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Differentiated Instruction to Improve Learning Effectiveness in A Disruptive Era

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Abstrak

Di era revolusi industri 4.0 terjadi penyebarluasan alat-alat informasi komunikasi dan spontanitas yang disebut era disrupsi digital. Inovasi pembelajaran yang berorientasi pada minat dan potensi bakat siswa bisa dilakukan dengan pengembangan strategi pembelajaran berdiferensiasi. Diferensiasi mengedepankan konsep bahwa setiap individu memiliki minat, potensi dan bakat yang berbeda, untuk itu peran guru harus mampu mengkoordinasikan dan mengkolaborasikan perbedaan tersebut dengan strategi yang tepat. Penelitian ini bertujuan memaparkan pentingnya peran pembelajaran diferensiasi di era disrupsi. Metode yang digunakan penelitian kepustakaan. Melalui pembelajaran diferensiasi dalam era disrupsi guru diberikan kebebasan untuk mengajarkan materi melalui media yang berbeda-beda. Hasilnya, siswa memiliki kemampuan untuk menemukan, memecahkan serta menindak lanjuti masalah yang diberikan. Kemampuan tersebut ada dikarenakan siswa dilatih untuk belajar secara mandiri maupun berkelompok tanpa adanya paksaan dan ketergantungan dari pendidik. Seorang pendidik membuat variasi metode maupun media dalam proses pembelajaran dengan menyesuaikan gaya belajar siswa.

Kata Kunci: Pembelajaran, Diferensiasi, Era Disrupsi

Abstract

In the era of the industrial revolution 4.0, there was the spread of information, communication, and spontaneity tools, which is called the era of digital disruption. Learning innovations that are oriented toward the interests and potential talents of students can be done by developing a differentiated learning strategy. Differentiation puts forward the concept that each individual has different interests, potentials, and talents, for that the teacher's role must be able to coordinate and collaborate these differences with the right strategy. This study aims to explain the important role of differentiation learning in the era of disruption. The method used is library research. Through differentiation learning in the era of disruption, teachers are given the freedom to teach material through different media. As a result, students have the ability to find, solve and follow up on the problems given. This ability exists because students are trained to study independently or in groups without coercion and dependence on educators. An educator makes variations of methods and media in the learning process by adjusting students' learning styles.

Keywords: Learning, Differentiation, Era of Disruption

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INTRODUCTION

The world in general and Indonesia in particular are entering a new industrial era marked by the era of digitalization in various sectors of life. Experts call this the era of the industrial revolution 4.0. The industrial revolution 4.0 has a new expression, namely the era of digital disruption the digital revolution is called the digital revolution because in the industrial revolution 4.0 there was the spread of communication information tools and written spontaneity in all aspects of life, and the term digital disruption era, because of spontaneity and connectedness in all fields that lead to progress in the industry. The characteristics of the industrial revolution 4.0 are the era that applies artificial intelligence (Tjandrawinata, 2016). Changes in the dynamics of the pace of movement that were originally centered on humans as vital additional subjects in the growth and development of the pulse of the economy have shifted slowly but surely to be replaced by mechanical automation and the digitalization of technology in moving the wheels of the economy (Suwardana, 2018).

The results of research from McKinsey in 2016 that the impact of digital technology on the industrial revolution 4.0 in the next five (5) years there will be 52.6 million types of jobs that will experience a shift or disappear from the face of the earth. The results of this study provide a message that every self who still wants to have self-existence in global competition must prepare mentally and *which skills (competitive advantage)* from others. The main way of preparing skills that are easiest to pick up is to have behaviors (*behavioral attitude*) that are good, improve self-competence, and have a literacy spirit. Provision of self-preparation can be passed through the education route (*long life education*) and self-concept through experience in collaboration across generations/cross disciplines (*experience is the best teacher*).

The industrial revolution 4.0 is considered the fourth modern gate of that era which is illustrated by the emergence of super PCs, intelligent robots, automatic vehicles, hereditary changes, and neurotechnological advances that strengthen the ideal work of the human mind. This has also changed the improvement of the education system. The industrial revolution 4.0 in the aspect of education is a response to the needs of this revolution in which technology and humans are adapted to create new opportunities innovatively and creatively. The role of educators demands to play a role in supporting this transitional period. According to M. Surya defining learning or education is “... a process carried out by individuals to obtain a new behavior change as a whole, as a result of the individual's own experience in interaction with his environment” (Surya, 2004). Education has a goal so that a person experiences change. if today's education experiences challenges due to technological disruption, then this goal will not be achieved. Thus, educators and students must understand the challenges they face in the era of technological disruption so that they will achieve their desired goals, namely experiencing a change. with differentiated learning can be an educational solution today.

