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# The effect of digital literacy toward entrepreneur behaviors through students' intention entrepreneurship on Economics Education Study Program at Jember

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**Abstract.** Science and technology is very rapidly growth in the current era of globalization. With the ease of disseminating information both print media and the internet, knowledge and technology development is increasingly fast. The development of science and technology is increasingly advanced, allowing humans to live in an industrial climate by maximizing the functions of technology to replace the humans' roles. When science and technology increasingly allows humans to produce advanced technologies, the digital technology progresses allow humans to live in information society. A concept that generally explains how the community in relation both information and communication activities is facilitated by the modern products ability as the internet supporting by computer products. Computer is the tool that can facilitate and explore the human capabilities in learning and processing information. Thus, the advancement of information technology can affect a person's life in tracking information. Based on the previous elaborations, the writer concern on the current study entitled "The Effect of Digital Literacy on Entrepreneurial behaviours through Entrepreneurial Intention of Students in Economic Education Study Program in Jember ". Hopefully, the world of education in both general and higher education can take the roles in contributing the entrepreneurship from the cognitive, affective and psychomotor for students, so students have entrepreneurial behaviours. This study aims to examine empirically the causal relationship between two variables, namely digital literacy (computer literacy and internet literacy) on entrepreneurial behaviours, and entrepreneurial intentions. This study is explanatory research to find and explain causal relationships between variables. Besides, this study is conducted to answer the problems that have been formulated, the objectives to be achieved, and to test the hypothesis. This study was survey methods by distributing questionnaires to obtain information and the approach is a quantitative approach. The data analysis was Structural Equation Modelling (SEM) analysis. Based on the results, it was found that the digital literacy of students in economic education study programs in Jember was still limited to influence the intention of entrepreneurship, especially on entrepreneurial behaviours. However, the intention of entrepreneurship is proven to mediate digital literacy towards entrepreneurial behaviours. Therefore, the writer suggested that learning is more effective and can be more meaningful for students, preferably focused on both practical and theoretical. Based on the interview results, the proportion of practical learning activities is only around 30% and the theory is 70% of learning. These conditions should be reversed, precisely 30% of theory and 70%, practice especially the practice of entrepreneurship with digital media, for example e-commerce, including the practice of marketing strategies in the marketplace, market space, social media, e-mail, and others.

## 1. Introduction

Science and technology is very rapidly growth in the current era of globalization. With the ease of disseminating information both print media and the internet, the knowledge and technology development is increasingly so fast. The science and technology development is increasingly advanced, allowing humans to live in an industrial climate by maximizing the functions of technology to replace the humans' roles.

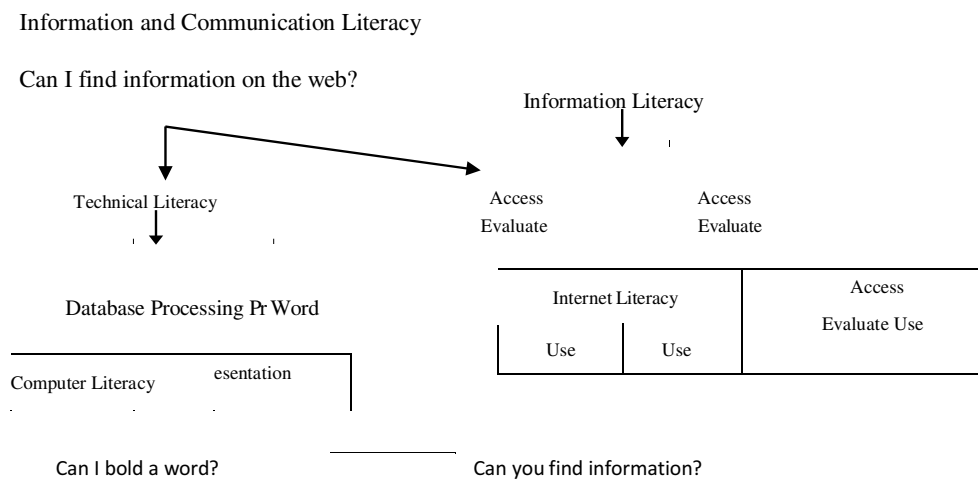
When science and technology increasingly allows humans to produce advanced technologies, the progress that known as digital technology allows humans to live in an information society. A concept that generally explains how society in relation to information and communication activities is facilitated by the ability of modern products in the internet which among them are supported by



computer products. Computers are tools that can facilitate and expand human capabilities in learning and processing information. Thus, the advancement of information technology can affect a person's life in tracking information.

