

Empowering Cultural Human Capital towards Industry 4.0

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Abstract: Decentralisation of development and easy access to information are increasingly high in the industrial revolution 4.0. in Indonesia, even in the cities and districts. The previous industrial revolution, such as 1.0, 2.0, and 3.0, have not been able to solve various social problems, economic inequality, and cultural shock. The emergence of industrial revolution 4.0 facilitates various communication needs and develops cultural innovation. One form of solving these problems is social and cultural innovation. The social and cultural innovation has existed so far. However, this effort can improve its quality and variety by utilising 4.0 technologies, such as cloud, IoT, and others. This study discusses empowering human cultural capital starting from (1) What are opportunities for social and cultural innovation in an era of industrial revolution 4.0; (2) What is the development of social and cultural innovation that utilises the 4.0 innovation? Development of the industrial revolution 4.0 creates live streaming that allows devices to show various kinds of performances, such as traditional performances. Also, there is a social media that accommodates human interaction using machines or devices connected to the internet so that they can communicate online. In this case, it is closely related to social and cultural innovation that encourages the development of culture and art.

1 INTRODUCTION

Indonesia is dealing with an era of development of Massive Open Online Courses (MOOCs) which is said to crush all who are in front of it (avalanche) (Dhakidae, 2017) in the 21st-century era. The phenomenon of disruption occurs widely, ranging from government, economics, law, politics, to urban planning, construction, health services, education, business competition and also social relations (Kasali, 2017). Disruption of education has become a social and cultural phenomenon in the global era. Yoga (2017, 2018) explained that social phenomena related to Disruption of Education continue to occur in the 21st century. There are four aspects related to the disruption of education. First, the generation associated with Student (Neo-Millennials) is the generation that is directly related to something online once born into the world, thus creating a “gap generation” with the previous generation. Second, Parent (Hyper-Demanding), namely an increase in the number of “middle class” which causes an increase in needs, including for the needs in education, thus increasing homeschooling. Third, Technology (Disruptive Technologies), which is a

very rapid technological development, so that it changes the way/method of learning fundamentally. Fourth, Skills (Irrelevant skills) obtained in schools (memorisation, and multi-choice) that are “not appropriate” with the required skills (creative and innovative). This social and cultural reality reinforces the challenges of educational development in Indonesia. On the other hand, dehumanisation in education continues to occur in the era of globalisation which causes a crisis of the nation’s character which becomes a social phenomenon that continues to occur in the lives of Indonesian people (Dwiningrum, 2013). Likewise, the devaluation of education becomes a social fact in the lives of the world’s people that is difficult to avoid (Dwiningrum 2017).

The challenges of development education in the 21st century are very complex because two principles must be realised, namely quality and equality. Every country is trying to implement an education system that can apply these two principles. However, the results were not optimal, for example, the German state scored elite students, but it was not superior compared to Ireland, which pursued quality and equality. According to Sahlberg,

Finland is “a model of a modern, publicly financed education system with widespread equity, good quality, large participation-all of this at a reasonable cost”, partly because of the way the strong social support for children and families that enable all children to come to school ready to learn, without challenges that many experiences in less well-supported contexts (Hammond, 2017: 32). South Korea, which scored elite schools, has not been prosperous.

In contrast, Italy, Spain, and Mexico pursue equality, although it has not yet been accompanied by quality. It is in contrast to Singapore, which continues to develop an education system that is responsive and proactive to the demands of 21st-century education. According to Ng (2017: 63-64), in education systems, meritocracy is generally translated into giving priority in school choices or allocating higher levels of education resources to those who are with merit. The Singapore education system is highly democratic and competitive. Students compete for a place in their schools based on their merit. Schools competitor attract good students. Through a competitive education system, the government provides opportunities according to students’ abilities, regardless of religious, race, language, culture, or socioeconomic backgrounds differences. However, a meritocracy system faces a paradox, as explained by Ng (2017, p. 61), that selfish meritocracy will occur, so the education system develops compassionate meritocracy that can help us build a resilient and inclusive society. From these examples, it can be concluded that educational development is considered successful if it can at least apply the two principles, namely improving quality and equality simultaneously. What about the results of education in Indonesia? The answer to that question is not easy, because the education system should ensure that quality education is provided for everyone.

The inequality that originates from quality and equality is still a social and cultural phenomenon in Indonesia. One of them is the problem of dropout that still occurs at all levels of education and occurs in all regions in Indonesia. The reality of school dropouts is not just an academic problem, but the source of the problem tends to be non-academic which requires comprehensive handling because education is the foundation needed to achieve competitive national progress in facing global challenges. The realisation of the Indonesian government since 1984, which has formally sought equal distribution of primary school education, followed by compulsory education for nine years

starting in 1994, should have been strengthened again so that the phenomenon of school dropouts can be resolved entirely. In line with Law Number 20 the Year 2003 regarding the National Education System, article 5 paragraph (1) states that “Every citizen has the same right to obtain quality education”, and Article 11, paragraph (1) states “Government and Regional Government must provide services and facilities, and ensure the quality of education for every citizen without discrimination “. The 1945 Constitution mandates that every citizen has the right to education to improve the quality and welfare of his life. Educational development is one of the top priorities in the national development agenda, because of its significant role in achieving progress in various fields of life: social, economic, political, and cultural. The principles of quality and equality formally have a legal basis for regulating the education system in Indonesia. Therefore, the Indonesian government still needs to think of a strategic and comprehensive way to overcome the problem of dropping out in the era of disruption.

