
STUDENTS' CRITICAL AND CREATIVE THINKING ABILITY BASED ON DIGITAL LITERACY: CASE STUDY OF ACCOUNTING STUDENTS IN BOGOR

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ABSTRACT

Digital literacy is an important issue today, especially for students. In the work environment, students are required to be fluent in technology which is the basis of digital literacy skills. The aim of the research is to find out and describe patterns of students' critical thinking and creative thinking abilities in the digital literacy-based Accounting department. The research uses a case study approach through questionnaire google form and semi-structured interviews. The data analysis technique uses thematic analysis techniques. The research results show that there are several components in the form of literature and benefits in digital literacy, as well as activities that demonstrate students' critical thinking and creative thinking skills based on their digital literacy. The conclusion of this research is that there are patterns that show that critical thinking skills and creative thinking skills are included in the 8 (eight) components of digital literacy so that these patterns are the novelty in this research. These patterns show a cause and effect relationship from having digital literacy skills.

Keyword: creative thinking, critical thinking, thinking skills, digital literacy.

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INTRODUCTION

Digital literacy is one of the skills that students must master in order to prepare themselves for the industrial revolution 4.0. The six basic literacies consist of reading and writing, science, numeracy, digital, financial, and cultural and civic literacy. Due to the rapid progress of Information and Communication Technology (ICT), digital, information and technology literacy skills are as important as other general abilities (Dinata, 2021); (Fatmawati & Safitri, 2020); (Nurchahyo, 2020); Ministry of Education and Culture, 2017).

Based on survey results in 34 provinces in Indonesia involving more than 1600 respondents, the digital literacy status of the Indonesian population in 2020 is still at medium status and still needs to be improved (Kominfo, 2020). Meanwhile, a press release issued by the Ministry of Communication and Information of the Republic of Indonesia (Kominfo) in January 2022 based on the results of a face-to-face survey in the previous year involving 10,000 respondents from 514 districts/cities indicated that there was an increase in several pillars of digital literacy but still remained at medium level (Kominfo, 2022). Another is a report from Microsoft and TRG (2021) regarding the 2021 Digital Civility Index which places Indonesia in a very bad position, namely 29th out of 32 countries. The results of these surveys show that the level of digital literacy in Indonesia can be said to be still low and needs to be improved.

The Covid-19 pandemic has had a significant impact on the learning process at Djuanda University, especially the Accounting Study Program. The most pronounced impact is the change in the learning process from face-to-face learning to online learning. This is supported by research conducted by researchers, namely that there is still a need to improve the online learning process (Ameli et al., 2020); (Dinata, 2021); (Putria et al., 2020).

The online learning process requires students to study independently. One ability that plays an important role in facilitating independent learning and determining learning success is the ability to utilize ICT. One of the determining factors for learning success is the ability to search for the information needed on digital networks/the internet (Fadila et al., 2021). Students with good digital literacy skills will strive to search/select important information as well as understand, communicate and convey ideas in the digital space. Thus, digital literacy skills will open up opportunities for students to think, communicate and create which ultimately leads to learning success ((Sujana & Rachmatin, 2019); (Elpira, 2018).

The term digital literacy is a person's ability to use computer devices to access various information in digital spaces (McDougall et al., 2018). There are 8 components of digital literacy, namely: (1) Functional skills and beyond. Is a digital literacy component related to skills in using information technology; (2) Creativity. It is a digital literacy component related to creative thinking using ICT in building knowledge; (3) Collaboration. It is a digital literacy component related to building knowledge through the process of discussion and providing mutual input in the digital space; (4) Communication. It is a component of digital literacy related to the ability to hear, understand and convey ideas; (5) The ability to find and select information; (6) Critical thinking and evaluation (critical thinking and evaluating); (7) Cultural and social understanding (understanding of social culture); and (8) E-safety (security) (Hague & Payton, 2010).

In practice, the ability to think is an ability that is very necessary in facing life's challenges, such as the ability to think critically, think creatively, and the ability to solve problems (Kalelioğlu & Gülbahar, 2014). The ability to think critically is an ability that is very necessary for a person to be able to face various problems faced in social and personal life. There are several definitions of critical thinking. Critical thinking is self-regulation in deciding something that results in interpretation, analysis, evaluation, and inference, as well as presentation using evidence, concepts, methodology, criteria, or contextual considerations on which decisions are made (Facione, 2011). Critical thinking as a complex process that requires high-level cognition in processing information (Choy & Cheah, 2009). Critical thinking is the ability to think reflectively and reasonably which is focused on what one believes or does (Ennis, 2011). Critical thinking skills include basic clarification skills, basic decision making, concluding, providing further explanations, estimating and integrating, as well as additional abilities.

