



Answering the Learning Challenges in History Subjects in the Industrial Era 4.0 through Optimization of Digital Learning Sources

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Abstract: The industrial revolution 4.0 era is the age of information technology developing rapidly in education. This is getting stronger when the COVID-19 pandemic has hit this nation since the beginning of 2020. The role of the history education study program is crucial, especially in the development of science and technology. Therefore, learning history subjects is required to enter into a new order following its primary goal of being a reference and foothold in navigating the future



from studying past life values. The purposes of the study are to describe the learning of history subjects in the digital era. Second, describe the development of digital learning resources in learning through qualitative descriptive method consisting of data collection, data reduction, and presentation of conclusions. The research subjects consisted of 100 students from class 2018, 2019, 2020. This actual phenomenon was analyzed to understand the role of learning resources in the digital era for learning history subjects. This study indicates that the first step in facing the 4.0 industrial era challenges in learning a history subject is to optimize various methods, media, and technology-based learning resources. Especially in using digital learning resources, learning history subjects must follow the objectives, and applying the information obtained is more directed and effective.

Keywords: Industrial revolution era 4.0, history learning, learning resources, digital history

Introduction

The era of the industrial revolution 4.0 is where information technology is overgrowing and coloring every human life. The era of the industrial revolution 4.0 was marked by the development of the internet of things that penetrated various fields of people's lives today. One of them is in the field of education. Currently, education in Indonesia is entering the 4.0 era. The current trend of Indonesian education is online learning (Ahmad, 2018) which uses the internet to liaison teachers and students. Along with the COVID-19 pandemic, the learning practices have drastically changed into student-centered knowledge and information and communication technology.

Today, the world is very dependent on internet technology. The daily life of the internet has forced humans to be part of the internet, apart from the actual function of the purpose of internet technology which was initially only as a means of fulfilling and solving life's problems. Almost all sectors of human life have undergone fundamental changes due to the presence of the internet. Cultural, social, economic, and even political aspects have undergone significant changes following the working patterns of the internet. Therefore, this fundamental shift brings us to a new era known as the digital age, where everything refers to the active ways of digital machines (the internet).



Learning during the COVID-19 pandemic must continue to be carried out regarding health protocols. The learning process that does not present educators and students directly/physically can reduce the risk of spreading COVID-19 (Herdiana, 2020). Online learning is applied to change the portion of face-to-face learning in the classroom into learning in the network (online) so that the educational goals that have been targeted are still implemented.

Online learning is carried out to continue to achieve Indonesia's educational goals during the COVID-19 pandemic and work hard to prevent the spread of the virus. Maudiarti (2018) says that online learning provides convenience that can be done by anyone, anytime and anywhere, by using attributes and learning resources through digital technology. In addition, the implementation of online learning can provide convenience and, of course, according to the provisions of the health protocol that directs each learning activity to be carried out properly according to the expected goals (Fuadi et al., 2020).

History subjects as one of the compulsory subjects in schools also play a role in imparting knowledge and forming attitudes. Through history subjects, teachers can instill the value of nationalism and character education through history learning character education. The inculcation of nationalism values through history learning is successful, and history learning must be more meaningful. History learning is the best media that can be applied to teach the value of good and evil. Through history learning, many valuable lessons are presented that can be used as a source of role models in shaping the character of the nation's children (Hamid, 2014).

Education can create human beings with character and intelligence and have valuable skills for society and themselves. The higher a person's education, the easier it is to face competition in society. Improving skills and knowledge through education and the ability to hone their potential makes students easy to accept competition in society.

Changes in the learning process require changes in many things quickly, starting from learning materials to assessing the learning process. On the one hand, these changes provide an opportunity for the need for online learning, which has been less than optimized. However, on the other hand, it also leaves many problems for both educators and education staff, and students. Educators and education staff must formulate the online learning process to be carried out correctly and achieve the desired results.