The problem of school dropouts that are still found in Indonesia proves that education policies have not been able to overcome structural problems. This problem will have an impact on the quality of life of the community at large. Personally, the impact will not be optimal for individuals to develop the potential and the right to a quality life. Zamroni (2017) states that educational inequality cannot be separated from the existence of social inequalities that will strengthen one another that has a self-supporting prophecy so that the inequality develops even greater. That is, overcoming the problem of quality inequality requires changes in the social and cultural structure of society that is conducive socio-economically and culturally for improving the quality of education. Therefore, the development of Indonesian education is increasingly massive, with the phenomenon of disruption that continues to occur in the 21st century. In this paper, two main points will be discussed, namely 1) how is culture-based education implemented in schools? 2) what is the role of teachers in the 21st century?

2 DISCUSSION

2.1 Education in Theory of Perspectives

Inequality in the quality of education in a sociological and cultural perspective can be analysed from various theories. From the perspective of

structural-functionalist theory, it describes the dysfunctional consequences for a social system. Ritzer (2012: 429-435) proves that schools, as the educational institutions have not performed their social functions optimally. Schools that should be able to become media socialisation that produce students who develop potential optimally and become human characters have not been maximally carried out. Schools is a sound social system, as explained by John Goodlad, and have not yet realised social-school goals optimally (Dwiningrum, 2016b: 70-78). In this perspective, education problems face structural problems that are not easy to disentangle in an era of disruption that requires social and cultural adaptability and flexibility.

Schools from the perspective of conflict theory that emphasises the concept of social stratification said that with the existence of social classes (Ritzer, 2012: 4604-462), there was an imbalance in the quality of education that will create widening social inequalities. The practice of education capitalisation encourages inequality in the quality of education at all levels of education. Schools limit the opportunity to get better and higher education to most people. This fact is reinforced by the still limited opportunities for citizens to get the education to a higher level, especially in university studies, which have not reached 10% of Indonesia's population. The structure of society contributes to an increasingly more substantial social and cultural disparity that results in quality imbalances in Indonesia. If it is related to the era of disruption, it can be assumed that educational development will face increasingly intense conflicts of interest. Whereas in the era of disruption, conflicts of interest can be reduced if the culture has the power to build new interpretations in the life of society so that conflict should be reduced.

On the other hand, the perspective of symbolic interactionism theory emphasises the concept of socialisation as a dynamic process (Ritzer, 2012: 625-629). It allows one to develop the ability to think by learning through interaction with symbols. The quality imbalance occurs because, in the practice of learning, not all schools can build symbols that strengthen quality improvement into awareness and needs of all elements involved in the learning process at school. The role of the teacher is still varied in teaching the knowledge needed by students. The teacher is still trapped by teaching the symbol of knowledge that is the transfer of knowledge. The teacher in teaching in the class is stuck with knowing not being. As a result, students

have not yet formed into personal character, achievement, and resilience.

On the other hand, the ability of teachers determined by competence is still diverse between schools, so that the professionalism of teachers is also different in quality. Therefore, results and achievements between schools tend to be different. This result happens because teachers have not been able to optimally develop their competencies, such as academic, ideological, pedagogical, personal, social, cultural, spiritual, humanitarian, and anticipatory competencies (Siswoyo, 2017: 11). In the era of disruption, the understanding of symbols in the educational process in schools can be strengthened more systemically, so students can respond to the meaning of symbols following the unlimited development of science. Even in the context of education and the revolutionary era 4.0 that has moved, such as IT-based education, the activity of building the same interpretation becomes a cultural dialogue.

The socio-cultural approach with differences in backgrounds is not the arena of conflict in development, but a social and cultural capital that can move all elements of society to be involved in the process. The problem of educational development must be carried out with a cultural approach so that strengthening cultural identity in global culture is maintained by the Indonesian as a cultured and dignified nation. Therefore, the partial education development process will cause various increasingly complex social and cultural problems that should be avoided in the education development process. Education needs to strengthen knowledge about global perspectives so that national independence remains strong in global challenges. Education plays a role in supporting national development that is capable of producing quality and character of the generation of the nation. Global change with education liberalisation requires educational institutions to be able to produce quality students who can compete in order to be accepted by the market.

As a consequence, educational institutions are becoming more towards knowledge-based economy institutions. Therefore, education must still refer to the power of cultural dialogue, as explained by Gal (2005 in Baker: 274). This condition is reflected in the Global Perspective for Teacher Education article on the importance of cross-cultural dialogue that helps teachers develop an international understanding of contemporary world events, specifically by demonstrating how culture and context impact educational values, decisions, public

policies, and practices. Local knowledge and a commitment to culturally traditional ways of interacting and communicating values can enhance, rather than detract the form of academic achievement and developing global perspectives.

