Conference Paper

Automate Classroom and The Culture Adaptation

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Abstract

The 4.0 industrial revolution has stimulated advance technology and automation, which is in turn encouraging the redesign of elementary school teaching programmes. The curriculum update leads to learning automation as consequence of digitalization. Teaching methods are increasingly shifting towards automate dsystem in digital classrooms. The purpose of this research is to show the prototype of an automation classroom, and how to adapt classroom automation into sustainability culture. This paper discusses the major impact of education reformation and the culture adaptation on elementary schools. This paper employed the qualitative research by analyzed the development of augmentation process and the cultural sustainability in the future education. The findings suggest that the latest development of automated classrooms are creating a positive impact on the competitiveness of schools. By updating the curriculum wisely, it is possible to integrate education with technology and benefit the children being taught.

Keywords: automate classroom, education revolution, culture adaptation, cultural sustainability

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1. Introduction

The 4.0 industrial revolution enclose positive negative impacts making some fundamental change in various aspect of human life including education and culture. Future Educations needs to radically changes given the massive potential of exponential technology such as Artificial Intelligence (AI), Augmented Reality (AR) and Internet of Thing or IoT for School. Massive change that force us to race against the development of AI and its derivatives (Machine Learning) that are becomes smarter each day.

AI developing better each day because they are learn to encode all of theirs knowledge from their experience and store it in the intelligent memory that is embedded in the AI. It is inspired education department to race and developing education institution to adopting intelligent technology to growing up and educate students together in classroom. It may discussed intensively both of education institution and experts to

redesign new formulas and completely modern education system to facing Fourth Industrial Revolution (4IR) challenges.

Developing education curriculum by adopting Intelligent Technology in 4IR to be some intensive discussions around preparing the future of work by some education institutions and expert. Intensive debate has resulted and published at some education journal and online scientific publication. The debates discuss the skills of the future that should be preparing to students and employees to have to facing the 4IR including the Intelligent Technology. Based from these result trends are tend to lean towards the hard skills and soft skills, those that are technical or job specific in futures.

A.T. Dayang (2019) mentioned the example of Sultan Sharif Ali Islamic University of Brunai Darussalam challenges as a major figure of Malaysian education to facing the job specific and 4IR revolutions in education 4.0 eras. The first she has mentioned some transformation needed to change the mindset from fully Islamic disciplines to be a blended scientific, technology with Islam values. The second point is need an intensive collaboration few experts in the era of science, technology and innovation. Then the last point is adaptability by slow adaptation to facing 4IR.

S.A. Jarin (2019) also explained about Philippine Educations Qualifications Framework to face 4IR and job specification in the future. Based from the presentation mentioned if enhance basic education act is to be first main purpose of Philippine Education Initiative Framework to face the 4IR beside the higher education development. Under the vision with the overwhelming effect of the fourth industrial revolutions sweeping across the globe, the world must manage its transition today by making talent revolution to be at the core of national and international strategies to be able to harness the optimal outcomes in the future.

The strategies to optimized the outcomes skills of modern education has suggested by S.A. Jarin(2019). There are five immediately focus from education institutions based from World Economic Forum (FOCI) to leveraging flexible working to their education output: 1) reinventing the Human Relationship (HR) function, 2) making use of data analytics, 3) talent diversity, 4) leveraging flexible working arrangements, and 4) online talent platform. Then for long term plans Philippine planning to re-thinking education system, incentivizing life-long learning, cross industry output, and public private collaborations.

According to her result, Sally also mentioned five skills to increase the education competence to facing jobs competition in fourth industrial revolutions: 1) technical competence, 2) innovation and creativeness, 3) higher order thinking skills, 4) foundation life skills, 5) desirable work attitudes and behavior.

Sapriadil (2019) also explained about virtual HOTS Laboratory for improving Critical Thinking and Creative Problems-solving Skills to facing 4IR. Based on economic changes, technological advance, environment changes, and demographic dynamic he mentioned three new skills requirement in workplace: 1) Transferable skills, 2) HOTS skills, 3) Green skills.

