Digital learning transformation in strengthening self-resilience

Armaidy Armawi [1], Chesa Syaqira Makmur [2], Murni Septiyanti [3], Darto Wahidin [4*]

[1,2,3,4] National Resilience Study Program, The Graduate School, Universitas Gadjah Mada, Yogyakarta, Indonesia

ABSTRACT

The Covid-19 pandemic has forced teachers to conduct learning activities online through digital technology. As they are accustomed to the conventional or offline learning process, this digital-based learning transformation has resulted in teachers experiencing shock culture and students affected immensely. The current research aims to describe the strategies applied for digital-based learning, examine challenges in digital-based learning, and identify digital-based learning impacts on students' self-resilience. It employs the qualitative research method, and the data consist of primary and secondary data. The primary one is derived from the observation of focus group discussion and documentation. The secondary one is in the form of references from books, journals, and articles. By data reduction and conclusion drawing in a descriptive qualitative analysis, the findings show that using learning application varies depending on the teachers' capability and convenience, and agreement from the institution. The only learning media used in the format are videos and pictures, considering the weak internet bandwidth and limited internet quota. The challenges in digital-based learning should be the point of attention for both teachers and parents. The impacts resulted from this digital-based learning system on students' self-resilience are considerable. Supports from family and school must be wholly given to reinforce students' self-resilience.

Introduction

At present, worldwide have been facing the deadly threat causing severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Since its first appearance in Wuhan, CCR, this virus has spread rapidly and widely to other countries globally through human interaction. The infection of Covid-19 gives several symptoms, namely cough, flu, breathing difficulties, headache, and unhealthy lifestyle. This widespread pandemic has damaged many countries' health security and threatened the economic security in the world. Based on calculations from the World Bank and the International Monetary Fund (IMF), in 2020, many countries economic growth will experience a recession due to the pandemic. New regulations and policies are needed to guarantee the safety of the civilians and tackle the damages. Wearing masks, washing hands frequently with soap or hand sanitizer, and the most important one, keeping the immunity healthy can prevent the virus's infection. The virus's fast spread insisted many countries regulate lockdown to keep socially isolated and safe from the virus.

Besides health and economic damages, education and learning activities are also fiercely affected by this pandemic. The future of the next generation should preserve from the elementary schools to university levels. Many countries prohibit the conventional learning process hoping that

the pandemic would not reach students and prevent a much more massive infection. The United Nations Educational, Scientific, and Cultural Organization (UNESCO) has predicted that school activities disrupt nearly 300 million students worldwide. This United Nations support in its maximum capacity any education policies and platforms in each country during this global pandemic.

The current pandemic has insisted that the government force students, teachers, and other stakeholders work and study from home. Consequently, the only way to run the learning process is to employ digital technology in distant learning. This transformation from conventional learning to digital-based learning has resulted in teachers experiencing shock culture since they prefer the direct learning format. The Ministry of Education and Culture had issued *Regulation of the Minister of Education and Culture* (*Permendikbud) No. 22. 2016* about Primary and Secondary Education Process Standards, the concept of digital-based learning along with the other 14 points are regulated. Hoyles and Lagrange (2010) see that digital technology will be significantly fruitful for education and learning systems since it offers efficiency and effectiveness in conducting distant online learning. Thus, even though the Covid-19 pandemic has infected Indonesia, students can learn with digital technology's advancement with the addition of direct control of their parents at home.

The online learning process, either student in university or college students, has started. The conventional, face-to-face method has not to conduct yet. This digital-based learning suppresses students' psychological states by confining them inside the house and limiting interaction to society and friends to hang out or play together. The teachers' learning activity is merely in the form of assignments or tasks using WhatsApp Group as the primary source, and lecture and discussion are eliminated. The digital platform provides many applications and programs to the students and teachers, ranging from open-source or paid like Sevima Edlink, Moodle, Google, Class, Edmodo, and Schology.

This digital-based learning needs much money to purchase the devices and data quota to access the internet. Many parents complained about the extravagant internet plan usage for doing assignments for hours and the expensive data quota prices. Some of them mentioned Malaysia for lowering the internet plan prices and giving it to society for free. Besides that, the bandwidth also became another grievance among students and parents. They involuntarily use other providers though they pay more. For parents who have small businesses at home, digital-based learning disturbed their businesses by keeping their children at home. It is not seldom that students also complain about not getting any money as they did when they go to school. However, all in all, those complaints, eventually, benefit parents since they can watch their children more intensively; they can be closer to their children.

Given the reality that the only form of activity applied in learning is assignments, the training and workshop held by the Ministry of Education and Culture (*Permendikbud No. 22 Tahun 2016*) about Primary and Secondary Education Process Standard did not give much intake to teachers understanding and comprehension especially on the point of digital-based learning. It means that the training and workshop were not sufficient and solely dissipated all government and trainers' money, energy, and time. Besides implementing government regulations, the seminars and training correspond to the electronic pedagogy where content does not matter much. Everyone can freely access various contents by accessing the internet. Teachers, accordingly, should make use of this condition during this global pandemic. Industrial 4.0 has changed educational concerns from what should be learned to how to learn something. Since teachers' position is crucial in guiding students to utilize the internet for learning, this concern should emphasize in their teaching method.

This research on digital-based learning transformation becomes an urgent necessity amid the global pandemic for all countries, including Indonesia. Moreover, realizing that Covid-19 attacks human immunity, students' psychological shock requires a kind of self-resilience. Hence, as the immunity stays in good condition, a good immunity will prevent the covid-19 infection.