The ability to think creatively is also included in digital literacy (Hague & Payton, 2010). According to (Filsaime, 2008), creative thinking is a thinking process that has the characteristics of fluency, flexibility, originality and detailing or elaboration. Fluency is the ability to express as many correct ideas or thoughts as clearly as possible. Flexibility is the ability to express many ideas or ideas that are diverse and not monotonous by looking at them from various points of view. Originality is the ability to come up with ideas or ideas that are unique and unusual, for example those that are

different from those in books or different from other people's opinions. Elaboration is the ability to explain the factors that influence and add details to an idea or idea so that it is more valuable.

These two aspects are one of the abilities that students must have in facing the era of revolution 4.0. The phenomenon that occurs among students in the Accounting Study Program at Djuanda University is that they are required to be fluent in the digital world but can analyze the material studied independently and express their opinions based on the material they have studied. Of course, this was motivated by several factors that gave rise to this phenomenon, including the existence of Covid-19 cases since the beginning of the semester which required them to carry out the online learning process for approximately 2 years (semester I to semester IV). This condition forces them to learn independently by utilizing content circulating in cyberspace so that without realizing it or intentionally, their digital literacy is honed due to certain circumstances. Of course, students' critical and creative thinking skills will be very much needed by those who will not be technologically illiterate.

Based on this phenomenon, if it is linked to the digital literacy component theory of (Hague & Payton, 2010), the aim of the research is to find out and describe students' digital literacy-based critical thinking and creative thinking abilities of students in the Accounting study program, Djuanda University, Bogor.

METHOD

The research was conducted using a case study approach. In case studies, researchers are given the opportunity to examine data related to a particular context or phenomenon. Cases in the education sector can involve parents, students, school staff, educators, and members of the school community (Crowe et al., 2022); (Yin, 2012). The case study in this research discusses students' critical thinking skills based on digital literacy and student creativity based on digital literacy.

The instrument used is an online questionnaire (google form) and interview guidelines. Data collection was carried out through online questionnaires (google form) which was distributed to students of the Accounting Study Program, Djuanda University, while semi-structured interviews were conducted to deepen the data obtained from the results of the online questionnaire. The data obtained was then analyzed using thematic analysis techniques.

The research participants were 36 respondents who were students of the Accounting Study Program, Djuanda University. The students who participated were V semester students. These V semester students carried out the online learning process for 2 years (2020-2022), semester I to semester IV). Data collection was carried out using a purposive sampling technique via an online questionnaire (google form) which was distributed via the Accounting student WhatsApp group.

Data collection was carried out in three stages. The first stage, collecting data from students obtained from an online questionnaire (google form). Data collection was carried out from 07 November 2022 – 14 November 2022 involving 36 accounting students. In the second stage, semi-structured interviews were conducted with 36 students who had filled out an online questionnaire (google form). Interviews were conducted to obtain more in-depth data referring to online questionnaire questions (google form). Interviews were conducted from 15 November 2022 – 21 November 2022. Next, the third stage was observations carried out in the classroom. This

observation was carried out to see students' critical and creative thinking abilities based on digital literacy.

Data were analyzed using thematic analysis techniques. Data analysis uses thematic analysis. Thematic analysis is one way to analyze data with the aim of identifying patterns or finding themes through data that has been collected by researchers (Braun et al., 2016); (Wu et al., 2015). This method is a very effective method if a study intends to examine in detail the qualitative data they have in order to find interrelated patterns in a phenomenon and explain the extent to which a phenomenon occurs through the researcher's eyes.

There are two stages carried out in data analysis used in this thematic analysis. In the first stage, participants' answers are made in the form of codes as keywords that correspond to the interpretation of certain sentences or terms. In the second stage, the codes are mapped based on categories to find themes and patterns. At this stage, the researcher analyzes all the codes and categorizations to determine what can be combined or separated between the codes. More specific codes in the final analysis process are used to answer the research.

The credibility and dependability of the research received serious consideration. The process begins with a data collection instrument based on a literature review (Rasmitadila et al., 2021). After the data was collected, member checking was carried out (Birt et al., 2016), to check the accuracy of the data recording provided by the participants (especially for data obtained from interviews). Meanwhile, researcher triangulation was also carried out to reduce bias, by cross-examining participants (Anney, 2014).

