Student Memory Capability for Practical Courses on Post-Covid Era

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Abstract. Technology developments in the industrial era 4.0 are closely related to education. Online learning has been widely applied in education, not only during the COVID-19 pandemic but used during the industrial era 4.0. Technology that is used in online learning, such us a digital application, digital media, online communication and etc. Online learning applied in post covid era has affected many aspects, including student memory. The purpose of this study is to determine the effect of online learning on students' memory in receiving skill material. The type of research used is descriptive quantitative. The subjects in this study were students of Fashion Design, State University of Surabaya, batch 2021. The data collection method used is a questionnaire method with data collection instruments in the form of questionnaires using Google Forms. The results of the study greatly affect the learning of student memory in receiving practical courses. It was proven by the results of students using more sensory memory in learning. It was proven by the highest score in the point of being able to remember, with an average percentage of 41.67%.

Keywords: student memory, practical courses, online learning.

1 Introduction

Activity in learning was very important for students to achieve a good results in class. Every student must have the capability in industrial revolution 4.0 and post covid era. Students must have knowledge and skill at a sufficient level to help their skills, and they also need expertise in communication methods and human development against Industrial Revolution 4.0. All students not only compete with this era, but we must make peace with post covid era. The coronavirus disease 2019 (COVID-19) pandemic has changed the landscape of higher education. Related to the research of Singh, It is safe to assume that the COVID-19 pandemic has changed the face of higher education. Both traditional and online medium of instruction has their pros and cons. Many universities and academic institutions have adopted hybrid or blended mediums of instruction [1].

Students must have a strategy to compete with this situation because the capability of learning every student doesn't have the same with each other. Situation industrial revolution 4.0 and post covid era was needed with good condition. Herman says (Purba, 2021) that The Industrial

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Revolution 4.0 is an era of digital industry where all parts of it collaborate and communicate in real-time anywhere at any time with the use of IT (information technology) in the form of the internet and CPS, IoT and IoS to produce innovations new or other optimizations that are more effective and efficient [2].

All students in the world use technology in any situation of course in education, learning not only in the class but everywhere we can join with their class from home, office, other places and etc. We should be adapted to the situation and compete with the industrial revolution 4.0 and post covid era. Opinion Nasution in their research, There are many challenges of education in higher education; the reason is that educational institutions are not ready for the transition from face-to-face learning to online learning. The biggest challenge is the use of technology in the teaching and learning process and evaluation, not to mention the uneven quality of the internet network throughout the region [3].

Besides the impact of technology and situations, student memory capability also needs to be considered. Online learning affects students' memory in receiving material, especially in practical courses. Memory is one of the characteristics that is useful in learning. It does not only include recall (remember) and recognition (recognize) or what is called recalling memory. Mayer's statement (Jalaluddin, 2021) describes that meaningful learning is important in learning, a learning process that results in students' ability to transfer the knowledge obtained. The students can use the capability to solve new problems [4].

In the post covid era, the students not only learned face-to-face but collaboration the blended learning, such as online learning and offline learning. The student needed meaningful learning with a good memory. Good memory is receiving material on practical courses in which memory does not only include recall (remember) and recognition (recognize) or what is called recalling memory.

1.1 Student Memory Capability

The students can remember an experience that has happened or knowledge that has been learned in the past with memory. Drever (Walgito, 2004) explains that memory is one of the characteristics possessed by living things, what useful experiences we forget which affect future behavior and experiences, which memory does not only include recall and recognition) or what is known as recalling memories [5]. Memory (memory) refers to the ability of individuals to have and retrieve information and also the structure that supports it and is a form of competence. Memory also allows individuals to have self-identity [6]. There are 3 types of memory that students must have, sensory memory, working memory and long-term memory [7].

Sensory memory (sensory memory) is a system for remembering stimuli quickly so that perceptual analysis can take place. Here the process lasts for 3-5 seconds, with input mainly from sight and sound. Working memory is a short-term memory, short-term memory (STM), capable of storing 5-9 pieces of information in about 15-20 seconds, so there is enough time for information processing. In this case, the information that is coded (decoded), as well as the perception of each individual, will determine what is stored in working memory, and Long-term memory (LTM) functions to store very large information for a long time, the information stored in it can be in verbal or visual.

1.2 Online Learning on Post Covid Era

Online learning is learning that is out of class with digital media that is used to solve on post covid era. The learning can be used online applications such as google classroom, google meet, zoom and etc., so the learning is easy to reach didn‘t learn face-to-face. Mustofa, et al. explain in their research about online learning it’s in a simple way in a digital application using the internet, namely one of the online learning methods carried out through the internet network [8].

