



The Influence of Generative-Based Online Training Models on the Digital Capabilities of Businesses

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ABSTRACT

This research aims to test the effect of a generative-based online training model on the digital capabilities of MSME players. This research uses quantitative research methods where there are two groups, namely experimental and control, with 20 participants each. Before and after being given treatment, participants were tested using a 25-question multiple choice test. The analysis test uses the normality test and the paired sample t test. The results showed significance for both the experimental group and the control group with a score of <0.05 . This shows that there is a positive influence between the generative-based online training model and increasing digital capabilities for MSME players

Keywords: *digital capabilities, generative models, online training*

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INTRODUCTION

The development of digital technology is driving disruption which has an impact on the sustainability of Micro, Small and Medium Enterprises (MSMEs). If MSMEs are unable to adapt to technological developments, they will gradually experience setbacks due to increasingly tight business competition (Sechopoulos dkk., 2021; Shmatko dkk., 2022; Wollny dkk., 2021). Digitalization of MSMEs is an alternative solution for developing a business climate that is able to compete with business actors both on a global and national scale. Several developed countries have implemented digitalization of MSMEs in the last few decades through government policies that encourage the formation of a sustainable business climate. (Hervé dkk., 2020).

Digitalization of MSMEs needs to be implemented starting from micro businesses which incidentally have limited resources to medium businesses which have quite complete resources. However, problem after problem arises during the process of implementing digitalization for MSMEs in the field (Darwish dkk., 2020; Sircar dkk., 2021; X. G. Zhang dkk., 2020). One of the contributing factors is the low competence of business actors, so that the MSME digitalization program does not have a positive impact, on the contrary. On the other hand, a phenomenon that occurs in developing countries is the low level of knowledge and competence possessed by MSME actors (Idah & Pinilih, 2019). So that business continuity does not run optimally, it even tends to slow down. This condition can be overcome by the existence of programs that can encourage increased knowledge and abilities of entrepreneurs in using digital for entrepreneurship.

Literatur Review

There are five digital competency areas that need to be mastered by MSME players. The five competencies include, Information and Data Literacy Competency, Communication and Collaboration Competency, Competency in Creating Digital Content, Cyber Security Competency, and Ability in problem solving. These competencies need to be mastered to digitize MSMEs (Ohm dkk., 2021; Santos & Martinho, 2019; H. Zhang dkk., 2021). For example, starting the production process using the latest technology which is cheap and environmentally friendly, the promotion process uses cheap social media. As well as the process of creating content to make it look more attractive.

The generative-based online training model is an adaptation of the generative learning model. The generative learning model is a functional model built based on knowledge about mind processing and cognitive theory (Wittrock, 1992). The study of generative learning models focuses on how knowledge is built by optimizing human thought processes (Kamble dkk., 2020; Rodríguez-Esparza dkk., 2020; Tat dkk., 2021). In the generative training model, meaningfulness in learning is also emphasized, but there are different perspectives in building meaningfulness in learning. Generative learning theory views that meaningful learning can be achieved if information can be stored in long-term memory. So that the training activities carried out involve more active training participants in the training process.

The generative learning model was first introduced by Wittrock in 1974 (Grabowski, 2004). Wittrock tries to apply a generative learning model to optimize a person's thinking process. Optimizing the human thought process is carried out by connecting the concepts being studied with various previous knowledge and experiences. Initially, (Wittrock, 1974) assess training participants' understanding of material by conducting a review or study and then making a summary in text form of the books they have read (Jain dkk., 2020; Wang dkk., 2020; Xie dkk., 2020). The results of this research concluded that a learning design that prioritizes human thought

processes through knowledge transfer is more meaningful if it is just memorizing information.

Meaningfulness in the training process is one of the keys to success in producing training participant outcomes (Lim dkk., 2020; Pham dkk., 2020; Redelinguys dkk., 2020). Meaningfulness will produce training participants who not only have the ability to remember information in the training process but are also able to implement it in every problem in running a business. Applying the right training model can produce outcomes that are suited to the current conditions of development.

(Fiorella & Mayer, 2015) examines eight ways that can be used to apply generative learning theory to the training process. The eight ways are learning by summarizing, learning by mapping, learning by drawing, learning by imagining, learning by self-testing, learning by self-explaining, learning by teaching, and learning by enacting.

(Fiorella & Mayer, 2015) explain each of these methods further as follows. learning by summarizing is a way of learning that is done by making graphic summaries using Canva as the medium. learning by mapping is a way of learning that allows training participants to transform information into concept maps or knowledge maps. learning by drawing occurs when training participants are asked to create an image design that illustrates the content of information that has been provided by the instructor. Learning by imagining is a way of learning that requires training participants to form an image of what has been obtained in the training process. learning by self-testing is a method where training participants are asked to answer several questions related to information they have learned previously, learning by self-explaining is a generative learning method when it allows training participants to explain again in their own language the information they have learned, this method requires communication skills to convey ideas orally. learning by teaching is a way in which trainees teach previously learned knowledge to other trainees, this method provides motivation to trainees to make other trainees understand certain concepts. learning by acting is a method used by training participants by using their body movements to help understand a concept.