RESULTS AND DISCUSSION

During the Covid-19 pandemic experienced by various countries in the world, it has had a major impact on various aspects of life. This is also felt by the State of Indonesia, due to the Covid-19 pandemic, one of which is the educational aspect. With the enactment of Circular Number 4 of 2020 concerning the implementation of Education Policy in the Corona Virus Disease Emergency Period, which contains six important things, namely changes in the implementation of education in Indonesia, including those related to 1) the policy for implementing the National Examination (UN), 2) the Learning Process from Home, 3) School Examinations for graduation, 4) Class Promotion, 5) Acceptance of New Students (PPDB), and 6) School Operational Assistance Funds or Education Operational Assistance. The existence of this new policy will certainly change the direction of education in Indonesia as part of adjusting to the situation and conditions during the pandemic.

One of the important points of the six new policies is the implementation of learning from home. The learning from home policy has provisions including;

- 1) Learning from Home via online/distance learning is implemented to provide a meaningful learning experience for students, without being burdened by the demands of completing all curriculum achievements for grade promotion or graduation;
- 2) Learning from Home can focus on life skills education, including regarding the Covid-19 pandemic;
- 3) Learning from Home learning activities and tasks can vary between students, according to their individual interests and conditions, including considering gaps in access/learning facilities at home;

- 4) Evidence or products of Learning from Home activities are provided with good qualitative and useful feedback from the teacher, without being required to provide quantitative scores (Minister of Education and Culture of the Republic of Indonesia, 2020).

The online learning policy recommended by the government is not without reason, the government has considered online learning to be an appropriate learning solution during the pandemic. Apart from that, there are considerations in terms of the usefulness of choosing online learning. Online learning has several advantages, namely overcoming distance and time issues, encouraging an active learning attitude, building a new learning atmosphere, making it easier to update teaching materials for teacher educators, accommodating various learning styles, and increasing opportunities for learning. for students by offering virtual experiences and tools that save them time, allowing them to learn further (Sari, 2015). From this study, looking at the provisions for learning from home that have been stipulated by the minister of education and culture, educators must ensure that teaching and learning activities continue, even without face-to-face contact with students. Therefore, learning is carried out through various platforms such as Zoom, Google Classroom, Google Meet, WhatsApp group, learning management system (LMS), and others which are developments of the internet.

The development of the internet is a manifestation of digital literacy, namely the use of technology, information and communication devices in accessing, creating and distributing information. Apart from that, digital literacy is a concept that does not only focus on skills in mastering technology in the form of digital media, communication tools, or networks, but also the ability to take full responsibility in digital media. Digital literacy does not only focus on one aspect of knowledge, such as the ability to map, identify, process and use digital information wisely, intelligently, accurately, precisely and in accordance with norms.

In the case of accounting students, especially the class of 2020, 2022 will be the first time they will conduct face-to-face lectures directly in class. The class of 2020 was exposed to government policy for approximately four semesters following the home learning policy which required them to study independently. Of course, they are required to be able to take advantage of internet developments to meet their needs in the learning process. Various learning platforms are carried out either through LMS Universitas Djuanda Center of Online Learning (Unida COOL), zoom, google meet, google classroom, and whatsapp group.

In learning activities, students receive various forms of assignments that require them to find out what to do. For example, when you get an assignment to make an individual presentation video about certain material and upload it on social media such as YouTube. Of course, they learn and even practice directly, starting from preparing the material presented by reading and making a short description to present it, to how to make an interesting video. In this activity, students can not only complete assignments, but in this way they can hone their critical thinking and creative thinking skills by generating ideas from what they have learned. Various software or tools to support these tasks are studied in order to complete tasks such as using (1) search engines in the form of Google and Google Scholar, (2) digital libraries in the form of e-books, via i-Pusnas, and searching for sources on digital library websites which are spread on the internet, (3) the use of design applications in the form of photo grid, canva, video maker, and photoshop, as well (4) use of social media in the form of

YouTube, Tik Tok, Facebook, Instagram, (5) operating Microsoft Office in the form of Microsoft Word, Excel, and PowerPoint. More briefly, see Chart 1.

