Implementation of Multiple Intelligences Learning Model in Welcoming the Era of Super Smart Society 5.0

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Abstract

One of the problems of progress in the field of education is the view of intelligence. The implementation of education in Indonesia focuses more on the cognitive field so that other intelligences are forgotten to be optimally developed. Students must have supporting abilities to face the era of society 5.0, of course, obtained from education that facilitates the development of all intelligences. The purpose of writing this article is to explain plural intelligence from the point of view of neuroscience, plural intelligence learning models, and benefits for students to be ready to face the era of society 5.0. The methods used are theoretical research, a type of descriptive research, data analysis through interactive models, and data obtained from the literature. The results of the discussion are: (1) neuroscience can explain the plural intelligence scientifically; (2) the plural intelligence learning model consists of approaches, strategies, methods, techniques and methods; (3) plural intelligence can prepare learners to face the era of society 5.0. The conclusion of writing this article is that a learning model based on multiple intelligences can prepare students to face the era of society 5.0 so that it is hoped that learning will not only focus on cognitive aspects.

Key words: learning model, plural intelligence, super smart society 5.0 era

Introduction

The era of super smart society or known as the era of society 5.0 is an era that was initiated by the Japanese government. This era was introduced at the World Economic Forum held in Davos, Switzerland in 2019. (Puspita et al., 2020). The era of super smart society is an era where people must be able to solve various social problems caused by inventions in the industrial era 4.0, namely artificial intelligence, the internet of things, robot technology, to big data which of course can replace some of the needs of human resources (Sawitri, 2019). To face this era, of course, educators must present learning content that teaches students to have abilities which are often abbreviated as skill 4, C, namely critical thinking and problem solving, communication, collaboration, and creativity and innovation (Prayogi & Aesthetics, 2019). So in this case, of course, the role of education is very influential because it is education that will shape and direct students to have these competencies to face the reality in the 21st century. In line with this, Indonesian education leaders have given several ideas so that students are ready to face challenges and challenges. Global competition. The direction delivered by Ki Hajar Dewantara introduced the Among system, which is a system that gives freedom to think (Nurhalita, 2021).
The description of the formal education curriculum in Indonesia currently emphasizes generalist theory rather than application and specialization (IDRI, 2020). This causes the development of creativity and expertise in the field of science and technology to run poorly so that education has not been able to produce quality students who are ready to compete. One of the reasons is the view of intelligence. The implementation of education in Indonesia focuses more on the cognitive field which places more emphasis on understanding writing, reading, mathematics, and science (Adiputri, 2019). Of course, this makes the development of other intelligence forgotten. In addition, the lack of educators’ understanding of creativity encourages a standard quality curriculum and only teaches basic skills (R. Setiawan et al., 2020). In 1983 Howard Gardner made several observations about human intelligence based on his 35 years of neuroscience studies. His research resulted in seven aspects of intelligence which he later added to become eight bits of intelligence, namely "linguistic, logical-mathematical, visual-spatial, bodily-kinaesthetic, musical, interpersonal, intrapersonal and naturalist" (Hanafin, 2014). But in its application in Indonesia, it is added to nine bits of intelligence, namely spiritual intelligence (Sujiono, 2013). The benefit of the Multiple Intelligences theory is that it can help students and educators better understand students’ abilities "It helps students to build up confidence as it demonstrates how they can use their strengths to address their weaknesses" (UKEssays, 2018). This theory emerged as a new perspective on the nature of students in education. Previous researchers have revealed that this theory is not just a theory, but is based on strong reasons why this theory should be applied in education. First, this theory is based on various research results regarding the potential of each person. Second, in this theory, Gardner offers not only theoretical but also practical things because this theory has been tried in fields such as American Airlines, Bell Atlantic, and others. Third, this idea has been laid out in sequence starting from its philosophy to its practical application. (Husnah, 2019).