Methods and Research Design

The method used in this research is descriptive qualitative. According to Moleong (2014) qualitative research is intended to understand and solve problems about what is experienced by research subjects such as behavior, achievement, motivation, and action by being described in the form of words and language, in a natural context by utilizing various natural methods. The reasons for using this method is for research that wants to describe the process of implementing online history learning in the era of the covid-19 pandemic and efforts to answer the challenges of life in the industrial era 4.0 by optimizing digital learning resources in history learning activities.

The data sources in this study consisted of 2 (two) primary data sources obtained from students/students from the History Education Study Program FKIP ULM as many as 100 people consisting of the 2018 class (20 people), 2019 (40 people), 2020 (40 people), as well as secondary data obtained through the study of books, journals, and others. In comparison, the use of data analysis techniques in this study went through 3 (three) stages consisting of (1) Data reduction stage, (2) data presentation/display stage, and (3) conclusion drawing (Creswell, 2007).

Findings and Discussion

Learning History in the Digital Era. The era of the industrial revolution 4.0 is where information technology is overgrowing and becoming a staple in all sectors of life. The era of the industrial revolution 4.0 was marked by the development of the internet, which penetrated various fields of people's lives today. One of them is in the field of education. The challenges in the world of education for educators (teachers/lecturers) in the era of the industrial revolution 4.0 are the readiness of educators in access and mastery of technology, the low level of media literacy among teachers, and only some educators have access to information technology. In addition, the challenges for students are seen from the number of students who are still too many so that the focus of learning is challenging to establish and access to information technology is still uneven (Wibawa, 2018).

Learning is any relatively permanent change in behavior due to practice and experience (Dalyono, 2012). There are various learning processes because each learning activity has a different style; these differences can be seen from the



material aspects, methods, objectives, and changes in behavior expected from the process. Effective learning can be done by utilizing existing technology and media. The teaching and learning process often faces obstacles, including history learning (Mardiani, 2018).

Among them were divided into several groups as in the ordinary group, quite interested and enthusiastic about learning because it was a new thing and learning experience. Highlighting from the students' point of view, online learning during a pandemic like now is still a scourge. Independent learning itself is not that easy, and it needs guidance and even a complete strategy so that the course of learning activities can be carried out optimally.

The implementation of online learning during the Covid-19 pandemic certainly has positive and negative impacts. All players, such as educators, students, parents, and other learning environments, must respond to this series of online learning processes. The various problems that arise during online learning do not dampen the enthusiasm for seeking knowledge. The obstacles faced must be resolved in a creative, innovative way and willing to continue the process. So, that the problems can be evaluated so that in the future, they can be better.

According to Kuntowijoyo, history has intrinsic and extrinsic uses. Intrinsically, history helps know past events. While extrinsically, history is useful as a means of education (Kuntowijoyo, 1999). History as a means of education stems from the needs of modern society who thrust of wisdom from the past. By studying history, we can solve today's problems, avoid failures and mistakes made and find new sources to define a vision for the future.

For history educators, instilling the value of character education in history learning during the COVID-19 pandemic presents its challenges. Because the situation, conditions, and circumstances of distance learning are different when compared to face-to-face learning. Distance learning causes students to experience boredom and even confusion in learning activities. Not being used to carrying out independent learning limited by direct interaction significantly impacts the learning outcomes obtained. Therefore, educators or teachers must be creative, innovative, collaborative, and even competitive in every situation. This needs to be owned in order to be able to arouse the spirit of learning and strive to keep the learning going well even with online learning (*online*).



The era of the industrial revolution 4.0 is synonymous with the growth of technology and digitalization. The human need for technology is very vital. The need for internet access to meet information needs, self-actualization, and self-existence is the hallmark of society in this era. This pandemic period is the peak of the use of technology in education. Along with the era of the Industrial Revolution 4.0, which has even entered advanced development to stage 5.0, it is a pretty complicated challenge. Irianto (2017) mentioned several challenges in the industrial era 4.0, namely; (1) industrial readiness; (2) reliable workforce; (3) ease of socio-cultural arrangements; and (4) diversification and creation of job opportunities and industry 4.0 opportunities, namely; (1) ecosystem innovation; (2) competitive industrial base; (3) investment in technology; and (4) integration of Small and Medium Enterprises (SMEs) and entrepreneurship.

