

## The Role of Virtual Teacher in the Digital Age: Engraver the Future of Indonesian Golden Generations

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### Abstract

This study investigates the implications and complications of collective disruptive consequences on education, especially on the learning process. The driver of disruptions includes globalization and the Industrial Revolution 4.0 (including Society 5.0), demands for the Sustainable Development Goals, and the onslaught of the Covid-19 Pandemic. The results of the study are intended to broaden the horizons of virtual teachers in the digital era so that they are not hampered in carrying out their mandate due to the shift from offline to online learning. This study also aims to provide a basic overview for students and parents so as not to stutter suddenly as an implication of the shift in learning modes. Methodologically, this study uses a qualitative approach, specifically an integrative review. After going through four phases of the procedural process (Design, Implementation, Analysis, and Writing of Results and Review), this study succeeds in formulating four basic ideas for virtual teachers in the digital era. One: Ten characteristics of the virtual teacher of the digital age. Two: Self-transformation into a true virtual teacher according to the demands of 21<sup>st</sup>-century learning (cultural, functional, and digital transformation). Three: Proficient in three technical skills of virtual teachers to build Indonesia's golden generation (skills in developing interactive digital learning modules, packaging virtual-digital learning delivery, and compiling online learning assessments). Four: Mastering practical tips for becoming a virtual teacher (developing a golden generation, applying a growth mindset perspective) so that it is continuously adaptive to any kind of shift.

**Keywords:** *Virtual teacher; digital era; 21<sup>st</sup>-century skills; golden generation; growth mindset; integrative review.*



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### INTRODUCTION

No one denies that Indonesia as a country is an extraordinary divine blessing from the Almighty. Not many nation-states in this universe have natural conditions as perfect as Indonesia. Many words describe the admiration and gratitude expressed about and to the Motherland of Indonesia. The phrase describing the completeness of the archipelago is often referred to as 'the pearl of the equator.' There is even a phrase that describes Great Indonesia as a stretch of fertile land, peace, and prosperity. This describes the existence of beautiful Indonesia. Everything that is needed is available in the nature that we inhabit is more than enough.

It is difficult to make the equivalent of the said expression into Indonesian with relatively similar meaning. In a free sense, we can say that the summary of these expressions would like to describe Indonesia as an archipelago that is truly prosperous and peaceful. The culture is based on the principle of cooperation, deliberation, and consensus. It has been qualified since a long time ago. In short, Indonesia is one of the many nations in this universe that has a superior culture (Sembiring, 2017).

The above expression still contrasts with the real and actual situation. Not to dramatize, there is irony. Indonesia, to a certain extent, still encounters irony with various essences and variations. One of the things that surfaced was that many residents had problems accessing economic resources to have a decent life. Most people still do not have decent jobs. This is a consequence of the uneven distribution of development outcomes as a reflection of the quality of education, which is assumed as one of the dominant factors.

Many people do not have access to quality education, yet education is an essential need. As a result, the phenomenon of poverty and unemployment becomes symptomatic. At the same time, the problem of injustice can also arise. Resulting in wide-open economic disparities. What's more, in a pandemic like what has happened from early 2020 until now, another common implication is that there is widespread environmental damage due to the uncontrolled exploitation of nature. We often witness the phenomenon of coercion of will in society, which can be horizontal and vertical. Disharmony in society is a logical consequence of this factual phenomenon. It is not surprising that systemic and deep-rooted negative influences permeate and disrupt social, cultural, and especially economic problems.

Underlining the above description, it is urgent to seek a solution to reduce the spread of turmoil that could destroy resilience as a nation that has great natural resources. Without intending to simplify, we should look at the portrait of the implementation of education. Especially what is the role of the teacher at this time and in the future? What we want to achieve through this study is to strive for the provision of quality education that is accessible to all levels of citizens with a strong and deeply rooted Indonesian character. Education is intended so that citizens have qualified abilities so that they can manage the resources of the archipelago to become a buffer for welfare for all (Sembiring, 2016).

Associated with this factual condition, a careful study of the conception and implementation of education and operational technicalities is increasingly relevant. Even without the chaos of the global Covid-19 pandemic, a thorough study of the implementation of education, specifically in terms of learning, must be reviewed. The implications of globalization are followed by the Industrial Revolution 4.0 and Society 5.0 (and to fulfill the demands of the Sustainable Development Goals), there are critical things that must be cautiously noticed related to learning processes (Scwhab, 2016).

