

# A Case Study of the Curriculum 2013 Implementation in the Industrial Revolution 4.0

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Abstract: The aim of the study is to describe implementation the Curriculum 2013 in the industrial revolution 4.0: A Case Study of The Curriculum 2013 has been implemented since July 2013 in several Indonesian schools and which might have been in effect in all schools around 2014. The study was researched by multidimensional qualitative reserach procedures, observations,teacher interview and group discussion.. The data source is 22 elementary school teachers and five head masters in the Tangerang City Province of Banten of Indonesia that's teachers'dissiculties for making an interactive media.The study hihlights the need to provide continuous teacher training particularly training about making interactive learning media as macroflash, base abod flash or base powtone etc.

## 1 INTRODUCTION

Implementation of the 2013 Curriculum for elementary school level has begun in the academic year 2013-2014. Curriculum 2013 is a character-based curriculum that is expected to make the Indonesia equal to the nations in the global world order in the future. Since the beginning of the curriculum implementation in 2013, many problems have been found, including the unreadiness teachers to apply teaching and learning methods in the 2013 curriculum and the complex and time-consuming assessment. So, it gives a hard time for teachers and shifts the focus from giving full attention to students. Teaching and learning process is never be separated in discussing about curriculum. Successful implementation of the 2013 curriculum is the whole process of learning, building competencies, and planned the students' character. In this case, research will be carried out on the K-13 teacher learning media especially, whether it is based on industrial revolution 4.0 or not, according to the needs and development of the era. Learning tools needed in managing the teaching and learning process can be in the form of materials / textbooks, syllabus, Learning Implementation Plans, Student Activity Sheets, assessment instruments or assessment of

learning outcomes, and learning media. However, the implementation of the new curriculum changes do not always run smoothly. (Kirkgöz, 2008),(Malawi, Tryanasari, & Riyanto, 2017)

Based on the results of the initial study there were several problems in making the learning media felt by the teacher. These constraints include the making of learning planning teachers must creative and be able make the class runs well. In addition, textbooks for student books contain too much images and lack of materials for students' knowledge, so teachers are required to look for other learning resources or getting an explanation of each material through textbooks in the last curriculum. In the assessment process the teacher is still experiencing difficulties because of the many assessments that the teacher has to fulfil. In addition, the results of interviews conducted to the headmaster indicate that the 2013 curriculum is a curriculum that requires teachers to be more creative in teaching, and make the students to be more active in learning process. In implementing the 2013 curriculum, it is found that there were still a number of teachers who did not understand the 2013 curriculum well, especially in their teaching learning instruments, namely in making learning plans. That is because there are still many teachers whose still using conventional method, especially for elder

teachers. The teachers are still motivated by the administration of the last curriculum, the teachers are also still having difficulty in assessing using app assessment made by the government because of lack of ability to use IT (Technology Science). In addition, there is still a lack of school facilities and infrastructure support, especially on learning media. Currently, Teachers are required to design a learning instruments based on industrial revolution 4.0, in order to prepare its students to compete in the global competition era.

In Implementing The Curriculum 2013, the constraints faced by the teachers' lesson plans are still not referring to the Curriculum 2013; application of learning with a scientific approach by the teacher is not optimal; teachers less than optimal in applying the learning model; and teachers are not optimal assess student learning outcomes that cover three domains of learning, namely the attitude, knowledge and skills. And solutions to resolve the problems faced is the need to make mentoring to teachers on the implementation of Curriculum 2013 (which deals with lesson plans, scientific approach, models of learning, and assessment of student learning outcomes) and conducting lesson study club (Gunawan, 2017)

Indonesia's current education ranking is far below other developing countries even though it is only at the Asian level, if you see the results of the PISA survey. PISA is an international study of the assessment of literacy achievement in reading, mathematics and science for 15-year-old students, coordinated by the OECD (Organization for Economic Cooperation and Development) based in Paris, France. (Aditomo, Fakultas, & Universitas, 2018).

The differences between previous study and this research were level of education and based on digital era. This study focused on implementation K-13 in elementary schools and in the industrial revolution 4.0.