History learning requires adaptation and effort to run smoothly. Excellent and practical cooperation is needed so that learning objectives can be achieved. Optimizing what is available is an excellent first step. However, if it is coupled with self-exploit efforts to try various methods, media, technology-based strategies, and digitization, complex challenges will be easier to solve. In addition, educators need innovation to create meaningful learning experiences and design learning designs that can create a conducive learning atmosphere, especially amid the Covid-19 pandemic, such as discussion methods, question, and answer digital-based evaluations such as quizzes, live e-mail. -learning through various available platforms such as zoom, google meet, google classroom so that learning can be more optimal (Syaharuddin, 2020; Syaharuddin et al., 2021).

History Learning Resources in the Digital Age. Indonesia is entering the industrial revolution 4.0, an era where the digital industrial world has become a paradigm and reference in the global order. Changing procedures that were previously complicated become easier with the help of technology. The Government has issued strategic policies in the education sector to respond to the challenges of industrial revolution 4.0 by launching and campaigning for a structured, systematic, and massive national literacy movement to all levels of Indonesian society (Santika, 2021).

The challenge in the world of education for educators in the era of the industrial revolution 4.0 is the readiness of educators to access and master technology. The role of teachers and even lecturers in the Industrial



Revolution 4.0 era needs to be watched out for because, in essence, educators should focus on their duties only in the transfer of knowledge but more emphasis on character, morals, and exemplary education. This is because the transfer of knowledge can be replaced by technology. However, the application of soft skills and hard skills cannot be replaced with any sophisticated tools and technology (Risdianto, 2019).

They are illustrated in the use of the internet, namely, the advantages that are present when the internet is used for learning facilities, making innovations, and providing inspiration in work. McCrindle has predicted the existence of the digital era, and technological advances that our children in the Alpha generation cannot be separated from intelligent devices, lack socialization, lack creativity, and are also individualistic (Purnama, 2018; Salehudin, 2020). There is a fundamental uncertainty about this regarding the advantages and disadvantages of using the internet for today's life. While on the other hand, it can be seen when the internet is used as a tool for negative propaganda, intimidation, a means of dividing SARA, and even the media exposing terrorism and drug trafficking (Restianty, 2018).

History is the best medium we have for teaching the value of good and evil in human survival. History presents many valuable lessons that can be used as a source of role models in shaping the character of the nation's children (Hamid, 2014). The new paradigm that is now being built in history learning is the constructivism paradigm. History is constructed to build knowledge consciously by the learner. The purpose of learning history is to train students to think sequentially, chronologically, directed about an event and every event that occurs by the patterns contained in a series of human activities in the past (Anis et al., 2020). Understanding of history will be formed if history learning is done well. This is because historical understanding tends to think that reflect a historical event's values in everyday life (Susanto, 2014).

In the industrial era 4.0, students can freely use digital technology to optimize their life activities even in the order of the learning process, such as reading, studying, criticizing information from the internet, being able to access learning management systems, reading journals or e-books, doing online quizzes, participate in discussion and forums. A new paradigm emerges in learning activities; students are encouraged to be independent or critically work together to explore learning procedures, learning resources through information



obtained through the internet. They also use this for academic activities and can independently solve scientific problems in projects and studies.

Putro & Jumriani (2020), the source of learning materials comes from the surrounding community; of course, this is a source of teaching materials close to everyday life. Distance learning or online-based learning is learning that uses internet-based; the internet is a network that is close to today's life or can be said to have *become a lifestyle* separate for technology users.