2.2 Disruption in 21st Century Education

Cultural dialogue is a critical aspect built in the 21st-century education era. This aspect is related to the demands of education in the 21st century, which emphasises readiness in facing the industrial revolution 4.0, which emphasises the future of education. "It is, therefore, a new vision of learning starting right now; more important to know why you need something, knowledge or skill, and then where to find it - rather than cramming your head full don't try to learn everything; built around each individual, their personal choices of where and how to learn, and tracking of performance through data-based customisation... whatever sits you; learning together and from each other - peer to peer learning will dominate, teachers more as facilitators, communities built around shared learning and aspiration"(Fisk, 2018). For Indonesia, education development that refers to these principles is still tricky, because the process of education development is still on a fundamental problem, namely the quality problem.

The problem of education in Indonesia is very complicated because it is not limited to quality problems, but also very severe challenges in the era of disruption. The first problem, quality inequality in Indonesia is structural because quality disparities occur at all levels of education and are still found in all regional conditions in Indonesia. Likewise, social performance as a determinant of school quality is not the same between schools, so school results and achievements will be different (Jencks in Hurn, 1993). In the article "Do schools make differences" prove that schools have contributed to the emergence of differences, student performance, and inequality in school. The still differences in IQ and student motivation accumulatively will affect school performance (Hurn, 1993). Education is a right that must be obtained by all Indonesian people, not specific group or even groups that can enjoy education with quality results. Educational development is one of the top priorities in the national development agenda, because of its significant role in achieving progress in various fields of life: social, economic, political, and cultural. What is the structural approach to overcoming quality problems in the challenges of

education in the 21st century? Inequality in the quality of education is cultural stems from the persistence of differences in community perceptions about the importance of fighting for education and school rights and student achievement. According to Zamroni (2017: 7-8), educational and social inequality will lead to perceptions for its citizens who in the next turn will affect the attitudes and behaviour of citizens as individuals. In this context, children's motivation for school cannot be separated from the socio-cultural and economic conditions of the family how to strengthen their existence in the demands of education that are transformative continually moving to meet the criteria for education 4.0 in the 21st century that emphasises Education 4.0: Empowering education to produce innovation, while the educational position in Indonesia is still proceeding from education 1 to 3. Meaning of education 1.0: centuries of experience with memorisation, Education 2.0: Internet-enabled learning, Education 3.0: Consuming & Producing knowledge (Fisk, 2018). Meanwhile, concerning Jencks's opinion, the phenomenon of the existence of culturally deprived and debates between cultural differences and cultural deficits is a challenge for the development of education in Indonesia (Hurn, 1993, pp.110-136).

Besides, the challenges of education face the development of society in the era of the highly complex industrial revolution 4.0. Teachers must be able to develop student competencies to improve the quality of education in the 21st century to deal with educational competence in the 21st century. Quality improvement requires a comprehensive approach so that the results are more optimal because it is not possible to implement the one fit for all policy. Nowadays every school should have adaptability and flexibility in facing the demands and challenges of change in the 21st-century era because many problems must be faced, one of which is the disruption phenomenon which is an obstacle to improve the quality of education which is still very complicated.

The second problem is the phenomenon of disruption that is unavoidable in the era of the 21st century, especially for disruption of education which is interpreted as something uprooted from its roots, because the result is in the form of various forms of innovation, technology, and platforms. According to Clayton M. Christensen, who has introduced the term of disruption, it is in line with the emergence and development of information technology applications and the changing form of entrepreneurship into a start-up. This word shifts

from the term known after the world war, namely “destruction” introduced by Schumpeter (Kasali, 2017). Disruption is a revolution that occurred during the Asian economic crisis (1997) and the United States (2008), young people around the world are so passionate about building start-ups rather than looking for work as explained by Rhenald Kasali (2017) which illustrates that younger generation is not just entrepreneurship, but rather “disrupting” industry, rejuvenating, and dismantling old approaches in new ways.

Disruption will continue until the balance point. Disruption is an innovation that will replace the entire old system in a new way. Disruption replaces old physical technology with digital technology that will produce something new, more efficient and useful (Kasali, 2017: 34). The phenomenon of changes that occur is accompanied by resistance, the contention of rules, and fierce competition in regulatory matters. Therefore, now we need wise leaders who can think openly (Kasali, 2017: 163). In this context, the act of self-corruption is more important than letting themselves be disrupted by newcomers. The concept of disruption is needed in order to understand better the social and cultural phenomena involved in the era of disruption. Kasali (2017: 162) explains some of the main concepts related to disruption, namely a process that does not occur immediately but starts from ideas, research or experiments, then the creation and development of business models. When successful, entrants will expand their business at the lowest market point that is ignored by the incumbent, then slowly grind up, to the segment that is already controlled by the incumbent. By entering the market with a new business model that is different from what the old players have done, business model innovation becomes essential. In this context, not all disruptions succeed in becoming perpetrators of disruption or destroying incumbent positions that do not have to always turn into disruptors. Many strategies can be adopted by the incumbent, including continuing sustainable innovation and forming other units that serve disruptor. Technology is not a disruptor but an enabler. In the development of IT, other tools are needed to support success. Disruption can spread deflation which causes prices to fall because the disruptor starts a low-cost strategy. Disruption in exponential civilisation has changed the world which no longer moves linearly and gradually in the way of human thinking but moves very fast and faster. As explained by Peter H. Diamandis, it was concluded that humans will not experience the constraints of a linear mindset, but rather connect the

framework by applying the 6 D principle as follows (Kasali, 2017):