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The current description of the formal education curriculum in Indonesia emphasizes more on theoretical-generals rather than applications and specializations (IDRI, 2020). This causes the development of creativity and expertise in the field of science and technology to run poorly so that education has not been able to produce quality students who are ready to compete. Among the reasons is the view of intelligence. The implementation of education in Indonesia focuses more on the cognitive field, which emphasizes understanding writing, reading, mathematics and science (Adiputri, 2019). Of course, this makes the development of other intelligences forgotten. In addition, educators’ lack of understanding of creativity encourages a standardized quality curriculum and only teaches basic skills (R. Setiawan et al., 2020).

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Based on these reasons, this research will focus on the application of the theory of multiple intelligences in education which is then described in the learning model. This learning model consists of approaches, strategies, methods, and learning techniques. So this research will complement the previous research. Dwi Conscience, S, KM, MSi as an analysis of the implementation of the education curriculum of the Directorate of Elementary Schools revealed that to face the era of society 5.0, education units needed a change in the educational paradigm. Among them, educators minimize as learning material providers, and educators become an inspiration for the growth of student creativity (Preparing Professional Educators in the Era of Society 5.0, 2021). This statement certainly emphasizes that educators must develop the creativity of students regardless of the type of intelligence they have. But
currently, the reality is that the implementation of the curriculum in Indonesia places more emphasis on cognitive learning and has not facilitated the development of all the bits of intelligence of students. This results in a lack of competitiveness among Indonesian students as evidenced by the high percentage of students who do not excel in Indonesia, which is as much as 80 percent in 2019 (75 Percent of Underachieving Indonesian Students, 2019). Thus, this can prove that there is something wrong with the current learning model. So this encourages researchers to reveal what kind of learning model will prepare students in the era of society 5.0. This article will explain: (1) what is multiple intelligences from the point of view of neuroscience; (2) what kind of learning model based on multiple intelligences; (3) what are benefits will result from the application of multiple intelligences for students to be ready to face the era of society 5.0. Thus, this study will explain the Multiple Intelligences-based learning models that can help students have the competence to face the era of society 5.0.

Method

This study uses a theoretical research method that presents information through sources relevant to the topic and does not use empirical methods. The type of research used is descriptive research that produces an overview of the topic under study. The data analysis technique used is the Miles & Huberman method with an interactive model. This interactive model consists of: (a) collecting data; (b) data reduction; (c) data display; and (d) conclusion. In addition, data collection is obtained from the review process of scientific journals obtained from literature such as scientific journals, books, essays, and other print media that are following the topics studied.

Results & Discussion

The Concept of Multiple Intelligences from a Neuroscience Point of View

Intelligence is one of the gifts of God Almighty that grows and develops with certain factors. Every human being is given intelligence which is certainly different from one another. Along with its development, currently in humans, there is not only intellectual intelligence (IQ) but there is also other intelligence such as emotional intelligence (EQ) and spiritual intelligence (SQ) (Ismail, 2017). Intelligence is indeed seen as a human potential to be able to make decisions from various problems or even produce a valuable product. Currently, education practitioners assume that intelligence is related to academic skills such as reading, mathematics, and so on. One of the reasons general intelligence is considered valid is because there is a lot of test data collected several centuries ago, for example, the IQ test which is still used today (Shearer, 2018).

Howard Gardner has suggested that there is other intelligence besides academic intelligence. The types of intelligence are mathematical logic intelligence, musical intelligence, language, visual, kinesthetic, interpersonal, intrapersonal, and naturalist intelligence. This intelligence is called multiple intelligences, but this intelligence is often not considered valid because there is no data that can measure this intelligence. One of the things that can explain about multiple intelligences scientifically is through the study of neuroscience. There are five main principles in guiding intelligence based on neuroscience, namely: (1) the importance of culture; (2) each brain is unique; (3) recognize oneself; (4) emotional awareness and (5) make something meaningful (Shearer, 2018). (Shearer, 2018) suggests that the relationship between parts of the human brain and multiple intelligences can be seen as follows:

From the table it can be seen that neuroscience can explain the relationship between intelligence and developing nerve regions. One example is someone who has interpersonal intelligence, then the nerves that develop are in the frontal, temporal, cingulate, and parietal regions. Although this intelligence does not have the same measure of intelligence as cognitive, neuroscience can explain this plural intelligence more scientifically