According to his presentation resulted four categories for 21st century skill must be mastered by student to face 4IR competitions. 1) Ways of thinking involved: creativity, critical thinking, problem solving, and decision-making. 2) Tools of working involved: information and communication technology (ICT), and information literacy. 3) Skills for living in the world covering: global citizenship, life and career, personal and social responsibility. 4) Ways of working involved: collaboration and communication.

Furthermore based on another result Said.B.H (ESIC 2019) has mentioned three importance thing must given to give meaning of future human life evolved: 1) personal rationale, 2) democratic rationale, and 3) cultural rationale. He also states about education's role in Malaysian Higher education to adapted technology to facing the 4IR. Primary and Secondary education correlate to higher education to construct future ready and globally marketable graduates to improving the quality and reputable curriculum. It need to produce productivity, entrepreneurship, foreign direct investment to be social development and job created. In another side holistically education roles making sustainable income growth and reduce the poverty in global economic growth.

Further based from this result shows if from P9 Global Technological Readiness, Indonesia is in number 80 from another country in the world. It is under Singapore and Malaysia as another ASEAN community. Beside based on the result also mentioned if Indonesia most problematic factor for 12 years until 13 years old to 17 years until 18 years old citizens. The most point of problems focused about insufficient capacity to innovate and poor public health from Indonesian young generation.

Said at his conclusion suggest to Indonesian education institution to adapting the suggestion based from his research covering; 1) develop programs to produce globally marketable graduates with strong moral character. 2) Revitalize program to upgrade technological readiness and patent production, 3) develop healthy, working research culture among fundamental, Multi-disciplinary. 4) be advocate of outstanding enrolment rate of all levels of education. Based on the education research above conclude that Indonesian education must be reform and adapting teaching and learning to upgrade technology readiness to face the 4IR and automation

Shabbir, Jahansaib; A Tarique (2015) in their result have mentioned, todays Artificial Intelligence (robotics) has the capabilities to imitate human intelligence, performing various tasks that require thinking and learning, solve problems and make various decisions. Artificial Intelligence software or program that are inserted into robots, computers, or other related systems which them necessary thinking ability[1]

Our contribution in this paper are focus on Indonesian future road map of Elementary school modern teaching learning. This research has discussed about the prototype of the modern equipment of classroom automation and belonging that implement in ideal modern classroom. This paper also explained the advantages of automation classroom planning, and the way to adapting the education revolution with the Indonesian culture sustainability in 4.0 education.

Furthermore this paper analyzed the development of augmentation process and the cultural sustainability in the future education. The adaptation of teaching learning method with modern technology incorporating more Indonesian local culture content and character education (PPK). It is expected to increase educational institution contribution to preserve the native culture in the 4.0 educational revolution. Culture preservation must be encourage in 4IR era by adapting the cultures with the technology development in Indonesian elementary school.

2. Method

2.1. Qualitative Approach

Qualitative research methods used by author to completing the paper. Qualitative research implemented by analyzed the literature review about development of augmentation process and the cultural sustainability in the future education in another country. Making a correlation between Indonesian educations and the chance to implement the modern technology in line with cultural adaptation for sustainability. Then discussing the major impact on Indonesian education round map and the culture adaptation based on qualitative content data analyzed.

The first step author collecting data from observation about the necessary of automation in education and the cultural adaptation, then organized the topic by recognizing, coding and mapping data from recording important reference and literature, and resulting the literature review. The last steps are interpreting data then make a conclusion at least. Kare Moen; All Middelton (2015) mentioned an introduction to qualitative research methods, with particular emphasis on qualitative interviewing and participant

observation. The research starts with a discussion of issues pertaining to qualitative research methods in general, pointing out that exploration is central in most qualitative research and discussing the consequences this has on the planning and conduct of qualitative studies.

Thereafter, a detailed description of theoretical and practical aspects of qualitative interviewing and participant observation by the author has presented above, Kare Moen; All Middelton (2015), followed by a discussion of qualitative data analysis and issues pertaining to the portability, applicability, and quality of qualitative research[2]. Joseph Maxwell also makes explicit the process of research by defining five types of understanding and validity commonly used in qualitative research. He has mentioned if after discussing the nature of validity in qualitative research, the author details the philosophical and practical dimensions of: descriptive validity, interpretive validity, theoretical validity, generalizability, and evaluative validity[3]

Beside that author running this research using qualitative approach as an inquiry process to understanding and explore teacher and student problem in order to adapting the classroom with modern technology augmented. According to some literatures review resulted from another expert, P Kumar (2013) mentioned, qualitative research is a systematic scientific inquiry which seeks to build a holistic, largely narrative, description to inform the researchers understanding of a social or cultural phenomenon[4]. In another result Rahman R. (2018) at [5] also mentioned that qualitative approach means an approach in which data processing does not involve mathematical and statistical calculations but emphasizes interpretative studies.