Phases	Description
Digitize	Digitizing causes other humans to exchange ideas and exchange ideas, because it can be done in two directions, and innovation moves quickly.
Deceptive	There is a change in social patterns in several places or companies that only occur in certain companies or are localized, so that it will not spread its influence. There is a tendency to act slowly which causes the incumbent to continue using the old way in respond to problems that occur.
Disruptive	technology has made innovations and created new markets and replaced old ones. Turbulence occurs because of an internal meeting.
Demonetization	The process of displaying the work or role of money. Community life is depicted by obtaining it for free, but at the same time showing a free business model from companies that make a profit.
Dematerialisation	The process of destroying goods or services, from old to new. For example, roll film to a digital camera that does not require plastic or paper printing.
Democratization	The state of human life that everything becomes easy and inexpensive, so many things are increasingly available and affordable to meet everyone's needs.

The above phenomenon requires a change in people’s mindset. Likewise, education is getting more robust in the face of the era of disruption. The teacher must change their mindset. The task of teachers in the era of disruption is to make students who have creative and innovative characters, so

students have high adaptability in facing creative and innovative times that require character values that never give up, honest, creative, innovative, tolerant, disciplined, resilient, and self-confidence. For people who celebrate change, disruption is the future. However, some people who feel comfortable with the present situation and are afraid of change will think that this is the beginning of extinction. The problem is, for education that can play a role in the era of disruption, this is an opportunity to fix the problem of education in Indonesia.

For the Indonesian people, the development goal is still trying to maintain cultural identity during the industrial revolution 4.0, which crushed the nation's culture into a global culture that is increasingly difficult to reduce. Today society is increasingly dynamic in facing the impact of the dynamics of the industrial revolution 4.0 that is still ongoing in social life that requires high responsive abilities and proactive attitudes. To understand the dynamics of the 4.0 industrial revolution, we can review the article presented by McKinsey & Company in its report titled "An Incumbent's Guide to Digital Disruption" which formulates four stages of the position during a technological distrust era, namely: middle noise (signals amidst the noise). In 1990, Polygram was recorded as one of the largest recording companies in the world. However, in 1998 the company was sold when MP3 technology had just been discovered. The owner still felt the peak of the glory of Polygram at that time and obtained an optimal sales value.

Another example is the traditional newspaper industry that pursues circulation and revenue from advertising. The emergence of a threatening internet is exploited by Schibsted, a Norwegian media company that uses the internet to anticipate threats while taking advantage of business opportunities. This company is disruptive to their core business through internet media which eventually becomes the backbone of their business in the future. At this stage, the company (incumbent) responds to technological developments quickly by shifting the comfortable position of the core business that they are involved in following the trends in technological development, consumer preferences, regulations, and shifts in the business environment (a change takes hold). At this stage, the change is already apparent, both technologically and economically. However, the impact on financial performance is still relatively insignificant, so it cannot be concluded if the new business model will be more profitable or vice versa in the long run. However, this insignificant impact was taken seriously by

Netflix in 2011 when they shook off their core business, shifting the business focus from DVD rental to streaming. This situation is a big decision that succeeded in maintaining the company's sustainability in the future, so it does not follow the bankruptcy of its competitors, such as Blockbuster. The third stage is the inevitable transformation. At this stage, the new business model has been tested and proven to be better than the old business model. Therefore, incumbent companies will accelerate the transformation towards a new business model. However, the transformation at this stage will be more severe considering that incumbent companies are already relatively large and fat, so that they are not as agile and adaptable as start-up companies that come with new business models.

Therefore, the company has been depressed on the side of financial performance. It will reduce the budget and even some business activities and focus only on the core business of the incumbent company. The fourth stage is an adaptation to a new balance (adapting to the new normal). At this stage, incumbent companies have no choice but to accept and adjust to a new balance, because industry fundamentals have changed, and incumbent companies are no longer as dominant players. Incumbent companies can only strive to survive during competition. At this stage, even the decision-makers in incumbent companies need to be observant in making decisions, like Kodak coming out faster from the photography industry so that it does not experience deepening loosening. From these stages, each company should be able to conduct early detection of the company's position, so that it can set appropriate anticipatory measures. The toughest challenge is precisely for market leaders, who usually feel superior and disruptive attacks that are only directed at minor competitors whose performance is not excellent.

Therefore, incumbent companies need to continue to move quickly and aggressively to follow the direction of the changing business environment in welcoming the era of the fourth generation industrial revolution (Industry 4.0). Reed Hasting, CEO of Netflix, once said that it is rarely found companies die because they move too fast. However, the opposite is often found that companies die because they move too slowly (Hassim, 2016). By understanding the stages in the 4.0 revolution, the world of education is increasingly massive, because Indonesia is currently still moving from education 2.0 to education 3.0 and still faces problems to proceed to education 4.0. Therefore, the choice to design culture-based education is expected to reduce

problems in the era of disruption. The problem is how the world of education can respond to changes that are accelerating, while the educational process is still not considered responsive to change? The disruptive phenomena that occur in all aspects of social life should be addressed proactively, so that the disruption that occurs does not cause social problems, but instead becomes a dynamic social change towards a better quality of life. Humanistic approach and dialogue become one of the exciting alternatives to consider in managing education in the era of disruption.

