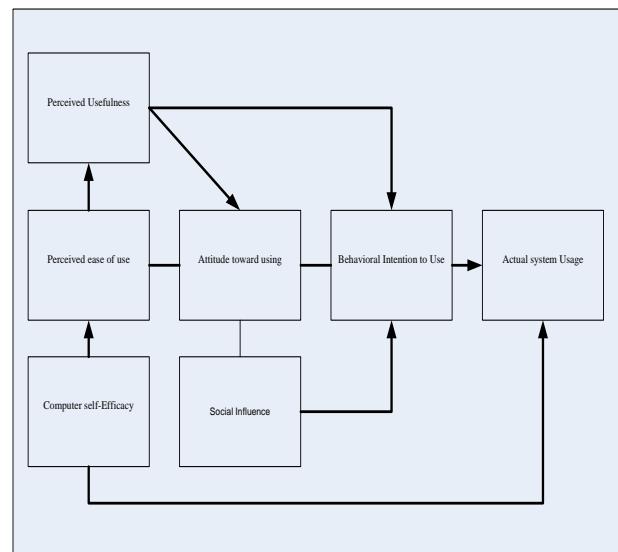


Figure 3. TAM existence

Based on several models from the researches, the generic model of TAM and TPB integration, with developed TAM is as follows fig. 4.

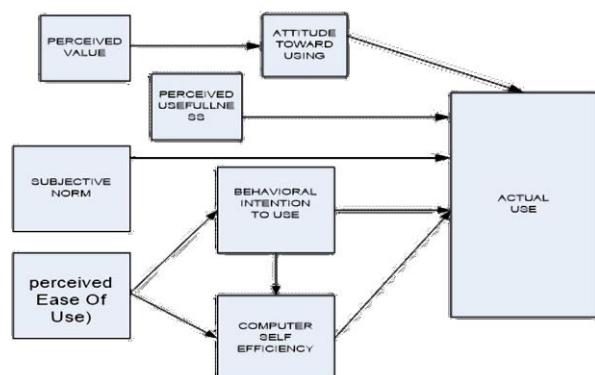


Figure 4. Generic model of TAM & TPB integration

2. METHODS

2.1. Research Methodology

The research method used was descriptive and verification research. The research applied descriptive survey and explanatory survey. Information survey from a part of population (respondent samples) was collected directly from the site empirically, in order to find out the population's perception toward the object of the research.

2.2. Subjects and Objects

The objects of the research consisted of Internet's ease of use, Internet's benefits, the ability to use Internet, the social influence toward Internet use as independent variables, while attitude toward Internet use, behavioral

intention of Internet use, and actual Internet usage were dependent variables. The subjects of the research consisted of entrepreneurs in four creative industry centers in Bandung, with 290 samples selected by using simple random sampling method.

2.3. Data Analysis

The data was analyzed by using descriptive and quantitative analysis. Descriptive analysis of the qualitative variables was conducted by using closed questionnaire to collect data about the description of Internet ease of use, the benefits of Internet, the ability of using internet, subjective norms toward Internet use, attitude toward Internet use, behavior in using Internet and actual Internet usage. The analysis employed frequency and percentage of Likert scale.

Quantitative analysis was conducted by using statistics to test hypothesis. This is called Structural Equation Modeling. The structural equation modeling is as follows in fig. 5.

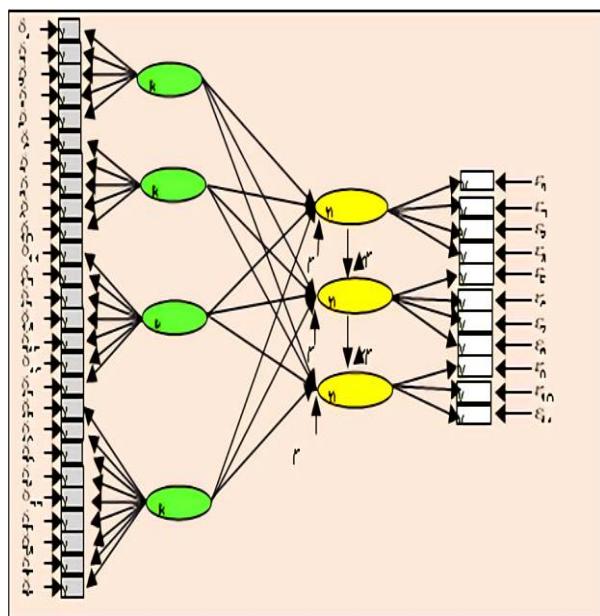


Figure 5. Structural equation modelling

3. RESULT AND DISCUSSION

3.1. Respondents Perception of Internet Usage as an Information Technology Media

Entrepreneurs perception toward the Internet's ease of use can be seen in the ease of learning, interacting, and getting what they want. Operating and interacting with IT were categorized as moderate, while the ease of Internet learning was considered as the highest (20.27%). Meanwhile, the level of clarity and the understanding of interaction through IT was considered as the lowest (19.07%).