In additional information, Jhon W. Creswell, (2007) also explained on his result if qualitative research is an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem. The research builds complex holistic picture, analysis words, report detailed informant, views, and conduct the study in a natural setting[6].

2.2. Qualitative Content Data Analisys

The author using qualitative content data analysis on this research to classify a process to identify themes or content and analyse it by qualitative technique. H. F. Hsieh and S. E. Shannon (2005) based on their result mentioned, Qualitative content analysis is defined as a research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns. Then he also explain if content analysis is a widely used qualitative research

technique. Rather than being a single method, current applications of content analysis show three distinct approaches: conventional, directed, or summative[7].

To implement content data analysis in this research author involved literatures review types. Collecting and reviewing some information from open acces literature and conference result. Rahman R (2018). explained, literature review is an activities relating to the method of collecting research materials from various literatures without requiring field research[5]. Based from this result author has been collecting some literatures and making review about main topic of research, discussing it and making some conclusion at least.

This research produce scientific reasoning ideas from the result of literature review and the results of the author views about the prototype of automation classroom in elementary school. Author examines the prototype round map of elementary school classroom automation from another research that has implemented in another country. Then analyze the advantages and disadvantages of this automation for Indonesian elementary school competitiveness. Beside that the author also accommodate a culture adaptation to inserting Indonesian native culture inside the classroom subject by Artificial Intelligence implementation.

Main step of this research doing by explore and analyzed the paper review about technology development of education augmentation process and the cultural sustainability in the modern system. Discussed the major impact on education reformation and the culture unsustainability and making some conclusion at least.

Document analysis technique using by the author to collecting data in this research. Document analyzed in this research consist of open access research journals (Researchgate, Elsevier, Science Direct, Google Scholar Robotic Journal, and International Scientific and Development Journal, Atlantis Press Publisher), literature journals, education science and culture international conference reports (2nd ESIC 2019, 1st ICOSSEI and ICADECS 2019) and online report from the latest update. On the other hand, researcher collected data by reading, organizing topics, accompanying international conference and recording important information on references and make some conclusions at least of discussion.

H. F. Hsieh and S. E. Shannon (2005) mentioned three approaches are used to interpret meaning from the content of text data and, hence, adhere to the naturalistic paradigm. The major differences among the approaches are coding schemes, origins of codes, and threats to trustworthiness. In conventional content analysis, coding categories are derived directly from the text data. With a directed approach, analysis starts with a theory or relevant research findings as guidance for initial codes, [7].

3. Result and Disscussion

The reformation of education system has linked to advance technology and automation. It will influence elementary school curriculum to be redesign and update. The curriculum update leads to learning automation as consequence of digitalization, Artificial Intelligence development and Internet of Thing. The way of teaching learning has been changing to be automate system in the automate classroom as an impact of technology continuity.

Technology development continuity, it is rapid arc. Automations will augment education and help teaching learning make better choices. Intelligent technology that fully embedded in education digital augment tools help education system walking to be easily, save budget efficiently and effective. It save for different augment teaching learning system and help to spend more time enjoying class every time be better and joyfull.

According to Jack Ma while explaining at the Global Economic Forum resulted, *Education is face a great challenge right now. If we do not change the way we teach in the next 30 years, it will be a big problems. The way we teach and what we teach to our children has been the basis of education for the past 200 years. We cannot teaching our kids to compete with machines (robots) because they are efficient. We need to teach something unique that machine (robot) cannot do.*

Based on the research he suggest to teach some important skills such as values, beliefs, free thinking, working in groups, cherishing, and taking responsibility for others. This is the skill that must be teach, because it can not be taught by knowledge. According to this he advice to start to teaching sport, music, painting, to make it different to machine (robots). But if in the future time machine or robots can do this project well so human need to rethinking his own education project.