2.3 Culture-based Education Is Facing Disruption

Humans as "man in culture" prove that every human being cannot be separated from culture. In the era of revolution 4.0, the debate about the existence of culture has become increasingly important, because the global culture has begun to enter all lines of human life in the world. Therefore, strengthening cultural-based education in the era of disruption became a fascinating discussion. For Indonesia, culture-based education is essential. There are several key reasons: first, culture quality is still low, second, the existence of local culture has begun to be displaced globally, third, the process of social interaction is shifted from traditional to modern systems; and fourth, the teacher competencies were primarily not based on IT culture in the 4.0 revolution era.

Development of the concept of culture-based education requires the synergy of social roles. Culture-based education is strengthened, sharpened, and developed with quality-based concepts and practices. As explained at the beginning of the discussion, the problem of quality is still a problem of education in Indonesia. The concept of culture-based education emphasises the strengthening of socio-cultural values to preserve and develop the local culture to build the nation's character. In this context, culture is the basis of learning activities that have content about culture in intra-curricular and extra-curricular activities in schools. The learning process at school provides an introduction, knowledge, habituation, and acculturation of cultural values as a foundation for carrying out social activities. Besides, the school environment that builds school culture should be adapted to the needs of students for the spirit of learning in the 21st-century era. It needs to be understood that learning from a cultural perspective is a whole and comprehensive learning process of diversity that

exists in a community. Therefore, the learning process designed as the national curriculum is intended to produce a scientific mindset as an expression of cultural embodiment.

Moreover, technological and scientific progress is a reflection of a success cultured and characterised human being. Culture-based education is a strategy for creating a learning environment and learning planning that integrates character education into a foundation in the learning process at school so that students become personal characters. Likewise, multicultural education is needed to build perspectives in the face of globalisation. Character education is a conscious and planned effort to create an atmosphere, as well as the process of empowering the potential and educating students to build unique personal or group characters both as citizens. Character education will form a personality that encourages individuals to act, behave, say, and respond to something that happens in social life (Dwiningrum, 2013).

Multicultural education is expected to be a force to transform schools, from schools full of inequality to awareness and justice, including the transformation of school policies, teacher attitudes, learning materials, ways of evaluation, counselling guidance, and learning styles. The implementation of education which is carried out democratically and fairly, and is not discriminatory by upholding human rights, religious and cultural values, and national pluralism that will create a school where all students are comfortable and feel at home in school. Comfortable schools make it easy for students to strengthen their minds and pave the way to make it happen. Comfortable school means the teacher builds a new "space", a comfortable "room" for all students with different backgrounds to develop their potential optimally. "Comfortable" schools and quality teachers encourage student resilience, so students will continue to be motivated to learn according to their abilities and social capacities in the challenges of the 21st century (Dwiningrum, 2017). As explained by Panth (2017), the role of the educator becomes more challenging and more than that of an individual who just teaches to prepare the student to pass the examination. Instead, he or she is now a facilitator, coach, and teacher who devotes his time to the development of a whole spectrum of knowledge, skills, values, and disputations. In this context, culture-based education is designed by creating learning environments and designing learning experiences that integrate culture as part of the learning process at school. Culture-based education emphasises the realisation that culture is a

fundamental aspect of education and a way to express or communicate an idea and knowledge needed in the face of an era of disruption. This condition is intended as an essential part of the learning process by strengthening social and cultural values in shaping student character. The impact of education that will be felt by students is more contextual meaning related to a particular cultural community, on the other hand, the learning process is more interesting, enjoyable for students, and makes students become personal characters in a multicultural community environment.

The purpose of culture-based education is to develop the affective potential of students as individuals who have character and can become individuals who are confident, independent, creative, and national-minded by developing a school environment as a learning environment that is safe, honest, full of creativity, and friendship, as well as with a sense of importance in implementing cultural-based educational praxis. School culture determines the adaptability of schools. Values developed by schools will influence the behaviour of school residents as explained by Coleman who recommended that components in “climate value” including leadership, staff cooperation, student behaviour, teacher control over school and classroom policy, and teacher morals (Ballantine, 1997: 19) will influence behaviour in schools.

School culture is expected to be able to respond to the era of disruption. With school culture, the school can adapt to its changes. The culture developed by schools is primarily determined by the quality of objectives. Therefore, culture in the perspective of school quality as externalisation is strengthened in activities in schools that shape meaningful and characterised behaviour (Dwiningrum, 2017). School culture as a cultural capital will build habituation which is expected to be able to shape the character of students. Cultural capital is the capital for improving school quality. Cultural capital will be sufficient if all school members make “quality value” as a spirit in school improvement. Cultural capital, explained by Bourdieu, namely capital has a comprehensive definition. It includes material things (which can have symbolic value) and various attributes that are ‘untouched’ but have cultural significance, for example, prestige, status, and authority (referred to as symbolic capital) and cultural capital (Harker, 1990: 13-16). Cultural capital can include a wide range of properties, such as art, education, and language forms. Capital serves as a social relation contained in an exchange system, and this term is

extended “to all forms of goods - both material and symbolic, without distinction - which presents themselves as rare and worthy to be sought in a particular social formation. With cultural capital, education will move dynamically in responding to each change with more proactivity and “positive thinking”.

