Digital Technology for Non-Formal Learning during the Covid 19 Pandemic

Rosmawati Harahap[1], Sutikno Sutikno[2], Saiful Anwar Matondang[3]

[1] Universitas Muslim Nusantara Al Washliyah, Medan, Indonesia; rosmawati@umnaw.ac.id

[2] Universitas Muslim Nusantara Al Washliyah, Medan, Indonesia; sutikno@unmaw.ac.id

[3] Universitas Islam Sumatera Utara, Medan, Indonesia; saiful.matondang@fkip.uisu.ac.id

ARTICLE INFO	ABSTRACT
	Non-formal schooling was affected during the Covid-19 pandemic. The goal of this study was to look at how digital technology may be used in the Non-Formal Education Program. We looked at how digital technology is transforming traditional labor structures and transitioning them to online models using a literature study. The data analysis used in writing this article is a content analysis technique, namely drawing conclusions after identifying data with special uniqueness in a systematic and objective manner**.** According to the data, digital technology has an influence on home learning (LFH). Because of the advent of digital technology, students are utilizing online programs to replace face-to-face educational paradigms. Both the non-formal and formal education models have benefits, such as instructors' digital competency in building online course programs, knowledge of parents' digital modes, and the potential of students' networks to study with digital devices. The right technique for all schooling must be devised. However, it has various flaws, including low motivation and poor skill development if not used in conjunction with the appropriate approach. As a result, for the online learning process to be successful, especially in non-formal education, the correct method must be developed.

Corresponding Author:
Saiful Anwar Matondang
Universitas Islam Sumatera Utara, Medan, Indonesia; saiful.matondang@fkip.uisu.ac.id

1. INTRODUCTION

Other than formal and informal education, non-formal education is also another type of educational institution. Non-formal education strives to give educational opportunities to persons who are unable to attend regular school for a variety of reasons. Government organizations, the corporate sector, entrepreneurs, and individuals provide non-formal education outside of the classroom (Pihlainen et al., 2021). Non-Formal Education (NFE) sprang from a variety of educational

reform initiatives in nations all over the world, including the United States, Europe, Asia, and Africa. Non-formal education attempts to improve community literacy, alleviate poverty, empower women, provide village training, and provide adult skills education, among other things (Muttaqin & Faishol, 2018). The essence of knowledge in non-formal education is the study of the process of human formation and learning activities that are designed consciously and systematically in the interaction between teachers and learning resources or learning citizens, as well as between learning citizens and learning citizens.

Non-formal education is part of the Indonesian National Education system, which aims to educate the nation's life by requiring its determinants to pay attention to those who are less fortunate in their education. Out-of-school education teaches individuals who are not taught in the school system. That is why out-of-school education was developed to complement rather than compete with the educational system. Out-of-school education provides access to a variety of types and patterns of education and teaching for those who do not have access to opportunities through the school system, as well as those who have completed school programs but require additional skills and attitudes not available through the school system (Shomedran & Karmila Nengsih, 2020). Non-formal education leads to national education's main goal of educating the nation's life, namely developing humans, namely humans who believe and fear God Almighty, have noble character, have the ability and skills, are physically fit and independent, and have a sense of social and national responsibility (Elihami & Suparman, 2020).

Outside of school, non-formal education should be done face-to-face. Because non-formal education is intended to help students develop abilities and skills that they would not be able to acquire through formal education, The COVID-19 epidemic, on the other hand, has had a devastating influence on the school system. This outbreak has affected learning activities at all levels, from school to home; from face-to-face to online. Apart from formal and informal education, non-formal education has also been affected by the COVID-19 pandemic problem in Indonesia. Non-formal learning procedures must adapt to changes in the learning process from face-to-face to online learning. To carry out the online learning process, many strategies must be devised. Distance learning requires collaboration between institutions, teachers, students, and parents to be successful.

The use of digital media as learning has undergone significant development. The presence of digital media provides a variety of educational innovations, where rigid and monotonous conventional learning will be replaced by learning using digital media which is considered more practical, flexible, not limited by space and time. Technology is expected to be the answer to the problems of access, quality, and social justice in education (Serdyukov, 2017). Because, one of the impacts of the pandemic is the widening inequality in access to quality education. The use of technology in education and learning, call it the use of e-learning for example, is actually a representation of the use of technology in education and learning. Digital technology in education is not only about the physical contribution of technology as a learning tool but also a multidimensional concept. Educational Technology is the study and ethical practice of facilitating learning and improving performance by creating, using, managing appropriate technology processes and resources.

