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THE TRANSFORMATION OF LEARNING MODEL BASED ON CRITICAL DIGITAL LITERACY IN HIGHER EDUCATION (CASE STUDY AT NURUL JADID UNIVERSITY AND IBRAHIMY UNIVERSITY)

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CHAPTER I

INTRODUCTION

A. Background of The Study

The issue of literacy is one of the national issues currently developing due to the ranking of the Program for International Student Assessment measurement, which places Indonesia at the bottom. (Kasih, 2020) The measurement carried out by PISA is a tool for measuring the competence of Indonesian students at the global level. On the other hand, the development of information and communication technology is like two sides of a coin that can be an advantage in the learning process and at the same time become a stumbling block if not appropriately managed. Technological developments allow students to learn independently and form a virtual learning environment, either of their own volition or by utilizing a virtual learning environment that already exists on social media, either Facebook or Youtube.(Tan, 2013)

However, the rapid development of technology cannot be matched by several educational institutions due to several main problems such as the ability of human resources, facilities and infrastructure, and so on. Likewise, the learning system tends to be teacher-oriented, students' religious knowledge and understanding through rote memorization and information transfer that is not carried out through the discovery process, and intense coaching patterns are also crucial problems in learning.(Mundiri et al., 2021) The complexity of the

problem seems to find its momentum when educational institutions are required to carry out a transformation of governance and learning that is adaptive to changing demands. To overcome these problems, educational institutions carry out innovations, including in learning. Learning is directed at achieving higher-order thinking skills. Thinking skills are a combination of two words that have different meanings, namely thinking and skills. Thinking is a cognitive process, namely knowing, remembering, and perceiving. At the same time, skills are defined as collecting and selecting information, analyzing, drawing conclusions, ideas, problem-solving, evaluating choices, making decisions, and reflecting.(Saptono et al., 2020)

The inability of educational institutions to transform adaptive learning is marked by the low literacy skills of students, mainly related to digital literacy. The double-edged knife of information technology makes students have literacy skills in managing information that arises from digital disruption. (Bakar, 2016) This impact depends on how and the purpose of using it. For now, the amount of information that everyone receives from the devices they use is becoming more and more and tends to be uncontrolled, so students' ability to manage information is needed. (Restianty, 2018) Higher Order Thinking Skills or HOTS teach higher-order thinking is to provide students with relevant life skills and offer them an additional benefit to help them improve their knowledge, thinking skills that are still at a low level, and pride.(Listrianti & Mundiri, 2020) The process of cognition is a person's footing in addressing the problems that exist in life. The thinking process is built by carrying out several stages of thinking,

starting from remembering, understanding, applying, analyzing, then making decisions by making assessment criteria, criticism and input even to providing a solution. The thinking process in this century is no longer a stage that only explains concepts and theories but rather the problems that exist.(University of New England et al., 2018)

This digital literacy has penetrated all circles, including universities. Universities receive input in the form of new students born, grow, and develop in a digital environment.(Mundiri et al., 2021) Therefore, universities have started to improve learning governance. Learning system innovation is the right step in overcoming various problems in the learning process. Thus, learning system innovations can be implemented by educators to improve weaknesses in the learning process to achieve maximum results.(Bubou & Job, 2020) This is in line with the opinion of M. H. Yee, who stated that learning models, learning styles, and higher-order thinking skills are essential aspects of the learning process in universities.

To overcome these problems, higher education have made improvements in learning management. However, the learning innovation is still carried out in the corridor of *al-muhafadhatu ala al-qadimi al-shalih, wa al-ahdu bi al-jadid al-ashlah*. In this context, Islamic boarding schools make accommodations and concessions to keep up with technological developments without forgetting the foundations and root values identical to the pesantren tradition.

Nurul Jadid University and Ibrahimy University, as universities under the auspices of pesantren, have also made accommodations and concessions, which

are the primary character of educational institutions under pesantren through transformation and modernization governance. The transformation and modernization of management at the two pesantren-based universities do not deny or even eliminate the central values that hold the pesantren community. Likewise, the transformation in the field of literacy which is currently entering almost all lines and levels of education, is welcomed by the two pesantren-based universities by preparing supporting facilities and infrastructure. However, the availability of adequate infrastructure that supports digital literacy skills must also be supported by managing the information obtained. The massive movement of Islamism, hoaxes and religious conservatives wrapped in popular religious studies in digital media does not mean much for these two pesantren-based universities because of the ability of the two universities to pattern learning based on critical digital literacy skills.

According to Filho, the transformation of learning in higher education requires a shared commitment, both leaders and lecturers.(Leal Filho et al., 2018) Therefore, the transformation of learning is mainly related to the emergence of alternative learning sources other than lecturers, which should make learning more enjoyable than before. Among the strategies that can be done in the learning process that leads to the achievement of digital literacy skills is implementing a feedback journaling program. The results of research conducted by Wahyuni and Pramudiyanto on the journaling feedback program show that journaling feedback will increase literacy levels sustainably and affect students' reading and writing abilities.(Wahyuni & Pramudiyanto, 2017) Similarly, other

studies on learning and the efforts made to achieve literacy skills show different strategies. This strategy is not only carried out by schools but is also integrated with knowledge and school culture. However, none of these studies have targeted universities as one of the higher education institutions experiencing the same problems related to literacy, mainly related to digital literacy. In this context, digital literacy is the skill and knowledge to use communication tools, digital media, or networks in using, finding, evaluating, creating information, and utilizing it wisely, healthy, careful, intelligent, precise, and law-abiding in the context of foster interaction and communication in everyday life.(Restianty, 2018) Digital literacy has a positive impact on students' skills. Digital reference sources are more accessible, making it easier for students to learn what lecturers expect. The results of other studies have also shown that students who do not have solid digital literacy may face poor academic performance and fewer job opportunities. (Techataweewan & Prasertsin, 2018) This assumption departs from the fact that digital literacy means using information and communication technology and interpreting data from digital devices effectively and efficiently in various contexts, such as to support academic achievement, career, and daily life. (Yustika & Iswati, 2020)

In digital literacy, students are also required to have information literacy skills in the form of finding, identifying, retrieving, evaluating, processing, and using digital information. (Karpati, 2011) Students who have high digital literacy skills will have high learning achievements. (Kerr et al., 2006) The description above confirms that many researchers have researched digital

literacy. In the Indonesian context, research on literacy is only related to media literacy, information literacy, and so on that are carried out in particular community groups. Meanwhile, research on learning transformation based on digital literacy skills in pesantren has not been carried out by other researchers in Indonesia. The studies carried out also have not focused on the transformation aspects carried out to build digital literacy skills in higher education at pesantren. Technological developments that affect the social, economic, political, educational, and cultural life of a nation, including the Indonesian people, of course, indirectly target pesantren with all their impacts. On the other hand, it is often found that the pesantren education system and the formal educational institutions in it, including higher institutions in pesantren, have not been able to keep up with rapid technological developments.

Besides, formal educational institutions in pesantren, with all their uniqueness, are still expected to support the development of the education system in Indonesia. The authenticity and uniqueness of the formal education system in Pesantren and being a treasure trove of the nation's cultural traditions are also a supporting force for the pillars of education to create moral nation leaders. Therefore, the current globalization presupposes the demands of professionalism in developing quality human resources. This reality demands a system for managing educational institutions according to the needs of the times. The significance of the professionalism of education management becomes a necessity in the enormity of the flow of industrialization and the development of modern technology. Based on this description, the researcher is interested in

researching the transformation of the learning model based on critical digital literacy in higher education at Nurul Jadid University and Ibrahimy University.

B. Scope

1. What are the characteristics of critical digital literacy in Nurul Jadid University and Ibrahimy University?
2. What is the critical digital literacy-based learning model in Nurul Jadid University and Ibrahimy University?

C. Objective of The Study

1. Understand the characteristics of critical digital literacy in Nurul Jadid University and Ibrahimy University
2. Understand the critical digital literacy-based learning model in Nurul Jadid University and Ibrahimy University

D. Research Benefits

1. Theoretical Benefits
    a. Substantive findings related to the transformation of the learning model based on critical digital literacy in higher education were produced.
    b. This is the beginning of research that examines critical digital literacy, especially in Islamic boarding schools, so that there are opportunities to find new concepts related to the focus of this research.
    c. Adding to the treasures of knowledge, especially related to the characteristics of critical digital literacy, the critical digital literacy-based

learning model, and the transformation of the learning model based on critical digital literacy.

2. Practical Benefits
   a. For policymakers: the results of this study are expected to be a source of information in understanding learning processes and models that lead to the achievement of critical digital literacy skills in educational institutions, especially universities.
   b. For the community; The results of this study are expected to be practical steps and guidelines in the urgency of critical digital literacy skills.

E. Conceptual Definition

1. The learning model in this study is a conceptual and operational framework with a systematic procedure that can be used as a reference in planning and implementing learning. Thus, the learning model in this study is a pattern in planning and implementing learning.
2. Critical digital literacy in this study is the ability and skill possessed by someone who is a tool for those concerned in using, understanding, and creating digital media. Thus, critical digital literacy is the ability to build meaning from technological tools and their contents, which consist of photo-visual literacy, reproduction literacy, information literacy, branching literacy, and socio-emotional literacy.

CHAPTER II

LITERATURE REVIEW

A. Learning Transformation

The term transformation is often equated with change and even radical change. The process of change included in learning can indirectly be interpreted as going beyond or crossing the existing structure. According to Anshori, learning transformation includes teaching and learning carried out effectively and meaningfully, integratively, values-based, challenging, and active.(Anshori, 2010) The transformation process requires planning which is one of the managerial functions related to selecting goals, policies, procedures, and programs. In planning, five steps can be taken, namely; 1) selection of mission and objectives, 2) analysis of the external environment to identify opportunities and challenges, 3) analysis of the internal environment to identify strengths and weaknesses, 4) selection of strategies built on internal strengths, and 5) implementation of strategies.(Hill & Jones, 1998)

Etymologically transformation is a change of appearance (form, nature, function). Transformation, in general, according to the dictionary (The New Grolier Webster International dictionary of English Language), into a different form but has the same values, a change from one form of expression to a form that has the same meaning or expression starting from the surface structure and function (Najoan & Mandey, 2011). Transformation is a change of appearance,

whether in form, nature, function, or others (Emillia et al., 2020). These changes may add or subtract until they are rearranged from various existing forms and elements (Kurniasih & Saefullah, 2021).

Berger defines transformation as a rejection or sabotage of the previously given definition (Dewi, 2012). In every social change, there is a change in definition. In summary, transformation wants to say that social situations in the old definition must be rejected because if a person cannot transform his society or sabotage, he cannot separate himself from society and enter himself. (Rizky et al., 2021)

Transformation means to change into something and is considered a whole transfer process from one form to a new form as the final stage of a change process (Natalia & Wibowo, 2018). The change process can be carried out gradually, which is influenced by space and time factors (Poerwanto et al., 2013).

The transformation process emerged from the activities that occurred and had a relatively lengthy process (Muhammad Yusuf et al., 2021). Therefore, the transformation contains time dimensions and the social and cultural changes of the individuals who occupy it (Santosa, 2011). According to Laseau (Laseau, 2001), transformation can be categorized into several things, namely:

a. The transformation is topological (geometric). The constituent components and the function of the space remain the same, but the geometric shape changes.

b. Ornamental (ornamental) transformation is done by shifting, rotating, reflecting, overturning, folding.
c. Transformation is Reversal (reverse). The image of the object is converted into the opposite image by reversing the image of the object figure to be transformed.
d. Transformation is Distortion (confuse). The designer has an independent activity.

While learning has a similar meaning to teaching, it has a different connotation (Nurhasanah, 2021). In the context of education, teachers teach so that students can learn and master the content of the lesson to achieve something specified objective (cognitive aspect), can also influence changes in attitude (affective aspect), and skills (psychomotor aspect) of a student.

Teaching gives the impression that it is only the work of one party, namely the teacher's work (Zahir, 2019). While learning also implies an interaction between teachers and students. Instruction or learning is a system that aims to assist the student learning process, which contains a series of events that are designed arranged in such a way as to influence and support the occurrence of internal student learning processes (Nurlaelah & Sakkir, 2020).

Learning is an educator or teacher activity programmed in instructional design to make students learn actively, emphasizing teaching materials and learning resources (Zahir, 2019). While the notion of learning, according to UUSPN No. 20 of 2003, states that learning is a process of interaction of students with educators and learning resources in a learning environment (Pattanang et

al., 2021). It can be concluded that learning is a conscious effort from the teacher to make students learn, namely the occurrence of changes in behavior in students who are learning, where the change is with the acquisition of new abilities that apply in a relatively long time and because of the effort.

In the inquiry-based learning process, the lecturer stimulates students to be actively involved in asking questions and seeking answers independently. Thus, students will seek, evaluate, and draw conclusions from the questions posed by the lecturer. This process necessitates a change in the learning approach towards a student-centered approach that emphasizes making meaning and acquiring knowledge. Making meaning is carried out by process of critical reflection. Mezirow introduces three types of reflection (content, process, and premise) and their role in changing meaning schemas and perspectives; he notes that critical reflection on one's premises can lead to much more profound transformations than a reflection on content or process.(EriŞen et al., 2016)

The transformation theory appears in education, which Mezirow first developed in the 70s. Mezirow developed transformative learning theory (*Transformative learning*) (Saputra & Sujarwanta, 2021). This theory was developed based on the results of research conducted by Mezirow on a group of school dropout women who returned to school after leaving school for a long time. The focus of the research is the changes in the roles and self-concepts that occur in these women due to the learning process. The study concluded that there was a change in these women's assumptions and way of thinking (frame of reference), along with the emergence and development of critical awareness as

a result of the learning experience. Mezirow calls the change in perspective 'transformation perspective' (transformative perspective) (U. Khoiruddin, 2021).

The transformative perspective appears to be assumed because of the old concept of learning that places students as objects-not subjects and passive-so that there is no acknowledgment of students' potential. Measurement of learning success in this concept focuses on students' academic performance. One of the old approaches is the instrumentalist approach, which measures the quality of learning from a technical point of view, namely through students' academic performance. This approach focuses on results that want to see student changes (e.g., behavior, increased memorization, Etc.) through learning that places students as passive objects (Nawi, 2020). The instrumentalist learning perspective received criticism because it can only be applied to formal institutions with a transparent system. Learning in humans can take place anytime and anywhere and throughout life, for example, in non-formal education, where the structure and system are adapted in such a way to the conditions of the students. The concept of measuring the quality of learning is needed that places students as subjects by listening directly. Their assessment of their own learning experience (Ivone & Andrew, 2021).