Agreeing with Cheng (2005), the paradigm shift becomes an important aspect that must be studied, so that educational development is not trapped by the phenomenon of disruption that is included in all aspects of human life. The most effective strategy in building a culture-based education in the 21st century is to make a paradigm shift. The work is not easy, because it requires synergistic structural and cultural changes. The change in paradigm is essential to be reconstructed because the disruption effect has changed social and cultural processes which are increasingly accelerating in the education process. Cheng’s thought (2005) is interesting to discuss because the change in the educational paradigm in the era of globalisation is related to changes in the education system in the aspects of “learning” and “teaching” that underlie the basic concepts for changes in the education system in the 21st century which are considered more responsive in addressing digitalisation era. In general, the change in the education paradigm can be described in the following table:

Table 1: Paradigm Shift in Learning.

New CMI-Triplization Paradigm	Traditional site-Bounded paradigm
<u>Individualised Learning</u>	<u>Reproduced Learning</u>
<ul style="list-style-type: none"> • <i>The student is the Centre of Education</i> • <i>Individualised Programs</i> • <i>Self-Learning</i> • <i>Self-Actualising Process</i> • <i>Focus on How to Learn</i> • <i>Self-Rewarding</i> 	<ul style="list-style-type: none"> • <i>The student is the Follower of teacher</i> • <i>Standard Programs</i> • <i>Absorbing Knowledge</i> • <i>Receiving Process</i> • <i>Focus on How to Gain</i> • <i>External Rewarding</i>
<u>Localised and Globalised Learning</u>	<u>Institution-Bounded Learning</u>

<ul style="list-style-type: none"> ● Multiple Sources of Learning ● Networked Learning ● Lifelong and Every Where ● Unlimited Opportunism ● Word-Class Learning ● Local and International 	<ul style="list-style-type: none"> ● Teacher-Based Learning ● Separated Based-Learning ● Fixed Period and Within Institutions ● Limited Opportunities ● Site-Bounded Learning ● Mainly Institution-based <u>experiences</u>
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2.4 The Role of Teachers in the 21st Century

Teachers in the 21st century must change the mindset from the fix-mind set to the growth mindset. Therefore, a teacher can design education with a pedagogical planning multiliteracy approach by preparing students to have various competencies. First, having competencies for collaboration across countries and cultures, religions and languages, as well as having diversity competencies with excellent knowledge, attitudes, and actions, so that they can collaborate with all in the world. Second, having competence in global communication can use language that can be understood by the world community, both verbal and written communication and both in reading and writing aspects, so that it can become an essential part in an industrial company, service, or others. Third, mastering information technology well, to access information, communication, delivery of information to the public, and even to store data needed to be opened at any time, movable, and can be accessed at any time and in any place, so it is beneficial in the process of making a decision. Fourth, have excellent critical thinking skills, be able to turn problems into opportunities for progress, innovative, creative thinking, and even have excellent problem-solving skills which can all be developed with training in the learning process or specialised training outside the regular schedule of subjects that are usually based on scientific discipline (Rosyada, 2017). What is the role of the teacher to develop the learning process while still integrating the value of character in shaping student competency?

The teacher plays the role of facilitator and mediator, who can encourage students to learn and think critically in pleasant situations. Teachers are no longer a primary source and learning centre, but rather play a role as a catalyst in facing accelerated

learning in the digital age. The teacher must be able to be an inspiration for students in arouse students' curiosity in connecting between facts and the faster development of science and technology. The teacher is a friend to share, tell stories, and collaborate to achieve goals to shape the quality of students. Therefore, teachers are required to prepare students who have the critical thinking, communication, collaboration, creativity, and innovation which are described in detail as follows (Peter Fisk, 2015).

Table 2. Development of 21st Century Student Competencies

<p>Competence</p> <p>The abilities developed for students include:</p> <p><u>Critical Thinking</u></p> <ul style="list-style-type: none"> ♣ Ability to develop ways of thinking that emphasise the correctness of processes and procedures, as well as the integrity of thinking based on theory and regulation. ♣ Ability to use scientific, data-based thinking methodologies, theories, regulations and concepts, as well as objective analysis with the right techniques and methods. ♣ Ability to develop cognitive skills or strategies to increase the probability of achieving outcomes. ♣ Ability to convey logical argument effectively, able to think systemically, able to formulate conclusions, and be able to do problem solving effectively. <p><u>Communication</u></p> <ul style="list-style-type: none"> ♣ Ability to use language that is understood by everyone, can convince the recipients, the message is concise, clear, and in accordance with the expected target outcome, ♣ Ability to receive all messages delivered and will influence the recipient to follow or at least not reject the information. ♣ Ability to interpret the message as intended by the sender of the message. <p><u>Collaboration</u></p> <ul style="list-style-type: none"> ♣ Ability to collaborate by forming a consortium to carry out extensive projects or only develop cooperation by helping each other in completing a job. ♣ Ability to develop skills possessed by someone to have specific social roles. Three essential components of collaboration are networking, coordination, and cooperation. ♣ Ability to develop networks with fellow partners to exchange information and to carry out mutually beneficial cooperation, and can do so concrete steps to develop collaboration to achieve shared goals and benefits. <p><u>Creativity and Innovation</u></p>
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- ♣ Ability to give birth to an idea, a new concept to solve a problem, or the ability to give birth to a new prototype to give birth to a new product that will be produced.
- ♣ Divergent thinking skills that can provide different solutions from others about a problem.
- ♣ Ability to develop experience and exchange information with other people.