Individual communities facilitated by internet capabilities can create, distribute, use and utilize information for interests in various areas, including economic area. In the economic area, competition and challenges are increasingly severe which are not only competition at the local, regional and national levels, but also global competition from various countries ready to compete. In this era, strong entrepreneurs are needed who can read opportunities and answer challenges. Therefore, literacy or the level of knowledge and ability to use computers and information are very important in facing the era of the free market, especially for students who are the young generation hopes the nation will cover the economic challenges of the future [1].

Digital literacy which we also often called ICT literacy is defined as a bridge between information and technology capabilities [1]. Smith then presented the concept in a simple model, as shown in the following chart



**Figure 1.** Digital Literacy atau ICT Literacy: a bridge between[1]

From the previous picture, it is known that in the Smith model namely ICT literacy of integrating computer components into technical components literacy and Internet literacy incorporation of components into the components of information literacy. By mergering, ICT Literacy (technical literacy and information literacy) is a precondition that acts as a bridge must be fulfilled for the realization of information literacy and communication literacy (ICT Literacy).

The indicators of computer literacy are related to knowledge of theory and practice in: 1) Basics of Computer / Network Used; 2) Word Processing I; 3) Word Processing II; 4) Basics of Worksheets (= Spreadsheets); and 5) integration of various IT applications.

Internet literacy itself has many meanings, and among them is interpreted Doyle as the ability to use theoretical and practical knowledge in relation to the internet as a medium of communication and information management [2].

Internet literacy is the ability to carry out communication activities, search for information and use the medium of the internet to meet the needs that are possible to occur only when someone has computer literacy [3]. In accordance with the era, the growth of e-literacy in each generation will be different. Each country consists of people with different levels of e-literacy. To overcome these problems, there are three stages of strategy as an effective approach to accelerate improvement, namely: 1. Creating context (demand creation); 2. Involving technology (supply technology); 3. Change behavior.

The ability of e-literacy in each individual will have a different pattern based on the life and maturity needs of the community. (Ministry of Communication and Information RI, 2006). According

to the Personal Capability Maturity Model (P-CMM), a person's e-literacy level can be described as follows:

Level 0, if an individual does not know at all and does not care about the important of information and technology for everyday life.

Level 1, if an individual has had one or two experiences which information is an important component. It is to achieve desires and solve problems and has involved information or communication technology to look for them.

Level 2, if an individual has repeatedly used information and communication technology to assist his daily activities and has a repetition pattern in its use.

Level 3, if an individual has a standard of mastery and understanding of information or technology that is needed and consistently uses the standard as a reference for carrying out daily activities.

Level 4, if an individual has been able to significantly improve the performance of his daily activities through the use of information and technology.

Level 5, if an individual has considered information and technology as an inseparable part of daily activities and directly or indirectly has various the behaviour and culture of his life (part of information society) [3].

The indicators of internet literacy will refer to one's independence in terms of using theoretical and practical knowledge concerning: 1) search engines, 2) web site addresses; 3) access to information; 4) browser; 5) Understanding and knowing the existence of various e-mail service providers; 6) making email / blog; and 7) becoming initiators of discussions through blogs or social networking sites related to the internet as a medium of communication and information management [3].

However, based on [4], entrepreneurial behavior is a visible action or oral statement regarding to entrepreneurial behavior which can be measured by the scale of entrepreneurial behavior based on the indicators: 1) entrepreneurial decisions, 2) concrete actions that have run the business, and 3) statements existing business development plan. According to [5], there are five important stages of an entrepreneurial behavior, namely: a) decide (decision), b) start, c) build a business, d) promote, e) realize and operate what will be sold or offered to consumers.