As a result of this simultaneous disruption, learning that was previously face-to-face (offline) has turned into virtual (online). This shift has many implications, consequences, and complications that, if not responded to adequately, will trouble education stakeholders. At least teachers, students, parents, and schools will face and experience sudden and collective stuttering when faced with shifts in learning. It was reflected from March 2020 to the end of October 2021 (Belawati & Nizam, 2020). In other words, we want to share experiences on how to reduce the current turmoil through the provision of adequate education so that it can be adapted to the most precise rules. The final goal is to smartly educate Indonesia's golden generations (Belawati, 2020).

Various important factors regarding the resilience of the education system are determined by various elements. Important factors that must be considered in such a way that education can be well organized and can be utilized by all students with optimal results. Education is superior if the policy and regulatory aspects become a solid foundation. Its derivatives, such as the curriculum and learning resources, must be completed. For smooth operations, funds and learning facilities are available. At the same time, support in terms of strengthening the implementation of the Government together with the community must be real. The reflection of the support referred to technical aspects comes from the contributions of parents and students. Above all, the existence of qualified educators is the foundation for determining the outcome of educational effectiveness.

In this context, we absolutely must have reliable teachers according to the demands of 21<sup>st</sup>-century learning skills. In particular, we give the term virtual teacher of the digital era. As mentioned earlier, many great shocks have come simultaneously without being able to predict. Technological advances that make random change become a common phenomenon. We are surprised by the implications of globalization which makes competition sharp. The Industrial Revolution 4.0 just came. Before we had

time to sit back and plan anticipatory efforts so as not to be crushed by this revolution, the demands of Society 5.0 came as well. In this context, between Globalization, the Industrial Revolution 4.0, and Society 5.0, ideas and demands for the Sustainable Development Goals have emerged as a continuous agenda of the Millennium Development Goals. At the end of 2019, we and the world were shocked by the outbreak of a global pandemic known as the Covid-19 Pandemic (Sembiring, 2021b).

Once again, without this collective, sudden and insistent shock, how do we prepare qualified human resources for 100 years of Indonesia (towards 2045) through quality education is already limping. Many aspects must be considered and harmonized to ensure the implementation of quality education. Of course, with quality results and output. Seeing the accumulative shocks since the Covid-19 pandemic in early 2020 has disrupted many sectors and aspects of life. What else in the field of education. Without quality education, abundant natural resources, and qualified human resources will certainly not benefit the nation's resilience.

This means that the level of welfare of a nation is not determined solely by the abundance of natural resources. Economic resilience and the welfare of the nation are determined by the ability to develop innovation (45%), utilize technology (25%), and strengthen networks (20%). Lastly, followed by the availability of natural resources (10%). Many believe that having only natural resources without seeking added value (due to innovation, technology, and networks) will not provide maximum benefits in building the nation's resilience and welfare (Sembiring, 2008).

Talking about innovation, technology, and networks is talking about human resources (not natural resources). Qualified human resources (golden generation) are spiritually, emotionally, intellectually, and physically intelligent. Plus, character. Having intelligent and character human resources can only be obtained from quality education and educational processes. Quality education is determined by one of the determinants, teachers! Without qualified teachers, there is an imbalance in seeking human resources which are reliable and have strong Indonesian values and roots.

The dynamics and challenges arise when the current learning orientation (due to the Covid-19 pandemic) suddenly changes from offline learning to online learning. Offline learning (face-to-face) and online learning (face-to-face) are conceptually no different. The results of offline and online learning are no different in terms of the conception of results and outputs. They are different in terms of mode and supporting elements. In short, in offline learning, learners (people who learn) are actively looking for learners (people who teach, learning resources). In online learning, learning resources 'visit' students. In terms of results and outputs, offline and online learning essentially makes no difference as long as 'learning' is present (Sembiring, 2020a). In reality, many complain that online learning has a bad effect if it is done in the long term. What is more, some scholars do not believe that an academic atmosphere can be obtained through online learning (Sembiring, in Press).

This study then examines the concept and implementation of online learning that has been running in the last three semesters (March to December 2020 and March to June 2021) with a qualitative approach. The approach used in this study is an integrative study to get basic ideas and understanding for the benefit of teachers. The point is so that teachers can carry out their mandate according to their functions and roles as virtual teachers in the digital era. This is important so that teachers remain optimal and functional even though they turn into virtual teachers. We hope that the teacher will exactly master what to play, in what way, and to achieve what goal. Furthermore, this study will open new horizons both to students and parents as well as stakeholders. The hope is that there will be a common view of how digital-based virtual learning is implemented so as not to give complications to stakeholders.

