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21st Century Competencies and Its Implications on Educational Practices

Haryono[a], Edi Subkhan[b], Ghanis Putra Widhanarto[c]

[a,b,c]Department of Curriculum and Education Technology Faculty of Education, Universitas Negeri Semarang, Indonesia

Corresponding e-mail: [a]fransharyono@mail.unnes.ac.id

Abstract

The challenges of the human being now more complicated than 50 years ago. The human life in the 21st century is characterized by knowledge society and information and technology literacy beyond the human basic skills to survive on the previous ages. To participate in the 21st century it is not enough if we only mastering the basic literacy skills as reading, writing, and arithmetic, moreover we should be a person who has a high qualified skill on critical thinking, problem-solving, good communication and collaboration, and also creative and innovative. The aim of education to prepare the student to be a member of the global community should effectively improve their self to gain a high chance to participate and build their self-existence facing the global community challenges.

Keywords: 21st century competencies; education; global society

Introduction

The 21st century is filled with fast and massive changes of science and technology. This century is also called the age of information and communication technology (ICT) with a fast and massive production of digital technology to facilitate communication and mass dissemination of information. Many multinational corporate with wide range of market penetration are occupied by giants corporate giants engaged in ICT such as Microsoft, Apple, IBM, Samsung, and others. Later, after the invention of the Internet there were more and more new types of companies engaged in communication, entertainment, economic, and learning channel such as Google, Facebook, YouTube, WhatsApp, LINE, telegram, Instagram, Path and others. The company is working on the broad range market in meeting the communication, learning, shopping, and entertainment needs of the 21st century society.

The wide range of digital technology-based ICT spawned a massive development of ICT-based creative industries. This kind of industry focuses on producing devices and applications for entertainment, games, communications, economic activity, and learning and ease of work. The next development is mobile phones and smartphones that increasingly affordable by the middle class in many developing countries spurred the growth of the creative industry to produce many compatible Android-based applications. Especially when Google Play are in a strong collaboration with so many smartphone manufacturers, the products of creative industries based on digital technology increasingly can be marketed easily in smartphones. In the recent day many people taking their shopping activities are easily facilitating by smartphone, even on looking for a mate we can go online (for example see setipe.com, indonesiancupid.com, ayonikah.com and etc.).

The easy way to get smartphone and internet access will open up the possibilities of the emergence of negative and provocative content, because most of the netizen always posting and share lots of words, meme, and links for no good reason and tended to be a hoax (for example see Saracen Case, 2017). It is the negative side of the 21st century when technology become more personal on facilitating the human need, it seems that each people have their own channel to publish, share and broadcast information by using Facebook, YouTube, IG, and etc. Easy access and personal freedom must be paid by crowded conditions in communication and socio-cultural activities in cyberspace. Everything seems to be facilitated to be extreme by ICT. People may become more consumptive, learning process will be faster, and crime becomes more extreme (Saputra, 2016). Not to mention that we are now facing environmental disasters and terrorism problems.

So what is the role of our education on facing all of those phenomena? Kay and Greenhill (2011, p.41) said that right now our economic conditions are in uncertainty. According to him the challenge of formal education now is to prepare students to be able to succeed (1) in an economy driven by innovation and knowledge, (2) in marketplaces engaged in intense competition and constant renewal, (3) in a world of tremendous opportunities and risks, 4) in a society facing complex business, political, scientific, technological, health, and environmental challenges, and (5) in diverse workplaces and communities that hinge on collaborative relationships and social networking. Moreover they said that school should changes, especially because the fundamental changes in the economy and society have reshaped the way we work and live. In this case Trilling and Fadel provides an overview of the changing types of work in the 21st century as follows.

Table 1. Jobs and 21st century work (Adapted from Trilling and Fadel, 2009, p. 9)

Type of task	Task description	Example occupations
Routine	Rules-based Repetitive Procedural	Bookkeepers Assembly line workers
Manual	Environmental adaptability Interpersonal adaptability	Truck drivers Security guards Waiters Maids and janitors
Complex thinking and communicating	Abstract problem solving Mental flexibility	Scientists Attorneys Managers Doctors Designer Software programmers

If we look at table 1 there is a lot of work activities have been replaced by digital technology tools. Therefore, our working world reduces the routine and manual activities needs, and we can conclude that our working world need lots of abstract problem solving and mental flexibility is needed to meet with complex thinking and communicating requirement.

Several 21st Century Competencies

Therefore, digital native or Z generation in 21st century require lots of emphasize to learn more seriously about 21st century competencies. Such as how to use gadget appropriately and wisely, how to work in a ever fasting working world facilitating by digital technology, and how to create our own business. This is the era of the birth of knowledge economy, which is economies directly based on the production, distribution, and use of knowledge and information (OECD, 1996, p.7). The emergence of many creative endeavors, for example in the form of production of digital applications on Google Play or using various trading platforms such as bukalapak, olx, and tokopedia are form of knowledge economy as a prerequisite for the birth and development of knowledge society.