Further analysis of entrepreneurial behavior is based on the theory of Fishbein and Ajzen, namely the Theory of Planned Behavior. At first Fishbein and Ajzen named his theory is as the Rational Theory of Action, but in its development they named their theory is as a planned theory of behavior (Theory of Planned Behavior). This theory states that decisions to display certain behaviors are the result of rational processes directed at a specific goal and follow the sequences of thinking [6].

Based on the description stated previously, the understanding and indicators of entrepreneurial behavior used in this study refer to the opinion of [4] which states that entrepreneurial behavior is an action that appears or an oral statement regarding entrepreneurial behavior, with indicators: 1) entrepreneurial decisions, 2) concrete actions that have run the business, and 3) existing business development plan statements.

Explain definitions and elements that limit intentions, while the definition of intention is simply interpreted as a person's intention to perform certain behaviors [7]. Intention is a predisposition that is specific in nature and leads to the realization of specific behaviors as well. Four elements that limit the specificity of the intention, namely: 1) behavior is specific (special) behavior that will be manifested later, 2) target object is the target to be addressed by the behavior. This element can be divided into: *particular object* (for example name); *a class of object* (eg position or position; and *any object* is people in general), 3) situation is in situations where the behavior is manifested, 4) time is about when a behavior will be realized. This time is divided into: predetermined time periods and unlimited time periods.

According to Fishbein and Ajzen's theoretical concept of intention formation, initially there are two main factors or two intervening variables that determine behavioral intention that are personal or attitudinal factors and social or normative factors, namely:

- 1) Intention is a function of attitudes towards the manifestation of behavior in certain situations.
- 2) Intention is a function of norms that influence a person's behavior and motivation to comply with these norms [7].

Particularly, the theory is almost the same, but they add the element of perceived behavior control (one's belief in the degree to which the level of difficulty or ease in realizing certain behaviors) in their new theory. That the concept of perceived behavior control is very similar to the concept of self-efficacy from Bandura which refers to the extent to which individuals have beliefs that they have the skills (abilities) and opportunities needed to display an action [7].

In their study also described the definition and indicators of entrepreneurial intentions. According to Ramayah and Harun, entrepreneurial intentions are the tendency of individuals to take entrepreneurial actions and measured by scale of entrepreneurial intention with indicators: a) Choose a business path rather than work for others, b) Choose a career as an entrepreneur, c) Make a plan to start a business, d) Improve social status as an entrepreneur, e) Get better income [8].

From several definitions of intention and entrepreneurial intentions that have been stated previously, the understanding and indicators of entrepreneurial intentions used in this study are referring to the opinions of Ramayah and Harun. It is stated that entrepreneurial intentions are a tendency of desire individuals to carry out entrepreneurial actions, with indicators: a) Choose a business path rather than work for others, b) Choose a career as an entrepreneur, c) Make a plan to start a business, d) Improve social status as an entrepreneur, e) Want to get better income by entrepreneurship [8].

Studies on digital literacy, behavior and entrepreneurial intentions have been carried out by several previous researchers. However, this finding is interesting to be re-examined in Kab. Jember, considering the characteristics of each different region. Jember, which is known for its various regional potential, is in dire need of creativity and innovation for the superior young generation who are ready to become entrepreneurs. The development of digital literacy (computer literacy and internet literacy) and the character of entrepreneurship will greatly help the progress of economic development in the City of Jember both from the tourism sector or other leading commodities [9].

The difference in this research with previous research, namely in the previous research only examined entrepreneurial intentions and their influence factors on students and only analyzed based on the theory of planned behavior. Whereas in this study, using structural equation model analysis (SEM) and based on the phenomenon of information technology developments that have an impact on the development of E-Business and E-Commerce researchers examine more deeply the influence of digital literacy (computer literacy and internet literacy) on entrepreneurial behavior students through entrepreneurial intentions as an intervening variable.