Characteristics of online learning are different from other learning besides that learning does not face-to-face, but learning must have special treatment. According to Rusma (Herayanti, Fuadnnazmi, & Habibi. 2017), the characteristics of e-learning are digital learning, including interactivity, accessibility, independence, and enrichment [9]. Online learning can save time in the teaching and learning process, save the cost of education, both books, equipment, and infrastructure, and learning can be more independent in studying. But online learning certainly has disadvantages. In this learning, there are instructions such as how to use that must be learned. Assignment collection may not be properly conditioned due to the absence of direct supervision or face-to-face execution of tasks, directly. But online learning has many applications to use.

There are several applications that can be used for online learning. Google Classroom is an application that provides interesting features such as uploading learning materials etc. This application is often used for online learning media. Google meet is an application owned by Google that functions as a meeting room for online learning. Zoom is one of the online learning media. This application is commonly used for meeting rooms during lessons.

2 Methods

The method used in this research is descriptive quantitative research. According to Sugiyono (2018), descriptive research is research conducted to determine the value of independent variables, either one or more (independent) variables, without making comparisons or connecting with other variables, research of data in the form of numbers that will be measured using statistics as a calculation test tool, related to the problem being studied to produce a conclusion [10]. The time of research starts on April 2022. The subjects of this study were students of the Fashion Education Department, Faculty of Engineering, Universitas Negeri Surabaya. The data was collected by questionnaire sheet via a google form. Students have been taking practical courses such as pattern making, sewing, and custom-made.

3 Results and Discussion

3.1 Results

The Results of the research from filling out questionnaires respondents are as follows: Based on sensory memory 1 of the time students need to remember the red and blue colors in the application of pattern-making signs during online learning, the percentage of 50 % respondents were very able to remember and understand, the percentage of 25% respondents can remember and understand, the percentage of 20% respondents can remember and understand with enough, the percentage of 5% respondents cannot remember and understand, according to Figure 1.

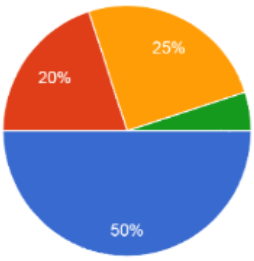

Fig. 1. Sensory memory of remember red and blue sign in pattern making.

Based on sensory memory 2, The time that it takes students to remember the grainline of the fashion pattern making during online learning, the percentage of 30% of respondents were very able to remember and apply, the percentage of 40% can remember and apply, the percentage of 30% can remember and apply with enough, according to Figure 2.

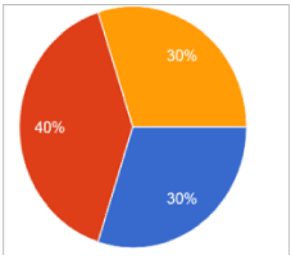

Fig. 2. Sensory memory of remember grainline in pattern making.

Based on sensory memory 3, the time was needed for students to remember and apply the CF (center front) and CB (center back) signs in the analysis of pattern making during online learning, the percentage of 45% of respondents were very able to remember and apply, the percentage of 30% respondents can remember and apply, the percentage of 25% respondents can remember and apply with enough according to Figure 3.

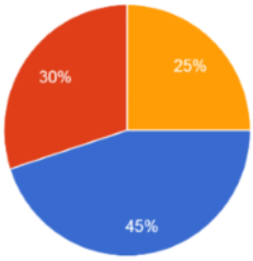

Fig. 3. Sensory memory of remember and apply the CF and CB signs in pattern making.

Based on working memory 1, the time was needed for students to remember parts of the basic pattern making when online learning, the percentage of 15% of respondents were very able to remember, the percentage of 35% of respondents could remember, the percentage of 40% of respondents could remember with enough, according to Figure 4.

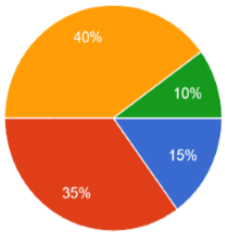

Fig. 4. Working memory remember parts of the basic pattern making

Based on working memory 2, the time was needed for students to remember and apply dart manipulation in online learning, a percentage of 5% of respondents were very able to remember and apply, a percentage of 45% of respondents could remember and apply, a percentage of 35% respondents remember and apply with enough, the percentage of 15% respondents cannot remember and apply, according to Figure 5.

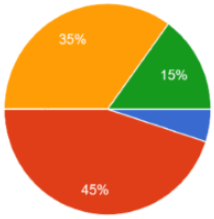

Fig. 5. Working memory remember and apply dart manipulation

Based on working memory, the time was needed for students to remember clothing of the basic pattern making when online learning, the percentage of 10% of respondents were very able to remember, the percentage of 25% of respondents could remember, the percentage of 55% of respondents could remember with enough, the percentage of 10% respondents cannot remember and apply, according to Figure 6.