Education plays a major role in teaching the 21st century competencies to the students as an effort to build a knowledge society and knowledge economy. Kay and Greenhill (2011, pp. 46-47) identified several 21st century competencies for student, i.e. (2) solving complex, multidisciplinary, open-ended problems that all workers, in every kind of workplace, routinely encounter, (3) creativity and entrepreneurial thinking-a skill set is highly associated with job creation, (4) communicating and collaborating with teams of people across cultures, geographic, and language boundaries-a necessity in diverse and multinational workplaces and communities; (5) making innovative use of knowledge, information, and opportunities to create new services, processes, and products, and (6) taking charge of financial, health, and civic responsibilities, and making wise choices.

In line with Kay and Greenhill, the National Education Association (NEA, 2014) in the United States of America (USA) also identifying at least four important competencies in 21st century, i.e. (1) is critical thinking and problem solving, (2) communication, (3) collaboration, and (4) creativity and innovation. The Pacific Policy Research Center (2010, p.2) also proposes several 21st century competencies i.e. civic literacy, global awareness, financial literacy, health literacy, and environmental literacy. Basically, several 21st century above have the same substance and all complement one each other. These competencies are identified in response to the changing needs of the recent development of working world which are in the very complex social change and the development of science and technology.

Bringing 21st century competencies into Indonesia's curriculum

Some important competencies of the 21st century by Parthenship for 21st century competencies are categorized into three types: life and career skills, learning and innovations skills, and information, media, and technology skills. The three types of competence can also referred as students' blend outputs between specific skills, content knowledge, expertise, and literacies. The outputs are supported by several core subjects such as English, worlds language, arts, mathematics, economics, science, geography, history, and government and crisis. All of these are basic subjects that need to be developed and learned in a cross-disciplinary way, among others related to global awareness, financial, economics, business and entrepreneurial literacy, civic literacy, health literacy. The learning practices should be supported by standards and assessments, curriculum and instruction, professional development, and learning environments (Kay and Greenhill, 2011, pp. 48-49).

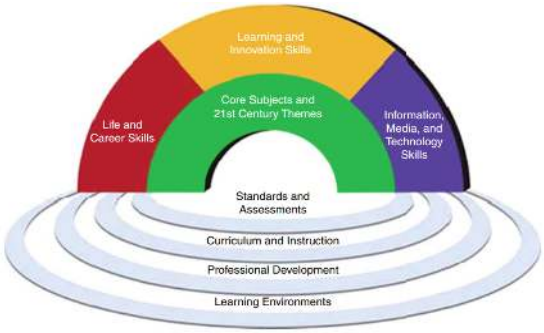

Figure 1. Partnership 21st learning framework (Adapted from Kay and Greenhill, 2011, p.48)

Trilling and Fadel (2009. P. 88-89) sayd that two main keys to learn in the 21st century are (1) the question and the process to uncover their answers and (2) the problem and the inventing of the possible solutions. Question-based learning is also called as inquiry-based learning and learning that focuses on developing problem-solving designs called design-based learning. Trilling and Fadel (2009, p. 94) said:

> Inquiry and design learning methods have been proven to be highly effective in engaging and sustaining learning and deepening understanding, as we discuss in the next chapter. These learning methods, combined with the basic tools and tools of the 21st century approach to learning.

One things suggested by Trilling and Fadel is learning using project approach. This approach push the teacher becomes an effective coach and not only act as a lecturer. In this case the students are directed to make their project plan, conduct research, sharing findings with other, asking questions, taking on leadership, analyzing their own result, getting feedback from others, and so on. Moreover, students and teachers are both working to finnish the project. This method is very interesting refers to the concept that learning is not only about reading and memorizing, but also relating to the ability to answer questions or make a specific product. Project-based learning components and processes are described by Trilling and Fadel (2009, p.100) as bicycles where there are two wheels (student and teacher activity wheels), student seats, teacher seats, and the like.

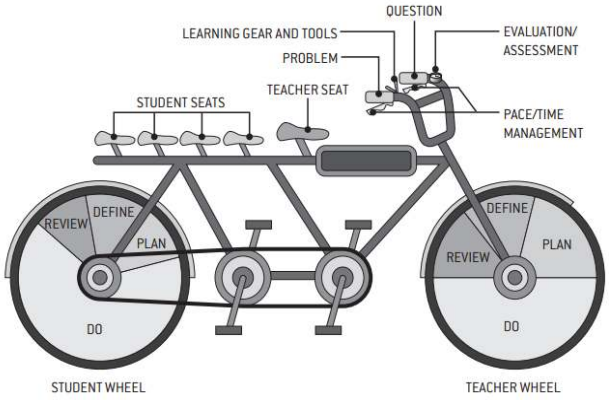

Figure 2. The project learning bicycle (Adapted from Trilling and Fadel, 2009, p.100)