## LITERATURE REVIEW

In this study, related to how education and learning are disrupted can be viewed from several perspectives. Beginning with globalization and its consequences. Then followed by a description of the Industrial Revolution 4.0, including Society 5.0 (Schwab, 2016; Deguchi et al., 2020). Along with these three aspects, the demands for 21<sup>st</sup> Century skills (12 new skills for the 21<sup>st</sup> Century) are also born, which are inseparable from the demands of the Sustainable Development Goals. The synthesis of these driving factors, coupled with the outbreak of the global Covid-19 pandemic, has put pressure on the education sector to harmonize. In a narrower context, learning changes significantly (Dhawan, 2020), including for Indonesia in terms of preparing for Indonesia's golden generations.

What's more, since the beginning of 2020, after the first three months, Indonesia has experienced a pandemic situation. All sectors are adjusting because they must cope with the consequences of Covid-19. We are used to hearing names not only working and studying from home but even praying from home. When it comes to learning from home, there is no other choice but to do distance learning. This means that there is a shift in the learning system from face-to-face to virtual classrooms.

As a result of this shift, because it was carried out in a state of urgency, many aspects of implementation were far from what they should have been (Sembiring, 2020a; Sembiring (2020c). As a result, many complaints reappeared regarding the implementation and the results (outputs) of online learning over two years. What is happening? What is happening is not distance learning (online); but Emergency Remote Teaching (Milman, 2020; Whittle et al., 2020).

It is just because of globalization, that our education must make adjustments. As reported by the International Monetary Fund (IMF, <https://www.imf.org/external/np/exr/ib/2008/053008.htm> – May 2008), economic globalization is a historical process, the result of human innovation and technological progress. It refers to the increased integration of economies around the world, primarily through the cross-border movement of goods, services, and capital. The term also often refers to the movement of people (labor) and knowledge (technology) across international boundaries. There are also cultural, political, and environmental dimensions that are broader than the context of globalization itself.

The term globalization began to be more commonly used in the 1980s. Reflecting technological advances that facilitate and speed up the settlement of international transactions. Trading and financial flows. It refers to the expansion of the same market power beyond national borders. It has been going on for centuries at all levels of human economic activity (rural markets, urban industries, financial centers).

Many indicators describe how goods, capital, and people are becoming globalized. For example, the value of trade (goods and services) as a percentage of world GDP increased from 42.1% (1980) to 62.1% (2007). Foreign direct investment increased from 6.5% of world GDP (1980) to 31.8% (2006). The stock of international claims (bank loans), as a percentage of world GDP, increased from about 10% (1980) to 48% (2006). The number of minutes spent on cross-border telephone calls per capita increased from 7.3% (1991) to 28.8 (2006). Foreign workers increased from 78 million people (2.4% of the world's population, 1965) to 191 million people (3.0% of the world's population, 2005).

Growth in global markets helps drive efficiency through competition and division of labor. It is a specialization that allows people and the economy to focus on what they do well. Global markets also offer greater opportunities to enter more diverse and larger markets. This means they can access more capital, technology, cheaper imports, and bigger exports. But the market does not necessarily ensure that the benefits of increased efficiency are shared by everyone. Each country must be ready to accept the

necessary policies. In the case of underdeveloped countries, the support of the international community is needed when doing so. What if education is not ready to develop reliable resources to face the turmoil due to competition?

The reach of globalization easily extends to everyday choices in personal, economic, and political life. For example, greater access to modern technology. In healthcare, it can make the difference between life and death. In the world of communications, it facilitates commerce and education and allows access to independent media. Globalization also creates a framework for cooperation between countries on various non-economic issues with cross-border implications. Examples: immigration, environment, and law. When the entry of foreign goods, services, and capital into a country creates incentives and demands to strengthen the education system because it is obliged to recognize the competitive challenges in front of the eyes.

Globalization implies information and knowledge are dispersed and shared. Innovators in business and government can take ideas that have been successfully implemented in a particular area and adapt them to their region. They can avoid ideas that have a track record of failure. Stiglitz stated that globalization has reduced the sense of alienation felt in most developing countries and has given many people in developing countries access to a wider range of knowledge beyond the reach of even the richest people in any country on earth (<https://www.britannica.com/biography/Joseph-Stiglitz>).

In essence, globalization (economy) changes many sides and the order of life. The life that had left certainty suddenly changed. Fundamentally, these changes create shocks for countries that are not ready to adopt the shifting impact of globalization. In simple language, globalization gives birth to turbulence and open competition. At this stage, it is common for the big to prey on the small. The implication, what remains, or is certain, is uncertainty.