Adapted from another discussion in global educations article mentioned if technology is an essential part of human progress. Technology has allowed human being to excel in their environment and human living. Technology adaptation becoming ubiquitous and influence the education. Augment reality influence the classrooms being-digitized. Education institutions could soon find themselves at the head of a digital classroom with AI at its core to improving quality of education system in line by technology development. (www.livetiles.nyc/mosac)

Joseph Simbar (ESIC, 2019) has states, to accelerate of education quality through technology based from Ministry of Research, Technology and Higher Education result

about Indonesian education Gross Enrolment Rate, to improving the quality of Indonesian education to become 50%, it is impossible without using the technology. He also suggest to remind if technology is not the most important thing, but everyone is achieved better quality education of Indonesia. Technology will inhatedably an important point to maintained an Indonesian modern learning.

Joseph on his presentation also explained the review of Desire 2 Learn on *Learning Culture Roadmap (APAC).* There was explained the roadmap to creating a modern learning culture. Based on the result mentioned if success with modern learning is about selecting certain tools, strategies and platforms. It involves a profound cultural change. Creating a strong, modern learning culture is about inspiring, supporting, engaging and empowering young employees with "always on" learning. It's a multi-faceted, transformative journey that will help to prepare our workforce for a changing world of work, and help our organization become more resilient and improve the capacity to innovate[8].

Joseph in his presentation also conclude the main subject to improving quality of Indonesian education by suggesting three aspect of digital learning (E- Learning and online Learning) evolved: 1) digital learning: networking 2) digital content: content and instructional design 3) digital infrastructure: internet and data center.

Based from those result above shows be realized that the elementary school institution should started to adopt modern technology such as classroom automation to convert their school into smart ones for the interests of students. This research explained the future classroom model that tied to the technological development. The purpose of this research is to show the application of classroom automation and belonging. The advantages of automation classroom, and the way to adapt the education revolution with the culture sustainability.

Automate classroom and culture adaptation

3.1. Automation in Classroom and Student's Daily Life

Industrial Revolution 4.0 empowering people in digital era that decide automations to be complex task. Blurring the physical and cyber digital divide that impact to socio-economic, industry, government, individual and education (Joseph Simbar, 2019). Automation in education system appear in E- Learning, digital learning, long distance learning, and automate classrooms. Automate classroom will be augment with augmented reality trough smartphone and automation belonging inside class. This

reform will strengthen learning capacity, and competitiveness of teaching learning in line with technological development.

Technological development could not avoided to impact human life. Based on another result Rachid Agarwal (2018) states, our lives are impact by artificial intelligence on a daily basis. Whether using smartphones, surfing the internet, buying products online, using navigation, wasting time on social media or listening to songs on our favorite music streaming service, AI is impact the choices in one way or another including the education.

The *LiveTiles* publication has explained fifteen reasons which should be considered to implementing AI in school, evolved: 1) personalized learning, 2) intelligent tutoring systems. 3) adaptive group formation, 4) facilitation by example 5) intelligent moderation, 6) virtual reality learning, 7) essay grading software, 8) real-time problem solving assessment, 9) improving course quality, 10) dynamic scheduling and predictive analysis using predictive computing, 11) custom textbooks, 12) virtual humans, 13) intelligent game based learning, 14) machine translation, 15) empowering the disabled (www.livetiles. nyc/intelligent)

3.2. Fundamental Reasons for Automation Education

Automation education begins with the invention of internet technology that sparked some of revolution education such as education system. Barana, Alice & Marchisio, M (2016) have explained, E-learning and web-based technologies are spreading across the educational world, providing online courses for primary education, high schools, universities and professional training. Then they also mentioned if within E-learning, researches on innovative didactic methodologies have been stimulated, and has brought a true revolution in teaching and learning. The role of teacher has changed and different learning environments have been taken into account[10].

Currently, the latest technology about AI has developed and influence in education system todays era. We as education institution must be adapt to the technology and start to introduce it to our student earlier. Because some fundamental changes in daily life will happen and we mas compete to this changes by acculturate them.