Multiple Intelligences-Based Learning Model

Each child has different abilities from each other. To hone and produce creativity children must start early. This creativity is needed by humans to solve various problems in everyday life. As for honing children's creativity, it is necessary to have a learning model that facilitates the needs of each student. (A. R. Setiawan & Ilmiyah, 2020) stated that there are two direct impacts on learning when the idea of compound intelligence is applied operationally, namely: 1) Learners are given many ways to access information; and 2) learning is carried out individually This certainly encourages the development of individual abilities and talents, and students are given the opportunity to learn according to the right learning style. The multiple intelligences-based learning model can be seen from the following scheme:

Multiple Intelligences Learning Approach. The approach used is student centered. Student Centered Learning (SCL) is one of the learning that is free to student activities and applies the principles of learning by doing. (Antika, 2014) states that the pupil is not the object of learning where the teacher provides information, but the student is a subject with potential. It is this potential that must be stimulated and developed to achieve optimal capabilities.
Table 1. Parts of The Human Brain and Multiple Intelligences

<table>
<thead>
<tr>
<th>No</th>
<th>Intelligence</th>
<th>Unit Cognitive</th>
<th>Main Region</th>
<th>Sub-region</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Interpersonal</td>
<td>Social Perception Inter-personal Understanding the Social Effectiveness of Leadership</td>
<td>Frontal Temporal Cingulate Parietal</td>
<td>Media-Temporal Amygdala Dorsolateral PFC Anterior Cingulate Superior Temporal sulcus</td>
</tr>
<tr>
<td>2</td>
<td>Intrapersonal</td>
<td>Self-awareness</td>
<td>Frontal</td>
<td>Prefrontal–Cortex Anterior Cingulate Dorsomedial PFC Lateral</td>
</tr>
<tr>
<td>3</td>
<td>Math Logical</td>
<td>Reasoning</td>
<td>Frontal Temporal Parietal</td>
<td>Prefrontal Intraparietal Sulcus Inferior Parietal Lobule</td>
</tr>
<tr>
<td>4</td>
<td>Linguistik</td>
<td>Mathematics Logical Reasoning Speaking</td>
<td>Inferior Parietal Temporal</td>
<td>Superior Temporal Gyrus Inferior</td>
</tr>
<tr>
<td>5</td>
<td>Spasial</td>
<td>Spatial Cognition</td>
<td>Frontal</td>
<td>Motor Cortex Medial Temporal Prefronteral</td>
</tr>
<tr>
<td>6</td>
<td>Musikal</td>
<td>Working with Visual Art objects</td>
<td>Parietal Temporal Occipital</td>
<td>Superior Temporal Gyrus Primary Auditory Cortex Premotor Cortex Basal Ganglia Supplementary-Motor</td>
</tr>
<tr>
<td>7</td>
<td>Konestetik</td>
<td>Body awareness</td>
<td>Frontal</td>
<td>Motor Cortex Primary Motor Cortex Premotor Cortex Basal Ganglia</td>
</tr>
<tr>
<td>8</td>
<td>Naturalistic Intelligence</td>
<td>Cognition Patterns Understanding living entities Understanding animals Understanding the science of plant life</td>
<td>Parietal Subcortical Cerrebeleum</td>
<td>Superior Temporal Sulcus</td>
</tr>
</tbody>
</table>

Multiple Intelligences Learning Strategies are carried out by making the classroom differentiated. In this case the role of the educator is as a facilitator. There are a few things to prepare for implementing differentiated classes. This is in line with the opinions of Arends and Kilcher in (Istiningsih & Nisa, 2015) namely: a) Planning. This planning can be done through three things, namely: (1) perform IQ identification; (2) After obtaining the results of the IQ test, it then analyzes the abilities and weaknesses of the learners; and (3) create small study groups according to the interests and abilities of the learners. So that in this case the student is not emphasized to master the same. b) Organize differentiated classes This class setting is carried out flexibly, namely there are times for students to carry out activities individually, in small groups or there is a time for classical learning (simultaneously). c) Appropriate assessment in differentiated classes This class assessment consists of assessments carried out at the beginning (diagnostics), middle assessment (formative) and final assessment (sumatik). Multiple Intelligences Learning Methods The methods used in this learning are associated with each intelligence.