Not having had time to harmonize the world of education due to globalization, there also came a more powerful disruptive driver, the Industrial Revolution 4.0 (followed by Society 5.0). As a result, the order caused by globalization has not been able to be adopted, and there is also a disruption that makes all orders turn upside down. Marr (2018; <https://www.forbes.com/sites/bernardmarr/2018/09/02/what-is-industry-4-0-heres-a-super-easy-explanation-for-anyone/?sh=6ec6c87f9788>) says we are amid a real transformation in the way we produce products thanks to the digitization of manufacturing. This transition is so powerful that it is called Industry 4.0 to represent the fourth revolution in manufacturing. From the first industrial revolution (mechanization via hydropower and steam) to mass production and assembly lines using electricity in the second revolution, the fourth industrial revolution took what began in the third revolution, the adoption of computers and automation; what's more, the rise of intelligent autonomous systems and machine learning. Although some consider Industry 4.0 as a marketing tool, the shifts that occur in the manufacturing sector deserve attention.

Industry 4.0 optimizes the computerization of Industry 3.0. When computers were introduced in Industry 3.0, it was disruptive because of the addition of completely new technologies. Now, and going forward, as Industry 4.0 evolves, computers connect and communicate with each other, eventually making decisions without human involvement. The combination of cyber-physical systems, the Internet of Things, and the Internet of Systems make Industry 4.0 possible. Smart factory comes true. As a result of the support of smart machines that keep getting smarter as they gain access to more data, factories are becoming more efficient and productive. The network of machines is digitally connected. In the end, creating information sharing generates the real power of Industry 4.0. How is Education (learning) responding to this progress? How do teachers function and play a role in this kind of era?

#### ***Industry 4.0 Applications Today***

Many organizations are still in denial about how Industry 4.0 is impacting their business. Others struggle to find the knowledge of how to best adapt their unique use case. Others are implementing today's changes and preparing for the future intelligently. Of course, through proper education. Here are some that exist and are possible.

*Opportunity Identification:* The connected machine collects a large amount of data that can inform maintenance, performance, and other issues. Then it can also analyze the data to identify patterns and insights that are impossible for humans to do in a short period. Industry 4.0 offers the opportunity for manufacturers to optimize operations quickly and efficiently. How to pinpoint the focus on what needs attention. Using data from sensors in its equipment, in an African gold mine, for example, was able to identify oxygen level problems during leaching. Once fixed, the increased yields by 3.7%, saving \$20 million per year.

*Optimize Logistics and Supply Chain:* Connected supply chains can adapt and accommodate as new information is presented. If weather delays tie up shipments, connected systems proactively adapt to reality and shift manufacturing priorities.

*Robots:* It used to be only possible for big companies with big budgets. Robotics is now more affordable and available to organizations of all sizes. From selecting products in the warehouse to preparing them for shipping, autonomous robots can quickly and securely support manufacturers. Robots move goods around Amazon's warehouses and reduce costs and enable better use of floor space for online retailers.

*3D Printing:* This technology has improved tremendously in the last decade, having grown from primarily prototyping to actual production. Advances in the use of metal additive manufacturing have opened many possibilities for production.

*Internet of Things and Cloud:* A key component of Industry 4.0 is the Internet of Things, characterized by connected devices. This not only helps internal operations but using a cloud where data is stored, equipment, and operations can be optimized, leveraging the insights of others using the same tools enabling small companies to access technology they cannot use independently.

While Industry 4.0 is still developing, and we may not have the complete picture until we can see the situation 30 years into the future, technology-laden companies realize the potential of Industry 4.0. The company is also grappling with improving workforce skills when planning a new workforce and recruiting the right skilled employees. How do education, learning, and teachers respond to such needs?

In line with all of this, the demands for sustainable development goals and 12 new 21st century customs have also become imperative. This means, once again, even without the Covid-19 wave, education must adjust. The twelve new skills in the 21<sup>st</sup>-century demand three groups of skills and abilities, namely: (1) Learning Skills, Literacy Skills, and (iii) Life Skills. Overall, 21<sup>st</sup>-century people in the digital era cannot survive without having critical, creative, collaborative, and communicative thinking skills (Learning Skills Section). Literacy skills include literacy of information, media, and technology. The most resilient part is life skills that include flexibility, leadership, initiative, productivity, and social skills (Stauffer, 2020)

On balance, the demands of 21<sup>st</sup>-century skills, of course, require appropriate learning (with 21<sup>st</sup>-century style). What's that? Digital-based virtual learning. This digital-based virtual learning is increasingly relevant to be pursued and realized. Since late 2019 and early 2020, the global Covid-19 pandemic has spread, and all activities from home and learning have shifted from offline to online. This breakthrough effort is in line with the demands of the Sustainable Development Goals. One of the core sustainable goals

is that every child must receive good educational services ([https://www.who.int/health-topics/sustainable-development-goals#tab=tab\\_1](https://www.who.int/health-topics/sustainable-development-goals#tab=tab_1)).