Characteristics of students in non-formal education units can be heterogeneous, meaning that each student will give a different meaning to assessing their learning experience and justifying the results and benefits of the education they undergo based on their respective educational orientations (Nasukah & Winarti, 2021). Thus, transformative perspective learning is needed.

The transformative perspective provides confidence that assessing the success of a lesson in listening to students assesses their own learning experience.

With this perspective, the concept of measuring the quality of education can prioritize more humane ways, namely increasing student engagement in learning (learning engagement) and listening to students' "perspectives" about learning. The teaching and schooling they experience become the basis for assessing whether students benefit from the educational program or not. Students' success in learning is assessed from changes in students' psychological aspects, especially changes in perspective (mindset) as a fundamental change in consciousness that will be used to interpret their life experiences. This new perspective is obtained from the critical thinking process, and the results of reflection on the behavior and knowledge gained, which contribute to the self-empowerment of each student.

The discussion of transformative perspectives ultimately involves various elements and movements in contemporary education. According to O'Sullivan, the approach to transformative learning is an integral effort, which involves many factors. This theory is called integral transformative learning. Integral means formed as a unit with other parts (Nasukah & Winarti, 2021).

In other words, learning is not an activity that stands alone but is closely related to other aspects of educational activities on a broader scale, namely related to the survival of human life in the future. This theory arose from the view that humans lived in a significant transitional period in history in which there were many competing viewpoints. Humans live in a period of the earth's

history that is very turbulent and in an age where there is a process of change that challenges us in every period. Humans are entirely caught up in this extraordinary transformation process and have significant responsibility for the direction to be taken. The scary thing is that ownership of this world is, at the same time, a force that determines the extinction of this planet (Irkhamiyati et al., 2021).

In the era of the industrial revolution 4.0, with various kinds of advancements in technology, information, and communication, it requires teachers to carry out learning transformations (Authary, 2018). The transformation of learning and learning to improve the quality and quality of education must continue to be pursued as a consequence of the demands of learning following the development of science and technology, learning styles, the development of learning and learning theories, as well as the needs and trends that occur in society as part of the times. (Ansori & Samsudin, 2013). Transformation of learning and learning is intended to develop the integrity of students actively, productively, and proactively in building learning to know, learning to do, learning to be, and learning to live together (Sutiah, 2003).

Transformation of learning is essentially an attempt to improve the learning process by providing freedom and independence related to learning and teaching to allow a generation that can develop intellectually in a dynamic and progressive contemporary context to survive, even leading in competition (Susrawan, 2021).

B. Learning Model Based on Critical Digital Literacy

A model is something that describes a pattern of thinking. A model usually describes a whole concept that is interrelated and can also be seen as an attempt to concretize a theory and an analogy and representation of the variables contained in theory (Nurlaelah & Sakkir, 2020).

A learning model is a plan or pattern that can be used to form a curriculum (long-term learning plan), design learning materials, and guide learning in the classroom or otherwise (Rinjani et al., 2021). Learning models can be used as patterns of choice, meaning that teachers may choose appropriate and efficient learning models to achieve their educational goals (Mirdad, 2020).

The learning model guides learning designers and teachers in planning teaching and learning activities (Harefa et al., 2022). The learning model is a conceptual and operational learning framework with a systematic procedure to plan and carry out teaching and learning activities to achieve specific learning goals (Padamu, 2016). With the model, how to improve learning is a way to improve the teacher, namely asking the teacher to learn many methods to convey to students. The learning process in schools requires a good learning model to support educational goals for educators and students. Learning models are defined as different ways to achieve learning outcomes under different conditions (Bate'e, 2015). This learning model is used as a way that can be used under certain conditions to achieve the desired learning outcomes (Tethool et al., 2021).

Based on the above understanding, it can be concluded that the learning model is a guide for educators in planning learning in the classroom, starting from preparing learning tools, media, and aids, to evaluation tools that lead to efforts to achieve lesson objectives.

While digital literacy is the interests, attitudes, and abilities of individuals who directly use digital technology and communication tools to access, manage, integrate, analyze and evaluate information, build new knowledge, communicate with others in order to participate effectively (Aisyah & Yuliati, 2022). *Ray defines digital literacy* as the right skills in using technology to achieve goals. Digital literacy skills include knowledge and abilities around the attributes of digital technology that enable individuals to enhance their learning, life, and work potential in the digital era (Intan et al., 2021).

Digital literacy is very different from literacy in general. The digital world is more directed to communication activities, establishing relationships, whether in the form of business relations or friendship relations, thinking, and other activities related to digital media (Dakir et al., 2020). In the context of learning, digital literacy allows anyone who masters it to gain knowledge, attitudes, and skills through better, faster, easier, and more enjoyable learning activities (Dakir et al., 2020).

Digital literacy is defined as the ability to understand and use information in various formats with an emphasis on critical thinking, not just skills in mastering information and communication technology (Laksono, 2021). Digital literacy is understood as the ability to use technology and information

from digital devices effectively and efficiently in various contexts such as academic, career, and everyday life. Digital literacy is a person's ability to use computers, telephones, PDAs, the internet, and other digital equipment as tools to support optimal and correct communication.

Digital literacy is as essential as reading, writing, arithmetic, and other disciplines. The generation that grew up in the current era of digital technology has a different mindset from the previous generation (Oktaviyani et al., 2021). The success of building digital literacy is one indicator of achievement in education and culture. Given the importance of digital literacy in the era of the industrial revolution 4.0, Islamic boarding schools, as Islamic educational institutions that have a unique style, strive to continue to innovate, modify and design their curricula in order to survive and be able to answer the complexity of the demands of society and the times, so that graduates have competencies and skills that needed in entering the 4.0 era (Dhewi & Ningrum, 2021).

Digital literacy carried out by several organizations and educational institutions have been able to change the perception of teachers and students that to find information, learning resources, and articles, it is not necessary to come to a conventional library which is quite time-consuming for teachers (Laksono, 2021). This activity succeeded in improving the skills of teachers and students, especially for students in making technology-based learning media which were previously considered difficult to make and required special skills in the computer field (Yuliawati et al., 2020). Teachers can access and learn everything we want to know and learn with digital literacy learning. Teachers can use

applications as students and educators, including Youtube, Google search, zoom, google doc, Microsoft team, PowerPoint, Wikipedia, editing applications, and others (AR & Astriyani, 2021).

Douglas A.J. Belshaw, in his thesis What is 'Digital Literacy'? As quoted by Dadan Kurnia (Kurnia, 2021) said that there are eight essential elements to develop digital literacy, which are as follows:

1. Cultural, namely understanding the various contexts of users of the digital world
2. Cognitive, namely the power of thinking in assessing Content
3. Constructive, namely the creation of something expert and actual
4. Communicative, namely understanding the performance of networks and communications in the digital world
5. Responsible self-confidence
6. Creative, doing new things in new ways
7. Critical in dealing with Content
8. Be socially responsible.

In this case, the main component of digital literacy is related to what skills must be possessed in using communication and information technology. Steve Wheeler, in his writing entitled Digital Literacies for Engagement in Emerging Online Cultures (Fadhilah, 2021), notes that there are nine main components in the world of digital literacy, namely:

1. Social Networking, the emergence of various kinds of social media, is one of the descriptions of Social Networking or often referred to as online

social phenomena. Currently, every human who interacts in virtual life will always meet these facilities. Gadgets owned by someone can undoubtedly have various social media accounts, for example, Google+, Instagram, Path, Linkedin, Twitter, and Facebook. Using social media facilities is expected to be selective and careful. Therefore it is necessary to understand and master the goals of each display that is owned. On the other hand, it is necessary to pay attention to ethics in using social media sites (Naufal, 2017). Digital literacy shows how to use social media well.

2. Transliteration

   Transliteracy is defined as the skill of using all that is different, especially to create Content, compile, disseminate to discuss through several social media, discussion groups, gadgets, and all available online facilities.

3. Maintenance Privacy

   The main thing about digital literacy is taking care of yourself in online life. Learning from all cybercrimes such as crimes in cyberspace through ATM cards and credit cards, understanding the characteristics of not real sites (fake), crimes via email, Etc.

4. Managing Digital Identity this relates to the procedure for using appropriate identification on several social media sites and other platforms.

5. Creating Content relates to creating Content on several virtual world sites and platforms: Blogs, Prezi, Wikis, PowTon.

6. Organizing and Sharing Content, namely managing and distributing news content to make it easier to share.
7. Reusing/repurposing content. Able to create Content from various types of available information to produce new Content and be reused for several needs.
8. Filtering and Selecting Content. The ability to search, sort, and filter news according to what You want and need, such as through several URL addresses on internet sites.
9. Self Broadcasting aims to distribute new ideas or unique ideas and multimedia content, such as through Wikis, Forums, or Blogs.

As for the development of digital literacy, it is necessary to pay attention to basic principles (Maksum & Fitria, 2021), including;

1. Understanding

   The first principle of digital literacy is simple understanding, which includes extracting ideas implicitly and explicitly from the media.

2. Interdependence

   The second principle of digital literacy is interdependence, defined as how one form of media relates to another potentially, metaphorically, ideally, and literally. In the past, small amounts of media were created to isolate and publish easier than ever before.

3. Social Factors Sharing is a means to show personal identity or distribution of information and can create a separate message (Hakim et al., 2021). Who shares information, to whom it is provided, and through what media it is

provided can not only determine the long-term success of the media itself but can also form an organic ecosystem for seeking information, sharing information, storing information, and ultimately reshaping the media.

4. Curation Talking about information storage, such as content storage on social media through the "save to read later" method, is a type of literacy that is associated with the ability to understand the value of information and store it so that it is more accessible and can be helpful in the long term. Advanced curation must have the potential of social curation, such as working together to find, collect, and organize valuable information.

According to Mayes and Fowle, the principle of digital literacy development is tiered (Hanik, 2020). There are three levels of digital literacy:

1. Digital competencies include skills, concepts, approaches, and behaviors. Level 1 covers different skill levels Individuals or groups who utilize digital competencies according to their life situations can be mastered at various skill levels from basic skills to evaluative or analytical competencies.
2. The use of digital refers to applying digital competencies related to specific contexts. At level II, digital literacy must involve the successful use of digital competencies in life situations, the application of appropriate digital competencies in the context of specific situations or domains, bringing out the benefits of using digital for individuals, groups, or organizations. Third, digital transformation requires creativity and innovation in the digital world (Hanik, 2020).

3. The final stage is that digital transformation can be achieved when digital use is developed with innovation and creativity, thereby stimulating significant changes in the professional field of knowledge in personal and social contexts. These changes can occur at an individual level, group, or organizational level. A requirement in transformation is critical reflection.

Based on the description above, it can be concluded that the digital literacy-based learning model involves more than the ability to use software or operate digital devices, but is also related to complex cognitive, motor, sociological, and emotional skills, which users need in this case. Students to function effectively in a digital environment. *Digital literacy* can be defined as survival skills in the digital era (Yudianda et al., 2022). By using various types of digital literacy, students can improve their learning process and "survive" from various obstacles in learning.

The learning model based on critical digital literacy is a learning model which, in its implementation and development, utilizes digital literacy and follows the provisions and principles of digital literacy itself (Yudianda et al., 2022). To be able to complete the meaning of critical, then there are several challenges for teachers to design learning models based on critical digital literacy (Naufal, 2017), namely:

1. Develop intellectuality, namely an effort to continue learning and developing pre-existing knowledge with new things following technological advances in the digital era.

2. Adaptive in all changes, namely always trying to adapt to all the changes that exist following the development of the world of education and technology.
3. Up-to-date on all fields of education and technology, namely the importance of constantly updating knowledge to become a creative and professional teacher.
4. Consistency in carrying out tasks, namely the demands of institutions to use technology in learning, requires a teacher to comply with and carry out tasks following the existing curriculum.

The critical digital literacy learning model aims to improve the quality and achievement of expectations from learning and create engaging, meaningful, interactive learning, developing collaborative learning attitudes critical, creative, and communicative thinking skills (Anggraeni et al., 2019).

From this explanation, it can be concluded that the learning model based on critical digital literacy is a guide in planning in forming a curriculum (long-term learning plan), designing learning materials, and guiding learning in the classroom by utilizing digital literacy as a form of creativity or critical thinking skills, from an educator in the digital age.

C. Pesantren-Based Universities

Pesantren-based tertiary institutions are one of the educational models in Indonesia, which are formal and non-formal collaborations. In general, this education is under the management of the Pondok Pesantren Foundation, which is definitively included in the category of Non-formal Education, the oldest in

the archipelago, and has been able to survive to this day. Along with the development of society, Islamic boarding schools are transformed by integrating the formal education system into pesantren, then pesantren-based universities are established (Rahmatillah, 2021).

Islamic boarding schools are a transformative form of the education model by integrating values and the pesantren education system with the higher education system. As an integrative form, the values and system of pesantren are adopted in the management and implementation of learning in pesantren-based universities. Figures, values , and systems in Islamic boarding schools are used as the center of the implementation of education. All facilities, facilities, and infrastructure are also integrated with the Islamic boarding school that houses them (Dalail, 2020). However, along with the development of society, Islamic boarding school-based universities are adapting again by not limiting their students to only the santri from their pesantren.

Islamic boarding school is a development of the independence of pesantren in the development of religious, social, and economic scholarship. Economic literacy is one aspect that is the focus of daily studies within the scope of Islamic boarding schools (Nugraha et al., 2021). Pesantren is a higher education institution with the same goal of educating the nation by using the combined national and Islamic boarding schools so that education and learning are more effective (Firdaus & Husni, 2021).

Higher education has the advantage of rationality, while pesantren emphasizes the spiritual aspect and is intellectually weak. Islamic boarding

schools and universities are educational institutions with fundamental differences but are now getting closer to each other. Perhaps this is called a postmodern phenomenon, in which a world reality develops, which begins to show unity, but within it, there is a plurality (Munif & Baharun, 2018).

