International Frameworks For 21st Century Competences: Comparative Education

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Abstract

Discussions related to 21st century learning have often been conducted by many scholars and researchers in recent years. The rapid pace of technology in today's world is urging educators and school administrations to adapt technology in schools. According to Patricia (2005), the challenge faced by educators today is to face the rapid pace of the world in which students live and learn. This application involves specifically for the learning process and for the assessment aspect. The heated debate among researchers and academics has created various terms and frameworks in explaining the importance of 21st century learning competencies. Therefore, based on the study entitled "A comparative analysis of international frameworks for 21st century competencies: Implication for national curriculum policies by Voogt & Roblin (2012) obtained from Curriculum Studies. 2012. Vol. 44. No. 3", a survey was made by examining some of the issues that arose.

Keywords: education, international frameworks, 21st century competencesimplication for national curriculum policie

Introduction

Among the researchers involved in this regard are Ruud (2001), who discusses some innovations related to learning in the 21st century. Similarly, the study by Marion (2000), who explores the learning environment of the 21st century and provides some suggestions to

practitioners. education. While the study by Kuhltou (2004) examines the skills that need to be present in 21st century learning. Further study by Ron (2002), which explains the role of teachers in the 21st century. There are many more studies related to the 21st century that can be found. In this writing, will be stated a description of the survey related to the article that has been mentioned above.

Writing Title

The articles provided are also closely related to 21st century learning and its impact on the learning process in the classroom as well as student assessment. The writing related to this article is very interesting because it involves a long discussion related to 21st century learning. For the purpose of determining the appropriate title, in my opinion this writing can be given this title, namely; . This title is seen as appropriate because overall, the discussion of this article is directly related to the 21st century competency framework.

As mentioned in this article, there are many researchers have proposed their respective framework policies. Examples are Partnership for 21st Century Skills (P21), EnGauge by Metiri Group, Assessment and Teaching of 21st Century Skills (ATCS) by Cisco and National Educational Technology Standards (NETS) by the International Society for Technology in Education (ISTE). Similarly, the Technological Literacy Framework for the 2012 National Assessment of Educational Progress (NAEP) by WestEd, 21st century skills and competencies for new millennium learners by the Organization for Economic Co-operation and Development (OECD), Key competencies for lifelong learning and ICT competency framework for teachers by UNESCO.

Purpose Of Writing

Specifically, the purpose of this paper is to see the synthesis of several framework policies related to 21st century competencies and their role in the learning process and assessment methods of students. In the research questions set, the author suggests three questions, namely in detail related to 21st century learning competencies. In addition, questions are also raised regarding the implementation of 21st century learning on the curriculum and how assessment is made with 21st century learning competencies. These questions make the purpose of this writing more open and interesting further broaden the scope of 21st century learning competencies.

Drawing on several 21st century competency framework policies as issued by international organizations from several countries, this paper discusses the basics of determining the use of 21st century competencies and their terminology. There are several terminologies used such as lifelong learning, key competencies, 21st century skills and also 21st century centered learning. All these terminologies however lead to a common discussion area that is 21st century competencies. This writing is intended for:

a) Examine the definition and needs of students related to 21st century competencies,
b) Identify the implications of competence on teaching and assessment and

c) Explore relevant findings that can improve the curriculum.

Writing Background

This writing was conducted based on the researcher's survey of several documents related to 21st century learning. Most of the articles obtained from this survey were obtained from 2010. As stated by the researcher, the breakdown for the selection of these documents is 59 documents which consist of work- working paper representing 49% of the entire document.

These papers accounted for almost half of the documents surveyed. In addition, international standards for ICT competence recorded 12%, reports from international studies (7%), reports on the progress of initiatives and actions taken by different regions in the United States (8%), and reference materials for teachers (24%). All selected documents are representative of several aspects of 21st century learning competencies such as the implementation of teaching and also the impact on the determination of assessment methods.

Based on the findings of the study, 32 of the 59 documents obtained state the definition of 21st century learning competencies, 14 documents revolve around the implementation of 21st century competencies. While the rest are discussions on assessment. The analysis conducted on all these documents is based on three main themes, namely definition, implementation and evaluation.