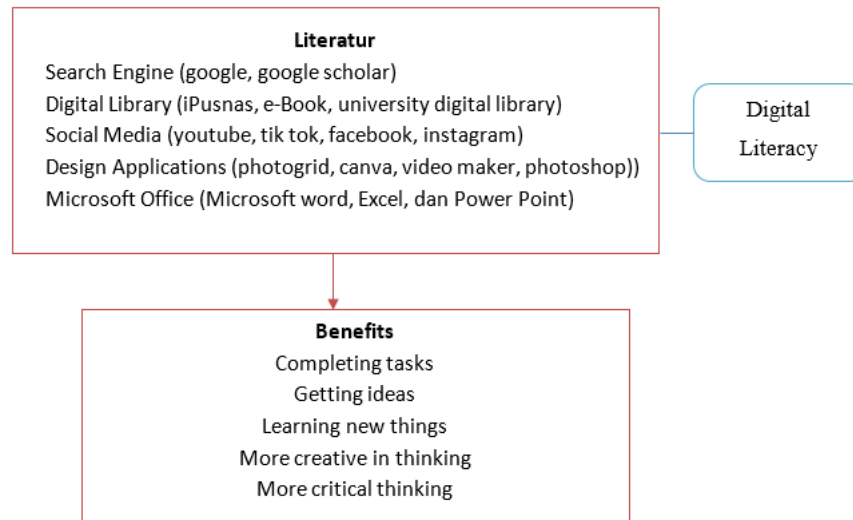


Figure 1 Digital Literacy Capabilities

By having good digital literacy skills, accounting students can complete their assignments, have interesting and good ideas, learn things they haven't learned or hone their non-academic skills, they can even be more critical and creative in think. These abilities were tested when in face-to-face meetings in class, they discussed each subject very actively and enthusiastically, not monotonously and very interesting. In the discussion activities which lasted for eight meetings, they were able to ask about a problem that had not been expressed or explained by the presenter, even in the paper they wrote there were examples of problems related to the material that required analysis from various reference sources and they were able to synthesize a theory. from the sources referred to. This shows that critical thinking skills are directly and concretely honed through digital literacy which during learning from home during the pandemic is always trained.

Apart from that, in the discussions held, students were able to think creatively. For example, students as presenters can answer correctly and completely along with explanations or examples. There are also those who can answer or give their opinions based on their own point of view according to the topic being discussed. The discussion ended with conclusions obtained from the series of discussions that had been carried out (see chart 2).

able to ask about a problem that has not been expressed or explained by the speaker
(question and answer, formulate the problem)
make the paper complete and clear complete with examples
there is a synthesis of a theory from the sources referred to
(make observations and write reports, make and assess induction, define)
The presenter can answer correctly and completely along with explanations or examples
(fluent thinking, elaboration)
answer or give an opinion based on his own point of view according to the topic being
discussed
(think flexible, think original)
delivery of conclusions obtained from a series of discussions
(evaluation)

Figure 2. Discussion Activities

Based on chart 2, the description of discussion activities in numbers 1 and 2 includes students' critical thinking abilities, whole numbers 3, 4 and 5 include students' creative thinking abilities. In this way, a certain pattern can be created between the digital literacy, critical thinking skills and creative thinking skills of accounting students from the class of 2020 (see Chart 3).

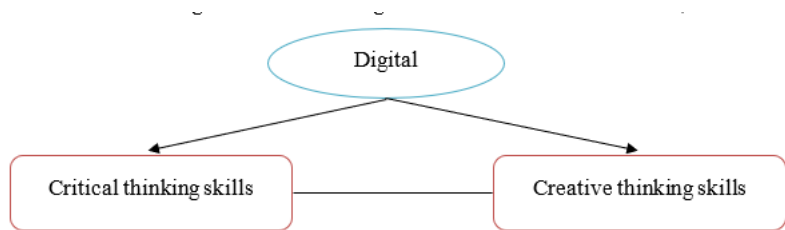


Figure 3. Patterns of Critical Ability and Creative Thinking Based on Digital Literacy

Digital literacy skills (see chart 1) show that critical thinking skills and creative thinking skills are included in the benefits obtained if someone has good digital literacy. The results of this research support the theory of (Hague & Payton, 2010) which states that a person's critical thinking abilities and creative thinking abilities are included in the eight components of digital literacy. Therefore, the results of this research have also answered the research objectives by finding patterns of critical thinking and creative thinking skills based on digital literacy.

CONCLUSION

Digital literacy is needed in the use of technology. One component in the learning and academic environment is digital literacy. In practice, digital literacy is really needed by every individual, not just students. Based on the research results, There are patterns that show that critical thinking skills and creative thinking skills are included in the 8 (eight) components of digital literacy so these patterns are the novelty in this research. These patterns show a cause and effect relationship from having digital literacy skills. There are suggestions that can be given so that society can further improve digital literacy so that further research needs to be carried out regarding digital literacy, especially for teachers in elementary schools.

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