Pesantren must function as da'wah institutions, and the quality of a university greatly determines the progress of a university and the output produced (Tohet & Cahyono, 2020). The characteristics of pesantren are as follows:

1. The values and systems in Islamic boarding schools such as Kiai or rectors as center figures, mosques as activity centers, and a 24-hour dormitory system integrated with universities and facilities such as libraries, lecture halls, sports fields, lecturers' homes, and others. others (Shofiyyah et al., 2019)
2. Students are called "student students." There is no dichotomy between themselves as students and as students.
3. The santri students have academic skills (job skills) but can still maintain the values of life skills or mental attitudes that exist in each of them so that the instinct of thalabul 'ilmi worship is always maintained.
4. The lecturers are in the university environment and live with the santri students. Interaction between lecturers and students can occur more intensively, discussions between students and lecturers can take place more often, and lecturers can instill Islamic and scientific values for 24 hours to be embedded more strongly in the students.

5. Activities such as reading, discussion, and writing can be done more intensively. This is because all students and lecturers live in one environment so that scientific movements can take place 24 hours a day. Scientific halaqah is often held, study forums are established, and lecturer assistance continues intensely so that the scientific development of students can be monitored and developed optimally (M. Khoiruddin, 2019).

D. The Transformation of Learning Model Based on Critical Digital Literacy

The development of science cannot be denied resulting in technological advances that affect the social, economic, political, educational, and cultural life, including, in this case, the management of learning in universities. However, the education system in several educational institutions, including those under the auspices of pesantren, has not been able to follow and control these advances. This results in the ability of these educational institutions to produce skilled, creative, and active development personnel following the demands and desires of the community. In order to overcome these problems, educational institutions carry out innovations, including in learning. Learning is directed at achieving higher-order thinking skills. Thinking skills are a combination of two words with different meanings, namely thinking and skills. Thinking is a cognitive process, namely knowing, remembering, and perceiving, while the meaning of skills is the act of collecting and selecting information, analyzing, drawing conclusions ideas, problem-solving, evaluating choices, making decisions, and reflecting. (Saptono et al., 2020)

Higher-order thinking skills (HOTS) or HOTS teach higher-order thinking is to provide students with relevant life skills and offer them an additional benefit to help them improve their knowledge, thinking skills that are still at a low level, and cost. (Listrianti & Mundiri, 2020) The process of cognition is a person's footing in addressing the problems in life. The thinking process is built by carrying out several stages of thinking, starting from remembering, understanding, applying, analyzing, then making decisions by making assessment criteria, criticism and input even to providing a solution. The thought process in this century is no longer a stage that merely explains concepts and theories but rather on the existing problems. (University of New England et al., 2018)

According to Filho, the transformation of learning in higher education requires a shared commitment, both leaders and lecturers. (Leal Filho et al., 2018) Therefore, the transformation of learning is primarily related to the emergence of alternative learning sources other than lecturers should make learning more enjoyable than before. One of the strategies that can be used in the learning process that leads to the achievement of digital literacy skills is implementing a feedback journaling program. The results of research conducted by Wahyuni and Pramudiyanto on the journaling feedback program show that journaling feedback will increase literacy levels sustainably and affect students' reading and writing abilities. (Wahyuni & Pramudiyanto, 2017)

Similarly, other studies on learning and the efforts made to achieve literacy skills indicate different strategies. This strategy is carried out by schools

and is also integrated with learning and school culture. However, none of these studies have targeted universities as one of the higher education institutions experiencing the same problems related to literacy, mainly related to digital literacy. In this context, digital literacy is the skill and knowledge to use communication tools, digital media, or networks in using, finding, evaluating, creating information, and utilizing it wisely, healthy, careful, intelligent, precise, and law-abiding in the context of fostering interaction and communication in everyday life. (Restianty, 2018) Digital literacy has a positive impact on students' skills. Digital reference sources are easier to access, making it easier for students to learn what lecturers expect. The results of other studies also show that students who do not have solid digital literacy may face poor academic achievement and fewer job opportunities. (Techataweewan & Prasertsin, 2018). This assumption departs from the fact that digital literacy means using device technology. information and communication and interpreting information from digital devices effectively and efficiently in various contexts, such as to support academic achievement, career, and daily life. (Yustika & Iswati, 2020)

In digital literacy, students are also required to have information literacy skills in the form of finding, identifying, retrieving, evaluating, processing, and using digital information. (Karpati, 2011) Students who have high digital literacy skills will have learning achievements. (Kerr et al., 2006) The above description confirms that many researchers have researched digital literacy. In the Indonesian context, research on literacy only deals with media literacy,

information literacy, and so on that are carried out in particular community groups.

Meanwhile, research on learning transformation based on digital literacy skills in Islamic boarding schools has not been carried out by other researchers in Indonesia. The studies carried out have also not focused on the transformation aspects carried out to build digital literacy skills in Islamic boarding schools. Technological developments that affect the social, economic, political, educational, and cultural life of a nation, including, in this case, the Indonesian people, of course also indirectly target Islamic boarding schools with all their impacts. On the other hand, it is often found that the pesantren education system and the formal educational institutions, including tertiary institutions in Islamic boarding schools, have not been able to keep up with speedy technological developments.

On the other hand, formal educational institutions in Islamic boarding schools, with all their uniqueness, are still expected to support the development of the education system in Indonesia. The authenticity and uniqueness of the formal education system in Islamic boarding schools and being a treasure trove of the nation's cultural traditions are also a supporting force for the pillars of education to create a moral nation's leader. Therefore, the current globalization presupposes professionalism in developing quality human resources. This reality demands a system for managing educational institutions according to the demands of the times. The significance of the professionalism of education

management becomes a necessity amid the enormity of the flow of industrialization and the development of modern technology.

Several terms are equivalent to the term digital literacy. Terms related to digital literacy are media literacy (Buckingham, 2006), new literacy studies and multiliteracies (Street, 2003), Etc. This is a sign that there is no mutual agreement regarding standard terms in the context of digital literacy. These different views are related to different perspectives in viewing technology. One view sees technology as something neutral and value-laden, but another view argues that technology with all its impacts is also shaped by other factors, which of course, are not value-free. According to the last view, there are specific goals in technology with all the content in it. (Hinrichsen & Coombs, 2014) This difference of view certainly has implications for the characteristics of digital literacy, which are currently starting to shift to a second perspective, which views technology not only as a value-free tool. However, considering that the content contained in information technology-based media is full of value, of course, it needs to get a critical review. (Hinrichsen & Coombs, 2014) Thus, critical digital literacy is the ability to build meaning from technological tools and content, which is in it.

Critical digital literacy has several characteristics consisting of six forms of skills, namely; a) photovisual literacy, which is the ability to work effectively with a digital environment; b) reproductive literacy, in the form of the ability to create authentic and meaningful works of art and writing by reproducing and manipulating existing digital texts, visuals and audio snippets; c) information

literacy, which is the ability to consume information critically and sort out wrong and biased information; d) literacy of various sources (branching literacy), in the form of the ability to build knowledge by non-linear navigation through the knowledge domain, such as using Youtube or other media as a digital reference source; e) socio-emotional literacy, in the form of the ability to communicate effectively in online communication platforms such as discussion groups on social media and so on; and f) real-time thinking skills, in the form of the ability to process and evaluate large volumes of information in real-time (Eshet-Alkalai & Chajut, 2009)

The development of critical digital literacy skills in the last few decades has used various approaches. Critical literacy in practice involves at least three components: metaknowledge, technical skills, and the capacity to understand the meaning and purpose of literacy. (Pangrazio, 2016) Thus, the purpose of critical literacy is not only related to critical awareness and understanding but is further related to the critical autonomy that students must possess. students. (Buckingham, 2006) The ability of students to access, apply, evaluate, analyze and synthesize data and create new knowledge based on digital data is the main competency to be achieved in the learning process in the era of the industrial revolution 4.0. Students are also expected to have the ability to communicate and present content through various digital media. (Kaeophanuek et al., 2019) In critical digital literacy, there are three basic abilities that students have, namely; 1) informational skills, in the form of basic skills in managing information starting from the process of identifying problems, analyzing content, evaluating,

interpreting, applying the information in solving problems, Etc; 2) digital tools usage, in the form of skills in learning and using various kinds of digital devices so that they can help students' assignments; and 3) digital transformation, in the form of the ability to create, design, and produce digital content and present information in the digital space following applicable laws and regulations. (Kaeophanuek et al., 2019)

A learning model is needed to increase critical digital literacy skills to create critical digital literacy competencies in universities. One of the crucial factors for the development of digital literacy is cognitive skills. Students need cognitive skills, which are the primary support for critical digital literacy abilities. (Kinoshita, 2007) In growing these cognitive skills, an inquiry-based learning model is needed combined with critical theory. The critical inquiry learning model is a learning model that emphasizes the involvement and active participation of students. (Sirotnik & Oakes, 1986) In the inquiry-based learning process, the lecturer stimulates students to be actively involved in asking questions and seeking answers independently. Thus, students will seek, evaluate, and draw conclusions from the questions posed by the lecturer. This process necessitates a change in the learning approach towards a student-centered approach that emphasizes making meaning and acquiring knowledge. Making meaning is carried out by process of critical reflection. Mezirow introduces three types of reflection (content, process, and premise) and their role in changing meaning schemas and perspectives; he notes that critical reflection on one's

premises can lead to much more profound transformations than a reflection on content or process. (EriŞen et al., 2016)

The term transformation is often equated with change and even radical change. The process of change included in learning can indirectly be interpreted as going beyond or crossing the existing structure. According to Anshori, learning transformation includes teaching and learning carried out effectively and meaningfully, integratively, values-based, challenging, and active. (Anshori, 2010) The transformation process requires planning which is one of the managerial functions related to selecting goals, policies, procedures, and programs. In planning, five steps can be taken, namely; 1) selection of mission and objectives, 2) analysis of the external environment to identify opportunities and challenges, 3) analysis of the internal environment to identify strengths and weaknesses, 4) selection of strategies built on internal strengths, and 5) implementation of strategies (Hill & Jones, 1998)

E. Conceptual Framework

The description above shows that this research is based on the following conceptual framework:

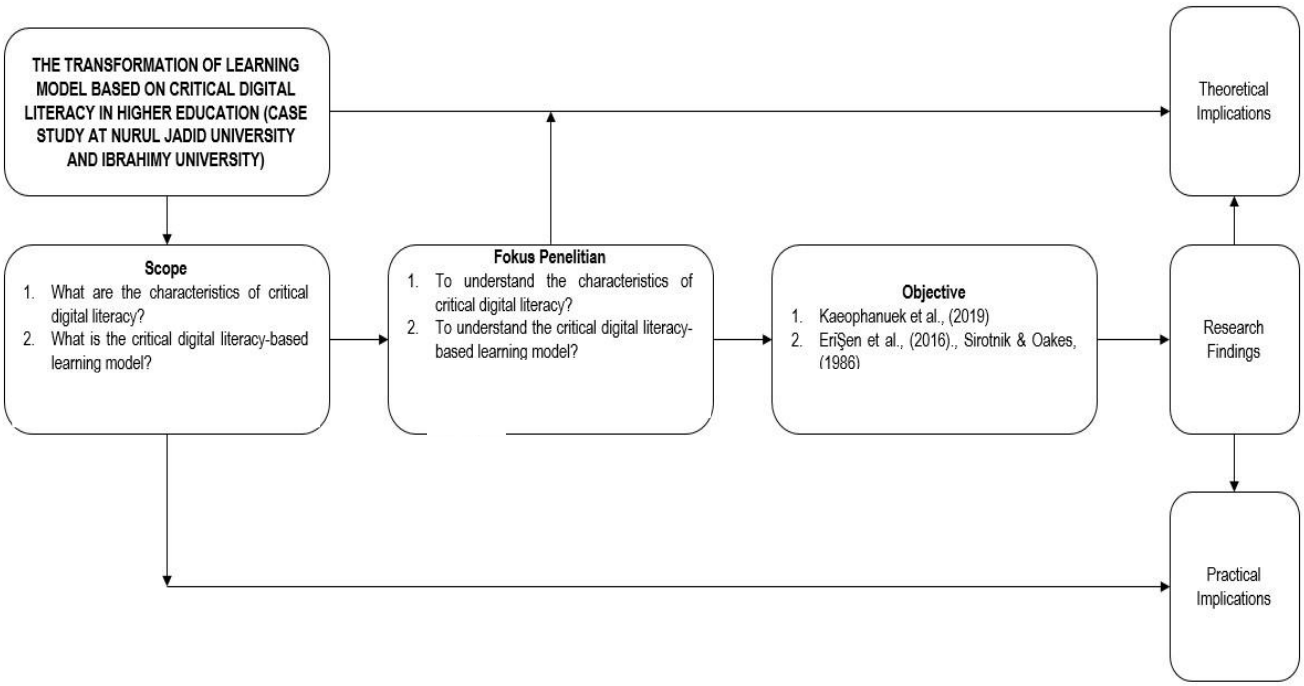


Figure 2. Theoretical Framework

CHAPTER III

RESEARCH METHOD

A. Approach and Type of Research

This research approach uses a qualitative approach with a case study and multi-site design. The qualitative approach used in this study aims to describe a symptom, event, and event that is currently happening related to the transformation of the learning model based on critical digital literacy in higher education. Thus, this study aims to reveal the written or spoken words of people and behaviors that can be observed and directed at the individual's background holistically (whole). (Moleong, 2013) This approach departs from an interpretive paradigm that focuses on revealing the meaning behind an action. Thus, this research is expected to find and describe comprehensive and complete data about the focus of transformation of learning models based on critical digital literacy, which is the main focus of this research. While the type of case study in this study aims to investigate phenomena in real life by utilizing various sources in human life. (Yin, 2003)

The researchers in this study made Nurul Jadid University Probolinggo and Ibrahimy University the locus of research with the assumption that the two universities, both under the auspices of this pesantren, have transformed and experienced a change of status which of course also requires good governance skills. In addition, the transformation of learning governance while prioritizing the values of Islamic boarding schools is closely attached and even becomes the

guideline for higher education managers in managing universities. The development and graph of the increase in the number of students from year to year are also the considerations for researchers in determining and choosing these two research locus.