Synthesizing the above background can be formulated several problems. The problems in the current research are 1) What strategies should implementation in the distant learning activities during the Covid-19 pandemic?; 2) What media and methods should use in the digital-based learning?; 3) What are the challenges in conducting digital-based learning?; 4) How are the digital-based learning impacts towards self-resilience?. The research aimed for 1) describing strategies in digital-based learning during the Covid-19 pandemic, 2) understanding the media and methods used for digital-based learning, 3) examining the challenges faced by teachers, students, and parents in digital-based learning, and 4) identifying the impacts of digital-based learning.

The research regarding the transformation of digital-based learning correlated to self-resilience during the pandemic is still scarce. It did not focus on the transformation of digital-based learning or self-resilience. Most of it discusses the related communication or digital technology. Such research appointed digital technology transformation, the revolution in digital-based learning or digital technology influences students (Danuri, 2019; Efendi, 2018; Muhasim, 2017). Thereupon, it can assume that there were no journals or literature in the last decades that examine the transformation of digital-based learning and self-resilience.

A digital transformation is a form of organizational changes involving people, processes, strategies, structures, technology, and business model usage to increase performance (Weseterman et al., 2014). Digital transformation triggers lots of innovation and creativity to improve a company's performance and productivity to be more efficient and effective in running the business (Weseterman et al., 2014). In a positive sense, technology can increase a company's performance or achievements (Weseterman et al., 2014). The technology advancement has raised the pressure to transform the system into a digital way as the competitors continuously adapt to new technology (Fitzgerald et al., 2013). This challenge insists companies consider and process in a more careful way like many sectors that have moved their paradigms to evade digital technology advancement. One of the sectors affected by the challenge is education, which receives the most significant process and forms of digital transformation.

Science development has brought to us the technology which improves so fast and advanced. Technology advancement has led to a more efficient and effective way of life. Even technology promises advancement and easiness and changes, productivity improvement, popularity, accuracy, and velocity (Martono, 2014). Nowadays, learning activities are encouraged to combine the conventional method of learning and technology integration. It is the learning activity that we know as blended learning or digital learning.

The broad national security coverage downgrades some small parts of its security, including self-resilience. As the smallest part of national security, self-resilience is a necessity for human life when they experience shock or anxiety. One of these is students' self-resilience, which receives damages from studying from home due to the pandemic. Students must learn and do the assignments healthily and productively during their study from a home session in this challenging time. Mental, emotional, and traits flexibility and self-adaptation to the external condition are some of the best choices to do (Armawi, 2019). Students' self-resilience should help face the current digital-based learning pattern, which depends on the assignments rather than lectures or integrating other methods and strategies.

Method

This research uses a qualitative approach to explore and understand the meaning for some individuals or groups of social and humanitarian problems. Individuals and groups are the teachers, students, and students' parents in Temanggung regency, Central Java Province. Therefore, the research was conducted in the school environment since the main subjects closely related to digital-based learning are the above stakeholders. Temanggung is chosen as the study's location because it is the second of the highest cases of Covid-19 in March 2020 within Central Java Regency.

The sample for the subject comprises 15 teachers, nine students, and five students' parents. The subjects are chosen by purposive sampling since the intended subjects are Pancasila and Civilization Teachers associated in Musyawarah Guru Mata Pelajaran (MGMP), students, and students' parents in Temanggung. The data collected through Focus Group Discussion (FGD) and documentation. Afterward, data selection was conducted thoroughly according to the problems of the research. Data analysis is a continuous process involving constant data observation, queries of analytical matters, and short notetaking throughout the research. The derived data were analyzed through data collection, data reduction, data presentation, data conclusion, and data verification.

Result and Discussion

Starting from March 2020, when Covid-19 infected Indonesia, the Ministry of Education and Culture's government announced to conduct learning activities from home with the internet and technology as the medium. One of the reasons for considering holding digital-based learning is that many academics and lecturers were infected and became victims of the disease. Teachers, who are accustomed to the conventional, face-to-face format, are astonished by this policy. They, eventually, must learn to control and operate technology properly to teach.

Diverse teachers' mastery of applying the technology, convenience, and agreement of institutions determines how digital-based learning is conducted. Two of the examples are WhatsApp and Google Form. Generally, they offer different services and different interfaces. However, both are popular in the current digital-based learning activities. In the initial digital-based learning, teachers did not understand well. Even less, the division is based on the class and not the subject, which gives another obstruction. Any applications or methods applied are the strategies in digital-based learning. However, it is not justified to give students assignments without any other methods in the learning process.

Teachers are free to design and execute the learning activities. It echoes the Freedom of Learning (Merdeka Belajar) campaigned by Indonesia's current Minister of Education and Culture, Nadiem Makarim. The freedom of learning attaches to students and teachers as they are the object of education every regime or minister turnover. Teachers have the freedom to use any platform such as WhatsApp, E-mail, Google Classroom, Telegram, etc. Each class or subject in digital-based learning, in consequence, runs differently one from another, depending on the teachers. Pancasila and Civic Education (PPKn) teachers will not find any difficulties teaching in that format. However, other teachers who teach subjects like Physics, Chemistry, Mathematics, or practical subjects, for sure, will find obstructions. These subjects should be addressed and become the concern since such subjects demand a real place, materials, and teamwork that cannot be afforded by digital-based learning.

Aside from the above definition, freedom can also be interpreted as one's own will to stand on one's own without any dependence or contracts to anyone. The initiators and government must design the steps and technical instruction for the implementation because it will trigger

insufficient strives and egoistic interests. This step intends to prevent teachers from holding the learning activities arbitrarily and carelessly. A regulation or policy must come with detailed elaboration and instructions to avoid any turmoil in the implementation.

Media and methods are parts of the strategies that should be considered carefully to achieve the learning process's goals. However, the pandemic has compelled digital-based learning, which is unfortunately misunderstood by erasing media and methods and only giving assignments. Digital technology can vary the function of media and methods. However, the teachers' incapability in using technology disables them from conducting the learning activities as instructed. Teachers who did teaching conventional when technology was not as advanced as today are technologically backward and affect competence and implementation.