Source: Boris, Aberšek (2017). Fisk, P. (2018), Yoga (2018).

Based on the explanation above, it can be concluded that the teacher has complex tasks. Therefore, teachers in the 21st century face a severe problem if they do not have sufficient competence. In competitive challenges, teachers must be consistent towards the quality objectives. This situation is critical for teachers to realise because school quality improvement is not instantaneous, but a dynamic process that must be undertaken patiently, measured step by step with clear and definite directions. Improving school quality requires theory. However, its implementation will not be smooth and as comfortable as existing theories, due to dynamic quality improvement that is highly related to various factors or variables that are not all can be controlled by schools (Zamroni, 2009: 28). Therefore, in the context of education in the 21st-century teachers enter the professional era. "Educators are professionals" who are legally regulated by Law Number 20 the Year 2003 Article 39 paragraph 2. Professionals are work or activities carried out by a person and become a source of living income that requires expertise, skills or skills that meet quality standards or norms specific and requires professional education. Therefore, the role of educators in the 21st century requires high professionalism. In addition, to overcome the problem of quality inequality is not an easy job. As explained by Siswoyo (2017: 141-142) that improving the quality of education needs to build three essential things, namely capacity building, empowerment, and critical mass. Capacity building is meant to provide an opportunity for people to work together in a new way so that the dynamics built collectively in improving education go well. The essence of capacity building is collegiality relations, related to the community, courses, and professional trust, which is very important. Two key components of capacity building are professional learning communities and leadership capacity. Capacity building will build a mindset that is conducive to improving education. According to Yoga (2018), mindset change will be sufficient for improving the quality of education from fixed to

growth mindset for students in school. According to Day (2014: 99), capacity is a power - a habit of mind focused on strengthening and sustaining the learning of people at all levels in the educational system for the collective purpose of enhancing student learning in its broadest sense. It is a quality that allows people individually and collectively, routinely to learn from the world around them and to apply this learning to new situations, so that they can continue on a path to their goals in an ever-changing context. In this context, strengthening personal and social capacities are two essential things in facing educational challenges.

In the face of the era of disruption 4.0, it requires the quality teachers as well as strong resilience. As the conclusion of several studies, school resilience will determine the quality of schools. Dwiningrum's findings (2017) state that success in implementing is determined by school resilience. However, the question, in this case, is why school resilience is essential to be built by the schools? The answer is that many studies conclude that school achievement is determined by school resilience. Even Day and Gu state that Resilient Schools discussed the importance of building resilience (2014: 51-86). Complex problems that occur with the lives of teachers and schools cannot be separated from resilience. Resilience is needed by schools in facing the challenges of education in the 21st century.

With school resilience, schools are more effective in overcoming various educational problems and are proactive in responding to changes in policies and demands of society in the 4.0 revolution era. Resilience is needed because resilience is part of "everyday resilience" life. The ability to be healthy will arise when someone learns to solve problems, develop social abilities, and social competence (Day, 2014). School resilience evokes adversity and adjustments to various demands for 21st-century educational change. This competence is related to the ability of teachers to develop social and vocational academic competencies (Ririkin & Hoopman in Henderson & Milstein, 2003: 11-26; Esquivel, Doll, & Oades - Sese, 2011: 649-651). Everyone has different abilities in developing aspects of resilience. Schools play a role in developing the resilience of students and teachers that are needed to deal with various changes and to mitigate disasters. The teacher has a direct role in developing student resilience. Teacher involvement in increasing school resilience is determined by many aspects, such as personal and social competence, school culture, and school infrastructure (Henderson & Milstein, 2003;

Kiswarday, 2006; Condly, 2006; Poliner & Benson, 2013).

Teacher resilience is essential to be developed because it is related to professional identity. Resilient teachers can turn "disruption" into "opportunity", to develop "agility" and not get stuck with "rigidity" causing the learning process to become "meaningless" learning in "internet of things". Resilient teachers will find it easy to do work and are not difficult to implement in the 21st century—teachers who have sufficient competence and can apply the "standards" needed in school quality. A resilient teacher will become a person of character because they can overcome the problems in school—the equality needed for education in the 21st century done by teachers in multicultural education. Teachers can apply the principle of equality at the classroom level, as explained by Zamroni (2017: 19-22). Applying multicultural education can be seen as a way to carry out learning that advances equality, such as not distinguishing differences, advancing democracy, developing skills to explore and understand.