B. Research Stages

1. Pre-research

   Activities that must be carried out in qualitative research at the pre-research stage are compiling a research design that contains the reasons for conducting the research, and the background of the problem, case studies, determination of research fields, determination of research schedules, selection of research tools, design of data analysis procedures, data collection, equipment needed in the field, and checking the correctness of the data.

   The selection of research loci was carried out according to the research theme. Meanwhile, the other considerations are limited time, cost, geography, and human resources. Field exploration is also carried out to adjust the suitability between the research theme and the field that will be used as a place of research. Before entering the field, the researcher has also prepared various needs, namely mastery of the material, research design, and instruments used in research to obtain accurate and accountable research results.

2. Research

   At this stage, researchers must understand the field conditions as an initial basis in exploring information about the transformation of the learning

model based on critical digital literacy in higher education. Extracting information and analyzing the findings from the development of the quality of education at both Nurul Jadid University and Ibrahimy University, conducting interviews with the academic community of both universities, students, lecturers, as well as making direct observations on several informants and understanding the findings obtained from the two research locus.

3. Reporting

At this stage, the researcher attempted to analyze the data, check the validity, and make a research report. Data analysis in qualitative research can be done since the data was obtained in the field. The findings obtained are expected not to be mixed up by the thoughts of the researchers. Findings in the field are immediately analyzed and written down so that the data obtained is not lacking and is genuinely valid and can then be analyzed using predetermined data analysis techniques. The preparation and writing of the findings here are described and analyzed in-depth to see how the relationship between theory and findings in the field can be found or can be synchronized between theory and findings.

C. Research Instruments

In this study, the researcher's presence at the research locus is the main requirement for the study. The research instrument in this study is the researcher himself because, in qualitative research, the researcher is the key instrument, the source of the data and the results are not clear, the research design is still

temporary and will develop after the researcher enters the object of research. The researcher collects the data in a natural setting where the researcher acts as a binding instrument. In addition, researchers also act as planners and implementers of actions directly involved in the implementation of research at the research location by referring to the previously prepared instruments, collecting and analyzing data on the findings, and finally reporting the research results.

D. Data Source

The source of data in the study is the subject from which the data can be obtained. Thus, the data sources of this research are informants who are considered to know the characteristics of critical digital literacy in Nurul Jadid University and Ibrahimy University, the critical digital literacy-based learning model in Nurul Jadid University and Ibrahimy University, and the transformation of learning model based on critical digital literacy in Nurul Jadid University and Ibrahimy University. Thus, this study's primary informants or data sources consisted of the Rector, Vice-Rector I and III, Deans, Lecturers, and Nurul Jadid University and Ibrahimy University students. Primary data directly related to the research focus is also obtained from participant observation, in-depth interviews, and documentation. At the same time, secondary data is obtained from books or other references related to the transformation of the learning model based on critical digital literacy in higher education.

E. Data Collection Techniques

To obtain data relevant to the research focus, the researcher uses participant observation by acting as community members who are directly involved in the research locus and collects data on the characteristics of critical digital literacy in Nurul Jadid University and Ibrahimy University, the critical digital literacy-based learning model. in Nurul Jadid University and Ibrahimy University, and the transformation of learning model based on critical digital literacy in Nurul Jadid University and Ibrahimy University. Participant observation was carried out by direct observation of the location of the research object to obtain data as the research focus.

The researcher also uses an in-depth interview technique to obtain in-depth information about the characteristics of critical digital literacy, the critical digital literacy-based learning model, and the transformation of the learning model based on critical digital literacy in Nurul Jadid and Ibrahimy University. In the interview process, the researcher made an unstructured interview guide to get an outline of the direction and focus of the research. In the process, the researcher conducted interviews with the Rector, Vice-Rector, Dean, lecturers, and students of the two universities who were the locus of this research.

In addition, the researcher also uses documentation techniques to obtain data on the characteristics of critical digital literacy, the critical digital literacy-based learning model, and the transformation of the learning model based on critical digital literacy in Nurul Jadid University and Ibrahimy University. This

method the researcher uses to collect data regarding records archives from Nurul Jadid University and Ibrahimy University is related to the focus of this research.

F. Data Analysis

The next step that is no less important in the research process is data analysis. The data analysis technique used in this study is the Miles and Huberman data analysis technique which consists of data reduction, data display, and verification. In the data reduction process, the researcher chose the main things, focused on the essential things related to the characteristics of critical digital literacy, the critical digital literacy-based learning model, and the transformation of the learning model based on critical digital literacy. in Nurul Jadid University and Ibrahimy University. The terabit process is then followed by data display and verification activities.

In analyzing and interpreting the data in the case study, the researcher used four methods, which include; 1) analysis and interpretation of categorical aggregation; in this case, the researcher tries to collect data in the hope of having relevance to the research objectives; 2) direct interpretation, in this case, the researcher searches for and explores single data and reveals the meaning of the data; 3) establish patterns and look for correspondence between two or more categories, in this case, the researcher tries to find correspondence between data categories; and 4) naturalistic generalization, in this case, the researcher analyzes the data in a general-naturalistic manner by exploring many other related cases. Data analysis was carried out in two stages. The first stage is the analysis of individual cases using Miles and Huberman data analysis techniques at each site.

This process is then followed by cross-site data analysis by comparing the findings at each site that have been obtained as the results of the analysis in the first stage.

G. Data validity checking

After the data is collected and before the researcher writes the research report, the researcher rechecks the data that has been obtained by checking the data that has been obtained from the interviews and observing and viewing existing documents. With this, the data obtained by the researcher can be tested for validity and can be accounted for. To maintain the validity of the data, the researchers used the technique of checking the validity of the data as follows:

1. Extended participation

   Extending participation in the research will increase confidence in the data collected due to the extension of participation. In this case, the researcher will study a lot and test the untruth of the information.

2. Persistence of observation

   The persistence of observation aims to meet the depth of the data. In this case, the researcher observes carefully and in detail and continuously on the prominent factors related to the research focus.

3. Triangulation technique

   Checking the validity of the data in the form of triangulation is done by comparing the observed data with interview data (source triangulation), comparing observation data with interview data, and vice versa (method

triangulation), and comparing data with relevant theories (theory triangulation).

CHAPTER IV

DATA EXPOSURE AND DISCUSSION

A. Research Finding at Site I (Nurul Jadid University)

1. The Characteristics of Critical Digital Literacy

Contemporary society is facing an accelerated rate of social change triggered by the internet as a lubricant for globalization and social evolution in various aspects of social life. The spread of culture between communities and even between nations is made possible by the openness of information with various digital communication facilities, the availability of more and more affordable transportation, and even the ease of migration with policies between countries that are increasingly open. This condition then gave birth to the millennial generation, which various groups suspect to have thoughts, attitudes and forms of social interaction utterly different from the previous generation.

This situation brings anxiety to everyday social life, such as loosening social relations between individuals due to the division of activities in two completely different spaces (the physical environment and the cyberspace environment) and the dissolution of individuals in cultural currents, which are trending topics on social media. This condition brings positive changes such as faster, easier and broader social awareness of disasters in specific communities and other matters.

The same thing also applies to tertiary institutions under Islamic boarding schools. The situation of information and technology disruption that has spread in all walks of life has also penetrated Islamic boarding schools, which are in the educational process within them through the filter of the kyai. The message of the kyai as a cultural broker plays an essential role in the process of institutional and learning transformation in all educational institutions under the auspices of the pesantren.

Information disruption also indirectly demands students' ability to be "digitally literate" as a new skill in the 21st century. As an educational institution under the auspices of the Nurul Jadid Islamic boarding school, Nurul Jadid University has critical digital literacy characteristics, which of course, have differences from other educational institutions that are not under the auspices of a pesantren. The results of the study show that the forms of critical digital literacy at Nurul Jadid University are as follows;

a) Digital Tools Usage

Characteristics of literacy culture in Islamic boarding schools at Nurul Jadid University can be seen in students' skills in studying and using various kinds of digital devices so they can help with assignments. The ability to learn and use digital devices is seen in students' abilities in photovisual literacy.

Digital tools usage for Nurul Jadid University students is in the form of photovisual literacy skills. Photovisual literacy skills at Nurul Jadid University are in the form of student's ability to work effectively with

digital environments such as Youtube, E-Learning, Etc. This ability is evident in learning activities carried out online during a pandemic where students use networks that support the implementation of online learning, both sites provided by Nurul Jadid University or online learning services from leading sites such as Google Etc. The ability of students to work effectively in the digital environment, as expressed by Mr Muali as follows;

> “"During a pandemic, whether it's because of the circumstances or because today's students are more adaptive to technology, it's effortless for students to understand the operation of online learning services such as Zoom, Youtube, etc. In fact, it is not uncommon for some educators to ask a student to help operate a mutually agreed upon learning application" (Muali, 2022)

Observational data also shows that the use of online learning services such as online learning applications from campus and zoom is more in demand by students than the Google classroom application. Ease of access and use of applications is one of the student considerations in using these applications. Likewise, with assignments by lecturers sometimes require students to have the ability to use and adapt to digital environments such as YouTube. One of the abilities of Nurul Jadid University students in using digital technology can be seen in the works produced in the form of Youtube videos as in the following link;

No	Video Theme	Link
1	Islamic Education Management Study Program at Nurul Jadid University Commemorates the 3rd Diesmaulidiyah	https://www.youtube.com/watch?v=Zj_-KGhuMoc
2	Why should you study at UNUJA	https://www.youtube.com/watch?v=w5wWtZLlNpA

3	Faculty of Islamic Studies UNUJA Holds Faculty Orientation	https://www.youtube.com/watch?v=KsmD511WRpc
4	Pojok Mikro Podcast	https://www.youtube.com/watch?v=EAfqRVbhpQA&t=124s
5	PLP at SMP Bhakti Pertiwi	https://www.youtube.com/watch?v=ryIA0LwxoJs&t=72s

The data above shows that Nurul Jadid University students have critical digital literacy skills. In this case, students are more than just recipients of technology or passive users. However, Nurul Jadid University students can use media and convey ideas and information in the media.

b) Informational Skills

Informational skills are one of the critical characteristics of digital literacy possessed by Nurul Jadid University students. Informational skills possessed by Nurul Jadid University students are in the form of basic skills in managing information starting from the process of identifying problems, analyzing content, evaluating, interpreting, applying the information in solving problems, and so on from digital sources such as Youtube, social media, journal websites, Etc.

Tasks such as reviewing journals encourage students to manage information and apply information in solving problems related to their field of study or subject. The ability to manage information, starting from identifying problems, analyzing content, evaluating, interpreting, applying the information in solving problems, Etc, is part of the ability of information literacy and branching literacy. In this case, information literacy is students' ability to consume information critically and sort out incorrect and biased information. Meanwhile, branching literacy is in the

form of a student's ability to build knowledge by non-linear navigation through knowledge domains, such as making YouTube or other media a digital reference source, as well as the results of reference documentation used by students in making journals. The data from the documentation shows that most students have used online journals as digital references. The same thing was also expressed by Siti Wardatus Sholehah, who stated that;

> "I am used to using references from online journals because of the ease of access and ease of writing them down as references. We usually use applications like Zotero or Mendeley to make it easier for us to write papers or any lecturer assignments related to writing. In a journal that has a DOI, it can be even easier. We need to copy the DOI and enter it into the application." (Siti Wardatus Sholehah, 2023)

The use of online journal references as one of the references to support the lecture process in addition to books was also put forward by Mr Hasan Baharun, who stated that in the courses he taught, he suggested using journals as the primary reference as the following interview data;

> "I did instruct students to use journals as a mandatory reference in writing the paper assignments I gave them. Of course, before that, I also teach them how to use reference management applications like Mandeley." (Hasan Baharun, 2022)

In addition, many Nurul Jadid University students join social media groups such as Telegram, which provide digital reference sources that can be utilized. Among the several groups providing digital reference books that students follow are digital libraries, libraries of thought and civilization, e-book sharing links, Etc.

c) Digital Transformation

Digital transformation is also one of the critical characteristics of digital literacy owned by Nurul Jadid University students. The digital transformation capabilities of Nurul Jadid University students are evident in their ability to create, design, and produce digital content and present information in a digital space following applicable laws and regulations. Documented data also shows that lecturers give assignments that require students to make videos using supporting applications such as Filmora or other applications and upload them on Youtube. This can be seen in the Islamic Education Management study program's Youtube account as in the link https://www.youtube.com/watch?v=ryIA0LwxoJs .

Likewise, the ability of Nurul Jadid University students in reproductive literacy is in the form of student's ability to create authentic and meaningful works of art and writing by reproducing and manipulating existing digital text, visuals and audio snippets. The reproductive literacy skills of Islamic boarding school-based tertiary students have different tendencies between male and female students. Student reproductive literacy has an advantage over female students because of the courage of students in producing and creating works in the form of videos or audio pieces. These abilities are often integrated into the learning process or at the initiative of students themselves in order to gain experience in producing and creating digital works as expressed by Khusnul Khotimah as follows;

> "For us, digital technology is just a value-free tool. Whether it is useful or not depends on the person using it. Therefore, we often use the tool

> to achieve the desired goal. In the learning process, for example, if there is something we don't understand, we have to find out through an open-access website or online journal. We also often upload YouTube because it's just for fun or because assignments require us to make videos, like videos during KKN or PPL." (Khusnul Khotimah, 2023)

Thus, a critical characteristic of digital literacy for Nurul Jadid University students is the utilization of digital devices to become something of value which can be helpful for users and other people who view or consume digital content.

d) Cultural and Social Understanding

Critical characteristics of digital literacy at Nurul Jadid University can also be seen in cultural literacy skills and social understanding. The ability for cultural literacy and social understanding students emerges from social media or information from the internet. The flood of information, in this case, is an advantage for students in understanding culture and social phenomena that occur in various parts of the world. The ability to adapt to technology is a way for students to understand different cultures, as revealed by Nadif Sanafiri follows;

> "I am used to using social media such as Youtube, Facebook, etc. With this media, I see and understand the differences in views, cultures and traditions in society. Likewise, with the identity contestation that seems to surface on Facebook, I see that different opinions are obvious in the comments on social media. This signifies that different points of view result in different perspectives and understandings, or in other words, different points of view." (Sanafiri, 2022)

The form of cultural ideas consisting of abstract forms, social systems, and physics is currently easily understood by students with the circulation

of videos or social media that allow students to interact with different cultural backgrounds, as revealed by Rojaby Azhargany as follows:

> "Students' ability to conduct social analysis is also inseparable from the influence of communication and information technology. As a sociology lecturer, I am greatly helped by the presence of various media, including social media, so that students also have demands to carry out social and discourse analysis." (Rojaby Azharghani, 2023)

The critical characteristics of digital literacy possessed by students in the ability to understand the culture and social interaction in society are practical bridges in exploring social analysis and discourse analysis. Based on the results of observations, it was also found that the ability of students to understand the culture and social interaction in society is evidenced by the establishment of an academic entity within the santri student environment with the name "Pojok Surau Study Group" (KKPS) or they (read; members of this community) call it the 'Madzhab Surau Philosophy".