The results of this study are also very important for higher education institutions in Jember, especially for Entrepreneurship Lecturers in terms of developing entrepreneurial learning. It is able to increase the student's intention to become an entrepreneur through an approach that influences the students' intention to become entrepreneurs and in the end can create entrepreneurial behavior. Hopefully, printing scholars who are ready to enter into entrepreneurship will become a reality. Thus, Universities in Jember can participate in helping the government in terms of efforts to increase the number of entrepreneurs and reduce educated unemployment, especially in Jember Regency.

Based on the previous elaboration, researchers are encouraged to examine in-depth study under the following problems:

1. What is the influence of computer literacy on entrepreneurial intentions of Study Program students in the District of Economic Education. Jember?
2. What is the influence of computer literacy on entrepreneurial behavior in study programs at the Kab. Jember?
3. What is the influence of internet literacy on the entrepreneurial intentions of students in the District Education Economics Study Program. Jember?
4. What is the influence of internet literacy on the entrepreneurial behavior of students in the Economic Education Study Program in West Java?
5. What is the influence of entrepreneurial intentions on entrepreneurial behavior of students in the District Education Economics Study Program. Jember?
6. How does the influence of entrepreneurial intentions mediate computer literacy on entrepreneurial behavior of students in the District Education Economics Study Program. Jember?

7. How does the influence of entrepreneurial intentions mediate internet literacy on the entrepreneurial behavior of students in the District Education Economics Study Program. Jember?

Hopefully, the world of education in general and higher education in particular can play an active role in contributing to entrepreneurship both from the cognitive, affective and psychomotor aspects for students, so that students have entrepreneurial behavior.

## 2. Methods

This study aimed to examine empirically the causal relationship (causality) between several variables, namely digital literacy (computer literacy and internet literacy) on entrepreneurial behavior and entrepreneurial intentions. This study is explanatory research, which is a study to find and explain causal relationships between those variables. In this study is used by distributing questionnaires to be able to obtain information, to answer the problems formulated, objectives to be achieved, and hypotheses to be tested based on quantitative data obtained from measurement data.

The approach used in this study is a quantitative approach. Data analysis used were Structural Equation Modeling (SEM) analysis to analyze the influence of computer literacy and internet literacy on entrepreneurial behavior and entrepreneurial intention in students. The population in this study were students of the Economic Education Study Program at Jember Regency who had taken entrepreneurship courses in 2018 with a sample of 140 students. Data collection techniques used in this study were questionnaires, interviews, and documentation.

## 3. Results and Discussion

Hypothesis testing is conducted by looking at the value of the critical ratio (CR) generated from the loading calculation of each relationship between constructs contained in the research model for each coefficient. The estimated values for standardized regression weights are used to determine the direction and strength of the relationship, if the influence is hypothesized proved significant. A construct can be said to have a significant influence on other constructs, if the critical ratio value > 1.96 (With a significance level of 5.0%).

**Table 1.** Summary of Hypothesis Testing Results

Hypothesis	Relationship inter Construct			Estimation	C.R.	P	Evidences
H1	X1	→	Z	-0.184	-2.128	0.033	Significant
H2	X1	→	Y	0.087	0.769	0.442	Not significant
H3	X2	→	Z	0.484	3.356	***	Significant
H4	X2	→	Y	0.197	1.030	0.303	Not significant
H5	Z	→	Y	1.189	4.608	***	Significant

Source: data processed

Table 1 shows the results of testing the structural model hypothesis, which is explained as follows:

1. There is a negative influence of computer literacy on the entrepreneurial intentions of students in the District of Economic Education Study Program. It can be seen from the path coefficient marked negative at -0.184 with the value of C.R. amounting to -2.128 and the probability (p)

of 0.033 is obtained which is smaller than the level ( $\alpha$ ) determined at 0.05. There is a negative influence of computer literacy on entrepreneurial intentions of students in the District of Economic Education Study Program. Thus, the first hypothesis which reads: "It is suspected that computer literacy has a significant effect on the entrepreneurial intention of students of the District Economic Education Study Program" is proven.