There are some reasons that have force us to acculturate the flow of automation in educational institution as well as on the school. John Page (2018) has mentioned ten fundamental reasons the important of technology in education. It is contains the rationale for technology plans in schools evolved: 1) Expansion time and place effectively. 2) Depth of concept internalization, 3) Learning and teaching more interesting, 4)

New media for self-expression, 5) Collaborations education system, 6) Global education mindset, 7) Individual pacing and sequence, 8) Lose weight of books and papers, 9) Increase individual productivity, 10) Lower cost of education payment.

3.3. Automate Classroom Model and The Equipments

Intelligent classrooms are the kinds of automated and augmented classroom as future models of the classroom. The modern class with the intelligent technology embedded. All advanced equipment are operationalized automatically including The air conditioner will detect the occupants of the class so that it will turn off automatically if the class is finished. It is capable of scanning the human body temperature sensor.

According to the research review conclude, if the automate classroom prototype create by Yasodharan (2018) is the most of effective to be adapted to Indonesian elementary school automation class project. Yasodharan R. (2018) has explained the ideal automate classroom model. It has an environment in which teachers are able to focus completely on their teaching learning and the more students are able to concentrate on the information they have conveyed. [11].

Furthermore Yasodharan R. (2018) explained, the problems cause affected students to wander around the class guessing for the right switch and adjusting it to equilibrate the environment back to satisfying or comfortable conditions. This causes disturbances for both teachers and all the other students, and so to eliminate these irritations an automated classroom is created which allows the classroom to become more efficient, and eliminate any human assistance in controlling the teaching learning environment.

This prototype of automate classroom equipment with IoT implementation create by Yashodaran R (2018) will help the teacher to present their classroom effectively. It is allow the teacher to control the class using android application in the android smartphone. Yasodharan has design their proto-type by mainly based on Arduino Mega 2560. The application are to be controle by android application such as Blynk Software of Blynk android application. The teacher can supervise the state of sensor connected in Arduino board. At the last project the teacher can control the module by simply enabling some option in the android application through smartphone.

C.1 Proposed System for Automate Classroom. Yasodharan R. (2018) has explained the proposed system integrates all individual systems under one board controlled with the IoT system in the classroom. So that the cost of overall system will be reduced efficiently. The main purpose of system that must be embedded on automate classroom are evolved: 1) Automated attendance system using fingerprint sensor. 2) Automatic fan

and light control. 3) Automatic black board erasing system. 4) Projector control system. 5) Electronic notice board. 6) Automatic window control system[11]

C.1.1.Automated attendance system using fingerprint sensor. The automatic attendance management technique that integrates fingerprint authentication into the process of attendance management using Arduino and computer. It Comprises of two processes: 1) enrolment of ID and 2) authentication of ID. During enrolment, the biometrics of the Student is captured and is stored in a flash memory along with the person's id Number. The main objective of the enrolment module is to register the user using Student's id and fingerprints into a flash memory after feature Collection. During authentication, the biometrics of the Student is captured and are compared with all those that already exists in the flash memory to determine a match for marking the automated attendance.

C.1.2 Automatic Fan and Light Control. In many classrooms after the class is over the students and teachers leave the school without switching off them, at the time of closing the classrooms the security staffs tend to switch off them. Hence electrical energy is wasted during the unwanted time. To overcome this PIR sensor and LDR are used to automatically Control them. PIR detects the human presence inside the classroom and switches on only if there is any human inside the class. LDR detects illumination of the room. During dark hours it will switch on the Lights and vice versa.

E.1.3. Automatic black board erasing system. After every lecture is over one has to erase the black board manually. This takes more time and the dust particles affects breathing of the person who is erasing the board. So In order to overcome this, automatically black board is erased by simply pushing a button on and off. A vertically fixed framed powered by electric motor slides through a guide way in a manner to erase the contents in the black board.

E.1.4. Projector Control System. In flipped classroom teaching methods projectors are often used in the lecture. While changing the classroom to projector adapting environment we have to manually roll the curtains down, open the projector screen and switch off the lights This is automatically done with the a android application. By simply enabling a button in the application all these things are done automatically with less time consumption.

E.1.5 Electronic Notice Board. During class hours we get disturbed by frequent circulars coming in between the class. Here are need an electronic notice board which is controlled by smartphone application to introduced in the classroom. In case of any important news to be shared to the students the staffs outside the classroom can simply send using this application. And the students get notified while a new information is sent to the classroom. By this the class will not be disturbed.