Nicols (2018) said that the presence of the internet had made expertise "dead", but that does not mean that the sources and studies of experts in specific scientific fields, even within the scope of history, are then delivered to the grave by the internet. We are presented with significant advantages over the presence of the internet; even Storey (2011) has long recommended that historians familiarize themselves with the internet to support their research so that they do not depend solely on written sources that are still stored in archival depots or libraries. Participation in the current era does require science and knowledge, and the people who hold it go hand in hand with fulfilling the needs of life according to the guidance of the times. So that historians have now become part of a global network of providers of historical sources.

According to the concessions of the times, the basic needs that must be possessed today are fundamental skills in using the internet as a learning resource, finding and obtaining information, frequently used information sources, and using information effectively. The digital literacy or knowledge and skills in digital technology must be possessed to use information effectively in various forms, such as electronic publications, online videos, audio recordings, digital libraries, and databases.

Digital history learning resources aim to take advantage of advances in internet technology in history learning. However, students must be directed guidance in improving thinking skills and studying historical sources as study material. Digitization of historical sources, especially primary sources, is essential. Therefore, the basic ability that must be possessed in this era is to use the appropriate supporting technology to achieve the desired goals in learning.

History learning must adapt to technological advances in the current digital era so that the objectives of the history learning process can be achieved. Especially during the pandemic, with all forms of limited access, direct



interaction has led to the emergence of many innovations and new creations to solve the problems faced, especially in teaching and learning activities that require a high intensity of interaction. There are many problems facing history learning today. These problems include the inefficient use of theory, poor imagination, textbook references, and state-oriented curricula, and the tendency to not pay attention to the phenomenon of globalization and its historical background (Subakti, 2010). One of the 2019 class students, Kausar, stated that the problem often occurs with the lack of facilities available in the learning process, especially during the lecture. He is returning to his hometown, so getting excellent and smooth internet coverage is quite tricky. This is because his house is in a remote area.

History learning should build a framework of past awareness formed from understanding the values of every historical event that collided with the actual reality. However, we also must be able to see the other side, namely the development of technology, so that history learning can answer the challenges of an unavoidable change. Sixteen cultural heritage sites can be visited virtually through the Google Arts & Culture application, namely: (1) the National Museum of Indonesia; (2) Balai Kirti Presidential Museum; (3) Youth Pledge Museum; (4) National Awakening Museum; (5) the Museum for the Formulation of the Proclamation Manuscript; (6) Basoeki Abdullah Museum; (7) Fort Vredeborg Museum; (8) National Gallery; (9) Sangiran Early Man Site Preservation Center; (10) Borobudur Conservation Center; (11) YBI Batik Gallery; (12) National Monument; (13) Yogyakarta Biennale Foundation; (14) Agung Rai Museum of Art; (15) Museum of Fine Arts and Ceramics; (16) Textile Museum (Ramadhian, 2020). Some sites can be accessed through internet pages as part of historical learning resources such as virtual tours of cultural heritage and random online visit.

In addition to utilizing the museum's virtual page, the implementation of history learning can also be optimized by using the following official portals:

1. <https://www.nla.gov.au/indonesian/websita>;
2. <https://www.nationaalarchief.nl>;
3. <https://www.delpher.nl>;
4. <https://www.kitlv.nl>;
5. <https://www.bibliotheek.universiteitleidennl/?ga=2.148542967.1537371192.1624831816-2062847082.1624831816>;



6. <https://www.bl.uk/catalogues-and-collections/digital-collections;>
7. <https://sejarah-nusantara.anri.go.id/hartakarun/;>
8. <https://e-resource.perpusnas.go.id.>

At the beginning of the implementation, online learning applied in the history education study program to students is adjusted to the affordability of students in accessing technology and information, equating the perception by lecturers and students. The purpose of online learning is that lecture activities continue to run well even though it is limited by some distance interaction constraints, much like you are not used to it yet to use technology to support learning by lecturers and students. So that in the early days of implementing online learning, flexibility is given in the selection of learning media/intermediaries. Lecturers and students carry out the agreement to find common ground that can be taken as a middle ground.