Then, what is the focus of attention? Simply put, this study looks at the existence (function and role) of teachers amid disruptive change conditions. Although not the only determinant of educational success, teachers are the main actors in organizing the learning process. Based on some of the literature reviews above, integrated thinking is needed to find the teacher's character that fits the current conditions. Exactly what is the determinant so that teachers remain functional and optimal in the shift due to this multi-faceted disruption? Then it is important to find a transformation that must be formulated for teachers so that amid this storm of uncertainty, teachers continue to contribute.

Given the tremendous changes that have occurred in the last 18 months, tips on how teachers carry out their mandates are optimal, able to develop themselves sustainably. No less important, technically, what skills a teacher must have to remain functional and optimal even though they have to turn into a virtual teacher by the demands of the digital era. With this formulation and framework to be built, the learning process does not lose its meaning and momentum.

## **RESEARCH METHOD**

The orientation used in this study is library research, to be precise, integrative review. This approach is closely related to a semi-structured review that aims to assess, conduct critical reviews, and synthesize the literature on research topics related to possible ways so that new theoretical frameworks and perspectives can be found for later ideas (Snyder, 2019; Whittemore; Knafl, 2005). In the process, procedurally, the implementation of the study follows four phases as suggested, including the following phases: (i) Design, (ii) Implementation, (iii) Analysis, and (iv) Arrangement and Writing of Study Results; in the form of a report as the final result of the study; after re-checking.

In Phase 1: Design, focus on why this review is necessary and considered important and what its potential contribution is. In Phase 2: Implementation, the focus is on practical plans for selecting related documents (articles, books, and other formal documents) and how the search and selection process reaches the stage of the documentation process. In Phase 3: Analysis, focus on what type of information needs to be abstracted to meet the specific objectives of the review, including what type of information is needed to carry out the analysis; how this process is documented and reported. Finally, in Phase 4: Review structuring and writing, the focus is on the reporting standards that will be created so that according to the specific review, what information needs to be included in the review, and the results should be presented and explained in what format. This methodological step chosen is a simplified version of the seven phases of the Comprehensive Literature Review introduced by Williams (2019).

## **FINDINGS AND DISCUSSION**

### **1. Main Characteristics of Virtual Teacher**

In his search related to the characteristics of virtual teachers in the digital era, Ally (2019) emphasizes 10 important elements. The ten elements can be grouped into five parts, namely, the need for virtual teachers to be responsive, interactive, caring, calm, and futuristic. These five essential elements, although initially not directly related to online learning due to Covid-19, are still relevant to digital-based virtual learning. Sembiring (2021) breaks down the practical elements of each of these essential elements into 10 operational characteristics. This is relevant to the spread of online learning due to the need to study from home. The ten characteristics referred to become relevant.

Due to the pandemic that has changed the order and aspects of life, including the learning process, many adjustments must be made by teachers. The implications of changes due to the collective disruption may

change the shape and implementation of future learning. To prepare themselves as teachers, whether learning will turn completely online or return to the way it was before (offline) or mixed, teachers need to instill the following ten characteristics.

The ten characters respond to anticipatory efforts so that even if there is a change in a completely new and unfamiliar direction or a return to previous conditions, teachers have an adequate and reliable level and adaptability. These characters are related to interactivity as a virtual teacher, so they must be capable and have sensitivity in communicating (communicative) and at the same time have the patience to listen (a good listener). The next character relates to being responsive as a virtual teacher to always be able to develop networks and partnerships (collaborative) and at the same time can adapt to a rapidly changing and unpredictable environment (adaptive). Another character is caring, so as a virtual teacher, he always presents himself appropriately (attractively) and has partiality toward other people, students in this (empathy). The character that is also important is related to the attitude of calm in anticipating all possibilities so that in addition to not being too fast in giving feedback (patient), it is also rational in everyday life (realistic). The other two characters are related to the ability to see far ahead, futuristic. In this case, considering the mandate as a teacher to package the future of a golden generation, virtual teachers in the digital era do not love to give input (likes to share) and always learn at every opportunity (lifelong learners).

With these ten characters (which are the elaboration of the five essential elements), virtual teachers always could adapt quickly. The only thing that can keep us going in turbulence is a high level of adaptability. Not only because of intelligence. Intelligence and strength are needed to survive. Above all, survival of the fittest is determined by the ability to adapt to the environment in a short time. Adaptability is much more appropriate in terms of a strategic environment characterized by erratic change and filled with uncertainty.

## 2. Digital Age Virtual Teacher Transformation

Is having these ten characters enough? The answer can be yes, enough, but maybe not yet. In conditions that are not too dynamic, these ten characters are sufficient to survive. Is it possible to survive by growing? Not necessarily! To develop, to grow from one state to a better state (increase), in uncertainty, the keyword is transformation (in stricter language revolution). Transformation can be revolutionary as long as it is formulated in an integrated and synergistic manner.