2. The Critical Digital Literacy-Based Learning Model

The critical literacy digital-based learning model at Nurul Jadid University is carried out in formal and non-formal activities. Learning activities that lead to the formation of critical digital literacy skills among students are carried out in the form;

a) Preparing the learning environment

In achieving learning success, the environment is one of the supporting factors. A comfortable place and learning environment make it easier for students to concentrate. By preparing the right environment, students will

get better results and can enjoy the learning process that students are doing. Learning success must be balanced with the teacher's seriousness of effort and enthusiasm in managing the classroom environment. L. Brophy Good and Jere E. Brophy indicated that an educator's failure to develop his learning potential is not due to educators who do not master the subject but do not understand who their students are and what class is. As the most dominant vehicle for implementing the learning process in educational institutions, the class must receive optimal attention.

Educators at Nurul Jadid University emphasize the interaction between themselves and students to create a learning environment that supports the creation of digital literacy skills in students. Interaction in the context of how to build students' digital literacy skills is the main thing that can stimulate motivation in surfing and having literacy skills with all the attributes inherent in them, as revealed by Ahmad Sahidah, who stated that;

> "In forming literacy skills or any skills in students, harmony between lecturers and students is the most important thing. Alignment is the starting point in building an academic climate to stimulate student abilities." (Ahmad Sahidah, 2023)

A similar effort was also conveyed by Akmal Mundiri, who emphasized Ahmad Sahidah's statement that the key to learning is the existence of educational interactions between educators and students:

> "Educational interactions between educators and students greatly support the success of a learning process. This interaction allows the emergence of motivation, which is one of the driving factors for students to understand the material that educators will teach." (Akmal Mundiri, 2023)

Formal educational interaction at Nurul Jadid University is carried out by student guardian lecturers, heads of study programs, and Laboratory Based Education in each study program. While non-formally, it is carried out by students and lecturers independently, both in the personal sphere and in scientific studies.

In addition, efforts to prepare a learning environment that leads to the achievement of digital literacy skills in students are carried out by using technology-assisted learning media. The use of technology-assisted learning media is carried out in various ways. One is carried out through assignments emphasizing the use of information technology media such as Youtube. Some educators ask students to create YouTube content as part of the assignment. This was revealed by Nadira Rusdiah, who revealed that one of the course lecturers assigned students to make a video profile as part of the course assignment:

> "The lecturer asked us to make a profile video and upload it to Youtube and share it via Instagram, respectively." (Nadira Rusdiah, 2023)

Observational and documentation data have also shown that educators at Nurul Jadid University use information technology media as a medium for learning resources. From this process, students have demands to use and understand material from other sources. Thus, educators at Nurul Jadid University have also used different spaces in the learning process. Educators do not only make the classroom a learning space. However, eclectically they have also used virtual space in the learning process. The

observation of the use of virtual space in the learning process is also evident, which found that there were teaching staff who also used hybrid learning.

b) Providing digital-based learning simulations

Using simulation media is intended to help students understand the material's ambiguity and complexity. It can help teachers convey things that have yet to be conveyed so that they can act as independent teaching materials for students. Digital-based learning simulations are provided by educators at Nurul Jadid University by giving assignments based on digital media or digitizing student work or assignments. This was revealed by Akmal Mundiri, who stated that;

> "I give lecture assignments that must be based on digital media. Whether it's YouTube, Instagram or other media that can contribute to the students concerned and university branding. The assignment is project-based and carried out collectively by student groups." (Akmal Mundiri, 2023)

The same thing was also expressed by Hasan Baharun, who stated that;

> "Learning process that I do, I ask students to video the learning process in micro-teaching. As a lecturer for courses based on practical abilities, I emphasize that students cannot only teach offline. However, you also have to have the ability to teach in an online mode." (Hasan Baharun, 2023)

The learning process carried out by educators, as shown in the data above, stimulates students to be actively involved in digital-based learning processes. Digital-based learning is something that challenges and attracts students to be actively involved. This process makes learning enjoyable, as revealed by Rizquha, who stated that;

> "For me as a student, what is sometimes requested by lecturers, which leads to the digitization of work done in the learning process, feels fun and challenging. I feel challenged to make videos or anything related to virtual space." (Rizquha, 2023)

The data above is in line with observational data and documentation, which found several student digital works that are the learning process's outputs. These outputs are in the form of videos or applications other parties can utilize.

c) Carry out digital learning processes

Learning models based on critical digital literacy also appear in implementing digital-based learning processes. Educators at Nurul Jadid University send digital-based learning content in the learning process. The learning that is carried out takes place in multiple places. However, it can be done wherever students and educators are. In this context, the abilities of an educator in digital learning include planning and organizing learning, presentation skills, both verbal and non-verbal, questioning skills, expertise in mastering learning material, teamwork, knowledge of learning theory, knowledge of digital learning, knowledge about lesson planning, and mastery of learning media. In implementing digital-based learning, educators differ in their implementation methods. However, in practice, the majority of educators use digital media as a source of information that supports learning in addition to using it as a project-based evaluation tool, as revealed by Hasan Baharun as follows:

> "In implementing learning, I still refer to the learning scenario I have made before. From there, I sometimes assign students to make video

> projects that must be uploaded to their respective YouTube accounts." (Hasan Baharun, 2023)

Apart from being in the form of project-based learning, the implementation of critical digital literacy-based learning can also be seen in the delivery of digital-based learning content. In learning, educators ask students to view YouTube or journal articles and ask students to provide comments with logical arguments. Nadira revealed this according to the following interview data:

> "We were once assigned to make a video, and a tone also asked us to do an online journal review." (Nadira Rusdiah, 2023)

Thus, the stages of implementing critical digital literacy-based learning are carried out in various ways depending on the material's characteristics and the teaching staff's ability to design digital literacy-based learning.

d) Critical Inquiry

The learning model based on critical digital literacy at Nurul Jadid University is also carried out in the form of critical inquiry. In the learning process that leads to the achievement of critical digital literacy among students, educators carry out six steps: problem orientation, formulating problems, making hypotheses, exploring (collecting information or data), testing hypotheses and making conclusions. This is as revealed by Muhammad Munif as follows;

> "To bring out critical digital literacy skills, I carried out several stages of learning which, in an inquiry manner, can foster student abilities. Usually, I start by giving related problems in fields relevant to the material I teach, and I ask students to formulate problems and make hypotheses. In this process, I emphasize that students identify it from the content in cyberspace." (Muhammad Munif, 2023)

The same thing was also expressed by Hasan Baharun, who explained that the learning process emphasised how students can be as active as possible so that conclusions can be compiled accurately by students.

> "In the learning process that I do, my students ask to find information on the problems raised in the learning process. They get this information from something other than reference book sources from the library. However, I allow them to access information from other media, including the Internet. The information they have obtained is then discussed in class." (Hasan Baharun, 2023)

Thus, critical inquiry is one of the processes carried out by several educators at Nurul Jadid University to build critical digital literacy skills in students. In this process, students, as independent learners, must be able to filter information or sources that cannot be accounted for scientifically. Maximum learning results can be achieved if students learn actively. Teachers no longer inform students, but students actively seek and build knowledge in their minds. For students to learn actively, they must have literacy skills, one of which is digital literacy.

B. Research Finding at Site II (Ibrahimy University)

1. The Characteristics of Critical Digital Literacy

The rapid development of information technology can result in the flow of information without stopping. Information production occurs daily through various digital platforms where individuals can produce and define information in various ways. Critical literacy is essential to understand the value of information better. Believing in the news or the dissemination of information is not wrong. If the process of reading and understanding the

information can be done wisely, information seekers can sort out valid and invalid information.

Data from research conducted at Ibrahimy University found that critical digital literacy characteristics are similar to other Islamic boarding schools. The uniqueness of higher education based on pesantren, which places morals above knowledge, indirectly has implications for the uniqueness and uniqueness of the literacy skills the academic community possesses. Based on the research data, it was found that the characteristics of critical digital literacy at Ibrahimy University are as follows;

a) Digital Tools Usage

Digital tools usage at Ibrahimy University, under the auspices of the Ibrahimy Sukorejo Situbondo Islamic boarding school, can be seen in the ability of the entire academic community and students of Ibrahimy University to use digital technology. Students' ability to use digital technology can be seen in this media as a medium and learning tool that supports the development of their respective competencies. This is as revealed by Hariyanto as follows;

> "Our students can use digital media and the applications in it. This capability is shown by using the media or service as a learning resource that supports strengthening and additional reference sources other than those in the library." (Haryanto, 2023)

The ability of students to use digital technology and the services or applications in it is also often an integral part of the learning process carried out at Ibrahimy University, as revealed by Abdurahman as follows;

> "We are often asked by lecturers to access references from the internet, either from online journals or from the YouTube channel designated by the lecturer." (Abdurrahman, 2023)

Observational data also shows that the learning process that took place during the pandemic has become a stepping stone for universities not to depend on the learning process which is carried out in offline mode. Other data also shows that Ibrahimy University also has a Youtube channel. However, the use of digital media for students, especially for students who live in Islamic boarding schools, has limited access times like other Islamic boarding schools. These access restrictions are regulations set by the pesantren.

b) Informational Skills

One of the characteristics of critical digital literacy at Ibrahimy University is the ability of students to identify problems, analyze content, evaluate, interpret and apply information to solve a problem. This is in students' ability, especially students, to use the information on the internet as material for conducting studies, as seen in the Bahsul Masail study or other studies conducted by student groups. The ability of students at Ibrahimy University to identify problems by using digital media as a digital reference source to support ongoing learning. The use of information media as a digital reference is carried out to enrich knowledge while maintaining aspects of rationality and theoretical argumentation, as revealed by Nufil Mariroh as shown in the following interview data:

> "I am used to using the information on the internet as a reference besides the books in the library. The use of these references does not mean that I have been outright. However, I still filter it by referring to the reasons and theoretical arguments contained in the information." (Nufil Mariroh, 2023)

The same thing was conveyed by Hariyanto, who said that the characteristics of digital literacy skills of students at Ibrahimy University were shown in the form of the ability to filter information in digital media and make it a supporting material for learning that is being carried out. This is according to the following interview data:

> "Our students can filter information from the internet. This can be seen in the references in the papers, most of which are sourced from digital media such as e-journals and so on." (Haryanto, 2023)

The data above confirms that students at Ibrahimy University have used information on the internet as material or reference in solving a problem.

c) Digital Transformation

Digital transformation is also one of the critical characteristics of digital literacy owned by Ibrahimy University students. The digital transformation ability of Ibrahimy University students can be seen in their ability to create, design, and produce digital content and present information in a digital space following applicable laws and regulations. The ability of participants to create, design and produce digital content and present information in digital space based on observations on social media such as Youtube is carried out in the form of informative content that presents the dynamics of education in Islamic boarding schools as well as other valuable and informative content for users. The ability of

digital transformation at Ibrahim University, according to Kandiri, is also due to the support of educators in the form of a stimulus in learning that leads to achieving the ability to create, design and produce digital content and present information in digital space, as shown in the following interview data:

> "One of our student's abilities, including critical digital literacy skills, is the ability to create digital content they upload on their YouTube accounts. One of these abilities arises because of the desires and talents of students, one of which is because of the stimulus from the lecturers who force students to have the ability to create useful digital content." (Kandiri, 2023)

Data from other interviews also show that content creation which is part of the digital transformation capabilities possessed by students at Ibrahimy University is carried out in the form of creating creative content in the form of videos and narratives, which are uploaded on WordPress pages or social media as shown in the following data:

> "I am used to creating educational content. If I am in the form of an opinion or the results of a paper I have presented in class, I upload it on my WordPress page or the abstract as my FB status. However, other friends prefer to make videos even if they only use a smartphone." (Muhammad Ubaidillah, 2023)

d) Cultural and Social Understanding

The characteristics of critical digital literacy at Ibrahimy University are also evident in cultural literacy skills and social understanding. The ability for cultural literacy and social understanding students emerges from social media or information from the internet. The flood of information, in this case, is an advantage for students in understanding the culture and social phenomena that occur in various parts of the world.

Students at Ibrahimy University often use the internet as a source of information to understand cultures from other parts of the country, as revealed by Abdillah as follows:

> "In my free time, I often look at the information on my YouTube homepage. Usually on the Youtube homepage, new video uploads appear, sometimes short videos of what is happening in other parts of the country or region." (Abdillah, 2023)

2. The Critical Digital Literacy-Based Learning Model

The learning model oriented towards critical digital literacy skills at Ibrahimy University is carried out in various forms. However, the emphasis on learning that is carried out indirectly leads to the formation of critical digital literacy abilities in students. The learning stages that are oriented towards achieving critical digital literacy skills are as follows:

a) Preparing the learning environment

The learning environment is all the conditions that influence the behaviour of the subjects involved in learning, especially educators and students as the spearheads of the learning process. A conducive learning environment greatly influences the process of growth and development of the quality of educators and students. Classroom management attempts to create a process condition or effective teaching and learning activities. Classroom management is one of the efforts to create a conducive classroom environment. The conducive class is intended so that the learning process can become more controlled and provide a sense of comfort for students from a psychological perspective and students'

readiness to learn. Many factors cause the class to be not conducive. Solutions to overcome class problems that are not conducive can be done by adjusting class settings, determining strategies, and communicating styles, including understanding the psychology of students in the learning process. Prepare a learning environment that leads to the achievement of critical digital literacy skills at Ibrahim University. It is carried out by preparing an environment, both virtual and offline, leading to the desired achievement.