3 CONCLUSIONS

The phenomenon of disruption occurs in the masses in the industrial revolution era 4.0. The problem of education in Indonesia is very complicated. Inequality in quality and equality in building education has become a difficult task in the era of disruption. The educational paradigm needs to respond to the challenges of 21st-century education in order to maintain the nation's identity during the era of disruption. Culture-based education is designed to overcome quality problems in Indonesia. The principles of quality and equality, which form the basis for educational development, must be addressed comprehensively.

"Knowledge age" based education needed by education in the 21st century that requires the synergy of the social roles of teachers and students. Strengthening character education is very important to maintain the nation's consistency. Multicultural education is needed to respond to the demands of education in the 21st century that are loaded with differences and inequalities that require a global perspective. The change in education paradigm needs to be reconstructed in the education system so that the disruption phenomenon is more interpreted as a dynamic for improving the quality of education. Therefore, skilled and resilient teachers are needed to change mindsets so that they can develop a more

effective and enjoyable learning process. With the mindset from the fix-mind-set to the growth mindset, the teacher can be more creative and innovative in designing learning based on multiliteracy pedagogical planning. The teacher's role is to develop 4CI competencies (critical thinking, communication, collaboration, creativity, and innovation) in students systemically. With a culture-based education, a student will be formed with a superior character who can adapt and is ready to face the problems of education in the era of disruption.

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REFERENCES

- Baker, D. P, Wiseman, Alexander, W. 2005. ed. *Global Trends in Educational Policy*. USA: ELVEIER. Jai.
- Boris, A. 2017. *Evolution of Competences for New Era Or Education 4.0*.
<http://cpvuhk.cz/wpcontent/uploads/2017/09/Aber%5%A1ek.pdf>, diunduh; 5 Oktober 2017.
- Cheng, C. Y. 2005. *New Paradigm for Re-engineering Education*. Netherlenads: Springer.
- Condly, S. J. 2017. Resilience in children: A review of literature with implications for education, *Urban Education*, **41** (3), 211–236. doi: 10.1177/0042085906287902.
- Day, C. & Gu, Q. 2014. *Resilient teachers, resilient schools*. London & New York: Routledge Taylor & Francis Group.
- Dhakidae, D. 2017. *Era disruptsi: Peluang dan tantangan pendidikan tinggi Indonesia*. Jakarta: Akademi Ilmu Pengetahuan Indonesia.
- Dwiningrum, S. I. A. *Building social harmony: Reinforce the foundation of reseaching multicultural education practices in Indonesia and New Zealand*. Makalah dipresentasikan pada 41th Pasific Circle Consortium Jepang. JMS Aster Plaza, Hiroshima Japan. (2016, September 4-8).
- Dwiningrum, S. I. A. 2017. Developing school resilience for disaster mitigation: A confirmatory factor analysis". *Disaster Prevention and Management: An International Journal*, **26** (4), 437-451.

- Dwiningrum, S. I. A. 2013. Nation's character education based on the social capital theory. Nation's character education based on the social capital theory. *Asian Social Science*, Special Issue, **9** (12).
- Fisk, P. 2018. *Education 4.0. the future of learning will be dramatically different, in school and throughout life.* Diunduh dari: <http://www.thegeniusworks.com/2017/01/future-education-young-everyone-taught-together> diunduh 20.
- Hammond, L. D. 2017. *Empowered educator.* United States of America: Yossey Bass.
- Hassim, A. 2016. *Revolusi Industri 4.0.* | Jumat, 17 Juni 2016 | 7:14. <http://id.beritasatu.com/home/revolusi-industri-40/145390>.
- Henderson, N. 2003. *Resiliency in schools.* California: Corwin Press. Inc.
- Henderson, N. & Milstein, M. M. 2003. *Resiliency in schools: Making it happen for students and educators.* California: Corwin Press.
- Hurn, C. J. 1993. *The limit and possibilities of Schooling.* Encycloedia Britannia.
- Kasali, R. 2017. *Disruption.* Jakarta: PT Gramedia.
- Ng, P. T. 2017. *Learning from the power of paradoxes.* New York & London: Roulledge Taylor & Francis Group.
- Panth, B. 2017. dalam *The Policy Brief. Improving education quality and outcomes for national development and development in the 21st century.* The HEAD Foundation. November 2017. Special Issue.
- Rosyada, D. 2017. *Menjadi guru di Abad 21.* Diunduh dari <http://www.uinjkt.ac.id/id/menjadi-guru-di-abad-21/>.
- Siswoyo, D. 2017. *Sekolah dan guru: Dalam tantangan zaman.* Yogyakarta: UNY Press.
- Yoga, D. 2017. *Membangun budaya inovasi di perguruan tinggi.* Materi disampaikan 8 Februari 2017 pada Stadium General UNY.
- Yoga, D. 2018. *Learning HOW to Learn,* Materi TOT disampaikan 7-9 April Rektorat UNY.
- Zamroni. 2009. Model mutu pendidikan: Profesionalitas terpadu. Dalam *Prosiding Seminar Nasional, Paradigma Mutu Pendidikan di Indoensia.* Yogyakarta: Lembaga Penelitian UNY.
- Zamroni. 2017. *Pendidikan multikultural sebagai upaya untuk mengurangi ketimpangan prestasi.* Yogyakarta: UNY.