Regarding the transformation that is relevant for virtual teachers, especially when forced by a pandemic, it covers three domains. The three domains are related to cultural transformation, functional transformation, and digital transformation, partly as initiated by Sembiring (2020c).

What happens to cultural transformation, and why does cultural transformation? Simple reason. In every change, the beginning of the change must be intrinsic. If the change is responded to by making extrinsic anticipatory efforts, it is generally not comprehensive. It is certain to experience obstacles or resistance. Cultural transformation is forcing oneself not to be reluctant and stuttering about change. So, firstly, cultural transformation is carried out, the transformation of perspective, mindset, or cultural paradigm. This means that successfully responding to each change does not only require knowledge and skills-based ones, even with attitude. The success of responding to change is determined by the attitude of seeing and dealing with change. Mental determination, an unyielding attitude, and being able to see threats as opportunities are some of the intrinsic approaches that are closely related to individual cultural behavior. Therefore, it is necessary to ensure that if we are culturally prepared, the transformation (hijrah) from one condition to another is not difficult.

The next transformation is related to the function and role of a person, in this context, the teacher. Initially, in offline learning, the function and role of the teacher seemed 'limited' to transferring knowledge, skills, and attitudes to students. That's right. The process is carried out with a face-to-face approach. The teacher prepares the material and determines the strategy and learning orientation. Then assess according to the demands of the material being taught. Aligned with student competencies and required outputs.

With the shift in the learning approach, the teacher was face-to-face and then became face-to-face, cannot just stop as a teacher. In this context, virtual teachers are required to play a role and function more than before. At this stage, the virtual teacher has three 'new' functions and roles planners, implementers, and assessors (Sembiring, 2020c). That is, the virtual teacher, in the planning stage, must be able to play a role and function as a programmer, designer, animator, mediator, and selector. This role is, of course, related to the preparation of learning materials as a virtual teacher.

In the implementation stage, virtual teachers are required to function and act as counselors, facilitators, mentors, motivators, and inspirations. As a virtual teacher, the challenges of carrying out an online learning process are different from offline learning. In offline learning, building a learning atmosphere can be seen and felt directly with the naked eye. We meet in the same dimension, space, and time without intermediaries. In online learning, even though we are in the same space and dimension, we are bridged by media (technology). The difficulty of building a learning atmosphere and presenting a learning experience is not enough if it is done with the usual approach. That is why the ability to motivate and inspire is needed in such a way that there is no open gap between teachers and students, even though it is mediated through media and technology.

Under normal conditions, it is common for teachers to assess learning outcomes. Apart from meeting face-to-face, teachers can also closely follow the behavior and responses of students in receiving learning from time to time. Learning through the media and doing an assessment, there must be an extra effort. This means that virtual teachers cannot only act and function as assessors. Teachers must be able to act as auditors, adjudicators, reviewers, and also breakers. Breaker means being able to make a breakthrough in overcoming learning if, in the implementation, there is a deadlock in completing the learning process as required.

The third transformation that is no less important is digital transformation. Absolute digital transformation! As a virtual teacher in the digital era, you cannot be separated from media and technology. Only by mastering these two things does information becomes meaningful (learning material in this era is considered information). At the very least, although limping, virtual teachers must be familiar with smelly and digital-based knick-knacks. Virtual learning only works well and is effective when it is digital-based. So, there is no other way but to adapt to this situation. Teachers are obliged to transform themselves so that they are not crushed by the onslaught of technology and the direct result of the digitization process.

For this reason, virtual teachers, so as not to be too unfamiliar with digitalization in learning according to the demands of the 21st century, are adaptive. Quickly adapt to environmental changes. Then, likes to learn new things. Do not shy away from challenges and obstacles. Always positive in responding to changes. At the end of it all, the teacher must move on. The method? Keep thinking big, but act small from now on until you succeed and never give up.

### 3. Virtual Teacher Basic Skills

By having ten characters and being able to carry out self-transformation, the prerequisites for conception are possessed. Is it enough? It's enough. But times continue to change, technology continues to develop, and the demands for learning continue to increase. So, skills and technical skills are needed to be optimal in carrying out the role of a virtual teacher. There are at least three technical skills that must be mastered so that the function and role of a virtual teacher are included in the professional category. The three skills are related to abilities or skills: (i) Developing interactive digital modules, (ii) Packaging virtual-digital learning delivery, and (iii) Developing online learning assessments.