Picture 1
Class Group Via Google Classroom
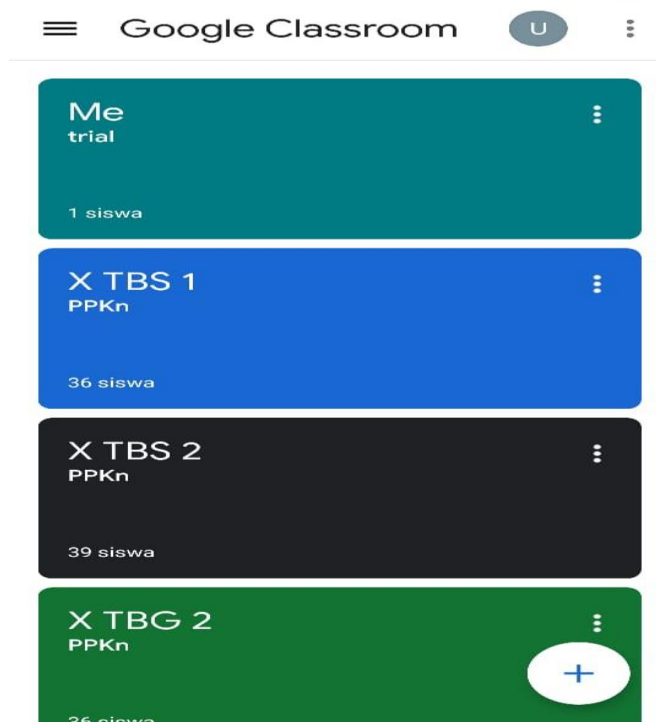
Smartphone's screen light damages the users' eyes, especially when the intensity is up to or exceeds 24 hours. The intensive activities in front of screens excessively exhaust eyes and may result in eye problems such as blurry vision. The risks get worse and higher when it is used directly before and after sleeping. Teachers compared digital-based learning to conventional learning. They concluded that conventional learning is more comfortable and practical than contact and interaction. Such situations of the pandemic, nonetheless, give them no choice but to conduct online learning.

The most compared platforms in the current digital-based learning are Telegram and WhatsApp. With the consideration of their limitations, school parties suggest using Telegram rather than WhatsApp. It consumes smaller space in smartphones and even the storage capacity for chats. The data is much longer, which makes it can afford many groups for each subject. In contrast, WhatsApp burdens more space in smartphones' storage. When the memory is full of chats and data, in this case, faster than Telegram, smartphones hardly load the application's old data.

One of the conditions causing parents' complaints in this situation increased spending on internet data plans. Studying from home, aside from increasing internet needs, has also raised domestic needs and consumption. Once, the internet plans lasted for a month. However, students usually run out of internet plans in just a few days. The lowered income or salary is inversely proportional to the increasing spending. The excessive usage of internet plans has arisen from the teachers' media and methods like pictures and videos.

Internet plan usage increased to become the main requirement for learning activities on the current condition. However, this large amount of internet plans can abuse students and other users. In this sense, the government agreed to allow the Bantuan Operasional Sekolah (BOS) to pay for internet plans to students. The quota allocation for students and teachers is different since their needs and liabilities are also different.

Those challenges of digital-based learning should and must be the main concern for all parties involved: teachers, institutions, students, and parents. Teachers are obliged to arrange digital-based learning execution strategies with digital technology as the medium to give courses so that students can save more internet plans. Data in the current research obtain previous to free internet plans grants allocated from BOS fund. Indeed, the data derived after this will be different from the current data, resulting in different conclusions. Hence, this aspect requires another research in a different viewpoint but still discusses the internet plans usage during the pandemic after the internet plans support is assigned.

The digital-based learning activities have made most students have more excuses to do assignments or attend classes. They may tell their teachers that they help their parents at home as an excuse for absence from a class. When they are late in submitting assignments or absent, they confirm that they live in villages where internet bandwidth better in the midnights. Nevertheless, not all of them are just excuses. Indeed, some of them help their parents live in rural villages or experienced internet connection problems. Teachers feel pity to behold such reality of various students' excuses. While they should learn as much as possible, they help their parents' works due to the economic insecurity.

As we know, the insistence to conduct digital-based learning is facilitated with internet plans to communicate with each other. The problem with the internet plans is their limited amount, which can hinder students' and teachers' adaptation. When internet plans are empty, they need to top it up with the new plan, not to mention that the low bandwidth is another issue. It discomforts the users and causes idleness to adapt further to the pandemic. Even so, teachers have no other choice. However, it adapts to the technology so that digital-based learning can be conducted well.

The current pandemic damages and impacts to human life and security countries are massive. Almost all sectors are badly affected to adapt and result in consequences to the present regime and the next future human life. One of these is the education that is forced to conduct the learning activity through digital technology from teachers' and students' own houses. This condition results in consequence to students' self-resilience as the object of digital-based learning. Based on teachers' observation, in digital-based learning, students tend to have worse attitudes that do not reflect Indonesians' Eastern culture.

Some of the teachers found out that all students' assignments have the same contents and formats. After investigation, they discovered that one student did an assignment and shared his or her work with the rest of the class. Even though it depicts students' teamwork and cooperation that are considered productive activity, it is a bad thing since they did plagiarize. They avoided doing the works on their own. By merely thinking human brains can be trained, they wanted

instant, and maximum results with the least strive and work. This trait corrupts students' good characters of the students like responsibility and honesty. It is too pity since such characters are very beneficial to students and brought in the future.