Entrepreneurs' perception toward the benefits of Internet can be seen from the benefits of Internet in performing their job more quickly, easy to finish the job, providing inspiration, increasing performance and productivity was categorized as moderate, while the benefits of Internet in performing their job more quickly and better was considered as the highest (21.24%). Meanwhile, the benefits of Internet in increasing productivity was considered the lowest (18.27%).

Entrepreneurs' perception toward their self-efficacy in using Internet can be seen from their ability in operating browser application, accessing website, using search engine, downloading file, creating email account, communicating via email and communicating via social network was categorized as high, where the ability to communicate via email is the highest (14.59%). Meanwhile, the ability to operate browser application was considered as the lowest (13.62%).

Entrepreneurs' perception toward social influence in using Internet can be seen from the added value gained by the, Internet lifestyle, family/friends encouragement, the pride of using Internet, using Internet to get accepted by environment, the willing to recommend, using Internet because of requirements were categorized as moderate, while Internet can give an added value to the tasks was considered as the highest (13.55%). Meanwhile, using Internet due to the requirements was considered as the lowest (8.58%).

Entrepreneurs' perception toward using Internet attitude can be seen from the wise attitude, positive attitude in using Internet was categorized as high, while their attitude in using Internet is considered as the highest (27.10%). Meanwhile positive attitude toward Internet usage was the lowest (23.42%).

Entrepreneurs perception toward behavioral intention in using Internet can be seen from Internet as communication tool, Internet dependence to finish jobs, Internet as an up-to-date information source, and Internet usage in the process of creativeness were categorized as high. Meanwhile, respondents' attitude toward Internet as an up-to-date information source is considered as the highest (27.43%). The dependence on Internet to finish jobs was considered as the lowest (20.90%).

Entrepreneurs perception toward actual usage of Internet can be seen from the total weeks, hours, and intensities, are categorized as high. One week usage was considered as the highest (36.49%), while actual usage hourly was considered as the lowest (20.46%).

3.2. Model Test Results

The discussion is conducted in two stages. First is testing simultaneously, which is a validation of overall research model, and the second is partial hypothesis testing. The overall model testing result shows that Chi

Square value was 1244.53 with free degree 609 and RMSEA 0.060 < 0.08. It shows that the theoretic and conceptual model on the line diagram was accepted at the significance level of 5%. The descriptive testing shows that the GFI value is 0.98, AGFI 0.96, and NNFI Value is 0.99 that such model is acceptable.

By comparing t test value in line graph with t table value ($\alpha=0.05$) is 1.96, it shows that all indicators form the subtle variables significantly. However, not all exogenous subtle variables contributed positively to the endogenous subtle variables.

3.2.1. Perception of ease, benefits, self-efficacy, and social influences on the variables of Internet usage.

Lisrel test shows that the T value of 2.56 in relation to the perception of benefits toward attitude and t value of 5.44 in relation to the social influence on attitude were beyond critical limit of 1.96. Therefore, the influence of benefits perception and social influence on Internet usage behavior was significant. While t value of 0.33 in relation to the perception of benefits toward attitude and t value of 1.09 in relation to the social influence on attitude were below critical limit of 1.96. Therefore, the influence of benefits perception and social influence on Internet usage behavior is not significant.

The total influence of the exogenous variables to endogenous variables was 46.44% while the rest of them (53.55%) were influenced by other variables. The influence contribution from each exogenous variables was as follows: social influence (39.69%), perceived usefulness of Internet (6.25%), the ability to use Internet (0.38%) and perceived ease of use of Internet (0.12%).

3.2.2. Perceived of ease of use, perceived usefulness, self-efficacy, and social influences give impacts on behavior of Internet usage.

Lisrel test shows that the t value is 2.15 in relation to the perceived of usefulness toward intention and t value is 4.27 in relation to the social influence on the intention. This value was beyond critical limit 1.96. Therefore, the influence of perceived usefulness and social influence on behavioral intention of Internet use was significant. While t value of 0.91 in relation to the perceived ease of use toward intention and t value of 0.21 in relation to the perceived usefulness toward intention were below critical limit of 1.96. Therefore, the influence of benefits perception and social influence on behavioral intention of Internet use was not significant.