E.1.6. Automatic Window Control System. During rainy days the students sitting near the window can be easily affected by rain drops through the window. And we have to close it annually. So, the rain sensors which detect the rain outside will automatically close the window and the students will not get affected by the rain.

E.1.7 Intelligence Tutorial System (ITS). An Intelligence tutorial system is a computer system that aims to provide immediate and customized instruction of feedback to learner, usually without requiring intervention from the teacher (htts://n.m.wikipedia.org). Wood Pamela J.and James W. Warren has described the development of a prototype generic Intelligent Tutoring System in his result, they using 4GL in the Microsoft Windows environment to augment the class with ITS. They have mentioned if their prototype difference from existing systems lies in its ability to build the components rapidly. Their prototype are using commonly used software such as the spreadsheet and the word processor, into an intelligent electronic book[12].

E.1.8. Intelligence Voice Assistants In addition, educators are making increased use of voice assistants in the classroom environment. Voice assistants such as *Amazon Alexa, Google Home, Apple Siri, and Microsoft Cortana* are giving students a chance to interact with educational material without the interaction of the teacher. These devices can be used at home or similar non-educational environment to provide conversational interaction with teaching material and additional educational assistance.

E.1.9 AI Organizational Tasks. In addition to education oriented duties, teachers are also faced with having to manage the classroom environment and handle various organizational tasks. AI systems are particularly helpful at managing these back office and task related activities. These AI systems can assist with grading activities and provide personalized responses to students. They can also handle routine and repetitive paperwork, deal with logistics related matters, and other personnel issues..

C.1.10. Machine learning. In the not too distant future, you can expect that AI and machine learning will be a core part of all educational experiences. AI is starting to show its benefits and application to a wide range of educational needs, and the hope is that it will greatly improve overall learning outcomes for all.s

C.1.11. AI Gamification Tools. Olesons, Lars (2019) has resulted about his research about the Intelligence Gamification on education. Gamification in the codification of human situation and strategies of human feedback, combined with the quantification of outcomes, enabling comparison and competition. He also explained if individuals identify winning strategies more rapidly with gamifiction by sharing experiences. (https: moroku.com/).

In particular, Olesons (2019) also explained the use of game elements such as score points, batches, and the like does implement with AI technology. By demonstrating the necessity of Artificial Intelligence within the development, implementation, and the application of Educational Gamification, this opinion is proven incorrect. Interested readers are direct to continuing to discuss for a more detailed discussion. In the present section, the authors confine themselves to just two aspects illustrating the scientific substantiation of gamification by an understanding of human play[13].

About the advantages of the implementation of Artificial Intelligence gamification in the modern learning, Olesons Lars (2019) adapted from has explained, Big data, Machine learning and Gamification are mutually supportive technologies, All driving the fundamental benefits of accelerating learning. No more tech fad, we should expect these three trends to drive wide range and potentially transformative change (https://moroku.com/gamification-ai-and-the-future-ofeverything).

C.1.12.. Virtual Reality and Augment Reality Tools. According to the EBSCO, the library services industry design, has compiled Augmented Reality for the elementary classroom that can enhance and personalize learning for students. There are mention two kind of VR models. This VR models are multi-platform and well suited for all ages range. It called by Cospace and Cube. Teachers can create STEM lessons and activities or experience science or history. Students can also develop the content, make applications, and see their creative products come to life in AR (https://cospaces.io/edu/).

C.1.13 Augment Reality Chat Discussion. Jamie Donally (2019) resulted, AR/VR in the classroom is not just for entertainment but also about enhancing lessons and amplifying students experiences through immersive virtual field trips. She has suggested immersive-reality integration in the classroom and encourages teachers to implement these new technologies in their lessons by chat discussion on twitter. (https://twitter.com/arvinedu).

Augmented Reality tools let students not only engage with the technology but also it gives them the possibility to create their own content. This is paramount in order to promote 21st century skills such as creativity, problem solving, critical thinking, analysis, coding, and iterative testing, the process of basing tests on insights gathered from previous tests in order to make changes gradually and which are evidence based.