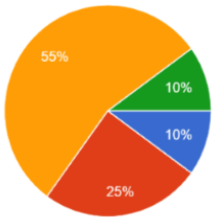

Fig. 6. Working memory remember parts of clothing

Based on long-term memory 1, the time was needed for students to remember the porrie basic pattern making when online learning, the percentage of 5% of respondents were very able to remember, the percentage of 35% of respondents could remember, the percentage of 45% of respondents could remember with enough, the percentage of 15% respondents cannot remember and apply, according to Figure 7.

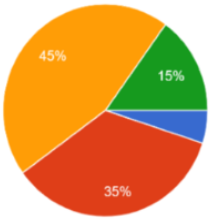

Fig. 7. long-term memory remember parts of clothing the Porrie basic pattern formula

Based on long-term memory 2, the time was needed for students to understand the formula for pattern making a pleated skirt in pattern making when online learning, the percentage of 30% of respondents could remember and apply, the percentage of 55% of respondents could remember and apply with enough, the percentage of 15% respondents cannot remember and apply, according to Figure 8.

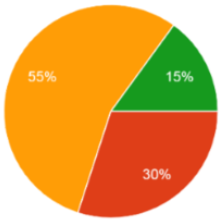

Fig. 8. long-term memory remember formula for making a pleated skirt

Based on long-term memory 2, the time was needed for students to remember the methods of a basic pattern when online learning, the percentage of 35% of respondents can remember and apply, the percentage of 50% of respondents can remember and apply with enough, the percentage of 15% respondents cannot remember and apply, according to Figure 9.

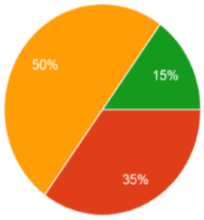

Fig. 9. long-term memory remember

Based on long-term memory 3, the time was needed for students to remember the standard size of pattern making, the percentage of 15% of respondents were very able to remember, the percentage of 30% of respondents could remember, the percentage of 40% of respondents could remember and apply with enough, the percentage of 15% respondents cannot remember and apply, according to Figure 10.

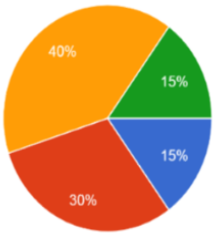

Fig. 10. long-term memory to remember standard size of clothing

3.1 Discussion

Based on research, student memory capability for practical courses on post covid era, a student can receive material have a high percentage of sensory memory. Students can remember the material skills, averaging 41. 67% on sensory memory. Students were enough to remember the material with the highest percentage, the percentage was 47.5% in long-term memory, and the highest in working memory was the highest average percentage, the point was 43.34 points the student can remember with enough.

Table 1. Component of memory

No.	Component/Sub-Component	Indicator	Score
1.	Sensory Memory (3-5 seconds)	The time was needed for students to remember red and blue colors signs in pattern making when online learning	4
		The time was needed for students to remember grainline in pattern making when online learning	3
		The time was needed for students to marking CF and CB in pattern making when online learning	4
		The time was needed for students to remember the basic pattern making when online learning	2
2.	Working Memory (15-20)	The time was needed for students to remember the dart manipulation in pattern making when online learning	3
		The time was needed for students to remember the parts of the pattern making when online learning	2
3.	longterm memory	The time was needed for students to remember the Porrie pattern making formula in the pattern making when online learning	2
		The time was needed for students to remember the formula for pleated skirt in the pattern making when online learning	2
		The time was needed for students to remember basic pattern methods in the pattern making when online learning	2

	The time was needed for students to remember the standard sizes of pattern making when online learning	2

From the table in above, the data obtained are:

1. Sensory memory

On point 1 remembering, having a score of 4, or in percentage of 41.67%. On point 2 remembering, having a score of 3, or in percentage of 30%, on point 3 remembering score of 2, or in percentage of 26.67%, on point 4 remembering , having a score of 1, or in percentage of 1.66%.

2. Working Memory

On point 1 remembering, having a score of 4, or in percentage 10%, on point 2 remembering, having a score of 3, or in percentage of 35%. On point 3 remembering, having a score of 2, or in percentage of 43.34%, on point 4 can't remember that having a score of 1, or in percentage of 11.66%.

3. Long-term Memory

On point 1 remembering, having a score of 4, or in percentage of 5%, on point 2 remembering, having a score of 3, or in percentage of 32.5%. On point 3 remembering, having a score of 2, or in percentage of 47.5%, and on point 4 remembering, having a score of 1, or in percentage of 15%.

4 Conclusion

The results of the research and discussion show that online learning dramatically affects students' memory. Students used sensory memory in learning. It was proven that the highest score in points was very able to remember, with an average percentage of 41.67%. Students used working memory with the highest percentage at point 3, which is enough to remember with an average percentage of 43.34%, and long-term memory with the highest percentage at point 3, which is enough to remember with a percentage of 32.2%.

Students need memory to receive learning, one of which is online learning which is now widely applied in the 4.0 revolution. So students must have competence in remembering a material skill. On the other hand, students must also be ready to receive skill material that is easy to remember and apply.

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