21st Century Competence Discussion

The results of the survey found several definitions related to 21st century learning and competencies, among them are 21st century competencies covering issues of digital literacy and technology development. This view was provided by The NETS, Mr. Gauge, and UNESCO. In addition to stating the definition of 21st century competencies, the researcher also presented some competencies that need to be emphasized to face the challenges of the 21st century. As a result of the analysis made based on the comparison of the surveyed frameworks, the researcher social and / or cultural awareness. Moreover, the researchers further noted that creativity, criticality, problem solving, and the ability to produce high-quality products are also considered important competencies in the 21st century. Overall, the researchers concluded that competencies for the 21st century are information and communication technology literacy, creativity, communication, collaboration, critical thinking, problem solving, social and cultural skills, as well as productivity (Abdul Jalil et al., 2021; Mohd Noh et al., 2021; Mustafa et al., 2021; Roszi et al., 2021; Tumisah et al., 2021).

Information and Communication Technology (ICT) Literacy

According to researchers, information and communication technology (ICT) is the core of all frameworks reviewed in determining 21st century competencies. In fact ICT is considered a new set of competencies on how to effectively use, manage, evaluate, and produce information across various media types (Irma et al., 2021; Suzana et al., 2021; Rohanida et al., 2021; Nazrah et al., 2021; Shahrulliza et al., 2021). This requires humans to master technology well. The researcher stated that through the findings of the framework analysis conducted, ICT -related competencies can be summarized into three parts, namely information literacy, technology literacy and ICT literacy (Mohd Arafat et al., 2021; Sumaiyah et al., 2021; Hifzan et al., 2021; Shahrul et al., 2021; Helme et al., 2021). According to Helen & Rhona (2007), mastery of technology is important for students and teachers in particular because pedagogy changes according to the circulation of technology.

This is also acknowledged by Chris (2009), who states that 21st century skills are different from 20th century skills due to the advent of sophisticated information and communication technology. Through this statement, we can go back 21 years where James (1994) stated that the change of the world at that time was related to the existence of various types of technology which made American universities better prepared to face the 21st century. While Ruud (2001), also agree that the 21st century is filled with the rapidity of technology which makes humans communicate fast. With the rapid pace of technology that is happening in this century, it is inevitable that human beings need to master technology well and effectively. Voogt et al (2013) also acknowledge that it is very important for students to be proficient in handling technology because of the job requirements that require efficient use of

technology.

Technology plays a huge role in helping life. This is acknowledged by Kuhlthau (2004), who states that technology is a part of life which provides great benefits to human beings. Skills in information technology are an important foundation in making life more informative. According to Savickas (2009), skills in the use of technology in the 21st century can help productivity and make jobs easier as well as faster. Ron (2002) stated that information technology is changing current educational practices which in turn affects the skills of students and teachers. Thus, it can be stated that ICT literacy competencies are very important in the 21st century. Therefore, for the purpose of curriculum development for the 21st century, the drafters involved must include these competencies in the curriculum development.

Creativity

In essence, creativity is a follow -up competency to the application of the use of technology that has evolved rapidly over time (Farah et al., 2021; Syahrul et al., 2021; Quah et al., 2021; Ahmad Syarifuddin et al., 2021; Jumiah et al., 2021). As noted by this researcher namely Voogt & Roblin (2012), creativity is acknowledged by most 21st century framework researchers and policy makers in their studies. This statement is strongly agreed by Ananiadou (2009) who states that with the advent of ICT, students need to be more creative so that their competitiveness can be enhanced. Meanwhile, Punya et al (2010) concluded that the 21st century requires creative, innovative learning, problem solving and critical thinking.