The idea is actually had been widely practiced and indeed need to be developed for several context and purposes. In Indonesia, project-based learning is a well-known approach for teacher college student among others. In general 21st century competencies also considered as an important and even used as a basis for consideration in developing the Indonesia's national curriculum. One of the spirits of the formulation of Curriculum 2013 is the consideration of the need to master the 21st century competencies. M. Nuh (2013) while still in charge as a Minister of Education and Culture (MoE) states some future competencies that are taken into consideration in developing the Curriculum 2013, that is communicating, critical thinking, considering the moral aspect a problem, being a responsible citizen, trying to understand and tolerant of different views, living in a global society, having a broad interest in life, readiness to work, intelligence according to his or her talents and interests, and a sense of responsibility towards the environment. These competencies are not much different from the categorization of 21st century competencies from NEA, Kay and Greenhill, and Pacific Policy Research Center.

Moreover, scientific approach had been proposed as a learning approach to learn 21st century competencies. In this case Indonesian government issued the Regulation of the Minister of Education and Culture (Permendikbud) No. 103 Year 2014 on Learning in Primary and Secondary Education. Article 2 paragraph 7 states that learning practices on Curriculum 2013 is using a scientific-based approach. This approach is a learning organization using logical sequence of the learning process from observing, asking, gathering information/trying, reasoning/associating, to communicating. In general article 2 paragraph 1 states that learning practices is directed to be interactive and inspirational, fun, challenging and motivating students to actively participate, contextual and collaborative, providing sufficient space and opportunities for the student initiative, creativity and independence of students, in

accordance to student talents, interests, ability, and their physical and psychological development.

But the provision has several problems. After inaugurated by M. Nuh Curriculum 2013 reap a lot of controversy because some learning tools are not complete yet, such as student textbook and teacher manual. In addition, many teachers complaining the student assessment official format, they feel it is difficult to assess all of student achievement aspects and write down on the student book report qualitatively. Resistance also emerged from academician and teacher and push the government declared that the 2013 national curriculum would be applied gradually. In the end there are schools that implement the Curriculum 2013 and on the other hand there are schools who still survive with Curriculum 2006. This new national curriculum actually in relation to the orientation to conduct a 21st century learning practices and competencies has a serious problem, because there is no Information and Communication Technology (ICT) as a subject matter in the curriculum structure. The government and team replace the subject with entrepreneurship and craft as a subject matter to face the knowledge economy challenges. Whereas, in fact most of the student need lots of digital literacy, because if we left the student without any guidance they will fall in a negative activities in internet.

The integration of 21st century competencies into Indonesia's schooling curriculum also supported by a character education program inaugurated in the era of M. Nuh time as a Ministry of Education and Culture. The government has formally formulated 18 noble characters, there are religious, honest, tolerance, discipline, hard work, creative, independent, democratic, quriosity, nationalism, love to the homeland, appreciate the achievement, friendly and communicative, love of peace, love to read, environmentalist, social emphaty, and responsibility (Kemdiknas, 2011, p.8). However, these policies need to be critically studied to identify does it also support the implementation of 21st century learning or make it biased. It is important because at a glance the orientation of several policies on character development is different than the 21st learning and competencies orientation. There is no official explanation from the government about the relation of the 21st learning practices and competencies and character development program.

However, it seems clear that confusion among teachers in schools is related to the implementation these policies. Not to mention when the Ministry of Education and Culture under Anies Baswedan issued the MoE Regulation Number 23/2015 on the character development. Also in 2017 when Muhadjir Effendi served as Ministry of Education and Culture enacted MoE Regulation Number 27/2017 about the school day that caused controversy in the community. Then the government issued Presidential Regulation no. 87/2017 on strengthening character education. Many teachers overlooked these government policies because most of them need more to focus on the learning process especially on the subject matter, initiate a good relationship with student, and conducting the learning process become more meaningful and memorable for students. In other side teacher have lots of administrative dependents such as designing lesson plan, producing learning media and tools, assessing and evaluating student learning achievement and write them in student report book.

Conclusion

We cannot escape from the clutch of the globalization era and age of information. We cannot avoid the trend of knowledge economy and the need for knowledge society and critical mass. In this case our government already enacted lots of policies to support student on mastering 21st century skills. Some important work that needs to be done is on the shoulders of teacher colleges according to their role on producing teachers who have a vision far ahead, have a high passion to learn new things with high intellectual interest, love to the students and humanist. Another hard work is on the shoulders of schools that should be a good quality learning environment and support students to be able to overcome 21st century competencies. But in Indonesian context it seems that teachers and schools are still fixated on the ever-changing curriculum and education policy that in many cases confuse the teacher. We need to invite the government, education office, school supervisors, principals, teachers, parents, and students to be more concerned with the substance of learning rather than to the administrative domain of curriculum and learning.

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