Based on the table, it can be seen that the learning methods of each intelligence are different from one another so that this can facilitate the learning of students. with the right method according to the intelligence that the learner has. In addition to these eight intelligences, application in Indonesia is coupled with spiritual intelligence. In Indonesia, the application of this intelligence has been carried out for a long time. This is reflected in one of the national hero figures named KH. Ahmad Dahlan. This was revealed by (Amelia & Dahlan, 2021) that K. H. Ahmad...
Dahlan brought religious knowledge into modern education not only to teach it to students, but to his teachers as well. The method that can be used to develop this intelligence is to use the method of lectures or storytelling.

Multiple Intelligences Learning Techniques and Tactics, (a) Specific Specific means that it is special. The learning of multiple intelligences is intended to facilitate the specific intelligence that a person has. (b) Individual, This multiple intelligences learning focuses on individual development. Therefore, there is no emphasis on students to master all fields. (c) Unique, Multiple intelligences learning is unique because it appreciates each intelligence of the learner. Therefore, there will be no more educators who think students are less intelligent if they can’t learn mathematics.

Multiple Intelligences society 5.0

Multiple Intelligences society 5.0 is a bridge that connects the demands that must be faced in the midst of an increasingly rapid world with the abilities of students that must be possessed. The existence of artificial intelligence, internet of things, robot technology, to big data that students must face with the abilities they must have, namely critical thinking and problem solving, communication, collaboration, and creativity and innovation. As revealed by (Hohn, 2021) the benefits of multiple intelligences are: First, multiple intelligences provide different perspectives for solving problems. Second, this learning can train students to bring hobbies into their future work. Thus, in the midst of the rapid development of the world, students will be able to create a minimum job for themselves through the hobbies they are engaged in. Third, this learning will provide a lot of substance to exercise creativity as well as, social abilities. Fourth, this learning can better make a person develop themselves and appreciate their talents.

This research provides an overview of multiple intelligence–based learning models as an implementation of Howard Gardner’s theory applied in learning. The learning model stated in this article is a learning model for elementary levels such as Early Childhood Education and Elementary School which can certainly be developed for a further level.

Husnah (2019) revealed that with the discovery of intelligent meanings in compound by Howard Gardner, the world of education is required to reimagine the patterns and processes of education that have been running, especially the way of looking at students. With the study of this learning model, it will certainly provide a new paradigm for the advancement of the field of education in Indonesia. Thus, the world of education will begin to reorganize and education practitioners will have a new perspective on multiple intelligences. This is also supported by (Nastiti & Abdu, 2020) that to face the era of society 5.0. Education should be competency–based. And this multiple intelligence facilitates the development of these competencies such as critical thinking skills, and creative. Of course, this will be the capital of students to be able to face the era of super smart society 5.0.

Figure 1. Schematic of Multiple Intelligences Learning Model
Conclusion

The era of society 5.0 is an era that requires education to equip students with competencies that must be possessed by students such as critical thinking and problem solving, communication, collaboration, and creativity and innovation. This multiple intelligence learning model is present as an implementation of the application of Howard Gardner’s theory of plural intelligence which provides benefits for students so that they have competencies that will be useful to face the era of society. In this article, multiple intelligences are explained in the perspective of neuroscience so that it can break the unscientific assumption of multiple intelligence theory compared to other intelligences. In addition, the multiple intelligences learning approach is presented as a student-centered approach. The learning strategy used is a differentiated class, the methods used are adapted by learning each intelligence and the techniques and tactics used are specific, individual and unique. The benefits of multiple intelligences for students are that students will be able to solve problems from different perspectives, can make hobbies as jobs, support jobs that demand creativity and make a person develop themselves and reward their talents.

References