Not only the researchers involved in the field of education who acknowledge the importance of this creativity competence, but there are also researchers who emphasize creativity on leadership skills (Mohd Ali et al., 2021; Parimala et al., 2021; Siti Jamilah et al., 2021; Nor Fauziyana et al., 2021; Noel et al., 2021). Among them is Richard (2007), who summarizes the findings of his study on 21st century leadership criteria into three things namely emotional, social, and intellectual which include critical skills and creativity. On this argument, the element of creativity can be the cornerstone of curriculum construction in the 21st century, just as important as the mastery of information and communication technology (ICT). By incorporating elements of creativity competence in the curriculum, students will be generated with opportunities for them to pour out all the ideas as the learning process takes place.

Collaboration

According to Voogt & Roblin (2012) again, in addition to some of the competencies mentioned earlier, collaboration is also a competency expressed in all the frameworks they have reviewed. In general, collaboration plays an important role in the survival of students as well as their careers. According to Alan (1998), the competencies that are agreed to be mastered are collaboration between the industry and the university. This is explained in his proposal paper on the preparation of librarians in the 21st century.

This statement was also acknowledged by Milton (2000), who stated that the importance of collaboration between the school administration and external institutions to boost the level of mastery of skills, knowledge, and success of students. Ananiadou (2009) also agrees that the need for collaboration and good relations between several parties in determining the success of something especially the field of education in the 21st century. Marilynn (2007), emphasizes that to achieve success today we can not do it alone but more to collaboration. So, as a method of implementing a competitive curriculum and in line with current circulation, collaborative competencies can be incorporated into the construction of 21st century curriculum.

As we already know that the industry needs a skilled and efficient workforce in performing a task, while for those who provide educational services, of course they want to produce quality students (Ahmad Shafarin et al., 2021; Junaidah et al., 2021; Farah Adibah et al., 2021; Ahmad Shakani et al., 2021; Muhamad Amin et al., 2021). In this case, collaboration skills are required to achieve that purpose. In schools, perhaps teachers can collaborate with the community around the school as one method of collaboration.

Communication

Communication efficiency is also an important aspect in facing the increasingly challenging environment of the 21st century. According to Voogt & Roblin (2012) through this discussed article, all the selected frameworks argue that communication is a competency that should be considered. Also agreeing with this statement is Cynthia et al (2000), stating the four main skills to master competence in the 21st century namely communication, problem solving ability, teamwork and the ability to produce something. Ananiadou (2009) states that communication skills are very important not only in preparing students towards lifelong learning, but also to join a large community.

It is highly emphasized that communication is something that always happens in daily life in all aspects either directly or indirectly (Santibuana et al., 2021; Nor Diana et al., 2021; Zarina et al., 2021; Khairul et al., 2021; Rohani et al., 2021). Effective communication with the use of various mediums, enabling people to share knowledge as well as practice (Badaruddin et al., 2021, Abdul Rasid et al., 2021). According to Christopher (2010), effective communication plays a key role in providing human beings especially the workforce who can perform tasks in a team nowadays. The 21st century where everything is moving fast requires humans to move in tandem if they do not want to be left behind in the modern current. We must equip ourselves with a variety of new knowledge. Of course, good communication skills will be able to help humans continue this continuity. As educational practitioners and parties directly involved in teaching, this element of communication efficiency should be given emphasis to be included in the curriculum in schools whether it is delivered in a real curriculum or a hidden curriculum.

Social and Cultural Skills

Marion et al (2000) agree with the researcher's findings and argue that the network of social and cultural awareness should be emphasized. Similarly, Cynthia et al (2000) stated that the four main skills to master efficiency in the 21st century are communication, problem solving ability, teamwork and also the ability to produce something. with the help of rapidly developing technology. Technological sophistication fundamentally benefits productivity and human life. However, the heavy dependence on technology will make people increasingly lose the guidelines of society and live as if alone surfing their own lives. This is very dangerous because the nature of life requires people to always be in touch and always communicate. Problems will arise if human beings no longer live a social life as they are naturally.

Therefore, it is very important if these social and further cultural skills are given due emphasis in the school curriculum so that students are aware of the importance of these skills. Michael (2000) agrees that social and cultural competence is very important in the 21st century because our environment requires us to be interdependent just as a scientist needs to approach society in meeting the demands of his job. In fact, from the opposite perspective we are dealing with a generation that cares about technology and lacks social experience.