The total influence of the exogenous variables to endogenous variables was 58.92% while the rest of them (41.02%) were influenced by other variables. The influence contribution from each exogenous variables was as follows: social influence (56.25%), the ability to

use Internet (1.96%), perceived ease of use of Internet (0.94%), and perceived usefulness of Internet is 0.04%.

3.2.3. The influence of Ease of Use of Internet, Usefulness of Internet, The Ability to Use Internet, Social Influence on Internet Use toward Actual Internet Usage.

Lisrel test shows that t value of 3.39 in relation to social influence was beyond critical limit of 1.96. Therefore, the influence of social influence on actual Internet usage is significant. On the contrary, t value of 1.38 in relation to perceived ease of use on actual usage, t value of 1.12 in relation to the perceived usefulness on actual usage, and t value of 0.83 in relation to the self-efficacy on actual usage are below of critical limit of 1.96. Therefore, the influence of perceived ease of use, perceived usefulness, and self-efficacy on actual Internet usage is not significant.

The total influence of the exogenous variables to endogenous variables was 31.15% while the rest of them (68.85%) are influenced by other variables. The influence contribution from each exogenous variables was as follows: social influence (24.01%), perceived usefulness of Internet (4.41%), the ability to use Internet (2.25%) and perceived ease of use of Internet (0.48%).

3.2.4. The Attitude of Internet Usage Influences the Behavioral Intention of Internet Usage

Lisrel test shows that t value of 8.26 in relation to attitude toward behavioral intention of Internet usage is beyond critical limit of 1.96. Therefore, the influence of attitude toward behavioral intention of Internet usage on actual Internet usage was significant. The total influence of the Internet usage on behavior of Internet usage was 88.36% while the rest of them (11.64%) were influenced by other variables.

3.2.5. Attitude of Internet Usage and Behavior of Internet Usage Influence The Actual Internet Usage.

Lisrel test shows that t value of 8.41 in relation to the attitude of behavioral intention of Internet usage and t value of 6.66 in relation to the attitude of Internet usage on actual Internet usage were beyond critical limit of 1.96. It means that the attitude of Internet usage influence the behavior of Internet usage and actual Internet usage significantly. The total influence of the Internet usage on behavior of Internet usage and its impact on actual Internet usage were 83.6% while the rest of them (16.4%) were influenced by other variables

4. CONCLUSION

4.1. Conclusions

1. Ease of use reflects the level of one's belief that Internet usage is relatively ease and does not need extensive effort.
2. Perceived usefulness shows the extent of one's belief that using a technology can improve his/her performance. The result shows that Internet usage provide benefits for its users' performance. By using Internet they can finish their job more quickly.
3. Computer self-efficacy is an individual evaluation of his/her ability in using Internet. The research results show that the ability to use Internet facilities, especially those related to email as a communication tool, shows that email is considered as the easiest and the most effective media.
4. Social influence is defined as the extent of an individual perceive him/herself that an interest believed by others will influence the use of new system. The research results show that social influence on his/her decision to use Internet is very high. The internalization factors through dimension of Internet added value is the most dominant factor of the social influence. It means that Internet usage is motivated by personal desire because of the benefits.
5. The attitude of Internet usage reflects one's positive or negative feelings when he/she use Internet. The research results shows that r value of Internet usage acceptance is very high, where the majority of respondents state that Internet is very useful. However, they consider that the positive value of Internet usage is very low.
6. Behavioral intention reflects one's desire to use Internet. The research results show that the intention of using Internet is very high. The high level of intention to use Internet is in line with the Internet facility as a useful source of information.
7. Internet usage behavior is the actual usage of Internet technology. The results show that Internet actual usage is very high.
8. Perceived ease of use, perceived usefulness, self-efficacy, and social influence are the determinant factors of the attitude of Internet usage.
9. Perceived ease of use, perceived usefulness, self-efficacy, and social influence are the determinant factors of the intention of Internet usage.
10. Perceived ease of use, perceived usefulness, self-efficacy, and social influence are the determinant factors of the Internet actual usage.

4.2. Recommendation

1. To improve the benefits of IT for entrepreneurs, trainings sare very important, not only on the skills of information system/application, but also on the followings:
 - a) IT can save time
 - b) IT can improve working quality
 - c) IT can speed/extend the information access.
 - d) IT is comfortable, fun, and easy to use.
 - e) IT can extend creativityEach of them is accompanied by clear case
2. To build IT usage culture, supports from leaders are needed, such as:
3. Related Head of Office to provide real examples of IT usage in performing his/her job.
4. Related Head of Office should encourage his/her subordinates to use IT in their activities.

Government commitment toward the Internet facility usage in academic or administrative activities through procedures adjustment that is more appropriate to internet technology.

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