Differentiated learning has the term that every child is unique and has different characteristics. However, the education movement needs to be balanced with quality teachers who have qualified capacity by having good personalities, mastering teaching materials, and mastering teaching methods as competencies that must be possessed. Education functions as a formal institution with a conceptual system for carrying out guidance, teaching, and training for students (Faiz & Faridah, 2022). As the main actor in running the wheel of national education, a teacher must understand that every child is unique, and has different dreams, intelligence, talents, and abilities. This expression is in line with the theory of a psychologist named Urie Bronfenbrenner who says that every child has different interests, talents, and cognitive abilities depending on the cultural background in which they are raised. Therefore, having good pedagogic competence is a priority to become a teacher. Because quality learning outcomes are determined by the quality of qualified teachers (Pradina et al., 2021).

An educator can serve students who are taught according to their circumstances by carrying out this learning process. Schools can use different learning processes to free students from having to be equal in all respects, allowing them to express themselves according to their uniqueness. The application of differentiated

learning will be a flexible and not rigid curriculum that believes in only one way to achieve educational goals in schools. Tomlinson revealed that differentiation learning has a collaborative strategy pattern of all differences to get information from what is learned. The common thread that differentiates learning is creating a diverse class by providing opportunities for students to obtain content, process ideas, and improve each student's learning outcomes so that they can learn even more effectively (Suwartiningsih, 2021). Thus the essence of differentiation learning is learning that facilitates all the differences that students have openly with the needs that will be achieved by students.

Differentiated learning as a solution in the era of disruption is an interesting thing to study. How could it not be, there is still not much research discussing this problem, although there are previous works that tend to describe in general terms and outlines, but not yet in-depth, and have not found research that discusses specifically and systematically to facilitates understanding of the study of differentiated learning as a solution. in the era of disruption. As written by Desi Wahyuningsari et al entitled, "Differential Learning in the Context of Realizing Independent Learning". This study found that in differentiation learning using different learning processes frees students from having to be the same in all respects, allowing them to express themselves according to their uniqueness and this is by the goal of independent learning, namely students are free in carrying out learning styles (Wahyuningsari et al., 2022). This research only describes aspects of differentiation learning. Meanwhile, what is interesting in this study is the differentiated learning solution.

Another study, namely that written by Bayu Rikno Pamungkas entitled, "Education in the Era of Technological Disruption or Technological Development". This research explains that many challenges must be faced by teachers in carrying out their duties as teachers in the era of technological disruption. However, the situation will be different if the teachers can understand the challenges and how to overcome them, then the world of education will experience advanced development together with technological developments (Pamungkas, 2020). This study only explains the evaluation of learning and does not offer a clear explanation of the learning model. This research emphasizes differentiation learning as a solution in the era of disruption. Even so, the authors found a space that is synonymous with differentiation learning as a solution in the era of disruption.

Thus doing this research is to be able to offer new value or research benefits as an innovative effort, namely as follows: 1) Efforts to produce superior students who can compete globally according to the learning styles, interests, and advantages of students Teachers can also change the content of lessons, learning processes, products, or learning outcomes taught, and the learning environment in where students study. 2) Teachers can serve students according to their respective circumstances by carrying out this learning process, namely, educators can provide a variety of options in which students can demonstrate what they have learned presented in the form of songs, poetry, infographics, posters, video performances, as well as animated videos or other forms.

RESEARCH AND METHOD

To obtain data that will be processed and produced, the type of method that author will use library *research* (literature research) in which research is carried out by reading, taking notes as well as reviewing literature or reading materials that are selected and considered appropriate to the subject matter of the study, then filtered and also poured theoretically into the framework of thought related to strengthening Pancasila student projects. The following technique is carried out to strengthen facts and compare differences or similarities between both theory and practice that the author is currently researching. The website method (accessing internet sites) was also carried out in this research, which conducted searches on websites or sites that contained a lot of data, and information related to research, namely sites regarding learning research journals that were differentiated as a solution in the era of disruption.