For Ananiadou (2009), the new social experiences of the current generation require a specific application of social and cultural values. According to Henry (2006), questions related

to social and cultural skills are often asked among educational practitioners in the United States who want it to be more systematic. So, with this, it is once again emphasized that these social and cultural skills are very important to be applied in schools through a curricular approach. Consistent with these findings by Voogt (2012), where all 21st century competency frameworks, discuss these skills or competencies.

Problem solving

In an increasingly challenging age and full of races to achieve progress, it is inevitable that human beings need to prepare themselves with problem -solving competence because every time human beings will face problems. Without this ability, some of us will be left behind. As suggested by Alan (1998) in his proposal paper which set the condition of problem-solving ability for 21st century librarians. Similarly, Cynthia et al (2000) who stated four main skills to master competence in the 21st century namely communication, problem solving ability, teamwork as well as the ability to produce something.

In a discussion in this study by Voogt & Roblin (2012), the findings state that problem -solving competence in 21st century competencies is highlighted by most of the frameworks reviewed by them such as the frameworks proposed by P21, EnGauge, ATCS, and NETS/ISTE. According to Michael (2000), in his idea of transdiscipline, problem solving needs to be emphasized and students need to know it in an orderly manner. Meanwhile, Punya et al (2010) concluded that the 21st century requires creative, innovative learning, problem solving and critical thinking. Based on some of the opinions above, it is found that problem solving skills are competencies that should not be taken lightly. This competency should be emphasized in the construction of the curriculum in schools in the 21st century because of the urgent needs of human beings in general and students in particular to face various challenges.

Critical thinking

As with problem -solving skills, Voogt & Roblin (2012) in their study also stated that the next competency i.e., critical thinking is discussed by most of the proposed frameworks. In the information world that is now dumping in several sources especially the internet, we are exposed to a variety of interesting knowledge and facts. It should be noted that the facts that exist in sources such as the internet are excerpts that are retyped in the virtual world to be shared around the world. This thing actually exposes us also to the right facts as well as the wrong or false facts. The concern today is where if we are not skilled in determining the validity of a fact obtained. Thus, critical thinking is very necessary in conducting an assessment.

Cynthia et al (2000) in their proposal paper proposed some of the competencies that need to be present when facing the 21st century through the consensus surveyed including critical thinking and problem-solving skills. Meanwhile, Punya et al (2010) concluded that the 21st century requires creative, innovative learning, problem solving and critical thinking. Our ability to critically evaluate news and facts will save us from any sabotage or misinformation. Christopher (2010), argues that critical thinking is very much needed nowadays to analyze, argue and subsequently make a decision.

In addition to being able to determine the validity of a fact, this critical thinking efficiency is also able to improve something. Constructive and structured criticism will be able to produce something positive and improve a product. Therefore, in the application of the curriculum, these critical thinking competencies should be included in the elements contained in the curriculum in schools.

Productivity

Subsequent competencies that were also discussed by various parties included the recommendations put forward by the frameworks reviewed by this researcher. According to Voogt & Roblin, the efficiency of producing this product is also mentioned in most of the selected frameworks. Among the frameworks in question is EnGauge, which was built by the Metiri group and Learning Point Associates aimed at shaping several competencies for students, teachers, and stakeholders (Lemke et al. 2003).

Indeed, the measurement of a success or task is the product produced. Based on the basis of the product produced, then we can determine whether something is successful or failed. In today's world that demands human beings to always work hard in the face of various challenges, we should all produce a generation that is productive in nature. This competency will be able to produce competitive as well as creative individuals.

Cynthia et al (2000) stated four main skills to master competence in the 21st century namely communication, problem solving ability, teamwork and also the ability to produce something. According to Henry (2006), the ability to produce products is very important nowadays to benefit others. As an implementation in schools, the authorities should place these competencies in the school curriculum. Set some subjects for which students need to complete a product as this competency will also give pride to oneself as well as others.

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