2. There is no influence of computer literacy on the entrepreneurial behavior of students in the District Economic Education Study Program. It can be seen from the positive path coefficient of 0.087 with the value of C.R. equal to 0.769 and the probability (p) of 0.442 is obtained which is greater than the level ( $\alpha$ ) which is determined as 0.05. Thus there is no influence of computer literacy on the entrepreneurial behavior of students in the District Economic Education Study Program. So the Second Hypothesis which reads: "It is suspected that computer literacy has a significant effect on the entrepreneurial behavior of students at the District of Economic Education Program" is not proven.
3. There is a positive influence on internet literacy on the entrepreneurial intentions of students in the District of Economic Education Study Program. It can be seen from the path coefficient marked positive at 0.484 with a value of C.R. amounting to 3,356 and the probability (p) of 0,000 is smaller than the level ( $\alpha$ ) which is determined as 0.05. There is a positive influence on internet literacy on the entrepreneurial intentions of students in the District Economic Education Study Program. Therefore, the third hypothesis which reads: "It is suspected that internet literacy has a significant effect on the entrepreneurial intentions of students of the District Economic Education Study Program" is proven.
4. There is no influence of internet literacy on the entrepreneurial behavior students in the District of Economic Education Study Program. This can be seen from the path coefficient which is positive at 0.197 with the value of C.R. equal to 1.030 and the probability (p) of 0.303 is obtained which is greater than the level ( $\alpha$ ) which is determined as 0.05. There is no effect of internet literacy on the entrepreneurial behavior of students in the District Economic Education Study Program. Accordingly the Fourth Hypothesis which reads: "It is suspected that internet literacy has a significant effect on the entrepreneurial behavior of students of the District Economic Education Study Program" is not proven.
5. There is a positive influence on entrepreneurial intentions on entrepreneurial behavior students in the District of Economic Education Study Program. This can be seen from the path coefficients that are positive at 1,189 with the value of C.R. amounting to 4,608 and the probability (p) of 0,000 is smaller than the level decided which is determined as 0.05. Thus there is a positive influence on entrepreneurial intentions on entrepreneurial behavior of students in the District of Economic Education Study Program. Hence, the fifth hypothesis which reads: "Allegedly the intention of entrepreneurship has a significant effect on the entrepreneurial behavior of students of the District Economic Education Study Program" is proven.

The test results of the indirect effect hypothesis proposed in this study are briefly shown in Table 2.

**Table 2.** The Hypothesis Result of Indirect Effect

<b>Indirect Effects (Group number 1 - Default model)</b>				
	<b>X2</b>	<b>X1</b>	<b>Z</b>	<b>Y</b>
Z	.000	.000	.000	.000
Y	.575	-.219	.000	.000

Source: Results of data processing using AMOS 21.00, 2018

Based on the table previously, it shows the magnitude of the indirect effect coefficients and the results of testing the indirect effect hypothesis (indirect influence) can also be mediation tests, which can be seen from the calculation of the sobel test.

1. Sobel Test for the analysis of entrepreneurial intentions is mediating computer literacy on entrepreneurial behavior of students at the District of Education Economics Study Program

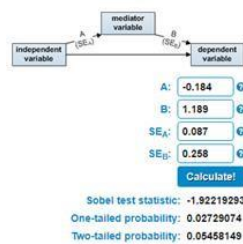
$$Z = \frac{ab}{\sqrt{(b^2 SE_a^2) + (a^2 SE_b^2)}} = -1.922 \quad (1)$$

Strengthened by the sobel test application

#### Sobel Test Calculator for the Significance of Mediation

This calculator uses the Sobel test to tell you whether a mediator variable significantly carries the influence of an independent variable to a dependent variable, i.e., whether the indirect effect of the independent variable on the dependent variable through the mediator variable is significant. This calculator returns the Sobel test statistic, and both one-tailed and two-tailed probability values.

Please enter the necessary parameter values, and then click 'Calculate'.



The interface includes a path diagram with three boxes: 'independent variable' (A), 'mediator variable' (B), and 'dependent variable' (Y). Arrows point from A to B and from A to Y. The path from A to B is labeled 'a' and the path from B to Y is labeled 'b'. Below the diagram are input fields for A, B, SE<sub>A</sub>, and SE<sub>B</sub>. The calculated results are displayed at the bottom.