*First Basic Skill: Developing an Interactive Digital Module.* Referring to the 12 new customs of the 21st century requires special learning skills. The first basic skill is the competence to develop interactive digital learning modules. Illustratively, what is meant by interactive digital learning modules are learning materials that are prepared in a modular manner, containing three main elements. The three elements consist of the prelude, the body, and the remark. If needed, you can add other sections for improvement to fit and answer the specified and expected learning objectives.

What distinguishes interactive digital modules in terms of format and appearance lies in the way they are arranged. In terms of format, it still consists of at least an introduction, a body, and a closing. In terms of appearance, enough in one screen (sheet) only. One screen contains all the information needed. Interactive digital modules only contain keywords. Then, further elaboration provides the necessary links. For example, in the introduction, there are three keywords, in the body five keywords, and in the closing two keywords. In this module, it is enough to present these keywords and then provide a link that, if clicked, will take the reader (student) to the source of the required information. For illustration, to get an overview of the components as inspiration and comparison in developing interactive learning modules, it is also good to see the ideas of Apostolopoulos (2020).

The link can be a file in PFD, MS-office (word, excel, PowerPoint), or other forms that are narrative, descriptive, and illustrative. If needed, the link can also be in the form of video, audio, animation, or image. Whatever form or format is created via the link, it doesn't matter if it fits the demands of learning. No less important, there is a dialogue rubric. In the dialogue rubric, the demands for learning outcomes that must be met by students are included so that when they take the assessment, they can go through it well. This element of dialogue is important in building the atmosphere and presence of the learning experience (Garrison, 2009). This dialogue also includes tasks that students must complete.

*Second Basic Skill: Packaging Virtual-Digital Learning Delivery.* Just like the first basic skill, packaging the delivery of digital-based virtual learning consists of three main parts as well. The three sections include the introduction, the body, and the conclusion. What should be in the introduction? At least what material will be studied, why should study the material, and what are the benefits of the learning. In conveying it, it must be arranged in such a way that the preliminary time portion is around 10-15% of the total available time. In the torso, the time ranges from 70-to 80%. In closing, the time portion is around 10-15%.

This illustrates that each part of the delivery package must be arranged so that it meets the proportions of time harmoniously. In the body, if there are three subjects, it must be arranged so that the time is also harmonious. But what should be prioritized at this stage are various approaches and ways of packaging and delivering. For example, the material that is packaged with several presentations is illustrative and animative. This is important to move students so that they are inspired to be participative and contributive. In the closing section, a common thread and reinforcement are needed that make students understand the material with a high retention rate. Referring to the importance of seeking student

retention, you can seek inspiration from Gaytan (2013). That is, by following the virtual learning package, students understand and can remember what they have learned for a relatively long time.

In terms of material delivery orientation, after packaging materials virtually digitally, we can use several approaches. For example, using an authoritarian style when we act as experts, to be precise in lectures. When we have to show something, we use the demonstrator style. It is used when the delivery is needed to enable students to imitate again in time. If you want to do learning in small groups, you can also use a facilitator approach. At the end of this delivery, we must be able to combine all these orientations according to real conditions and situations. At this stage, all experiences, knowledge, and skills previously acquired by the teacher are worth showing.

*Third Basic Skill: Developing Online Learning Assessment.* In the end, even though learning is done online, virtual and digital, assessment must still exist. That is, we need to check the extent of the learning outcomes that have been carried out. In reality, mostly in face-to-face classes, assessments are carried out with a minimalist approach. For example, the assessment is carried out in the form of multiple-choice and also always revolves around the formative/summative form. In virtual learning, the assessment approach must be different. Given that students must have higher-order thinking skills. To achieve that, it is impossible to achieve if only using the assessment approach that has been used so far. There are at least eight orientations or approaches to building a reliable assessment.

To find out portraits of students before doing the learning, using an approach known as pre-assessment. This is useful if you want to know the strengths, skills, or knowledge of students before learning; sort of mapping, diagnostics. The form also does not always have to be multiple choice. To find out the gaps that have not been mastered by students to be followed up in the next session, formative assessment is used. To assess the final skills achieved by students in the form of learning effectiveness, instructional reactions, and long-term benefits using a summative assessment. To ensure that the benefits of learning are still effective and useful for the next year, for example, a confirmative assessment is used.

There are times when it is necessary to compare student performance with the average norm. In this context, we want to compare the average score of students with the value of all students in a particular school. Use a formative assessment. In special circumstances, it is often necessary to measure student performance or a predetermined set of learning performances. Use benchmark-based assessment (assessing knowledge pools and specific skills, including evaluating curriculum). In the case of wanting to compare student performance now with the previous one, ipsative assessment is suitable. If you want to check the overall tendency of a learning process that has been carried out, you can use an integrated assessment approach. In this case, it is related to the process of determining educational goals through data collection and analysis of information related to learning outcomes and making subsequent programs as a way of demonstrating accountability to students and the general public. Again, these approaches do not always have to be in the form of multiple choice. Note: For illustration and inspiration, developing an assessment of shape and orientation can be explored further by exploring the ideas put forward by Colman (2021).