Teenagers are the most unstable and vulnerable stages of human life. In this stage, the desire to build friendship, discover new things, and find authentic self-identity is highest. So, it is not shocking that in this stage, children do many juveniles and become naughty. The current pandemic created confinements for students in their houses. Which yield wilder desire and juvenile to suppress their freedom to have intensive contacts with the outworld and their friends. Such juveniles will not be easily overwhelmed by parents. They need teachers as the third party to get in. Even so, teachers are not able to give many intakes when the learning activities from home. Their control is limited to smartphones, and teachers can manipulate the reports about students' activities.

Responsibility is one of the traits that everybody, both adult and teenage must possess. It should be cultivated in children ever since they were young as this trait will tightly attach to them all their lives. The recurring responsibility cultivating pattern in children's selves might degrade by the time they reach teenage or adult because of possible internal and external factors. In the current pandemic, students' responsibility is for sure decreasing. For example, the study from home format encourages students to abandon their school assignments and tasks often. It shows their lack of responsibility in doing what are assigned to them.

This decadence is visible in students' active contributions during the class. Students are less interactive during the online learning class compared to the conventional school class. Some subjects like PPKn require active contribution and critical thinking in every session of the class. According to teachers' observation, students poured their complaints and grievances about problems during digital-based learning activities. The most common problem among students is the technological problems, either the limited devices or access to the internet due to different locations where students live. Students cannot have equal access to advanced devices or sufficient internet plans since many people, including their parents, are affected by the economic recession. They, consequently, must skimp on making sure that the internet plans last if possible.

As smartphone users increase in the current era, mobile games have been flourishing on the internet and are easy to download. For some people, mobile games are a means of competition arena, income source, and recreation. For some others, games are so addictive since they keep triggering to play over and over. In the past, people play traditional games which used traditional and simple materials and required physical movements. When people wanted to play electronic or digital games, they had to go to malls or arcades. However, nowadays, such games are left behind. People can easily access electronic games on their smartphones in their homes using their devices and internet access.

The above explanation shows a real example of how technology affects the games to transform. The materials and the settings in which the games are played shifted from traditional games into the digitalized ones. Children dominate game consumers though some adults and parents also play games with the advancement of technological devices. Students cannot play with and meet their friends due to pandemics, but it does not mean that they cannot play anything. They, substantively, can play games on their smartphones.

Students' games through smartphones confiscate their times due to the easiness and fast access to the games. This condition differs from the traditional games or arcades that involve physical activities and exhaust them. Students are more likely to neglect all their works, obligation,

and responsibility by dint of the digitalized games, such as assignments and tests. Both parents and teachers found their children in such a condition when they see them using smartphones. Indeed, they use smartphones or laptops during school hours, but most of the time is wasted by playing games on those devices.

Self-resilience is a individuals' ability to adapt to a bizarre situation and produce good self-development. Students must undergo digital-based learning in the current pandemic, which is done from their home, respectively. Students significantly feel the transition between the transformation from conventional to digital-based learning. The habits for conventional learning such as waking up early in the morning, having breakfast and money, going to school, and interacting directly with teachers and friends no longer exist. They turn on the devices to start the class in their rooms without any school interaction. This transformation hits the students' daily activities. Students' self-resilience shock often slips from the teachers' and parents' attention. It is realized later in the last few months after some occurrences and accidents happened in the learning process and home activities.

Picture 2
The Author's Analysis Regarding Self Resilience (White: National Resilience; Red: Family Resilience; Blue: Self Resilience)
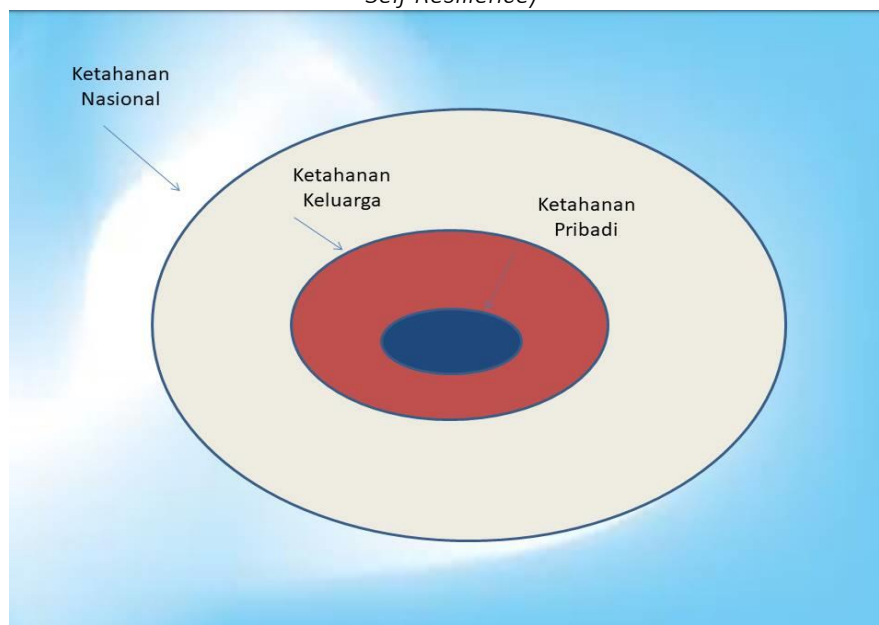
Discussing self-resilience is closely related to mental resilience as well as physical resilience. It happens based on the logic that mental resilience and physical resilience obstruct when living patterns and interaction patterns change. In this stressful situation as a pandemic, keeping mental resilience stable is exceptionally crucial to be able to serve out this crisis well. Relations between students to their friends, parents, and teachers should be maintained to support this strive. Teachers can respond to students' problems or development during digital-based learning rather than giving many assignments without any interaction between them. They are the key actors to support students' self-resilience. Besides mental resilience, physical resilience is also important. It includes how students keep their physical condition healthy and adapt to the crisis.