RESEARCH METHODOLOGY

This research method uses experimental research methods. Where there are two classes, each class contains 20 training participants (Chatterjee & Nandi, 2021; Meng dkk., 2020; Saroia dkk., 2020). One class is used as a control class and the other class is used as an experimental class. The control class uses a conventional online training model, namely lectures and using tutorials. Meanwhile, the experimental class uses a generative-based online training model. Before and after being given treatment, both classes will be given a test to measure the abilities of each participant (Cresswell, 2014). The research was conducted at the East Java Province Cooperative and SME Training UPT with MSME digitalization training material.

Each class will have a pre-test and post-test to measure a person's digital abilities. The test uses objective questions with 25 questions for each class (Chawla dkk., 2020; Moyne dkk., 2020; Wei dkk., 2020). This question tests a person's level of digital ability, and the results will be assessed based on the training participant's level of ability.

Data analysis uses hypothesis testing to determine the effect of generative-based online training models on a person's digital abilities (Gehrmann & Gunnarsson, 2020; Muzammal dkk., 2020; Xia dkk., 2021). Before carrying out the sample paired test, a data normality test is first carried out to ensure that the distribution of the data used is normal. Then the results of the hypothesis test are described to obtain a conclusion.

RESULT AND DISCUSSION

Research was conducted to test the effect of a generative-based online training model on a person's digital abilities by involving 2 groups, namely the control group and the experimental group. Each group consisted of 20 participants. The research was conducted at the Cooperative and UKM Training UPT, East Java Province. Both the experimental group and the control group attended training 4 times with material on digitalizing MSMEs. Before and after the training, tests are given to measure the skill level of the training participants.

Table 1. Digital Skills Competency Score Gain Data for the Experimental Group

| | | |
|-------------------|--------------------|--------------|
| Experiment | Average | 48.27 |
| | Standard Deviation | 23.20 |
| | Variant | 538.39 |
| Control | Average | 32.96 |
| | Standard Deviation | 8.35 |
| | Variant | 69.76 |

Based on the values in the table, there was an average value for the experimental group of 48.27 and the control group of 32.96.

Before the hypothesis test is carried out, it is necessary to conduct a normality test to determine the distribution of data to be analyzed normally or not. The results of the data normality test can be seen in the table below.

Table 2. Experimental and Control Group Normality Test Data

| | | |
|-------|---------------------------------|--------------|
| Kelas | Kolmogorov-Smirnov ^a | Shapiro-Wilk |
|-------|---------------------------------|--------------|

| | Statistic | df | Sig. | Statistic | df | Sig. |
|------------|-----------|----|-------|-----------|----|------|
| Eksperimen | .130 | 20 | .200* | .916 | 20 | .083 |
| Kontrol | .128 | 20 | .200* | .941 | 20 | .250 |

Based on the results of the data normality test that can be seen in the table above. The significance result for the experimental group was 0.083. This shows that the experimental group data is normal because the value is greater than 0.05. While the normality test results of the control group obtained a significance result of 0.250. This indicates that the control group data is normally distributed because the value is more than 0.05.

After the normality test was carried out, and the data was spread normally, the paired sample T test was then carried out. The paired sample T test results can be seen in the following table.

Table 3. Test Results Paired sample T Test

| | Paired Differences | t | df | Sig. (2-tailed) |
|---------------------|---|---------|----|-----------------|
| | 95% Confidence Interval of the Difference | | | |
| | Upper | | | |
| Kelompok Eksperimen | -18.82267 | -8.684 | 19 | .000 |
| Kelompok Kontrol | -16.26709 | -16.381 | 19 | .000 |

The paired sample T test results obtained a significance value (2 tailed) for the experimental group <0.05 . This proves that H_0 is rejected and H_a is accepted. The paired sample T test results also showed a significance value (2 tailed) for the control group <0.05 . Thus proving that H_0 was rejected and H_a was accepted.

Based on the results of analysis tests ranging from normality tests to hypothesis tests, significant values were obtained and there was a difference between the average change in pre-test and post-test between the experimental group and the control group. This difference shows a significant influence of the generative-based online training

model on improving the digital competence of trainees (Awad dkk., 2020; Christensen dkk., 2022; Dolgui & Ivanov, 2022). When compared to conventional classes, the experimental class showed significant changes in the average increase in pre-test and post-test.

CONCLUSION

This research was conducted using experimental research. Where there are two groups, namely the experimental group and the control group. Each group consists of 20 trainees. Each group followed a pre-test, treatment, and post-test process. The experimental group used a generative-based online training model, while the control group used a conventional online training model. Data was obtained from the pre and post test results of trainees.

Pre and post test data of trainees were collected and normality tests were carried out first. The results of the normality test show that the distribution of data obtained is normal so that a hypothesis analysis test can be carried out using the paired sample T test. Based on the results of the hypothesis test, significance results were obtained for the experimental group smaller than 0.05, and the control group smaller than 0.05. While the average n gain score for the experimental group was 48.27 and the control group was 32.96. These results prove that the treatment of the experimental group has a significant impact on the results, namely a person's digital ability.

The suggestion for the next research is to examine more deeply the aspects contained in the generative-based online training model with the dominant digital capability aspect. Thus it will be clearer about the most prominent causation of this study.

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