3.4. Cost of Automation and The Impact

Even though it is admittedly, incorporating these automate classroom is costly and making intensive cultural damages. Because of it, necessary to improve this concept by some culture adaptation before extend to elementary school.

According to the Pettinger Tejvan (2019) published mentioned if the cost of automation combining the cost of installation, maintenance cost and repairing payment of intelligence technology is too expensive. AI installations is more expensive directly proportional to compare to maintenance and repairing this system. It has predicted by the expert if only the most rich or well-funded schools in the big city will implementing the automation tools in the classroom nearest time(https://www.economicshelp.com). But because of the need of accelerate the Indonesian elementary school with the job orientation of 21 st century skill so it is useful to try implement to the elementary school classroom by social and cultural adaptation in future time.

Furthermore It is not only related with the difficult installation of AI, high cost, and rare professional personality maintenance, but it also correlate by the electricity affordability, internet network and availability tools of AI supporting. The most of remote and outermined zone of Indonesian small island not related by electricity and have a decent communication facility yet.

Dependence on internet and Wi-fi networks connection for the operations of AI and Augment Reality-based learning devices is a seriously problem for most Indonesian under developed school. Most of the areas have not served by electricity and internet access yet. Joseph Simbar (ESIC, 2019) states student who life inside the middle of the jungle is too impossible to enjoy the education acceleration with AI and Machine Learning due to the unavailability of educational support such as electricity and internet access. They only depend of the existence and connectedness to the teacher as tutor of education

3.5. Cultural Sustainability in line by Education Automation

The urgently action to saving the young generation native culture, because it is as same as giving our kids to still have their identity. We must save our culture as original identity in line with the technology. From example here an action to declare the batiks as traditional clothes from Indonesia. Indonesian peoples must proud to wearing batiks as cultural identity in international event. Because culture is the core of life. Technology testing in progress.

This is harmonious with the Indonesian Goverment Strengthening Character Education program (PPK). Indonesian Government has launching PPK program set through Presidential Regulation No. 87 year 2017 by Indonesian President Joko Widodo. This programs plan to prepare the character and culture preservation both of for Indonesian young generation and early childhood generation. The Strengthening character education to be a solution to strengthen character of education for preparing Indonesian Golden generation of 2045 with the implementation of 21st century skill and character education. By combining the character as the main point of Indonesian education simultaneous with intellectuality and the culture, PPK expected to establish Indonesian young generation as a smart, though and have a good character identity generation (http://cerdasberkarakter.kemdikbud.go.id).

Istiqomah (2018) resulted on her research, if PPK regulation support the educational movement under the educational institutional responsibility to increase the positive character of student by harmonized the love, taste, thought and exercise by involving between the education institutiosn, families and community as a part of the Indonesian national motion of mental revolution or called by GNRM. The motion of mental revolution in Indonesia recommended to be aligned with the traditional cultural movement acceleration. Because our divergence native culture are valuable and it is greatness by many countries affected by Indonesian culture. Various cultivation of proven culture began to appear few hundred years ago.

The cultural diplomation between Indonesia has resulted in Jamnongsarn Surasak (2019) research as resulted, cultural harmonieus for live together in ASEAN Country. Jamnongsarn has mentioned if the interaction, the exchange of idea, information, values, system, traditions, beliefs, and other aspect of culture is in order to foster of understanding through musical dimension. Further Jamnongsarn also exlained if the Thai music history, angklung and gamelan are essential tools for building international relatioship between two countries at the level people to people.

In other side of the explanation about the culture contribution for human life, culture will shaping the arts. Human knowledge, self image, attitude, self efficiency, erves, perceived risk, emotion, personal advocacy,and sosial influence will will influence with technology to make modern human behavior. Culture adaptation developing new values to creating attitudes and behavior. Behavior developing the cultures andit will looking like a circle line.

There are consist the necessary correlation between languages, culture and moral for future life. Languages are developing culture. According to the opinion, it is important to improving the balanced language learning with technological development and

cultures. The discovery of Intelligence technology is expected to improve by utilizing processing of AI technology background to modernized the language learning process as the basic skills to learning of the cultures.