Parameter	Value
A:	-0.184
B:	1.189
SE <sub>A</sub> :	0.087
SE <sub>B</sub> :	0.258
Sobel test statistic:	-1.92219293
One-tailed probability:	0.02729074
Two-tailed probability:	0.05458149

Computer literacy (X1) has an indirect effect on entrepreneurial behavior (Y) through Entrepreneurial Intention (Z). This can be seen from the path coefficients of the indirect influence that are negative at -0.219 with a sobel test value of -1.922 significance value (p) of 0.027 smaller than 0.05. As a result, the 6th Hypothesis which reads: "It is suspected that the intention of entrepreneurship to mediate computer literacy on the entrepreneurial behavior of students at the District Economic Education Study Program" is proven.

- 2 The Sobel Test for the analysis of entrepreneurial intentions mediates internet literacy on the entrepreneurial behavior of students in the District of Economic Education Study Program

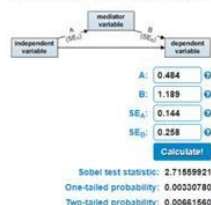
$$Z = \frac{ab}{\sqrt{(b^2 SE_a^2) + (a^2 SE_b^2)}} = 2.715 \quad (2)$$

Strengthened by the sobel test application

#### Sobel Test Calculator for the Significance of Mediation

This calculator uses the Sobel test to tell you whether a mediator variable significantly carries the influence of an independent variable to a dependent variable, i.e., whether the indirect effect of the independent variable on the dependent variable through the mediator variable is significant. This calculator returns the Sobel test statistic, and both one-tailed and two-tailed probability values.

Please enter the necessary parameter values, and then click 'Calculate'.



The interface includes a path diagram with three boxes: 'independent variable' (A), 'mediator variable' (B), and 'dependent variable' (Y). Arrows point from A to B and from A to Y. The path from A to B is labeled 'a' and the path from B to Y is labeled 'b'. Below the diagram are input fields for A, B, SE<sub>A</sub>, and SE<sub>B</sub>. The calculated results are displayed at the bottom.

Parameter	Value
A:	0.484
B:	1.189
SE <sub>A</sub> :	0.144
SE <sub>B</sub> :	0.258
Sobel test statistic:	2.71559921
One-tailed probability:	0.00307780
Two-tailed probability:	0.00615560

Internet literacy (X2) has an indirect effect on entrepreneurial behavior (Y) through Entrepreneurial Intention (Z). This can be seen from the path coefficient of the positive indirect effect of 0.575 with the sobel test value of 2.715 significance value (p) of 0.0066 smaller than 0.05. Subsequently the 7th Hypothesis which reads: "It is suspected that the intention of entrepreneurship to mediate internet literacy on the entrepreneurial behavior of students at the District of Economic Education Program" is proven.

Based on the findings and discussion, it was found that there was an ineffectiveness between digital literacy and direct student entrepreneurship behavior. The results of interviews between students and



the Entrepreneurship Lecturer were obtained information that teaching and learning activities consist of only about 30% practice and 70% theory of learning. Too large a proportion of the discussion of the theory compared to practice is possible to be one of the supporting factors for this ineffectiveness.

#### 4. Conclusions

Based on the results of the study, it was found that the digital literacy of students in economic education study programs in Jember Regency was still limited to influencing the intention of entrepreneurship, especially it is not yet to entrepreneurial behavior. While the intention of entrepreneurship is proven to mediate digital literacy towards entrepreneurial behavior. Therefore, the researcher recommends that learning is more effective and can be more meaningful for students, preferably focused on practical approaches not only theoretical. Based on the results of the interview, the proportion of practical learning activities is only around 30% and the theory is 70% of learning. These conditions should be reversed, namely 30% theory and practice changed to 70%, especially the practice of entrepreneurship with digital media, for example e-commerce, including the practice of marketing strategies in the marketplace, marketspace, social media, e-mail, and others.

#### Acknowledgment

We would like to say thank for everyone who helped the research.

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