When the educational system shifts from face-to-face to online learning platforms, there will undoubtedly be a variety of beneficial and bad consequences (Simamora, 2020). There are many learning models that teachers can choose from, for example project-based learning (PjBL), experiential learning, problem-based learning, flipped-peer learning models, meaningful learning, and many more. When learning is built up using interactive approaches, students' motivation and interest might rise. However, if the organizers are not prepared to integrate digital technology in the learning process, boredom and other negative outcomes may result. As a result, the goal of this research is to see how digital technology affected non-formal education during the COVID-19 pandemic.

2. METHODS

This study uses a library research method with a focus on studying the use of digital technology in non-formal education in the era of the COVID-19 pandemic. Literature research is research conducted by reading and collecting relevant references from reference books, scientific journals, and manuscripts (Zed, 2004). Literature study begins with collecting several library sources such as journals, both national journals and relevant international journals. This article examines 30 journals consisting of 10 national journals and 20 international journals. By comparing data from each library source as well as supporting ideas, it will find the relationship with each other so as to obtain the novelty contained in this article. The data analysis used in writing this article is a content analysis technique, namely drawing conclusions after identifying data with special uniqueness in a systematic and objective manner. The results from the collection of library sources in this study were used to draw conclusions about digital technology for non-formal learning during the COVID 19 pandemic. This study departs from the perspective of changes in the learning system due to restrictions on social mobility to prevent the transmission of COVID-19. The author explores the literature through relevant references to answer research questions, which are then poured into sub-refining. Data analysis includes activities such as (1) collecting relevant data to answer research questions, (2) reducing data by summarizing relevant important points, (3) classifying and classifying data systematically, (4) conducting data analysis by comparing and analyzing data in its entirety, and (5) presenting findings (Fraenkel & Wallen, 1993).

3. FINDINGS AND DISCUSSION

Non-formal education in the national education system

In addition to formal and informal education, non-formal education is a type of education in Indonesia. Non-formal education differs from formal education in several ways. Non-formal education is mainly done outside of the classroom (in different facilities and at different times). Non-formal education focuses on the development of learners' skills and attitudes. Non-formal education, according to studies, meets students' skills and needs better than formal education. This is due to the non-formal education curriculum's flexibility and openness in adapting to students' needs and interests. Non-formal education students are members of the community who have never attended school, have dropped out of school, or have dropped out of school at a young age, as well as job seekers who require skills and want to improve their professional abilities and skills (Ullah et al., 2021)

A non-formal school might be chosen for a variety of reasons. The desire to enhance one's abilities and skills is frequently the driving force motivating non-formal education. Another feature that encourages people to pursue non-formal education is a fun and relaxing learning environment. Motivation, on the other hand, is a crucial component to consider in non-formal education. Non-formal education participants' motivation may be more intrinsic than formal education participants' motivation since the desire to learn originates from inside the participants rather than external causes such as the national school curriculum or family pressure. Non-formal education can serve as an excellent supplement to, or replacement for, conventional education (Kedra, 2021).

Non-formal education includes part-time "second chance education" for those who cannot benefit from regular classes, youth clubs with educational goals, adult and continuing education, community education, personal development programs such as culture, language, fitness, and sports, and professional and vocational programs for the unemployed and upgrading workforce (Latchem, 2014). As a result of the spread of globalization, wider markets, and new technologies, ongoing investment in education and training is seen as critical to increasing the abilities of a growing percentage of the world's population.

Non-formal education can be divided into three inseparable components of education, namely: first, literacy education, namely the non-formal education component that functions to provide basic knowledge of reading, writing, arithmetic, and basic education, and training. education. Second, basic

education, which is a component of out-of-school education that functions to provide education that is equivalent to basic education (SD and SMP), and third, continuing education, which is a component of non-formal education that aims to provide further education, such as further education. Business skills courses and training are used to provide livelihoods, professional skills, abilities, and other life skills, including abilities equivalent to high school, early childhood education to ensure readiness for school at school age, and education of women and people who are still behind in terms of education and the economy (Aryanti et al., 2015)**.** Furthermore, because non-formal education may serve as an alternative to, as well as a supplement to, formal education, it must be able to reach all levels of society from multiple viewpoints, such as economics, age, and culture (Ishak et al., 2020).