Educators at Ibrahimy University prepare a virtual learning environment by preparing applications that will be used in learning. Whereas educators who use the offline mode do not make much meaningful preparation because the class settings already exist and are arranged by the Ibrahimy University facilities and infrastructure section, as revealed by Hariyanto as shown in the following data:

> "Of course, before starting the lesson, we first prepare the classrooms that will be used for the learning process. The lecturer concerned will prepare virtual classes using synchronous and asynchronous modes for lecturers who use online methods." (Haryanto, 2023)

Class preparation is an integral part of the learning process. The class is a learning environment that can influence students' interests and motivation. The learning environment is a resource that influences student learning outcomes and the learning process. This means that an adequate learning condition is a condition that is conducive to and supports the smoothness and continuity of the teaching and learning process.

b) Digital-based learning simulation

Learning simulations at Ibrahimy University are an introduction to understanding the advanced steps in the digital-based learning process. Educators at Ibrahimy University initially explain the use of digital media, which will be used as learning media or project-based assignments. This is as revealed by Minhaji as follows:

> "Before starting digital-based learning, educators provide an initial explanation or technical instructions for what students must do. The lecturer first explains how and in what way"

A similar expression was also conveyed by Kandiri, who stated that by providing a simulation of the use of digital media either as a learning medium or a source of information, the lecturer first provides a technical explanation of how to use the media. This is done so that there is a common perception among students regarding what should be done.

c) Carry out digital-based learning

Efforts to build critical digital literacy skills in students are carried out by implementing digital-based learning. Educators do not just send learning content through digital media in digital-based learning. However, learning in the context of developing critical digital literacy skills is also carried out in different modes. Educators at Ibrahimy University develop learning governance in the learning process, starting from lesson planning, learning implementation, and learning evaluation. The learning planning documents owned by educators at Ibrahimy University show the elasticity of the learning model used. Educators are

free to determine the model and media to use. Therefore, efforts to develop students' digital literacy skills at Ibrahimy University are carried out in a hybrid mode, as revealed by Hariyanto, Dean of the Faculty of Tarbiyah, Ibrahimy University, as follows;

> "Digital-based learning has been carried out by our lecturers, in addition to facilitating the learning process. Of course, it must be acknowledged because of the circumstances that demand to do that. So, the implementation of learning from the planning process to evaluation is carried out in a paperless mode with the help of the media."

C. Discussion

1. The Characteristics of Critical Digital Literacy

The research findings, as in the data presentation sub-chapter above, show that the characteristics of digital literacy in Islamic boarding schools have the following features:

a) Digital Tools Usage

The skill of using digital technology is one of the characteristics possessed by students in both research locations, both at Nurul Jadid University and Ibrahim University. These skills are in the form of student's abilities and skills in learning and using various kinds of digital devices so that they can help with their respective tasks.

According to Green (Sabilah et al., 2021), digital skills are abilities possessed by someone who can use digital technology online. Another definition of *digital skills* is the expertise possessed by someone in finding solutions to problems using digital technology. Digital skills

are also understood as a fundamental skills every individual needs to use the Internet and digital technology.

According to Van Laar (Rusmana, 2020), factors that can affect digital skills, namely:

1) Digital Information Skills require a person's ability to search for information, select information, and evaluate information online.
2) Digital Critical Thinking Skills, this skill requires someone to think critically to choose information in online media and be able to analyze information online.
3) Digital Creativity Skills, this skill requires creativity to compete with other workers. This skill includes someone who can generate an idea in the use of technology and can make good use of existing technology.
4) Digital Problem Solving Skills include utilizing the Internet and other digital technologies to solve existing problems or obstacles and using digital technology and the Internet to manage or analyze obstacles.

These digital skills relate to an individual's ability to know, understand, and use digital hardware, software and operating systems in everyday life (Legowo & Satriya, 2022). Skills in using digital include collecting, selecting, and evaluating all information, then forming it into new knowledge or strong opinions. According to Gilster (Purnawanto,

2021), digital competence is divided into four core competencies that a person needs to have, namely:

1) Search on the internet (internet searching); the Ability to use the internet and perform various activities.
2) Guide directions (hypertextual navigation); skills to read and dynamically understand hypertext and its devices. Competency:
    a. Knowledge of hypertext and hyperlinks and how they work.
    b. Knowledge of the differences between reading textbooks and electronic books or browsing the internet.
    c. Knowledge of how the website works
    d. Ability to understand the characteristics of website pages (Jannah & Atmojo, 2022).
3) Evaluation of information content (content evaluation); the Ability to think critically and assess what is found online, as well as identify completeness and information. Competence:
    a. The Ability to distinguish between display and information content is the perception in understanding the appearance of website pages.
    b. The Ability to analyze background information on the internet, namely awareness to explore more about the sources and makers of information.
    c. The Ability to evaluate website addresses by understanding the various domains.

d. Ability to analyze website pages.

e. Knowledge of FAQs in a newsgroup/discussion group (Rizki Septiana & Hanafi, 2022).

4) Composition of Knowledge (knowledge assembly), the ability to compile Knowledge, build a collection of information from various sources, and collect and evaluate facts and opinions properly. Competence:

a. Ability to create a personal newsfeed or notification of the latest news via newsgroups, mailing lists, etc.

b. Ability to analyze the information obtained.

c. Ability to use all media types to prove the truth of information.

d. Ability to compile sources of information obtained on the internet with real life.

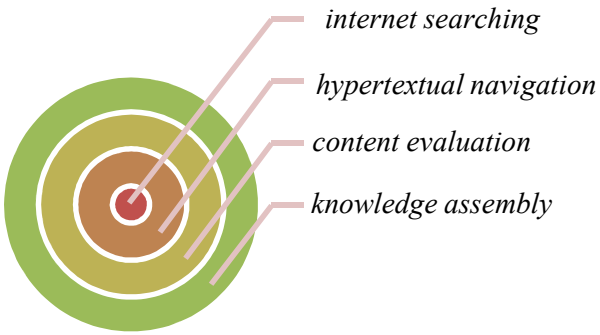
Said to be able to use digital devices at least able to:

1) Doing searches (browsing) on the internet.
2) Reading and writing through applications/websites
3) Access and download applications from the internet
4) Understand learning videos/tutorials from the internet.

The basic principles of skills in learning and using digital devices, according to Nasrullah (Fitriyani., Mukhlis, 2021), namely:

1) Understanding This means that the public can understand the information the media provides implicitly or explicitly.

2) Interdependence, meaning that the media are interdependent and related to one another.
3) Existing media must coexist and complement one another.
4) Social factors, meaning that the media share messages or information with the community. Because the sharers and recipients of information determine the long-term success of the media.
5) Curation means that people can access, understand and store information to read later. Curation also includes the ability to work together to find, collect and organize information that is considered beneficial (Hanik, 2020).



Digital Tools Usage

b) *Informational Skills*

The ability of informational skills is one of the characteristics of critical digital literacy skills that students at Nurul Jadid University and Ibrahimy University also possess. The results of the study show that these characteristics appear in the ability of students to manage information starting from the process of identifying problems, analyzing content, evaluating, interpreting, applying the information in solving problems, and

so on from digital sources such as Youtube, social media, journal websites, and so forth.

McQuaill in (Ashari, 2019) conveys three points of view regarding accurate information: according to the facts of the event, the perception or what the source of an event is talking about, and consistency in the exposure of information a news text.

For this reason, it can be understood that related to information capabilities in the digital world, a basic understanding is needed starting from identifying problems, analyzing content, evaluating, interpreting and applying the information to solve a problem.

1) Problem Identification

   In this case, identifying needs and problems and solving conceptual problems and problem situations in the digital environment by utilizing digital tools to innovate results and processes (Sholihatin et al., 2021). It is also helpful to stay up-to-date with digital evolution. A person's ability to solve technical problems when operating various devices in a digital environment and solve them (from solving problems to solving complex problems).

2) Content Analysis

   One should be aware that any content found on the internet is of different quality. It is improbable that the more content on the internet, the more often a person accesses it, and the more gradually he will understand which digital portals have good-quality information and

which digital portals have low-quality information and are even fake (hoaxes). *Hoax* is excessive and often unfiltered information that can lead to the spread of different information content with unknown truth. Hoaxes are considered a severe problem in the digital era (Asari et al., 2019).

Kompetensi menganalisis sudah seharusnya bisa medekonstruksi konten dimedia digital, dekonstruksi disini adalah metode pembacaan teks. Cara untuk membaca teks atau menganalisis informasi yang diterima bisa dilihat dari bahasnya, genrenya, sampai ciri khas atau kode (Saudah et al., 2022). Teks atau informasi yang didapatkan dari media digital seperti media social sebenarnya sudah didesain dengan tujuan tertentu, jadi informasinya sering bersifat subjektif. Maka dari itu sebagai guru dan pelajar harus bisa menganalisis informasi yang didapatkan, jangan langsung percaya begitu saja. Akan tetapi harus dianalisis dulu apakah kontennya itu sudah benar atau masih ada subyektif penulisnya ketikan kontennya dibuat.

Jika masalah informasi adalah perlindungan diri, maka menurut Potter dalam (Fachrurrazi & Hizli, 2021) yang paling menantang dari dunia media saat ini adalah seleksi, yakni kemampuan individu untuk memilah dan memilih informasi yang dibutuhkan (menganalisa). Kemampuan melakukan seleksi ini menjadi sedemikian penting karena budaya kita saat ini. Tanpa ada kemampuan seleksi, kita akan berada kelelahan informasi (*information fatique*).

Analytical competence should be able to deconstruct content in digital media; deconstruction here is a method of reading text. The way to read text or analyze the information received can be seen from the language, and genre, to characteristics or code (Saudah et al., 2022). Text or information obtained from digital media, such as social media, has been designed with a specific purpose, so the information is often subjective. Therefore, as a teacher and student, you must be able to analyze the information you get, do not just believe it. However, it must first be analyzed to determine whether the content is correct or whether there is still a subjective author when it is made.

If the information problem is self-protection, according to Potter (Fachrurrazi & Hizli, 2021), the most challenging in the current media world is selection, namely the individual's ability to sort and choose the information needed (analyze). This ability to select is so essential because of our current culture. Without the ability to select, we will have information fatigue.

Based on this, to be said to have digital competence does not only cover a person's technical abilities in using ICT tools or devices but also includes a person's knowledge and skills in understanding content so that, in the end, the goal is to be able to create new knowledge (Zainal & Kasmawati, 2022). Thus, the digital ability is a person's competency in using digital media to find, utilize, process, package, evaluate and disseminate information correctly, wisely and responsibly.

Digital technology has been integrated and positively changed all aspects, including educational institutions. Each school component has taken full advantage of technology and uses it more creatively. Teachers have created new ideas in the learning process with the help of computers and internet technology. There are at least three topics that need to be mastered in obtaining and analyzing content in education, namely:

a. Sources of Information can be categorized into primary, secondary and tertiary. Primary sources are sources when the Information has not been interpreted. Primary sources include reports, research, sales reports, speech texts, letters (physical and electronic), works of art, photographs, diaries, travel notes, interviews, and activity documentation. Secondary sources provide Information that has been interpreted, analyzed or summarized. Examples of secondary sources: books, journals, magazines, scientific and popular articles, news, criticism etc. Tertiary sources result from compiling data such as abstracts, bibliographies, encyclopedias, databases, manuals, etc. The most quality and credible sources of Information are primary sources because they have not been influenced by third parties perspectives and presentation techniques (Sudyana & Surawati, 2021).
b. The skill to seek Information begins with the ability to identify and find ways to search from various sources. There are at least five

sources of digital information search: (1) internet, (2) table of contents and indexes, (3) libraries, (4) databases, and (5) RSS feeds. Internet search techniques are concerned with how general and specific searches relate to a particular field. Teachers must also understand domain names (edu, gov, org etc). Search by image-sound or video by going through specific software or websites. Most proficient skills relate to sourcing (www.researchgate.com, scientific www.doaj.org, www.googlescholar etc).

c. Furthermore, source search via a table of contents, index, and search in pdf files helps to find sources of Information quickly. The library also has a collection tracking system that information users need to know. The system includes catalogues, periodicals, indexes, abstracts and reference books. Databases also provide much Information. Some popular ones are AGRICOLA, AGRIS/CARIS, EBSCO or Expanded Academic ASAP (Lukas et al., 2022).

3) Evaluation and Interpreting Information

This competency is a person's ability to think critically and assess what is found online, accompanied by identifying the validity and completeness of Information referenced by hypertext links (Widiarti & Saidah, 2022). This competency includes several components, including the ability to distinguish between display and information content, namely the user's perception in understanding the appearance of a visited web page, the ability to analyze the background information

available on the internet, namely the awareness to explore further about sources and makers of Information (Lukas et al. al., 2022).

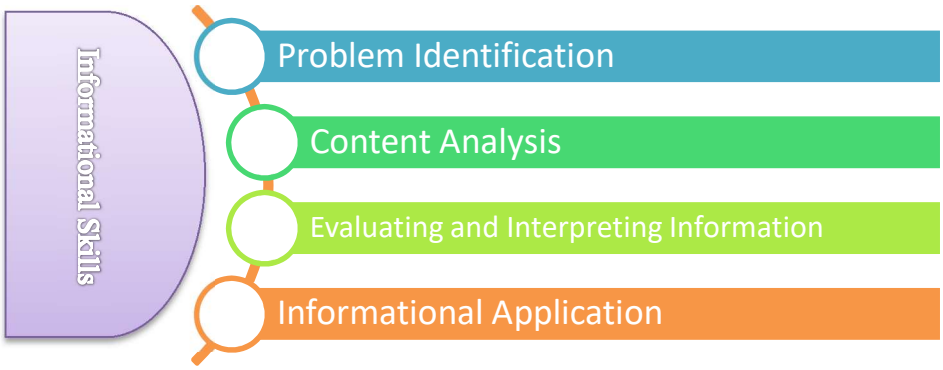
In a word, Lankshear and Knobel (Kustini et al., 2021) suggest that successful functioning in digital space and digital media requires plurality skills, starting with text literacy and technical skills and expanding cognitive aspects and socio-cultural strengths. Digital literacy is also related to the ability to understand information and evaluate and integrate information in various formats presented by computers (Sudyana & Surawati, 2021), including evaluating and interpreting information critically.