Strategies in learning activities act as the main factor to improve and support the learning process to run well and achieve the aims (Fatimah & Kartikasari, 2018). Therefore, strategies for learning activities should have been plotted in the lesson plan, which should be implemented in the learning methods (Hasbullah et al., 2019). The past lesson plan writing procedure obliged pages of plan description. However, the new regulation, *Merdeka Belajar* (Freedom of Learning),

Only requires one page Lesson Plan. It means that the learning activities have transformed using the Lesson Plan. Further, the current pandemic has made several transformations in the education system, especially the process, format, and learning strategies.

The industrial revolution 4.0, with all communication, information, and technology advancement, has reached the education system and insisted on implementing those advancements. It, in consequence, demands teachers' extra work to master the technology. This technology provides a variety of platforms and systems for conducting online learning. However, then, the implementation, such as the schedule and the media, must be discussed with students by social media groups. The groups in social media have been flourishing since it facilitates learning activities. The most popularly used is WhatsApp, which has seven advantages (Antasari & Novianti, 2019). Each group has its function and aims, and by that, these groups have more than seven benefits.

Up to now, WhatsApp uses for communication, information sharing, and discussion (Dorwal et al., 2016). In addition to that, WhatsApp, with its group feature, contributes to multiple accounts for teachers' learning activities (Antasari & Novianti, 2019). The active and interactive communication between students and teachers works as a means of a parameter indicating whether the learning activities during the pandemic succeed or not. WhatsApp becomes the most popular and widely used social media platform because of its easy activation and fewer internet plans. These reasons strengthen the statement arguing that WhatsApp is influential to the digital-based learning activities. Nevertheless, it does not mean that the other activities are not as important as WhatsApp. Learning activities such as tutoring sessions, question and answer sessions, discussion, and assignments are also crucial in digital-based learning (Salam, 2020).

Implementing the Freedom of Learning regulation is still narrow since it can only be seen in the Lesson Plan administration. This regulation disorients teachers. It is undoubtedly impossible to say that one page can afford a Lesson Plan. Indeed, it needs more than that. This Freedom of Learning is only a tiny piece of sense from the term "freedom." Their teaching activities so occupy teachers, and many administrations works that free from these stirring up works are also considered to fulfill the term freedom. It opens a chance for the teachers to explore strategies in the learning activities freely. The current situation has changed the class conditions and lesson plans effectively. When the class is in an unstable condition, diverse approaches and methods should be applied to the class to keep a good relationship between teachers and students to derive quality interaction (Zahroh, 2015).

Once the freedom of choosing what platform to use in the learning activities lies on teachers, we can find strategies and methods in the implementation. Azis (2019) views this condition and states that a teacher combines several models and methods such as blended learning, distance learning, mobile learning, and virtual learning environment. Furthermore, such a process gives much intake in the learning innovation to collaborate on Google, WhatsApp, Google Form, and Google Drive. The current research found that a teacher, though only teaches one subject, he or she makes use of a various kind of learning applications. Here, teachers generate an optimistic viewpoint for striving to the maximum rate to provide freedom of learning to students as long as they agree and establish regulations (Zahroh, 2015). The freedom is given to them because it is easy and cheap besides the different network and bandwidth conditions in teachers' and students' locations.

The pandemic's learning system's transformation has changed the media and the methods and models to be implemented. Azis (2019) divides three learning models implemented in the current pandemic era, namely: 1) teachers give materials online, and students learn from them by

themselves; 2) teachers give materials online, and students learn them online; and 3) teachers collaborate the online learning with conventional learning activities such as direct meeting online. Nevertheless, up to the data of this current research are taken, the first option has dominated the learning activity, giving materials or assignments, and then asking students to learn independently. Teachers decided to apply the first option because not all students can meet the other options' conditions.

Given that students learn independently from the application's materials, digital media implementation shows no innovation. Most teachers only give learning materials through video or pictures since they can save much more internet plans than video conferences. Media usage benefits the learning activities in facilitating interactions and preventing dull and boring class sessions (Efendi, 2018). In case they conduct video conference as the method, it will surely consume higher internet plans. Each stakeholder's economic condition is the primary determiner in selecting which method should be implemented in the class session. It is also important to notice that a teacher is responsible for more than ten classes and hundreds of students every semester.

The digital era in the education system obliges teachers to get involved in the digital-based learning system. Video is the most preferred medium for students since they can easily understand through video. However, it requires a relatively long and complicated process before it is ready to use. The current youths and students are much more interested in moving animation, including video. Daryanto (2012) stated that video is the most effective medium to facilitate learning activities in any situation and condition. Within this condition, the video takes a crucial part in the learning activities in the current pandemic. Rusman (2012) agreed with the perspective and explained that learning materials delivered through audiovisual way ease the material teaching. Both view that if teachers use video, they should consider two aspects: the audio and the visual. However, when it comes to students with disabilities, this medium is not suitable for them. It requires good audio and visual senses to be able to absorb the materials in it.

During digital-based learning, teachers meet a new challenge to learn more in technology application to support the learning activities. For teachers in their recovery phase from their diseases or having chronic diseases, this format may affect the process because of being in front of computer monitors for hours. Henceforth, it is not astonishing when Martono (2014) wrote that technology could attract threats users with several diseases causes. Technology, just as two-faced coins, has two sides contradicting each other. It promises and provides easiness and facilitates while giving threats to human life every day. It is a challenge that must be addressed by every party that uses technology. They should realize the risks and balance the technology usage.

A study from the home format is a must for students and teachers to be in the presence of laptops and smartphones. It brings some side effects to students and teachers, and the other parties who work with those devices. They can be identified from the damages they yield. Enny (2015) emphasized that the least impacts of excessive usage of laptops and smartphones are vertigo and prolonged exhaustion. The chronic ones include insomnia, leukemia, and breast cancer. Smartphones emit radiation even when it is in off condition. Therefore, it will damage skin and bones when it is put in a pocket. The radiation becomes stronger and potent in a functional screen condition. It also affects the reproduction system and can cause disablement to newborn babies (Idayati, 2011).