Based on the preceding debate, it is determined that non-formal education is an essential educational system for improving people's talents. Non-formal education is critical in providing a platform for those who are unable to participate in conventional education, such as students who have dropped out. It is hoped that the purpose of national education, i.e., the formation of pupils with noble character and character, can be fulfilled through non-formal education.

Digital Technology in Education

The COVID-19 pandemic is causing a slew of difficulties, and digital technology is considered a method to solve them. Face-to-face activities have been reduced because of restrictions on social mobility imposed to break the chain of COVID-19 dissemination (Suryaman et al., 2020). As a result, the learning process has evolved to include online courses. Using digital technology to carry out the learning process throughout the COVID-19 era is a necessary step (Wargadinata et al., 2020). Digital technology has been used in the education system at all levels, from preschool to university, including non-formal institutions. Most training and tutoring institutions have switched to online learning from face-to-face instruction. During the COVID-19 pandemic, digital technology was used to assist, inform, and enhance the learning process (Riyan Rizaldi et al., 2021). In the online learning process, both asynchronous and synchronous learning procedures are used. As many as 69.9% of students favor asynchronous learning techniques in online learning, according to Okoye et al. (2021), since they may learn at their own speed, anywhere, at any time. Furthermore, 53.6% of those who study in a synchronous format said that online learning motivates them since it allows them to stay current with their studies.
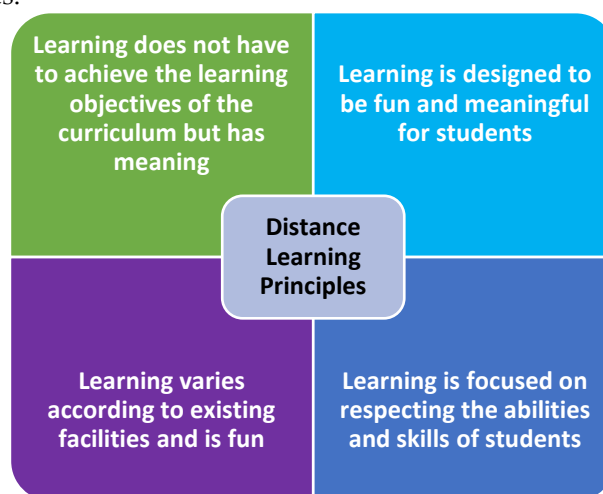

Fig 1. Distance Learning Principles

Technology is a catalyst for tremendous innovation and change, especially in the current era of the new normal and the post-COVID-19 pandemic. Utilizing learning technology appropriately as needed will encourage the achievement of the learning objectives themselves. Facilitators of non-formal education have the freedom to design learning designs that will be applied in their respective classrooms, both physically and virtual. The role of education/facilitator in developing non-formal education learning activities must be able to engineer an interesting, varied, repetitive, and increasing

student learning experience. The end of the achievement of learning objectives is at the level of student performance. The learning technology interventions that are selected and designed must be in accordance with the conditions and needs of students/learners in their respective regions.

According to several pieces of research, online learning approaches can raise students' motivation to learn while also improving their learning outcomes (Puspitarini & Hanif, 2019; Tambunan et al., 2018; Viberg et al., 2020). The online learning method can eliminate time and location constraints, allowing students to access learning materials at any time and from any location. Students are more motivated to study because of the many features supplied by digital technology, such as movies, photos, modules, and other intriguing elements (Puspitarini & Hanif et al., 2019). Students' creativity, collaborative abilities, and freedom are all enhanced by the digital learning environment. Furthermore, digital learning encourages students to think critically via problem solving and improves student involvement in the learning process (Chiu, 2022; Supriyatno et al., 2020). The use of technology in education may lead to a learning environment in which the student is at the center of the process, the knowledge is relevant to real-world challenges and themes, and the learning process is tailored to the learners' unique qualities (i.e. learning styles). This strategy is frequently believed to be crucial in promoting higher-order thinking, information reasoning abilities, and collaborative learning in students. In comparison to the teacher as the lone source of knowledge, technology has untapped capabilities to increase the quality of education by providing access to a limitless number of sources (Yurtseven Avci et al., 2020). The effectiveness of the digital learning process will be determined by communication between professors and students. In addition, the effectiveness of the online learning process is aided by the cooperation of internet facilities, parents, and school aspects. According to the above theory, the numerous aspects given by digital technology, such as videos, images, modules, and other creative features, are vital to increasing students' learning motivation. Digital technology fosters student creativity, collaboration, and independence.