Answering some of the problems that arise related to the constraints of the implementation of online learning can be done by maximizing the creativity and innovation of each individual, both from educators, namely lecturers, and from students, namely students themselves. Online learning requires a process of adapting to technology so that anyone is indeed required to be able to explore this new way of life. As implemented in the history education study program in the implementation of online lectures, which have been going on for three years starting from March 2020, lecturers as educators seek to optimize the course of lectures with various methods and strategies by available technology and, of course, adapted to the abilities of the participants students. Based on the results of an open questionnaire given to students in the history education study program batch 2020, 2019 and 2018, the majority of students said that learning with an online/online system through several media such as Zoom Meeting, WhatsApp Group (WAG), LMS (Learning Management System) SIMARI is a face-to-face learning alternative that impresses them. The change in new procedures by maximizing technology is a revolutionary thing for non-specialists, and of course, it ignites high enthusiasm and curiosity. According to Mukaffi from the interview results 23/08/21, responding to online lectures using various learning platforms is a challenge; habituation and perseverance need to be. So it is necessary to adapt and prepare carefully so that the implementation of online learning can be as expected. In addition, Hidayat added, a 2018 student of the history education study program through an interview on 30/08/21, saying that based on the



obstacles in online learning, it provides motivation and a desire to hone other skills in the field of technology. Exploring new knowledge is undoubtedly an essential thing in order to adapt to life in the digital era.

Accessing the internet to get sources of information that can be used in making lectures is undoubtedly a mainstay. However, not all of them can be completed because they only access information from blogs, journals, and E-books in digital libraries. It is still under-touched at a more advanced stage, such as on the official website or other primary historical source platforms. Generally, students only look for references through Google randomly, without examining whether the sources and references are valid or credible. In history, learning, especially historical sources, which are used as learning resources, is the main subject of the learning title itself; this essential material is needed to build a solid pattern of historical thinking. Of course, it is also accompanied by a critical way of retrieving information available on the internet; according to what Bayu Pratama, one of the 2019 history students, stated that the use of sources from the internet is a mainstay while carrying out assignments given by lecturers during online lectures. The expression of the ease of access and easy, cheap, and even free reach when looking for information related to the material studied during the lecture gives a lasting impression. However, he is not sure whether so far the information in the form of study materials that have been accessed is following what is expected in the final learning objectives. The reason is that he has only taken it without knowing whether it is the official website and so on so that the demands of including sources in the study assignment are fulfilled. That is why there is a need for directives from teaching lecturers to their students to take and use information in the digital area with precise verification so that later information that is used as a learning resource can be accounted for.

Conclusion and Recommendations

This study indicates that the first step in learning history in the era of revolution 4.0 is done by optimizing what is available by trying various strategies, methods, media, and learning resources based on digital technology. Teachers/Lecturers and Students are optimistic about their abilities to explore the more profound potential and existing limitations so that in the future, they can improve learning that is appropriate and in line with the goals intended by history learning stated in the curriculum.



Second, through a portrait of history learning in the 4.0 revolution era during the COVID-19 pandemic, which took place at the Lambung Mangkurat University, FKIP, Study Program of History Education, students were able to solve the obstacles they were facing in the implementation of online lectures independently through various skills in reading, analyzing and critiquing information. Available on the internet, access learning management systems, read journals and e-books, submit assignments via e-mail, take online quizzes, and participate in discussion forums. In addition, they were developing internet-based historical learning resources that can be developed from electronic publication sources (online journals, e-books), videos, audio recordings, digital libraries, and databases.

This study recommends the following: first, the campus leadership should provide facilities and infrastructure to support internet-based learning. This is a must for policymakers in universities so that learning that uses the internet as a learning resource can be more optimal. Second, teaching staff (lecturers) should transform in various ways in today's education line and want to be distracted from conventional learning towards all-digital learning in virtual spaces, namely by utilizing internet-based digital learning resources in the form of e-journals, e-books, videos, audio recordings, digital libraries, and databases.

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