The data analysis technique in this study used content analysis, namely the process of simplifying data into a form that is easy to read and interpret. In this study, after collecting data contained in the library, in the form of journal articles, books, scientific papers, and other literature that supports this research, namely differentiated learning research as a solution in the era of disruption. Then from the data or information that has been collected to read the literature by digging deeply into the reading material that allows you to find new ideas related to the research title. After that, make a research note, which is then processed and analyzed using a description method to get a conclusion.

RESULT AND DISCUSSION

Educational Challenges in the Disruptive Era

Disruption in language means to disturb, and disruption means to interrupt. Disruption is also often associated with the industrial revolution 4.0, namely changes in the industrial system in the 4.0 era which uses a lot of digital technology so disruption is often interpreted as a change in the established order (Rahmawati, 2018). Disruption broadly means changes that are very basic and occur in various aspects of life. The changes that are happening now are the spread of digital technology and artificial intelligence (*Artificial Intelligence*) as well as the internet which replaces old ways with new ways through the use of digital technology (Ulfah et al., 2022). One of the strong characteristics of the era of disruption is marked by the presence of non-face-to-face transactions that are replaced by online services. Not only in the form of a more sophisticated information system, social media is also an alternative to increasing sales. This situation makes cyberspace a substitute for situations that are considered practical to represent real-world conditions that are starting to be considered impractical in transactions.

In the field of education, starting with the emergence of a repository of knowledge that we know as Google, Google was able to shift the position of the library as a source of reference search and switch to digital libraries. In addition, rampant homeschooling is a learning alternative for students and tertiary institutions that have implemented distance learning by using online media as a learning medium in addition to modules and non-print media. Not only that, misuse of applications on Instagram, which often without us realizing it, shows creativity that is not useful and even leads to negative content. There is also a lot of information media that reports about parents who abuse their children or vice versa. Thus, this disorder also has positive and negative aspects, depending on how humans make good use of it (Husein, 2022).

Then, what are the challenges for educators in the era of technological disruption? Based on the discussion above, the authors formulate two challenges faced by education today (Salsabila et al., 2020).

1. Curriculum

The curriculum is a guide as a provision for children's learning activities at school. Therefore the curriculum is very necessary for the learning process (Maghfiroh, 2022). However, the curriculum is also a challenge for education. Especially in Indonesian education, the curriculum provided is a directive from the government and with increasingly stringent regulations. And Indonesia changes the education curriculum once every 10 years, while changes occur almost every time.

Thus, the question arises, does the curriculum have to change according to every change that occurs? This question is often asked by teachers. According to Sidjib, being a teacher or tutor is not only about understanding the learning material that will be delivered. In line with Sidjaga's opinion, being a teacher is not only understanding the material but must find out how to develop and make effective the learning he gives to students. And must understand the curriculum that will be given to their students (Sidjabat, t.t.).

The teacher as a person who is directly involved in the learning process also develops the existing curriculum to create conducive and enjoyable learning conditions and atmosphere. In addition, teachers are required to be literate in digital technology so that the learning process can continue face-to-face or online. This

is what makes the task and role of an educator more difficult and must adapt to existing conditions. For the upper level, this is not so difficult because in general they already understand how to use technology even though they have to be trained and given an understanding first. However, for the lower grade level, it is necessary to coordinate with the parents of students so that the learning process runs smoothly (Husein, 2022).

2. Learning

The second challenge faced by education, according to Totok, is regarding the learning process and the method of delivering the material that will be given to students. In the era of technological disruption, it is very easy for someone to get the information they want. Thus, students will easily get learning information through online media that is easily accessible in the era of technological development. Therefore, the teacher must change the way he conveys material differently, if he only conveys it by reading a book, then the internet is no different.

With the ease of accessing any information easily, every student will tend to have an interest in being alone because they are too engrossed in online media which they access via cell phones and have had quite a negative influence on student academics. Situations that occur like this will reduce the humane relationship between teachers and students because technology has been replaced. Thus, the essence of education loses its purpose in forming a complete human being. And the expected changes after carrying out the teaching will not materialize (Fauzi, 2017).

The challenges above are quite influential in the world of education. There are many more challenges faced by every teacher and teacher. However, the author wrote about the two challenges that have been described. If these two challenges can be understood and overcome by teachers, then education can develop along with the increasingly rapid development of technology.

Differentiated Learning as a Solution in the Disruptive Era

Various solutions and methods have been implemented to overcome every educational challenge in the era of disruption. However, the most important thing that needs to be done is an educational evaluation in which every teacher must know what things must be changed and paid attention to in technological developments. In particular, the curriculum that forms the basis and guidance for students must be considered as well as the learning methods. Educational evaluation has a very important role in the progress of education in the era of disruption, so it needs to be carried out by every educational institution, especially in Indonesia.

