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The Implementation of Scientific Approach to The Pjok Learning at The Target Secondary Schools Of The 2013 Curriculum in North Sumatra

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Abstract

The Scientific approach is among the ways to achieve the goals of the 2013 Curriculum (K13). The short period of time for the teacher training and others are assumed to be the cause of the gradual implementation of K13. In line with this, the Government intends to reorganize the way in which the K13 is implemented. The Government has assigned several schools to be analyzed as the target schools to improve. This study intends to contribute to it by analyzing the pattern of scientific approach implemented by the teachers in teaching their students so that the teachers' performance in conducting teaching-learning processes can be managed in accordance with the K13. This research aimed to determine the level of perceived gaps on the way the teachers implemented the scientific approach in physical education, sports, and health (PJOK) learning at the target schools of the K13 in the province of North Sumatra. The data were analyzed in order to obtain an overview and improvement solutions in managing scientific approach to PJOK learning that foster a positive impact on the aspects of growth and the students' development in line with the expectation of the K13. The research method applied in this study refers to the discrepancy approach developed by Malcolm Provus. This approach was meant to find out gaps in the program. The research was carried out by inventorying standard references in implementing the pattern of the scientific approach. The results of inventorying become the standard criteria of data collection and analysis in this study. The analysis revealed that the PJOK teachers have not completely implemented the scientific approach. The implementation patterns were neither consistent nor appropriate. The teachers' understanding about the demand of the scientific approach pattern management of the K13 was inadequate.

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INTRODUCTION

The 2013 Curriculum (K13) has actually been implemented since 15 July 2013. However, according to the minister of education and culture, it was delayed due to the persisting problems such as the book availability, the assessment system, the teachers' upgrade, the headmaster mentoring and training that have been inadequate. The minister of education and culture stated that the K13 still needed improvement processes. It will be revised, developed, and implemented gradually.

The problem regarding this issue also occurs in the province of North Sumatra such as time of socialization and five-day training given to teachers which are allegedly too short to give significant effects on the teachers' ability to implement the 2013 curriculum. Ironically the target of the five-day training is not only for the teachers to be able to implement the K13 but also to become tutors for other teachers who have not received the training. The other doubt is that the imposed bureaucratic system is inappropriate. The appointment of teachers to attend the K13 socialization and training in North Sumatra was done by the Institute for Education Quality Assurance (LPMP). Such system of determination is erratic; rationally it is the Department of Education who knows the condition of the teachers. So, the Education Authority (Disdik) that should have made recommendations to LPMP which teachers will be trained and how the training is regulated. Another problem is that the socialization was conducted in six nearby districts/cities, such as Medan, Binjai, Deli Serdang, Langkat, Sergei and Tebing Tinggi. It has not included the other 33 districts/cities in North Sumatra. There are 261 K13 target schools in North Sumatra, including 106 elementary schools, 50 junior high schools, 72 high schools, and 33 vocational schools. There were only 112 vocational school teachers and 134 high school teachers participating in the K13 training in the city of Medan per 13 July 2013, whereas the 2013 curriculum should have been implemented since 15 July 2013. (Medan Bisnis, 2013).

Such a situation will certainly give effect to the teachers' performance in implementing the K13 curriculum. Intending to take part in solving these problems, this researcher considers necessary efforts to find data about the level of disparities regarding the implementation of the scientific approach to the learning of Physical Education and Health (PJOK) in the Junior High School (SMP) as the K13 target in the province of North Sumatra. Analysis on this point is expected to provide comprehensive information that can be used as the basis of improving the application of learning processes in accordance with the K13 curriculum that demands the students' active learning by implementing the scientific approach. (Permendikbud No. 65 of 2013), The number of SMPs appointed by the government to use the K13 curriculum was 50 schools in North Sumatra. These schools which were termed as the target schools (pilot project) were required to implement the curriculum and then the government monitored and analyzed its results in an effort of repairing and improving the K13 curriculum.

The curriculum program will be effective if the related resources always provide full support to teachers as the leading actors in implementing the curriculum. The support can be in the form of continual monitoring, supervision, and guidance (Mikeleni, 2014). The monitoring of a complex program should be directed to all the componential perspectives that are in the structure of the program itself (Ross, 2010). The curriculum program can not simply be regarded as subject content, but also as learning experience. The experience can take place in schools, at home or in the community, along with or without a teacher, directly regarding the lessons or not. The coverage of all of these elements requires the teachers to constantly facilitate, support and encourage the realization of the intended learning experience. The curriculum is a means of organizing and triggering learning and changing the students' attitudes adaptively (Mihela, 2015). A

curriculum is a set of education patterns determined by institutions in order to achieve the objectives of education. Within the pattern, there are arrangements, materials and any related environmental elements designed to be applied as a learning experience to the students. The interrelated variables which support the implementation of the program consist of a multi-faceted curriculum so that monitoring carried out with an intention to improve the K13 curriculum can not just be limited to the observation of a particular aspect.