## 2 METHOD

The study was explorative-descriptive research using qualitative approach. This study was using phenomenology tradition attitude (Caldas, 2009) (Creswell, 2014). The study tried to identify the teachers' difficulties in implementing the Curriculum 2013 in Tangerang-Banten province of Indonesia. The participants were 22 teachers and 11 vice principals from 11 elementary schools. The researcher selected elementary schools from 3

districts in Tangerang-Banten province of Indonesia. The data collection method used observation, interview and focus group discussion.

Observation conducted 12 times in six months, with the subject of teachers and students. Researcher investigated several items, i.e learning process, media, teaching aids, authentic assessment. The participant of interview were principals, teachers, and students. The interview objective to gain information regarding teacher's competence in making digital learning media, scientific approach in learning process, and authentic assessment.

Lastly, focus group discussion used to gain opinion from the participants, namely, stakeholders, supervisors, headmasters, and teachers. Focus group discussion conducted in three times during

## 3 RESULT AND DISCUSSION

The data obtained from this study include the results of observations, interviews and the results of documentation in the form of learning instruments used by the teacher in the learning process. having a syllabus that has reached the criteria is quite appropriate and the teacher also develops the syllabus. This is in accordance with the results of observations and interviews that the teacher is developing syllabus. However, if analyzed based on the indicator of industrial revolution 4.0, not on all syllabus that the teacher uses yet.

Based on the results, it shows that all teachers have made lesson plans that refer to the 2013 curriculum guidelines. The results of the study also show that the teacher does not make worksheets, but uses worksheets sourced from the publisher. Textbooks used by students and teachers have been provided by the government. Schools have learning media facilities that can be used by teachers in the learning process. However, the results of observations and interviews show that teacher learning devices, especially media, have not been based on industrial revolution 4.0.

*What do we know about Revolution Industrial 4.0? "Industry 4.0, also known as the intelligent industry, is considered to be the fourth industrial revolution, a term coined by Professor Schwab and seeks to transform a company into an intelligent organization to achieve the best business results. The industrial revolution 4.0, but the adoption of digital technology has reached a point where we are ready for another radical change, the digital transformation of the industry or what we call*

industry 4.0.”(Ilyas, 2019). *The future as Industry 4.0 unfolds, computers are connected and communicate with one another to ultimately make decisions without human involvement. A combination of cyber-physical systems, the Internet of Things and the Internet of Systems make Industry 4.0 possible and the smart factory a reality. As a result of the support of smart machines that keep getting smarter as they get access to more data, our factories will become more efficient and productive and less wasteful (Marr, 2019).* (Gregory Clark, 2010) (Lasi H, Fettke P, Kemper H-G, Feld T, 2014),(Ali, Rose Alinda, Syed Norris, Marlia, & Siti Hamisah, 2017). Its mean the Curriculum 2013 needs media base computer and Information Technology, and teaching aid base digital. All off them has not show in implementing The Curriculum 2013 in several school in Tangrang.

Almost all examples of media that are observed have not been interactive and interesting media according to student development. Some interactive media used such as interactive slideshows, films or videos originating from other sources are not the result of the teacher's own making. This finding agree with carol (2017) While many teacher candidates will utilize power-point presentations to support lectures or word documents to create handouts for students, it seems “teacher candidates lack the instinctive ability to effectively integrate technology into their teaching practices”,(2017). Another difficulty is the use of an educational assessment system, which is authentic assessment. The difficulty is in terms of how teachers take values that must include the achievement of all core competencies and are converted from qualitative values into quantitative values. This learning outcome assessment is felt difficult by the teacher because the assessment that must be done is too much so it is too time consuming. Based on the results of the analysis of research data, from some of the problems faced, the efforts made by the principal and teacher are participating in training on the implementation of the 2013 curriculum. In addition, the teacher also communicates with other teachers to ask about solutions to the difficulties faced. However, until now the training attended by teachers is still comprehensive in discussing the implementation of the 2013 curriculum, not training that is really specifically discussing the learning tools that refer to the 2013 curriculum.