With the computer, people can work and browse any information on the internet. However, excessive usage can damage their health. It inflicts symptoms of eyestrain and even can reach the neurological system. The computer radiation obtained in this current research is 35, indicating a high level of radiation coming from wide computer screens. On the contrary, an interesting fact

was found in the research stating that the high radiation level has nothing to do with health and symptoms. It contradicts the prior research and studies that found that high radiation levels indeed cause some disease symptoms. Statistically, this research shows a different conclusion.

Danuri's research (2019) on the development and transformation of digital technology discovered that the transformation in the world society by digital technology advancement had brought shift and betterment of human life. The forms of shift and betterment are limited by the storage capacity used by digital technology. When the storage capacity is full of information and data, the forthcoming process will not run well. Technology does provide positive impacts to humans, but at the same time, it also causes negative ones (Martono, 2014). In response to that, people should act and think wisely by realizing the limits of storage capacity as well as the context of whether technology is necessary or not.

Digital technology advancement has affected all aspects of human life, including education. The future education system will demand an open two-way learning format integrated with its diverse information, multidisciplinary, work productivity, and competitiveness (Andriani, 2016). In order to be able to access information through the internet and technology devices, people need sufficient internet plans. It is not impossible if this "thing" will be the primary need of people after the basic needs in the future with a high consumption rate. Andriani (2016) sees that cheap and easy technology in human life can blur the boundaries of space and time, which has captivated education for a long time. These boundaries and limitations in education will be one big challenge for society. However, they can overcome it with sufficient internet plans.

Behind easiness and advancement it promises through its speed and accurate access, technology has several challenges to the users (Martono, 2014). These are impactful when people try to access the internet in an unsupportive environment. Rural villages are examples where low internet bandwidth and unreachable internet access bias the speed and accurate access that it does. The region's contours, both lowland, and highland, also determine the quality of internet facilities and access. This difficulty in accessing the internet can be a major challenge in freedom learning.

Many teachers use easy, cheap, and comfortable platforms. As a result, they are limited to WhatsApp, Google Classroom, and E-mail. With the well-considered decision, such platforms are highly effective in facilitating the learning activities. Aside from the effectiveness, the Costs of devices and services matter so much, especially regarding students' parents' economic condition. The new technology advancements have driven a more strong competition among producers and providers and increased the pressure for both producers and consumers as technology users (Fitzgerald et al., 2013). For modern society, technology becomes one of the indications for social status and advancement. Following the trend, some people are compliant with changing their smartphones to the newest ones, regardless of the functionality. This consumerism in technology does not require a small amount of money, but relatively much of it. So, for upgrading social status, society must pay a fair amount of money. This condition of high advancement and novelty represents the collateral relative between friends and groups of people.

The technological progress in human life has become faster, more visible, and more advanced today. Its presence also influences human activities, acts, and traits (Ngafifi, 2014). Even, every new technology has a role as an encouragement for society to adapt continuously with the new and the becoming technology. This encouragement becomes a challenge to busy people. For older people, technology is not easy to master; they need quite a long time to adapt. However, youths who always get exposed to technology advancement will adapt quickly and fatly. This perspective regarding the elder and young people yields pros and cons in the middle of society.

Learning media aims to facilitate and increase students' understanding during the learning activities to improve students' achievements (Muslih, 2016). However, the question is, do such intended conditions happen in the current era? The research conducted by Muslih had nothing to do with any factors of the Covid-19 pandemic and learning activities by media he described are held in the class. It differs from full-time online, distant learning, which presumably raises challenges and problems. The problems such as low bandwidth speed, limited internet plans, less supportive devices, etc., will detain students and teachers in conducting the digital-based learning activities. It proves that the media and technology should be in their best state and undisturbed have some hindrances and obstacles generating restricted results.

Digital technology has been spread all over the world, including Indonesia. It has transformed the way humans do their activities, providing various learning materials and references easily and cheaply (Danuri, 2019). An example is many online applications and platforms publishing learning materials for free for the public. People just need to use internet plans to access it. This transformation also transforms the mindset of the native technology generation. They tend to do things quickly and advance without ever knowing what characters or traits they are cultivating. In the current digital-based learning system, students' mutual assistance, or plagiarism, to be exact, in doing assignments without trying to do it first, is one form of the transformation in the current generation. The present students want all aspects to be easy and fast, like researching assignment references and obtain good marks using less intellectual competence. In contrast, human brains can be trained through thinking.

The *gotong royong* culture (mutual assistance) that has been rooted and lived in Indonesia must be preserved to be an asset for social interaction. This cultural form conceives social values. Suppose students do not take this as their stance and reference. In that case, they may experience difficulties that waste their social energy vainly and even deter them from achieving common goals (Effendi, 2016). This loss of mutual assistance values can drive people to social turmoil in severe cases.

On the contrary, mutual assistance within good treatments and strong upholding can support a nation's development. It is crucial to cultivate positive mutual assistance in students' personalities and make sure that they are implemented in daily activities on this ground. During the pandemic, the most influential external factor is family since social interaction is strictly limited. They keep in touch with the outside world only by social media.

Responsibility is a good trait that acts as an asset for people to understand themselves as social creatures. It is formed when a person has understood their position both in broad or narrow senses. Irresponsibility is embodied in everyday acts and activities such as being lazy, delaying works, cheating, finding excuses, etc. (Rochmah, 2016). Those are just a few examples of irresponsibility done by people. Responsibility is categorized into two types: moral responsibility and civic responsibility. It is tightly attached inside every person. Society will doubt someone's existence as a social creature when they are not morally and in society.