The world of education is experiencing changes that are controlled by technological developments so it is required to design curricula and learning methods that are different and even different from those currently implemented. Developments in learning methods that have shifted the teacher's role as a source of knowledge for students have now been replaced with students as the main role. By applying differentiated learning it is expected to be able to provide a different color in learning.

Differentiated learning or so-called instruction and Differentiated Assessment. In education in simple terms differentiation, is a framework or philosophy for effective teaching that involves providing all students in their diverse classroom community with different ways to perceive new information (often in the same class) in terms of acquiring content; processing, constructing, or understanding ideas; and developing teaching materials and assessment measures so that all students in a class can learn effectively, regardless of differences in abilities. This differentiation is student-centered, meaning that learning is carried out by the methods and strategies students are interested in by allowing them to explore themselves, and in this position, a teacher becomes a facilitator for their students (Herwina, 2021).

The differentiated learning paradigm views all students as having their uniqueness. Differentiated learning provides the needs needed by students. The differences that exist in individual students must be a concern because of the different inputs. This is because students grow in different environments and cultures. Learning

is done in various ways to understand the interests and talents of students. According to Atik Siti Maryam (2021), in differentiation learning there are at least 4 types, including 1) content differentiation; 2) process differentiation; 3) product differentiation, 4.) Effect.

Differentiated learning on content includes; 1) analysis of student learning readiness which refers to the material to be taught; 2) student interest, in this case, the teacher as a motivator needs to provide opportunities for students so that students can be more actively involved in learning. The teacher's role is to maintain student interest, one of which is with different learning styles and methods; 3) make a mapping of learning needs based on student profile indicators that can provide opportunities for students reasonably and efficiently according to the required method. The role of teachers who can collaborate in learning is very decisive.

The second is process differentiation, in the role of the teacher must analyze whether learning is carried out independently or in groups. Teachers also need to see which students need help and guiding questions in learning before students carry out their learning independently. Of course, the teacher needs to consider based on the lesson plan that has been prepared. The process differentiation includes; 1) tiered activities, in this section students must build the same understanding, but still need to pay attention to different supports, challenges, and challenges; 2) provide guiding questions that can encourage students to deepen the material being studied; 3) creating individual agendas, such as making notes on task lists that contain student work related to individual student needs; 4) facilitate the duration of time for students to complete their assignments. In this case, the role of the teacher must provide support to students who are experiencing difficulties or vice versa encourage students to analyze the material more deeply; 5) develop visual, auditory, and kinesthetic learning styles; 6) group groups according to the abilities and interests of students.

The third review relates to product differentiation. This product is work that must be shown to teachers. Product form can be in the form of essays, written test results, performances, presentations, speeches, recordings, diagrams, and so on. This is intended so that students' understanding is related to what is the learning objective that has been determined. Making products aims to make students' understanding more broadly related to what they have learned both individually and in groups. In product differentiation, there are two focuses: challenges and creativity resulting from learning expressions that students want. In this section the teacher's role is very important to determine student expectations including; 1) determining the work indicators to be achieved; 2) the product must appear content; 3) planning the process; 4) designing the expected output of the product. Although students can make products according to their interests and learning needs, the teacher also needs to provide indicators that must be achieved related to the quality of the products that have been made.

The fourth is the effect of differentiation including 1.) Safe environment, 2.) Students are free to make mistakes, 3.) Students feel accepted, 4.) positive feedback.