The context of digital literacy in the aspect of critical thinking is that users are expected to have the skills and knowledge needed to utilize technology with deductive reasoning, systems thinking, and analysis so that they can evaluate evidence, opinions, and information as well as synthesize, criticize, evaluate, and interpret information to conclude. , communicate information, complete tasks and use relevant technology to support each activity (Geraldine & Wijayanti, 2022). These skills can be developed in a forum to build digital literacy by increasing information literacy skills to build confidence and find and evaluate the information they find online or when sharing directions (Anggrasari, 2020).

4) Application of Information

The application of this information can be interpreted as an individual's ability to apply functional skills to digital devices so that he can find and select information, think critically, be creative, collaborate with others, communicate effectively, and still pay attention to electronic security and the socio-cultural context that develops in solving an ongoing problem (Anwar, 2021).

Applying this information also means a person can use digital concepts, facts, and procedures to obtain solutions, while the interpreting process is a person's ability to evaluate solutions and interpret them into problems (Anggrasari, 2020). In this case, a person can apply the information they get and apply it to the problems they are facing and will be facing.



c) Digital Transformation

The research results, as presented in the data, show that the characteristics of students' critical digital literacy appear in students' ability to create, design and produce digital content and present information in digital space following applicable laws and regulations. More specifically, the

characteristics of digital transformation abilities can be seen in the ability of students who successfully create applications and use various learning support applications such as Filmora or other applications and upload them on Youtube.

Thus, digital transformation in this context is in the form of individual awareness in fostering creativity and innovation in the digital world. This is also related to the individual's ability to create, formulate and produce digital content up to the stage of presenting information in the digital space. The rapid pace of the digital world should receive in-depth attention and study so that technology, especially in education, can positively impact and foster creativity within individuals to develop digital literacy (Zempi et al., 2022).

To be able to create, design and produce digital content, creativity is needed. Stenberg, Kaufman and Pretz (Selegi & Aryaningrum, 2022) define *creativity* as the ability to produce high-quality new products and have the individual ability to come up with ideas based on ways of thinking. Creativity is also understood as creating new combinations based on existing data, information or elements. A product does not always come from something new; it can also come from a combination of existing ideas or individual experience and knowledge (Resmadi & Bastari, 2022). In this case, creativity is divided into two, namely verbal and figural. Verbal creativity is a person's ability to combine new things based on data and verbal information. Figural creativity is a person's ability to develop new

ideas or ideas through the images he makes. Furthermore, Kaufman & Sternberg (Selegi & Aryaningrum, 2022) divides creative ideas into 3 (three) components as follows;

> *"Most definitions of creative ideas comprise three components. First, those ideas must represent something different, new, or innovative. Second, they need to be of high quality. Three, creative ideas must also be appropriate to the task at hand."*

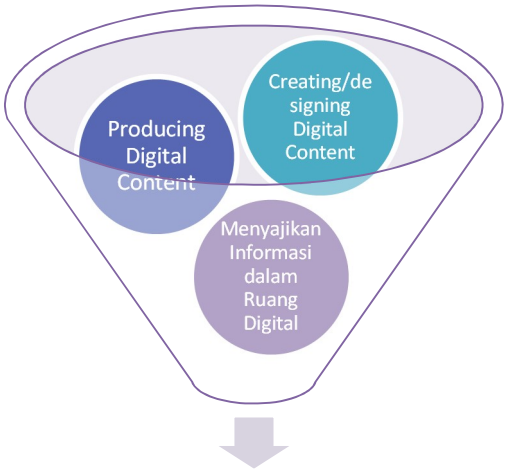
This means that creative ideas consist of three components: first, the ideas must represent something different, new, and innovative. Second, individuals who have good quality. Third, creative ideas must follow the task at hand. The point is creative based on the goals and targets to be achieved. In addition, one way to determine creativity, according to Kaufman & Sternberg, is by using the "four P's" model, namely the presence of person, process, product, and press. A person is defined as a person related to personality, intelligence, temperament, physique, habits, attitudes, self-concept, value system, and behaviour that exists in individuals. The process is someone who gets in trouble by making assumptions, formulating hypotheses, repairing, and checking again to produce something. A product is a product that is produced based on the ability to create something new. The press is an individual motivation in the form of creative abilities that have the initiative to produce unusual creativity. His personality, motivation, and intelligence shows he is creative. Digital literacy creativity can be interpreted as someone who has creative ideas in an individual interest, attitude, and ability to use digital technology and communication tools to access, manage, integrate, analyze and evaluate information, build

new knowledge, and communicate with others to participate in society (Selegi & Aryaningrum, 2022).

The ability to think creatively is a way of thinking that brings something new and produces creative ideas that impact individual creativity. The thinking process underlying a product is the same as the process in everyday activities (ordinary thinking). For this reason, so that creative ideas in an individual can be appropriately channelled and provide benefits, the right place for implementation is needed, namely through digital literacy. The application of digital literacy needs to be considered in the teaching and learning process (Nubatonis, 2021). The goal is that there is supervision of the use of digital media so that these skills must be accommodated in the classroom and outside the classroom. These skills must be put to good use by a person in order to acquire cognitive, social, language, visual and spiritual skills. The application of digital literacy in learning is expected to benefit a student in channelling ideas and finding suitable information sources.

Then for a person's ability to present information, things need to be introduced to ensure that the individual can produce and present information without disturbing the rights of others, namely honesty in work. If someone uses another person's work in their work, they must include that person's contribution (Resmadi & Bastari, 2022). Intellectual Property Rights, abbreviated as "IPR", arise from the results of the human brain's thought that produces a valuable product or process for humans. In general, IPR

includes two parts, namely: Copyrights and Industrial Property Rights, which include: Patents, Trademarks, Industrial designs, and Layout designs of integrated circuits.), trade secrets, geographic indications and plant variety protection (PVP). Furthermore, intellectual rights in writing work are related to Plagiarism (Marhamah & Fauzi, 2021). According to the Regulation of the Minister of Education of the Republic of Indonesia Number 17 of 2010, "Plagiarism is an act intentionally or unintentionally in obtaining or trying to obtain credit or value for scientific work, by quoting part or all of the works and or scientific works of other parties which are recognized as scientific works, without stating appropriate and adequate sources.



Digital Transformation

d) Cultural and Social Understanding

Pemahaman terhadap kondisi social dan budaya menjadi salah satu karakteristik kemampuan literasi digital peserta didik di Universitas Nurul Jadid dan Universitas Ibrahimy. Kemampuan tersebut adalah satu satu

Understanding social and cultural conditions is one of the characteristics of students' digital literacy skills at Nurul Jadid University and Ibrahim University. This ability is one of the characteristics of students' critical digital literacy skills in using digital technology by using the media as a tool for understanding culture and social interaction in society, which is a practical bridge in exploring social analysis and discourse analysis.

This shows that the world of information technology, which offers various conveniences with a culture of automation, on the one hand, offers benefits for humans. Many jobs previously depended on other people, demanding much time, energy and excellent physical abilities. With digital systems or devices offering semi-automatic solutions, this dependence can be reduced (Fitriarti, 2019). These conveniences are increasingly unknowingly forming a new culture, namely an instant and individualist culture.

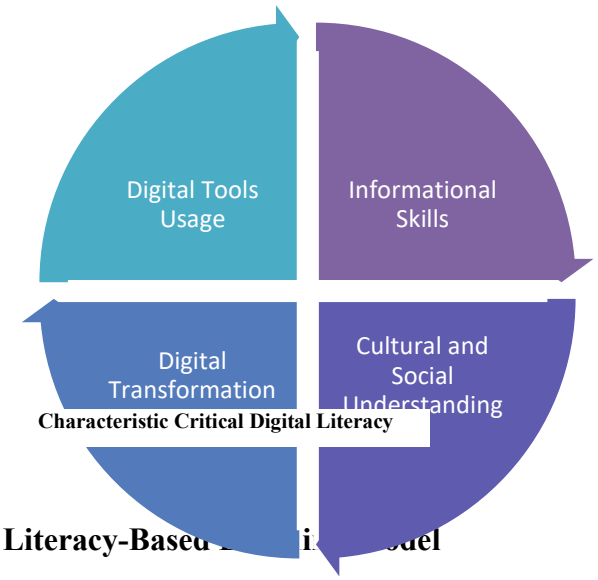
At present, it is still rare for state defence methods and materials to prioritize presentation in a dialogic way, brain-sharpening activities or cognitive aspects, which are the accumulation and results of brain processing of data, information, and knowledge acquired by humans, so that they can strengthen the ideology of the participants towards the four pillars of nationality. , namely Pancasila, UUD 45, NKRI, and Unity in Diversity (Assad & Nasaruddin, 2021). Awareness of defending the country among the younger generation in the digital era still needs to improve. They need care and a sense of responsibility in advancing the nation and state, there

are still frequent conflicts between youths, and there is still a need for social solidarity. They have not been able to accept the differences that exist sincerely, and they have a reduced attitude to appreciate the nation's culture and the development of hedonic, pragmatic, materialistic attitudes and others. This phenomenon shows the low awareness of defending the country, which is believed to weaken national security.

For this reason, these cultural and social elements mean that one's intelligence or ability in the digital world must also be able to make digital devices a tool to create a civil society or have a better social order. It is also a form of community activity in the digital space while still having national insights, Pancasila values, and diversity.

Based on research from linguists, cultural and social elements in this digital era have the characteristics of the times, and develop from the times due to the acceleration of the pace of life. Modern social language presents new trends. Many non-text symbols appear in language books to express all kinds of words. Read thoughts and emotions (Amelia & Rudiansyah, 2020). With the advent of the digital era, research utterances also have digitization characteristics. Language Variations Given the aspects of symbols, arbitrariness, and conventions which cause no language to be the same, languages also have variations. However, linguistic experts are still debating with each other to determine what factors are dominant in causing language variations. Joshua A. Fishman (Arizal et al., 2021) emphasized that communicating with language is not only determined by linguistic factors.

But also by non-linguistic factors, such as social and situational factors. Social factors, among others, include social status, education level, economic level, age, and gender. Meanwhile, situational factors, among others, include who speaks, in what language, to whom, when, where, and what issues are discussed (Darwanto et al., 2022). According this assertion, it means that the dominance of social factors and situational factors in language use will affect the emergence of language variations.



Characteristic Critical Digital Literacy

2. The Critical Digital Literacy-Based [illegible]odel

In achieving learning success, the environment is one of the supporting factors. A comfortable place and learning environment makes it easier for students to concentrate. The results of research conducted at Nurul Jadid University and Ibrahimy University show that one of the learning strategies carried out by educators who are oriented towards achieving critical digital literacy skills is carried out through the learning environment.

Children's cognitive development involves progressive learning processes such as attention, memory/memory, and logical thinking (Miftah, 2022).

There are 7 factors that influence children's cognitive development, including:

1) Heredity/heredity factors.

   A philosopher Schopenhauer in _ argues that humans are born with certain potentials that cannot be influenced by the environment. Dan linzhey and spuhier dalam_ argue that 75-80% intelligence is inherited or hereditary.

2) Environmental factors.

   Locke argues that humans are born in a state of purity like a white paper that is still clean without the slightest writing or stains. Based on this, the level of intelligence is largely determined by the experience and knowledge he gets from his environment (Yanuardianto, 2019).

3) Maturity factor.

4) Organ factors (physical and psychological) can be said to be mature if they have achieved the ability to carry out their respective functions. Maturity is closely related to chronological age (calendar age).

5) Formation factor.

   Formation is all circumstances outside of a person that affect the development of intelligence. Formation can be divided into intentional formation (formal school) and unintentional formation (the influence of the environment). So that humans act intelligently because to maintain life or in the form of adjustment.

6) Factors of interest and talent.

As for talent, it is defined as an innate ability as a potential that still needs to be developed and trained so that it can be realized. One's talent will affect the level of intelligence. This means that someone who has a certain talent, it will be easier and faster to learn it.

7) The freedom factor.

Freedom, namely the freedom of humans to think divergent (spread) which means that humans can choose certain methods in solving problems, also free in choosing problems according to their needs (Santoso et al., 2022).

Among the 7 factors above, it can be concluded that the factor that most influences a child's cognitive development is environmental factors. Because, there are so many successful people who come from parents who are not highly educated. And also several factors of the six factors refer more to environmental factors.

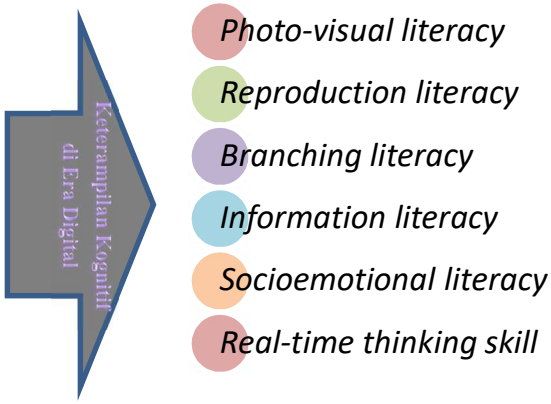
According to Gilster (Fatimatuzahroh et al., 2019), the digital era is the ability to understand and use information in various formats from various sources, emphasising particular cognitive challenges associated with integrating analogue and digital media. Based on research also conducted by Hsin, Li, and Tsai (Mudarris, 2022) shows that the average child who participates in learning that uses technology as a learning medium has a positive impact on children's abilities in cognitive aspects in

terms of language, literacy, mathematics, science, digital literacy, cognitive abilities.

Eshet-Alkalai and Aviram and Eshet-Alkalai (Susetyo & Firmansyah, 2023) developed a digital literacy conceptual model consisting of six skills, arguing that it covers all the cognitive challenges faced by users of the modern digital environment:

1) Photo-visual literacy works effectively with digital environments, such as user interfaces, which use graphical communication.
2) Reproduction literacy creates authentic, meaningful written and artistic works by reproducing and manipulating pre-existing digital text, visuals and audio.
3) Branching literacy is the ability to construct knowledge by nonlinear navigation through knowledge domains, such as on the Internet and other hypermedia environments.
4) Information literacy is the ability to consume information critically and sort out incorrect and biased information.
5) Socioemotional literacy communicates effectively in online platforms like discussion groups and chat rooms.

6) Real-time thinking skills are the ability to process and evaluate large amounts of information in real-time, such as in computer games and chat rooms.