The curriculum 2013 is a curriculum that emphasizes the development of the ability to perform (competency) tasks with certain performance standards, so that the The 2013

curriculum is a curriculum that emphasizes the development of the ability to perform (competency) tasks with certain performance standards, so that the results can be felt by students, in the form of mastering a certain set of competencies(Mulyasa, 2017). Whereas according to (Madjid, 2014), the 2013 curriculum orientation is an increase and balance between the competencies of attitude (attitude), skills (skills) and knowledge (knowledge). 2013 curriculum is a competency-based curriculum. In it is formulated in an integrated manner, knowledge, and skills competencies that must be mastered by students. Also formulated the learning and assessment process needed by students to achieve the certain competencies Adriantoni (2016), In the 2013 curriculum also formulated learning and assessment processes needed by students to achieve the certain competencies so that Indonesia can be equal to other developing countries in the education field. Teachers even though they have participated in the 2013.This case like Kholid’s research findings explained that not all types of assessment can be carried out by teachers in Curriculum 2013.Teachers did not conduct the assessment of observation, self assessment, assessment of journals, oral assessmnet and assessment of the profolio periodically (Kholid, Pratama, & Sutarni, 2016). This result agree with analisis study of difficulties teacher’s in implenting The curriculum 2013 in Kebumen were indicate that: (1) The teacher in carrying out the stages of planning and implementing learning based on the 2013 curriculum is categorized as not difficult, meanwhile in conducting learning assessments based on the 2013 curriculum it is categorized as quite difficult; (2) the dimension that is most difficult for teachers in learning based on the 2013 curriculum is the authentic assessment dimension.(Khoerunnisa, Ulfah, Prasetyo, & Suryandari, 2018)

Curriculum training are still having difficulties in developing integrative thematic learning instruments that refer to the scientific approach. The scieniic approach can use several strategies like contextual learningThis approach is a form learning that has a name , characteristics,syntax,setting, and culture, for example:discovery learning, project based leraning,problem based learning, and inquiry learning. (Of, Based, & In, 2018)

Scientific knowledge refers to the products of science such as concepts, theories, and laws. The nature of science, however, refers to both products and processes of science including the nature of scientific knowledge, the scientific enterprise, and scientists’ work. In other words, the nature of science encompasses the nature of scientific

knowledge and the nature of scientific processes which constitute how this knowledge is produced. Scientific processes are activities (e.g. observation and inference) which are related to the collection and interpretation of data and derivation of conclusions. The nature of science consists of the epistemological commitments underlying these activities. There is no consensus on the definition of the nature of science among philosophers of science, historians of science, scientists, and science educators. However, most philosophers, historians, scientists, and science educators agreed on some general characteristics of the nature of scientific knowledge as embedded within the nature of science. (Mufilu, Macaro, & Akgül, n.d.).

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## 4 CONCLUSIONS

The teacher has implemented learning instruments in the 2013 curriculum, such as syllabus, lesson plans, worksheets, materials / textbooks, learning media and learning outcomes assessment according to the 2013 curriculum, but has not met the demands of the industrial revolution 4.0.

Problems faced by teachers in implementing learning instruments in the 2013 curriculum include teachers having difficulties in delivering lessons in the 2013 curriculum, lack of learning materials or supporting information to add insight and knowledge of students in learning. So that the teacher must look for other learning resources as an

additional reference to supplement the lack of learning material. And the teacher has difficulty in evaluating learning outcomes because the teacher has to do too many assessments that require a long time. 1. The efforts made by the teacher in overcoming the problems faced in implementing learning instruments in the 2013 curriculum are by asking colleagues who have understood the 2013 curriculum implementation. In addition, the principal made an effort by including teachers in training on the implementation of the 2013 curriculum and holding meetings and mentoring led by teachers who understand the implementation of the 2013 curriculum to help teachers who do not understand it. But unfortunately, the training specifically discussed the implementation of learning instruments in the 2013 curriculum has never been held by both the central government and regional governments, so the training is still general in discussing the implementation of the 2013 curriculum. Information Technology training is urgently needed for all teachers to be able to make the 2013 Curriculum-based learning media industrial revolution 4.0 Indicators and competencies in the syllabus and learning plan also need to be continuously improved according to the needs and development of the times.

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