The effect of using digital technology in non-formal education during pandemic covid-19

Several studies show that incorporating digital technology into the instructional process might help pupils learn more. In addition to needing to follow the COVID-19 health regimen, numerous activities, including school activities, are restricted because of COVID-19. The learning process moves away from face-to-face teaching and towards learning from home (LFH). LFH is seen to have the potential to become one of the government's measures for breaking the coronavirus's chain of transmission. The shift from face-to-face to online learning has a variety of beneficial and negative consequences for schools, students, and teachers. Digital technology can help to foster the development of creative and innovative educational institutions (Henriksen et al., 2018). Digital technology generates data regarding the educational process on a continuous basis, so the purposes of learning can be achieved. Teachers may save time and money by using digital technology to decrease administrative tasks, lower the cost of publishing yearly reports, be more creative when creating instructional materials and media, and develop their digital abilities. Students can be autonomous, disciplined, and able to manage their own time using digital technologies.

The distant learning technique, on the other hand, has several drawbacks. Students may only gain information based on the theory that has been presented to them. As a result, pupils are less adept at implementing Pratik when practicing it. If the online learning method can simply transmit pairings conceptually, students would become bored (Nurkholis, 2020). This, of course, requires parents to be more focused in their role as educators since they must guide and inspire their children to be excited about learning and doing their assignments. This is also connected to supplying motivation, because parental motivation has a significant influence in terms of encouraging or motivating their children (Mitchall & Jaeger, 2018). Distance learning using digital technology makes it harder for educators to monitor students' progress in the classroom. Due to the restrictions of the monitor screen display, the teacher is unable to check the actual status of the children. Students may just show up without listening to the lectures, fall asleep, or have a poor internet connection. Students

will be harmed by online learning that is not supported by the appropriate procedures and approaches, particularly in education systems that stress the development of student abilities, such as non-formal education.

Table 1. Advantages and Disadvantages of Digital Technology in Learning

Digital Technology in Learning	
Advantages	**Disadvantages**
• Increase students involvement in learning	• Tendency to ignore academic or social aspects
• Helping students work through difficult concepts	• The process of learning and teaching tends towards training rather than education
• Help promote critical awareness	• Students who do not have high learning motivation tend to fail
• Helping to promote equality	• Not all places have internet facilities (perhaps this is related to problems with the availability of electricity, telephones, or computers).
• Anytime, anywhere: Accessible from any location and global. E-learning eliminates time and place restrictions with traditional classroom characteristics by using asynchronous communication modes such as email, online discussions, students can access 24 hours a day.	• Lack of interaction between teachers and students and even between students themselves. This lack of interaction can slow down the formation of values in the teaching and learning process.

Non-formal education is defined as an educational system with a curriculum tailored to the students' skill development requirements. Most of the non-formal education learning takes place face-to-face, particularly when it comes to pupils' motor skills. As a result, successful learning requires intentional effort and participation from all parties when converting to remote learning via digital technology (Sugiarto & Aman, 2020). Educators may use animation and learning media such as Zoom, Google Meet, Webex, Google Classroom, online equivalent, and virtual reality to make learning as interactive as possible. For students to have a meaningful learning experience, even if it is done online. When teachers can develop an engaging learning process, the use of digital technology in the learning process may have a significant influence on the learning process's success. Teachers must think creatively and innovatively to provide engaging learning opportunities for students, not just in terms of conveying information but also in terms of strengthening students' skills. Non-formal education providers must be able to develop virtual learning communities for a variety of life skills, as well as learn from and empathize with one another through social contact.