## **CONCLUSION**

### **Tips for Building a Characterized Smart Gold generation**

So far, it can be described that to build a golden generation in Indonesia; there is no other choice but to prepare transformative teachers. Operationally, transformative teachers will not experience obstacles in carrying out their mandate as virtual teachers in the digital era and in accordance with the demands of the 21st century. At this stage, virtual teachers are expected to be able to carry out their

profession well and always grow. Virtual teachers, in building a golden generation of intelligent and characterized Indonesia, can cultivate the aesthetics, taste, creativity, and initiative of the students. In building aesthetics, the teacher focuses on cultivating the heart so that students are aware of the importance of piety as human beings. Refining the taste, the teacher focuses on cultivating the heart so that he understands what it means to be friendly. To build student creativity, teachers must focus on processing thought or reason to have qualified intellectuals. To fulfill the intention, the teacher focuses on cultivating the students' bodies so that they truly live the meaning of being healthy and disciplined.

#### Tips for Developing a Sustainable Growth Mindset

Paying attention to what happened until the beginning and throughout the 2020s (collective disruption came simultaneously and randomly, and repeatedly) resulted in all parties in all sectors having to adapt (the survival of the fittest). What else in the field of education, learning to be precise. Very significant changes must be adopted. In this context, the teacher is at the forefront of adopting first. At the same time, while adapting, you must also survive and grow. This is not easy, but there is still a possibility to get around it.

It is appropriate if we refer to and apply the idea of Dweck's (2016) growth mindset! As a comparison or the opposite of the growth mindset is called a fixed mindset (fixed mindset). In a growth mindset, at least some of the fundamental elements, if addressed and applied correctly and appropriately, produce the expected results. That is, the result of implementing the mindset grows more optimally. Those who adopt a growth mindset always could realize success to be higher, deeper, and wider (more meaningful). On the other hand, in a fixed mindset, even though in the early stages you can get what you want, it will stop there. In other words, even if you get what you want at a relatively early time but will not reach the optimal level, what is more up to the ideal stage; is still far.

To get optimal results, the prerequisite for implementing a growth mindset is to pay attention to the following points of view: (1) The growth mindset argues that intelligence can be developed, while the mindset still considers intelligence to be static. (2) The growth mindset tends to always and continue to learn, while the mindset still tends to want to look fast even if it just looks smart. (3) In very challenging circumstances (such as current conditions), those who fall into the category of growth mindset are prepared to face and even invite challenges with courage. At the same time, they have a mindset that they tend to avoid challenges even though the challenges are not significant. (4) In the face of obstacles, a growth mindset persists in the face of all challenges and shocks without thinking of giving up. While in a fixed mindset, even though the obstacles are not at an alarming level, they are already showing signs of retreating and finally giving up. (5) In terms of preparing effort, a growth mindset sees the effort as the basic capital to achieve excellence. Meanwhile, in a fixed mindset, providing effort is considered a waste and a loss. (6). Those who fall into the category of growth mindset consider criticism as a medium of learning for goodness and further progress. While in a fixed mindset, criticism is considered an obstacle to progress, even though criticism is positive and constructive. (7) The success and success of anyone, in the view of people who think growing is an inspiration to create higher, more advanced, and more powerful. Meanwhile, for them with a fixed mindset, the success and success of others is a threat to their existence.

Finally, the characteristics, self-transformation, and three basic skills of virtual teachers in the digital era will be successful if followed by a growth mindset. Based on a growth mindset, trust as a virtual teacher will optimally package the golden generation towards 100 years of Indonesia's independence. Precisely as virtual teachers, the approach presented in full in this study will enable them to build and shape the aesthetics, taste, creativity, and initiative of Indonesian students in an integrated manner.

To close, the efforts initiated through this study aim to create education that forms human beings who are knowledgeable and do scientific deeds! To achieve that, education must manifest as a medium for humanizing humans humanely, liberating humans in a dowry, and nobly glorifying humans! Keep going, Indonesian teacher!

#### LIMITATIONS & FURTHER RESEARCH

This study uses one approach, namely the qualitative approach (integrative review). In the future, ideally, use a mixed-methods approach. Namely qualitative and quantitative approaches. It is recommended to use an exploratory design, after obtaining qualitative results, re-tested with a quantitative approach. This will result in more integrated and meaningful results.

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