Citing to Thomas (2013), productivities are the competencies and skills to produce something more effective and efficient. The key components of productivity are the efficiency and effectiveness of people's performance. Both are the supplements and the parameters for measure productivity. Any work and jobs are conducted from home in the pandemic to prevent wider spread and infections. Therefore, productivity in such a condition is quite rare since people tend to be lazier in home and lose their motivation after all the pandemic has resulted in. However, people should attempt to be productive because it has a tremendous and crucial contribution to realize the nations and countries' common goals and even become the determiner of civilization advancement (Wartana, 2011).

In conventional learning activities in school, students need internet plans. However, the digital-based learning activities conducted from home unintentionally have increased family's spending because they must provide internet plans. Students are much harder to be disciplined and easily get angry during the study from the home format. Their behavior indicates a transformation in students' traits. They keep all burdens of the current pandemic problems and overfullness in learning from home and wreak them through anger once they feel uncomfortable. Suppose such anger is not controlled both by the students themselves and parents. In that case, it will drag them into other negative behaviors. Based on the epistemology of education, the behavior is one of the very components that affect children's lives in the future, resulting from education in the family. Further explained, Muhammad (2011) stated that family builds finance and emotion responsible for children's psychological development in the future time. When children feel insecurity in their selves, they will return to their families as they act to be the solace of children in any hard times.

The increasing number of quarrels between parents and children during the pandemic indicates some disorders in everyday life. In such conditions, most of the parents prefer to give in the quarrels. It will damage children's mental growth and social life. They are more likely to be arrogant and less respectful with other people. Conflicts between children and parents are rooted in lousy communication and lack of affection. The result can often be contemplating something in spare time, quickly getting bored and distracted, declining learning performances, and even willing to commit suicide. Thus, the best solution for it is building better and more intense communication between children and parents.

Strictly speaking, many factors are responsible for children's addiction to playing a game through smartphones and computers. Masya and Candra (2016) revealed that children who lack attention from their family transfer their energy excessively to play games that they are addicted. Another research conducted by Utami and Hodikoh (2020) concluded that addiction percentage within adolescents reaches 56,8%, causing approximately 65,8% more social adaptation difficulties. Game addiction is closely related to social adaptation in adolescents' lives. This research bases the analysis on high school students from 12 to 18 years old. That range is filled with adolescents who are considered more vulnerable to any obstruction and disruption in mobile and online games rather than adults.

The advancement of digital technology has transformed games from traditional ones to more digitalized ones such as online games. Online games will benefit the players if they are played in sufficient portions (Adams, 2013). However, it will drive the players to addiction when they play them in an excessive amount of time. This addiction will spread to their friends and make them prefer to play games rather than studying or learning. People should act wisely towards this phenomenon to prevent damaging adolescents' negative impacts (Novrialdy, 2019). One of the efforts is to build cooperation and synergy with families, schools, and communities to revive traditional games or other games that are not interested in teenagers.

Muhasim (2017) in his research, views that intelligence and competence are required to utilize digital technology in all fields of human life, including education. The result found that the maximum utilization of this digital technology can boost students' motivation to improve Indonesia's education quality. However, contrasting to Muhasim's research findings, the current research's temporary findings come to different conclusions. It found that digital technology utilization in education tends to disrupt students' traits and behaviors. These outstanding results are derived from the different conditions as well. The research of this paper regards the learning activities through digital technology during the Covid-19 pandemic.

In contrast, Muhasim's research was conducted under a stable condition. All in all, in reality, digital-based learning requires the integration of a good network and fast bandwidth. The preparedness of all sectors is expected to support the development and implementation so that digital-based learning can be a good prospect in the future.

Conclusion

The Covid-19 pandemic has changed all aspects of human life, including in the field of education. Affected parties such as schools, teachers, students, and parents need adaptation that the government must facilitate. It is intended as a means of supporting the learning process following the applicable curriculum. Almost all the strategies that teachers use in overcoming these challenges take advantage of digital technology. On the contrary, some of these learning strategies and activities deviate from the learning curriculum. They are not wholly by the principles of using ICT. The teacher gives assignments and assignments to students. According to the teacher's considerations, the methods and media are only videos and pictures, which, according to the teacher's considerations, the low bandwidth and internet quota on the location and student devices. Besides, the low number of digital literacies among teachers is a significant obstacle in using digital applications and technology, which creates other problems in learning activities. On the other hand, this digital-based learning system destroys students' resilience. It threatens to undermine behavior such as non-responsibility or dishonesty in doing assignments and assignments.

Students' resilience can produce two different impacts, positive or negative impacts. Negative impacts will be obtained if the family and school environment do not properly facilitate students' adaptation to self-defense. On the other hand, both parties will positively support digital-based learning's total efforts to affect students' self-resistance positively. This study has answered all the questions that were questioned above, although it still needs further research.

Acknowledgment

References

Adams, E. (2013). *Fundamentals of game design* (3rd ed.). Pearson Education.

Andriani, T. (2016). Sistem pembelajaran berbasis teknologi informasi dan komunikasi. *Sosial Budaya*, *12*(1), 117–126.

Antasari, I. W., & Novianti, W. (2019). Pemanfaatan grup WhatsApps pada komunitas Kelas Menulis Pustakawan (KMP). *Medium: Jurnal Ilmiah Fakultas Ilmu Komunikasi*, *7*(1), 18–25.

Armawi, A. (2019). *Nasionalisme dan dinamika ketahanan nasional*. Gadjah Mada University Press.

Azis, T. N. (2019). Strategi pembelajaran era digital. *The Annual Conference on Islamic Education and Social Science*, *1*(2), 308–318.