The main objective of the curriculum is to enable students to become educated people (Fraser, 2002). In respect of this, the K13 curriculum intends to prepare Indonesian students to have the ability to live as individuals and citizens who believe in God, productive, creative, innovative, and affective as well as capable of contributing to the society, nation, state, and world civilization (Candy No. 68/2013). In order to achieve the objectives of the K13 curriculum, the learning processes should emphasize the implementation of the "scientific" approach. Learning processes with a "scientific" approach is intended as a requirement ensuring the achievement of the goals contained in the K13 curriculum. Therefore, the teachers are required to be able to implement it.

This study intends to analyze the pattern of scientific approach implemented by the PJOK teachers in teaching-learning processes. The purpose of the analysis is to find a solution so that the teachers' performance can be improved. Implementing the scientific approach, the teachers' performance is certainly influenced by many factors. Therefore, the researcher should be able to record and analyze other elements related to the implementation of the scientific approach because the teachers' gap in implementing the scientific approach would not be separated from other supporting elements.

METHODS

This study implemented a discrepancy approach. Discrepancy approach is a model for evaluating a program developed by Malcolm Provus. The evaluators have the freedom to use models which were most appropriate. The evaluator could choose the model that had already existed, merge the various models, or develop their own models (Hasan, 2008). The step of discrepancy model activities in this study is modified as follows. (1) Define the Ideal Standard, whose activity included inventorying the standard reference in implementing the scientific approach pattern demanded by the K13 curriculum; (2) the formula that has been inventoried would become the standard criteria in the activity of recording, analyzing the object of the study.

This study was conducted in 32 target SMPs of the K13 curriculum in 6 districts/cities in the province of North Sumatra. Data sourceof this study included (1) Students; (2) PJOK Teachers; and (3) Principals. The data collection techniques included (1) questionnaire; (2) Interview; (3) Observation; and (4) Documentation.

The research data were validated through data checking. The data were checked by means of data source triangulation and data collection techniques. Mechanical triangulation of data sources was done through extracting te data from teachers, students, and principals, while the technical triangulation of the data collection was done through questionnaire, observation, and interview.

The technique of data analysis used in this research was to reduce the collected data from the source. The data were reduced by orderly arranged them in a pattern of relationships that was easily understood so that it could be concluded.

RESULTS AND DISCUSSION

Results

The 2013 curriculum emphasized the implementation of the scientific approach. The scientific approach usually involves observation. Learning that involves observation generally comprises inquiry. An inquiry is a process to understand things by asking questions in a

dynamic and open manner (Galileo Educational Network, 2004).

Scientific learning is very likely to form innovative skills. An innovator is a good observer who always questions an existing condition by proposing new ideas. An innovator observes the surrounding environment to gain an idea of doing novel things. They are also actively building a network to search for new ideas, suggesting new ideas, or test their opinion. An innovator always tries new things based on their thoughts and experiences. An innovator will be venturing into new places to try out innovative ideas (Dyer, 2011).

Permendikbud No. 81A of 2013 is actually regulating the conduct of core principles to establish situational learning that fosters innovative skills in the learners' mind. Fostering innovative skills were represented by five basic learning experiences; each activity is the elaboration of the scientific learning, namely (1) observing; (2) asking; (3) experimenting; (4) associating/reasoning; and (5) communicating.

Data on the implementation of the component of "observing" obtained through observations and answers of a questionnaire based on the students' opinions by asking whether the teachers always ask the students to make observations about something, for example, a movement exemplified by the teachers or what is done by the students, or watching media images, video related to the material taught by the teachers at that time. Comparison between the percentage of appropriateness and gap of the components in each municipal district comprises the following data.

Table 1. Percentages of Appropriacy and Gap in the "observing" component

District/City	Implemented %	Not Implemented %
Langkat	57.9	42.1
Binjai	48.9	51.1
Medan	34.9	65.1
Deli Serdang	54.0	46.0
Serdang Bedagai	67.7	32.3
Tebing Tinggi	63.0	37.0

Data on the implementation of the components of "questioning" was obtained through observation and students' opinion concerning the question, "whether the PJOK teachers question something related to the material being taught". Then the question becomes something to think about or to be associated individually, or discussed with the students'. Comparison of the percentage of the relevance and the gaps in each of these components comprises data for the following districts.

Table 2. Percentages of Appropriacy and Gap in the "asking" component

District/City	Implemented %	Not Implemented %
Langkat	38.4	61.6
Binjai	31	69.0
Medan	27.9	72.1
Deli Serdang	50	50%
Serdang Bedagai	63.3	36.7
Tebing Tinggi	71.6	28.4

Data on the implementation of management of the "experimenting" component was obtained through observation and student opinion to the question, "whether they were assigned individually or in groups to try repeatedly or think and experiment various ways so that what the teachers have taught about motion can be mastered". Comparison of the percentage between the relevance and gaps of these components comprises the data for each the following districts.