Remote learning with the use of digital technology helps residents who work in the non-formal education system to feel freer since they can engage in learning while doing other things. Online learning techniques provide an alternative for residents who have enterprises or are already married to be able to engage in learning without having to leave their company or family (Pienimäki et al., 2021). The findings from the previous sections concluded that the employment of digital technology in non-formal education has both good and adverse implications. Students' knowledge and abilities can be improved by an online learning system provided it is implemented correctly and backed by suitable resources. However, if the content is merely transferred intellectually, the students will become bored. Hence, parental involvement in guiding and inspiring students is required.

4. CONCLUSIONS

Digital technology has an impact on home learning (LFH). Thanks to advancements in digital technology, schools are constantly using online programs to replace face-to-face instruction. The digital competency of instructors in creating online course programs, awareness of parents' digital modes, and the potential of students' networks to study with digital devices are all advantages of both the non-formal education and formal education models. However, it has various flaws, including low motivation and poor skill development if not used in conjunction with the appropriate approach. As a result, for the online learning process to be successful, especially in non-formal education, the correct method must be developed. So the final conclusion is that integration in the use of digital technology learning media is good, namely when students do not only use technology every day, but have access to a variety of tools that are appropriate to the learning task and provide opportunities for learners to build a deeper understanding of the content. Technology integration also depends on the type of technology available and the amount of access students have to technology. A key requirement for successful technology integration is a willingness to adapt to change. This is a continuous process and demands continuous learning for all parties, especially for teachers as the spearhead of Indonesian education.

REFERENCES

Aryanti, T., Supriyono, & Ishaq M. (2015). Evaluasi Program Pendidikan Dan Pelatihan Program Pasca Sarjana. *Jurnal Pendidikan: Teori, Penelitian …, 5*, 1–13.

Chiu, T. K. F. (2022). Applying the self-determination theory (SDT) to explain student engagement in online learning during the COVID-19 pandemic. *Journal of Research on Technology in Education, 54*(S1), S14–S30. https://doi.org/10.1080/15391523.2021.1891998

Elihami, & Suparman. (2020). Teaching to Variation In Learning For Non Formal Education Department. *Jurnal Edukasi Nonformal, 1*(1), 29–40.

Henriksen, D., Henderson, M., Creely, E., Ceretkova, S., Černochová, M., Sendova, E., Sointu, E. T., & Tienken, C. H. (2018). Creativity and Technology in Education: An International Perspective. *Technology, Knowledge and Learning, 23*(3), 409–424. https://doi.org/10.1007/s10758-018-9380-1

Kedra, A. (2021). This is a self-archived version of an original article . This version may differ from the original in pagination and typographic details . Copyright : Rights : Rights url : Literacy Definitions in a Context of Higher Education. *Business and Society, 60*(2), 420–453.

Latchem, C. (2014). Informal Learning and Non-Formal Education for Development. *Journal of Learning for Development, 1*(1), 1–13.

Mitchall, A. M., & Jaeger, A. J. (2018). Parental Influences on Low-Income, First-Generation Students' Motivation on the Path to College. *The Journal of Higher Education, 89*(4), 582–609. https://doi.org/10.1080/00221546.2018.1437664

Muttaqin, A. I., & Faishol, R. (2018). Pendampingan Pendidikan Non Formal Diposdaya Masjid Jami'an-Nur Desa Cluring Banyuwangi. *Abdi Kami: Jurnal Pengabdian Kepada Masyarakat, 1*(1), 80–90.

Nurkholis. (2020). Dampak Pandemi Novel-Corona Virus Disiase (Covid-19) Terhadap Psikologi Dan Pendidikan Serta Kebijakan Pemerintah. *Pgsd, 6*(1), 39–49.