Danuri, M. (2019). Perkembangan dan transformasi teknologi digital. *INFOKAM*, *15*(2), 116–123. http://amikjtc.com/jurnal/index.php/jurnal/article/view/178

Daryanto. (2012). *Media pembelajaran*. PT Sarana Tutorial Nurani Sejahtera.

Dorwal, P., Sachdev, R., Gautam, D., Jain, D., Sharma, P., Tiwari, A. K., & Raina, V. (2016). Role of WhatsApp messenger in the laboratory management system: A boon to communication. *Journal of Medical Systems*, *40*(1), 1–5. https://doi.org/10.1007/s10916-015-0384-2

Efendi, N. M. (2018). Revolusi pembelajaran berbasis digital (Penggunaan animasi digital pada start up sebagai metode pembelajaran siswa belajar aktif). *Habitus: Jurnal Pendidikan, Sosiologi, & Antropologi*, *2*(2), 173–182. https://doi.org/10.20961/habitus.v2i2.28788

Effendi, T. N. (2016). Budaya gotong royong masyarakat dalam perubahan sosial saat ini. *Jurnal Pemikiran Sosiologi*, *2*(1), 1–18. https://doi.org/10.22146/jps.v2i1.23403

Enny. (2015). Efek samping penggunaan ponsel. *Gema Teknologi*, *17*(4), 178–183. https://doi.org/10.14710/gt.v17i4.8938

Fatimah, F., & Kartikasari, R. D. (2018). Strategi belajar dan pembelajaran dalam meningkatkan keterampilan bahasa. *Pena Literasi*, *1*(2), 124–137. https://doi.org/10.24853/pl.1.2.108-113

Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. (2013). *Embracing digital technology: A new strategic imperative* (Vol. 55, Issue 1). https://www.capgemini-consulting.com/SMR

Hasbullah, H., Juhji, J., & Maksum, A. (2019). Strategi belajar mengajar dalam upaya peningkatan hasil belajar pendidikan agama islam. *EDURELIGIA: Jurnal Pendidikan Agama Islam*, *3*(1), 17–24. https://doi.org/10.33650/edureligia.v3i1.859

Hoyles, C., & Lagrange, J.-B. (Eds.). (2010). *Mathematics education and technology-rethinking the terrain*.

Idayati, R. (2011). Pengaruh radiasi handphone terhadap kesehatan. *Jurnal Kedokteran Syiah Kuala*, *11*(2), 115–120.

Martono, N. (2014). *Sosiologi perubahan sosial: Perspektif klasik, modern, posmodern, dan poskolonial*. Raja Grafindo.

Masya, H., & Candra, D. A. (2016). Faktor-faktor yang mempengaruhi perilaku gangguan kecanduan game online pada peserta didik kelas X Di Madrasah Aliyah Al Furqon Prabumulih Tahun Pelajaran 2015/2016. *KONSELI : Jurnal Bimbingan Dan Konseling*, *3*(2), 103–118. http://ejournal.radenintan.ac.id/index.php/konseli/article/view/575

Muhammad. (2011). *Interaksi dalam keluarga*. Gramedia Pustaka Utama.

Muhasim, M. (2017). Pengaruh tehnologi digital terhadap motivasi belajar peserta didik. *PALAPA*, *5*(2), 53–77. https://doi.org/10.36088/palapa.v5i2.46

Muslih. (2016). Pemanfaatan media pembelajaran berbasis ICT pada lembaga pendidikan non-formal TPQ. *Dimas: Jurnal Pemikiran Agama Untuk Pemberdayaan*, *16*(2), 215–234. https://doi.org/10.21580/dms.2016.162.1090

Ngafifi, M. (2014). Kemajuan teknologi dan pola hidup manusia dalam perspektif sosial budaya. *Jurnal Pembangunan Pendidikan: Fondasi Dan Aplikasi*, *2*(1), 33–47. https://doi.org/10.21831/jppfa.v2i1.2616

Novrialdy, E. (2019). Online game addiction in adolescents: Impacts and its preventions. *Buletin Psikologi*, *27*(2), 148. https://doi.org/10.22146/buletinpsikologi.47402

Rochmah, E. Y. (2016). Mengembangkan karakter tanggung jawab pada pembelajar (Perspektif psikologi barat dan psikologi Islam). *AL-MURABBI : Jurnal Studi Kependidikan Dan Keislaman*, *3*(1), 36–54.

Rusman. (2012). *Belajar dan pembelajaran berbasis komputer*. Alfabeta.

Salam, M. (2020). WhatsApp: Kehadiran, aktivitas belajar, dan hasil belajar. *Jurnal Pendidikan Matematika*, *11*(1), 89–98. https://doi.org/http://dx.doi.org/10.36709/jpm.v11i2.11675

Thomas, P. (2013). Faktor determinan produktivitas sekolah. *Jurnal Penelitian Dan Evaluasi Pendidikan*, *17*(1), 55–71. https://doi.org/10.21831/pep.v17i1.1361

Utami, T. W., & Hodikoh, A. (2020). Kecanduan game online berhubungan dengan penyesuaian sosial pada remaja. *Jurnal Keperawatan*, *12*(1), 17–22. https://doi.org/10.32583/KEPERAWATAN.V12I1.700

Wartana, M. H. (2011). Faktor-faktor yang mempengaruhi produktivitas kerja karyawan pada Como Shambala Estate at Begawan Giri Ubud. *Jurnal Perhotelan & Pariwisata*, *1*(1), 14–34.

Weseterman, G., Bonnet, D., & McAfee, A. (2014). *The nine Elements of digital transformation*. https://sloanreview.mit.edu/article/the-nine-elements-of-digital-transformation/

Zahroh, L. (2015). Pendekatan dalam pengelolaan kelas. *TASYRI': JURNAL TARBIYAH-SYARI'AH ISLAMIYAH*, *22*(2), 175–189.