The era of rapid information technology development has massively affected school activities. New information and knowledge spread easily to anyone who needs it (Aji, 2019). Education experienced a very great disruption. The role of the teacher, who has been the only provider of knowledge, has more or less shifted away. In the future, the role and presence of the teacher in the classroom will be increasingly challenging and also require very high creativity (Djumadi et al., 2021). The 21st century was marked by the era of the industrial revolution 4.0, society 5.0 as the century of openness or the century of globalization, meaning that human life in the 21st century experienced fundamental changes that were different from the order of life in the previous century.

It can be said that the 21st century is a century that demands quality in all human endeavors and results. The 21st century itself demands quality human resources, which are produced by professionally managed

institutions so as to produce excellent results (Nazidah et al., 2022). These new demands call for breakthroughs in thinking, drafting, and actions.

In the context of 21st century learning, learning that applies creativity, critical thinking, cooperation, communication skills, social skills, character skills, and argumentation skills must still be maintained as educational institutions for students who require technical skills (Patampang, 2020). Utilization of various supporting learning activities. is a must with the resource sharing model with anyone and anywhere, classroom and lab learning using augmented with virtual materials, is interactive, challenging, and content-rich learning is not just complete.

Critical thinking skills help students' reasoning in identifying and finding things. Furthermore, Puspita & Jatmiko in (Nurdiansyah et al., 2021) added that critical thinking skills help students solve problems that are present in the learning process through natural phenomena. Implementation of learning using the inquiry model has a positive and better influence on student learning outcomes compared to conventional learning models such as lectures.

In today's digital era, the ability to think critically is a very necessary ability so that students are able to face changing circumstances or challenges in an ever-evolving life. The ability to think critically trains students to make decisions from various perspectives carefully, thoroughly and logically (Sukarno et al., 2022). Efforts to make students' critical thinking skills and mastery of students develop better, one of the ways is to develop a learning

model in a direction that is better, effective, conducive, fun or different from what is usually done in these schools, namely conventional learning where learning activities are still dominated by the role of the educator. .

Critical thinking is an important element of inquiry, innovation and problem solving. Students who have critical thinking will effectively be able to solve problems in their lives. The ability to solve problems is one of the basic competencies that students must possess in the 21st century (Agustina, 2022). It aims to promote new experiences in students by finding solutions and solving problems. Problem solving activities are integrated into the learning process, thereby helping students to construct new knowledge.

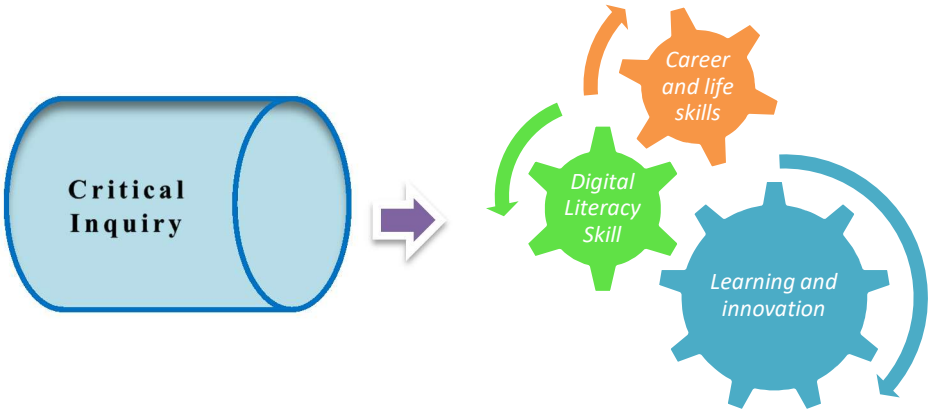
Critical thinking skills are students' ability to think and act based on their knowledge as a result of learning. This critical thinking ability can be tested through an essay test based on indicators of critical thinking ability. Indicators of critical thinking skills include: providing simple explanations, building basic skills, concluding, providing further explanations, and organizing strategies and tactics (Nazidah et al., 2022). Mastery of concepts in learning can be known through the learning outcomes obtained by students using essay tests made based on indicators of mastery of concepts, while indicators of mastery of concepts in this study include: remembering (C1), understanding (C2), applying (C3), analyzing (C4), evaluate (C5), and create (C6).

While learning the Inquiry Learning model according to Setiawan and Royani in (Sukarno et al., 2022) the steps are as follows:

1) Presenting a question or problem
2) Make a Hypothesis
3) Designing the experiment
4) Conduct experiments to obtain information
5) Collect and analyze data
6) Make conclusions.

Furthermore, through the inquiry process, students develop the skills described in Fadel's description of the Skill Set of 21st Century Learners (Aji, 2019), namely:

1) Learning and innovation which consists of critical thinking and problem solving, communication and collaboration, creativity and innovation.
2) Digital Literacy Skill which consists of information literacy, media literacy and ICT literacy.
3) Career and life skills consisting of flexibility and adaptability, initiative and self-direction, social and cross-cultural interaction, productivity and accountability, leadership and accountability.



In addition, education in the current era requires teachers and parents to always provide innovation in the guidance and teaching process. Teachers and parents in essence must have the duty and authority to work together in the education of students, the teacher is tasked with trying to see how a student is able to have intelligence, good behavior and skills while parents are primarily responsible for how to form good education, especially moral education. so that students can develop properly and be able to develop their full potential (Hasriadi, 2022). This collaboration is very important because parents and teachers are educators and mentors who deal directly with students every day.

Education has experienced a shift starting from the learning system, concepts to the learning methods used by educators. So that there is a need for teacher creativity in adjusting to increasingly rapid technological developments. Apart from being guided by educators to keep abreast of globalization developments, a teacher is also required to be able to present teaching material through several technologies and teachers must be diligent in updating information related to current technological developments (Rihlasyita & Rahmawati, 2022). Where today's technology is not only used to communicate easily with people who are far away, but this technology will really help make it easier to get broader learning resources.

Therefore, the challenge for a teacher is to be able to utilize and use technology as well as possible to support the development of students to be better and not to be left behind by the fast developments of the times

(Rahman et al., 2022). A teacher in this globalization era may not close himself to these developments, but the teacher needs to make this opportunity to be creative in using digital in the delivery of learning materials, as previously only using printed books to teach now uses PPT and Power Point media which are more interesting. learn students.

The use of technology is not only effective in teaching activities, but can also make it easier for students to communicate with teachers. Students are currently learning technology very quickly, they are able to operate various devices to support their activities in order to balance themselves with the development of activity patterns of children who actively use technology, teachers must continue to learn and understand technology which is dynamic in nature (Latif, 2020). Creative ideas that arise from a teacher are needed to make changes to the learning process to be more interesting and encourage students' enthusiasm. In today's all-digital era, teachers need to use learning methods by utilizing technology and the internet because in general, the younger generation now prefers things that are up-to-date.

The meaning of active involvement in this case is a learning approach that involves more student activities in accessing various information and knowledge to be discussed and studied in the learning process in class, so that they get various experiences that can increase their understanding and competence (Rudini & Khasanah, 2022). More than that, active learning allows students to develop higher-order thinking skills, such

as analyzing and synthesizing, as well as evaluating various learning events and applying them in everyday life.

Teachers must increase creativity about how students learn to construct knowledge, for example how to create a learning environment that allows students to learn actively and independently from various learning sources, which allows students to build their competencies as a whole, from basic competencies to high-level competencies (Puspitasari et al. , 2021). In addition, in the midst of an abundance of information and digital learning resources that can be accessed quickly and broadly, teachers must be able to be a pioneer of honesty in learning, for example being honest by showing the sources of digital teaching materials used, being honest that they have not accessed certain digital information that is needed, and so on.

Based on these global digital issues, logical consequences can be derived for the teacher's role in today's global digital society. In this case the teacher can have at least several important roles in global digital-based education, namely as a carrier of change, knowledge reformer, and learning consultant as follows:

a. Change Mission

Change is an eternal thing in life. Change management does not only mean a passive response to these changes but also how one can actively and intensively plan for change (N. G. Wahyudi, 2019). In this context the teacher's role must move from an "answer provider", that is someone who processes and presents the knowledge needed in dealing

with change, to a "change carrier" that is someone who helps students find the knowledge needed to deal with change, and helps them to be able to actively strategize personal development. In other words, the teacher's role in the digital knowledge era, namely overcoming the potential shock of change, helping students start a new vision for the future, motivating leadership for them to be able to help themselves in starting their respective roles, and helping them to be able to continue development programs self.

b. Knowledge reformer, information development has been decentralized a lot since the era of computer development. The rapid development of digital network technology followed by the principle of information disclosure allows people to exchange information and share multiple sources (information exchange and resource sharing).

To be able to make students actively involved in learning in the digital era, a collaborative strategy is an inquiry strategy. One of the characteristics of the inquiry learning strategy is that it places more emphasis on the maximum activeness of students to seek and investigate, meaning that students are the main subjects or actors in learning activities (Tarihoran, 2019). Students not only receive material from the teacher, but students are also invited to think critically so they can find the essence of the lesson. Of course the teacher's role as a guide and facilitator is needed, so that the learning process can be directed and in the end good social interaction is maintained in learning. Therefore, the inquiry strategy is an

effective strategy to be implemented in the era of society 5.0 where this strategy emphasizes more on students to actively find solutions and the essence of each learning topic being discussed. In addition, this strategy also trains students to develop themselves to think more critically, creatively and innovatively, because these competencies are very much needed in society 5.0, namely trying to innovate and solve problems faced in everyday life by combining the power of creativity using technological media that can build a more advanced society.

Meanwhile, critical reflection in learning is an extension of critical thinking. It asks us to think about our practices and ideas and then challenges us to step back and examine our thinking by asking probing questions (Wibawanto, 2021). It asks us to not only study the past and look at the present but also importantly asks us to speculate about the future.

Critical awareness is meant to refer to the process by which learners improve analytical skills, deal with problems, and take action in social, political, cultural, and economic contexts that affect and shape their lives (Alwan, 2022). This sensitivity is needed to understand the prevailing social structure in their environment so that they can be free from risks and acts of oppression and arbitrariness. Furthermore, transformative learning which is oriented towards critical reflection was initiated and developed by Jack Mezirow. In his view, students need to be conditioned to build critical reflection on their initial assumptions by confronting them with other assumptions that are substantially different or with facts that "shake" these

initial assumptions (Zubaidi & et al, 2022). Through this critical-reflective process, new perspectives can be formed and then become the basis for students' actions. This change in perspective with a rational-cognitive approach is the emphasis in Mezirow's transformative learning.

Transformative learning is a process of influencing changes in a concrete frame of reference. Throughout life, we develop various concepts, values, feelings, responses, and associations that shape our life experiences (Fitriana & Khoiri Ridlwan, 2021). It is that frame of reference that helps us to understand our experiences in this world. According to Mezirow, life experience itself consists of two dimensions, namely habit of mind and point of view. Our habits of mind are very broad and are habits that can be articulated through point of view. Transformative learning is related to how to change the frame of reference through critical reflection on habits of mind and points of view (Marpelina, 2021). For example, critically reflecting on consumption and production patterns can have an impact on our own consumptive behavior. Through critical reflection we can transfer understanding, change world views and create transformative learning experiences.

Transformative learning is concerned with changing frames of reference through critical reflection on habits of mind and points of view. For example, critically reflecting on consumption and production patterns can have an impact on our own consumptive behavior (Bayu Aji & Asnawi Tohir, 2020). Through critical reflection we can transfer understanding,

change world views and create transformative learning experiences. Mezirow in (Yampap & Bay, 2020) argues that the structure of the framework of students is developed through culture and language, because in the end students try to understand their experiences. Once this framework is established or programmed, students move through the activity, lesson, or classroom with the same frame of reference. Transformative learning moments invite experiences that change students' perceptions of the world around them and in turn shape understanding, beliefs, hopes, and goals.

improve analytical skillsMezirow in (Zubaidah, 2010) divides reflection into three types, namely content reflection, process reflection, and premise reflection. Of these, content reflection and process reflection usually change how we feel, leading to changes in our schemas of meaning. However, only the occurrence of premise reflection will cause a transformation in the perspective of individual meaning.

CHAPTER V

CLOSING

A. Conclusion

Based on the research results, it can be concluded that;

1. The characteristics of critical digital literacy at Nurul Jadid University and Ibrahimy University consist of digital tools usage, informational skills, digital transformation, and cultural and social understanding.
2. The critical digital literacy-based learning model at Nurul Jadid and Ibrahimy Universities is carried out in a different form. However, it is generally done in the form; a) preparing an environment based on digital media; b) digital-based learning simulations; c) implementing digital-based learning; and d) critical inquiry.

B. Theoretical Implication

The research findings above confirm that the characteristics of critical digital literacy at Nurul Jadid University and Ibrahimy University consist of digital tools usage, informational skills, digital transformation, and cultural and social understanding. The four abilities that are characteristic of critical digital literacy in Nurul Jadid University and Ibrahimy update the theory of Kaeophanuek et al., which states that students, namely possess three basic abilities; 1) informational skills, in the form of basic skills in managing information starting from the process of identifying problems, analyzing content,

evaluating, interpreting, applying the information in solving problems, and so on; 2) digital tools usage, in the form of skills in learning and using various kinds of digital devices so that they can help students assignments; and 3) digital transformation, in the form of the ability to create, design, and produce digital content and present information in a digital space following applicable laws and regulations. The differences in these characteristics depend on the uniqueness of the research location. Islamic boarding school-based higher education which is the locus of this research, is a factor forming the characteristics of students' ability to use digital media critically.

The critical digital literacy-based learning model at Nurul Jadid and Ibrahimy Universities is carried out in the form of a different strategy, which consists of a) preparing an environment based on digital media; b) digital-based learning simulations; c) implementing digital-based learning; and d) critical inquiry detailing the theory of Sirotnik & Oakes and EriŞen. EriŞen explained that a transformative learning process could be carried out through critical reflection. According to EriŞen, critical reflection on one's premise can produce a much more profound transformation than a reflection on content or process. Likewise, the results of research from Sirotnik & Oakes found that in cultivating cognitive skills that are characteristic of learning based on critical digital literacy abilities, an inquiry-based learning model is needed combined with critical theory. The critical inquiry learning model is a learning model that emphasizes the involvement and active participation of students.

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