Every children must have a chance to learning the different types of languages after studying their own mother tongue languages with easily and fun. Languages are basic material of cultural skills development. The diversity languages help the student to accessing more kinds of cultures within the wide scope of the world. Eventhough it is realize if connecting the meaning of the languages between student mother tongue language, national language and international languages for them is difficult and too complicated

Based of the result Balacano Sol. C. (2019) at result, the six-year implementation of the Mother Tongue-Based Multilingual Education has posed challenges to the implementing schools using non-dominant languages. One contributory factor was the limited provision of instructional materials in the field which were only available in the 19 dominant languages in the Philippines being identified by the Department of Education as the official Mother Tongues. According to her study was conducted to determine the level of acceptability as well as the strengths and weaknesses of the researcher-made Big Books and Teacher's Guide written in San Pascual Binisaya as instructional materials for teaching the Mother Tongue subject[14].

From the result above show if the different languages can form a various native culture of every region and country. The diversity of languages affects the diversity of cultural region and different interpretation by different people. But technology development make it easier to connected today. Machine translation in classroom can be used by student to translate an electronic big books with different languages to their own languages. It is effective and accessing freely for student by internet connectivity.

Therefore the cultures influence the human life to be meaningful and interesting. Further here is the main point to developing the culture in modernism era, need moral, character and social values to compose and adapting the technology. It is useful to controlling the technology development to be accelerate in line by culture adaptation.

According to the result also explained the major areas of art evolved: 1) traditional culture, 2) performing art, 3) audio visual, 4) new media, 5) creative service, 6) design, 7) publishing, 8) visual art, 9) culture sites.

The culture wheel to make the cultural sustainability. It is necessary to save our young generation to having the future they have deserve. It is consist languages, traditional rituals, techniques and skills, tools and object, the arts, food and drinks, values, greater community, knowledge and stories,

About the example of the implementation of Virtual Reality in school. One of technologies that cover the deficiency of the lessons gap on historical teaching learning process are virtual reality. Through the virtual history, the teacher and students is not required to exiting the classroom to make a journey or making real visitation.

Teacher do not need to go to historical places. Some historical object can be modeled three dimension on the subject of historical relics of elementary school subject such as historical equipment, the statue, painting, historical books, fort, temples, mandations, and monks through the tourist resort of virtual history. Based on virtual history the student required to find their own information related to history learning. It is also increase the activity of teaching learning in the classroom.

3.6. Integration of 21st Century Classroom Model with Culture

There are four categories of 21st century skills for improving students critical thinking and creative problem solving. (1)Skills for living in the world: global citizenship, life and career, personal and social responsibility, (2) Tools for working: Information and Communication Technology (ICT), and information literacy, (3) Way of working: communication, collaboration, (4) Way of thinking: creativity, critical thinking, problem solving, decision making, and learning.

According to another research Istiqomah (2018), there are five learning framework to accelerating Z generation to face the fourth industrial revolution called by 5I evolved: 1) Internalization, 2) Iterating, 3) Interpreting, 4) Interest, 5) Innovation.

There are also 3 frame work for 21st century learning, has mentioned in Sapriadil (2019) explanation: (1) Learning and Innovations (The 4C's): critical thinking and problem solving, creative and innovation communication, and collaboration. (2) Digital Literacy: information literacy, and ICT literacy. (3) Carrier and life: flexibility and adaptability, initiative and self-direction, social & cross cultural interaction, productivity and accountability, leadership and responsibility.

Based on this result above explained if social and cross-cultural interaction to be a main project to embed the 21st century framework. So it is recommended to harmonize the 21st century skills based on education with learning based on the cultural sustainability. It use to redesign the generation outputs to be competent people and nationalist generation to their own native culture.

4. Conclusion

The findings of this paper support that the latest development of automate classroom aligns with the new trend of education AI and IoT system which is creates positive impact on the competitiveness of school. The implementation of AI and IoT will help the teacher and student to create a meaningful 21st century teaching learning process without eliminating too much time, social interaction, cost and ignoring the culture.

In conclusion, cultural preservation to be a main subject to embed the 21st century framework related to technology. It is recommend to harmonize the education augmentation with the cultural sustainability. It used to create Indonesian young generations to be competent people and nationalist generation to their own native culture. The most important keywords in this study is by augment the classroom wisely in line by the changed, it is possible to integrate the education with technology without ignoring the cultural existence.

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