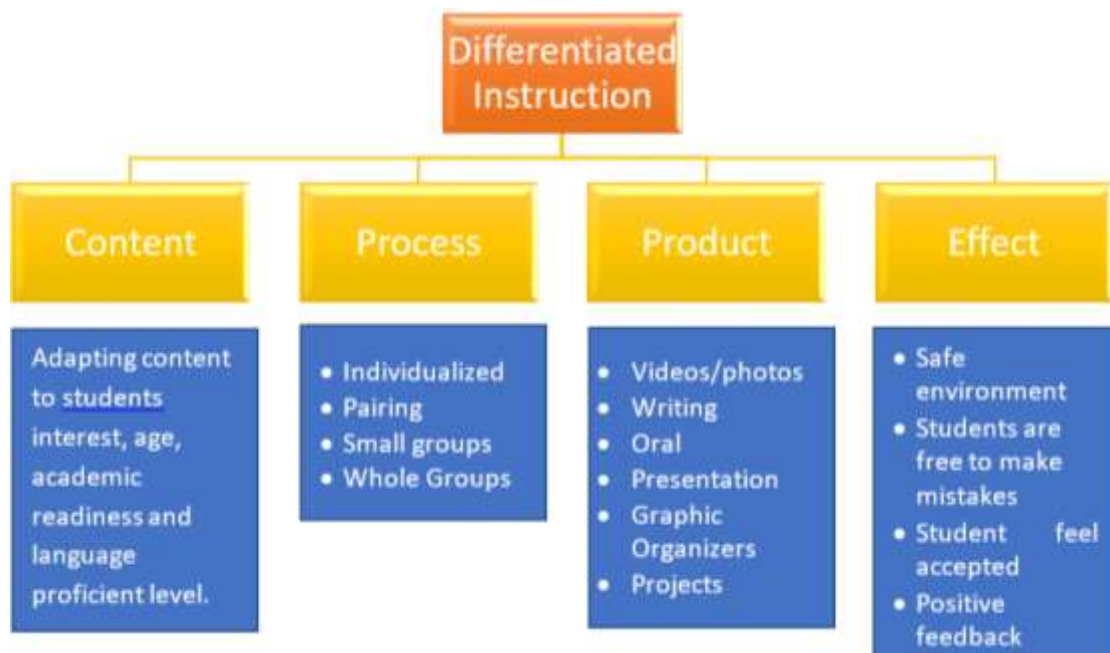


Table 1. Differentiated Instruction

Differentiation learning is the right method to apply in the learning process, especially in the current era of disruption, besides that differentiation is also able to provide good learning reflection results by the desired learning objectives. Learning reflection takes many forms, it can be in the form of role-playing (*roleplaying*), storytelling (*storytelling*), comics, posters, and other forms of media according to students' interests and preferences. Whatever the form of reflection, the purpose of learning reflection is the same, namely for the teacher to know the extent to which students understand the learning material that has been delivered. So from this reflection, the teacher will also reflect on himself if it turns out that there are still students who do not understand the material he has conveyed deeply. One of the most important aspects of differentiated learning is the aspect of learning readiness. Readiness to learn (*readiness*) is the capacity to learn new material (Pratama, 2022). Assignments that pay attention to the level of student readiness will take students out of their comfort zone, but with the right learning environment and adequate support, so that they can still master new material.

The implementation of differentiated learning is expected to stimulate children in maximizing the absorption of information in learning. The impact of applying differentiated learning includes; every student with various characteristics feeling welcomed and valued, the teacher teaching for the success and development of students, and student learning needs being facilitated, as a real form of fairness in the treatment of learning, there is a teacher and student collaboration (Hadi et al, 2022). The differentiated learning paradigm views all students as having their uniqueness. Differentiated learning provides the needs needed by students. The differences that exist in individual students must be a concern because of the different inputs. This is because students grow in different environments and cultures. Learning is done in various ways to understand the interests and talents of students.

One of the products that can be produced in differentiated learning in the era of disruption is changes in student behavior which are expected to become internalized abilities within students to respond to the challenges of the times. A soul and an attitude of responsibility are born in students in every daily activity. In addition, varied media can be used by teachers to carry out differentiated learning in the digital era so that learning is more effective because varied media can meet the diverse characteristics of students. An example of audio-visual media, this media is suitable for students who have a learning style of hearing and seeing from videos. Apart from that, there are also visual and kinesthetic media. In differentiation learning, you can use more than

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one media and it depends on the student's learning style. In addition, teachers can choose learning models with process differentiation, products, content, or effects. If in previous research educators put more emphasis on material and only visual media, then this study presents various media that are needed according to student learning styles.

CONCLUSION

Differentiated learning is relevant to the challenges of the era of disruption where there has been a shift in the role of the teacher no longer being the main source of learning. Teachers must encourage students as the main role in learning so that all students can develop according to their needs and characteristics. With differentiated learning all students experience learning because the environment is safe, students feel comfortable if they make mistakes, they feel accepted, and provide feedback. Thus learning is more meaningful and all students progress in learning according to the abilities and uniqueness of each student. In previous studies, educators were required to understand the challenges and solutions in learning in the era of disruption. This research presents how differentiated learning becomes a learning solution in the era of disruption. Learning that adjusts students' learning styles so that learning is more innovative and creative.

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