Pienimäki, M., Kinnula, M., & Iivari, N. (2021). Finding fun in non-formal technology education. *International Journal of Child-Computer Interaction, 29*, 100283. https://doi.org/10.1016/j.ijcci.2021.100283

Pihlainen, K., Korjonen-Kuusipuro, K., & Kärnä, E. (2021). Perceived benefits from non-formal digital training sessions in later life: views of older adult learners, peer tutors, and teachers. *International Journal of Lifelong Education, 40*(2), 155–169. https://doi.org/10.1080/02601370.2021.1919768

Puspitarini, Y. D., & Hanif, M. (2019). Using Learning Media to Increase Learning Motivation in

Elementary   School.   *Anatolian   Journal   of   Education*,   4(2),   53–60.
https://doi.org/10.29333/aje.2019.426a

Riyan Rizaldi, D., Doyan, A., Fatimah, Z., Zaenudin, M., & Zaini, M. (2021). Strategies to Improve Teacher Ability in Using The Madrasah E-Learning Application During the COVID-19 Pandemic. *International Journal of Engineering, Science and Information Technology*, *1*(2), 1–6. https://doi.org/10.52088/ijesty.v1i2.47

Serdyukov, P. (2017). Innovation in education: what works, what doesn't, and what to do about it? *Journal of Research in Innovative Teaching & Learning*, *10*(1), 4–33. https://doi.org/10.1108/JRIT-10-2016-0007

Shomedran, S., & Karmila Nengsih, Y. (2020). Peran Sanggar Kegiatan Belajar (Skb) Sebagai Satuan Pendidikan Luar Sekolah Dalam Membangun Mutu Sumber Daya Manusia. *Comm-Edu (Community Education Journal)*, *3*(3), 271. https://doi.org/10.22460/comm-edu.v3i3.5214

Simamora, R. M. (2020). The Challenges of Online Learning during the COVID-19 Pandemic: An Essay Analysis of Performing Arts Education Students. *Studies in Learning and Teaching*, *1*(2), 86–103. https://doi.org/10.46627/silet.v1i2.38

Sugiarto, R., & Aman. (2020). *The Utilization of Google Classroom in Implementing Distance Learning in Islamic High School Al Azhar 9 of Yogyakarta During Covid-19 Pandemic*. *452*(Aicosh), 100–104. https://doi.org/10.2991/assehr.k.200728.022

Supriyatno, T., Susilawati, S., & Hassan, A. (2020). E-learning development in improving students' critical thinking ability. *Cypriot Journal of Educational Sciences*, *15*(5), 1099–1106. https://doi.org/10.18844/CJES.V15I5.5173

Suryaman, M., Cahyono, Y., Muliansyah, D., Bustani, O., Suryani, P., Fahlevi, M., Pramono, R., Purwanto, A., Purba, J. T., Munthe, A. P., Juliana, & Harimurti, S. M. (2020). COVID-19 pandemic and home online learning system: Does it affect the quality of pharmacy school learning? *Systematic Reviews in Pharmacy*, *11*(8), 524–530. https://doi.org/10.31838/srp.2020.8.74

Tambunan, L., Rusdi, R., & Miarsyah, M. (2018). Efectiveness of Problem Based Learning Models by Using E-Learning and Learning Motivation Toward Students Learning Outcomes on Subject Circullation Systems. *Indonesian Journal of Science and Education*, *2*(1), 96. https://doi.org/10.31002/ijose.v2i1.598

Ullah, S., Hassan, F. U., & Muhammad, T. (2021). The Role & Strategies of Non Formal Education for Education Access to Marginalized Community. *Review of Education, Administration & LAW*, *4*(3), 563–573. https://doi.org/10.47067/real.v4i3.172

Viberg, O., Khalil, M., & Baars, M. (2020). Self-regulated learning and learning analytics in online learning environments: A review of empirical research. *ACM International Conference Proceeding Series*, 524–533. https://doi.org/10.1145/3375462.3375483

Wargadinata, W., Maimunah, I., Dewi, E., & Rofiq, Z. (2020). Student's Responses on Learning in the Early COVID-19 Pandemic. *Tadris: Jurnal Keguruan Dan Ilmu Tarbiyah*, *5*(1), 141–153. https://doi.org/10.24042/tadris.v5i1.6153

Yurtseven Avci, Z., O'Dwyer, L. M., & Lawson, J. (2020). Designing effective professional development for technology integration in schools. *Journal of Computer Assisted Learning*, *36*(2), 160–177. https://doi.org/10.1111/jcal.12394

Zed, M. (2004). *Metode Penelitian Kepustakaan*. Yayasan Obor.