Table 3. Percentages of appropriacy and gap in the "experimenting" component

District/City	Implemented %	Not Implemented %
Langkat	42.1	57.9
Binjai	57.6	42.4
Medan	54.3	45.7
Deli Serdang	49.4	50.6
Serdang Bedagai	43.7	56.3
Tebing Tinggi	64.9	35.1

Data on the implementation of the management of the "associating" components were obtained through observation and student opinion by questioning "whether PJOK teachers always relate diverse concepts of science, or ask a variety of questions in order to trace how the students get ideas of the law of causation with respect to the material being taught." Comparison of percentage between the relevance and gaps of this component comprises the data for each the following districts.

Table 4. Percentages of appropriacy and gap in the "associating" component.

District/City	Implemented %	Not Implemented %
Langkat	23.9	76.1
Binjai	31.0	69.0
Medan	30.2	69.8
Deli Serdang	23.9	76.1
Serdang Bedagai	31.0	69.0
Tebing Tinggi	34.1	65.9

Data on the implementation of the management of the "communicating" component was obtained through observation and student opinion by asking "whether, when teaching PJOK, the teacher often pursues or gives a chance and time for the students to express such opinions as presenting tasks/results of the discussion, giving the opportunity to argue or other activities with respect to the material being taught." The data on the comparison between the percentage of appropriacy and gaps of this component in each district are as follows.

Table 5. Percentages of appropriacy and gap in the "communicating" component.

District/City	Implemented %	Not Implemented %
Langkat	25.2	74.8
Binjai	27.2	72.8
Medan	26.4	73.6
Deli Serdang	33.5	66.5
Serdang Bedagai	31.0	69.0
Tebing Tinggi	36.0	64.0

Discussion

The results of the analysis in this study revealed that not all PJOK teachers implemented scientific approach demanded by the K13 curriculum. The pattern of scientific approach undertaken by the teachers has not been implemented consistently and accurately because their understanding of the technical management of the five components of the scientific approach is inadequate. More specifically, the discussions regarding the implementation of the five patterns are presented as follows.

The "observing" component of the scientific approach was implemented by the new teachers just by asking the students to observe something instructed by the teachers, whose percentage was 96.6%. This percentage is higher than the way the teacher asked the students to observe something whose source was the students themselves, the percentage of which was only 3.4%. The teachers never even asked the students to observe something that came from images, video, or other media associated with the submitted materials.

The scientific approach was generally based on the exposed data obtained through observation or experiment. The PJOK learning context generally dealt with the skills of motion patterns. The teacher or students' motion patterns could be used as a data source to be observed by the students in learning or mastering the material. The activities to obtain the data were not necessarily identical with the experiment. Activities to obtain data/information could also be done through the acquisition of data/information from various sources such as reading books or searching for information on the internet.

The "experimenting" component as a pattern of the scientific approach is a learning event to achieve the purpose for learning. It is presented to lead the students to look out and not give up and this is the way that learning occurs not just in one direction but into an interactive learning and student-centered. The tendency for teachers to manage this component was 97.9% of the teachers giving instructions of

what to do, and then the students individually or in group activities referred to appropriate instructions without the teacher's further role. The teachers should have to participate by way around, monitor the activities of the students while asking questions to the students to trace further information with respect to their activities and this percentage was only 2.05%.

Management components of the experiment would not reach the point if the teachers were only involved in an early stage of the activities. The pattern of student-centered learning did not mean to let the students be fully independent. The teachers should have a role as a motivator and aspirator in teaching-learning processes. Managing the experimenting components needed the teachers' help to use questioning skills that can lead the students to closer scrutiny. The process of observation in the experiment, if guided by proper scanning using the questions, will train the students to think holistically as well as analytically.

The "asking" component as a pattern of the scientific approach is a central component in scientific learning. The skill of right "asking" will lead the students to undertake a more thorough observation and train the students to think analytically and creatively. The students' curiosity to understand the material more deeply was affected by the interaction of the teacher that was built through the questions posed. This component was implemented with a percentage of 48.5%. The impact of the implementation of this component had not been a significant influence on the curiosity of the students to learn the material more deeply. The percentage was 79.9% higher than the curiosity of the students to learn the more material with the percentage of only 20.1%.

The teachers' skills to ask questions will train the students to review assumptions, recognize different perspectives, consider meaning, make the implications, and so on. For this purpose, the teachers must organize these activities well, regularly, and continuously. Without this, it will never change the students to become critical thinkers. Critical thinking is a skill that must be trained so that it becomes a habit and virtually every student has the ability to become a critical as well as a reliable thinker. (Chaffe, 1994).

The "associating" component as a pattern of the scientific approach is an effort to train the students to think critically. Associating is an important element in triggering the students to think creatively. Creative thinking involves curiosity and asking so students are encouraged to think "why it should be done like that? Why is it not necessarily so?" and so on (Ackoff, 1991). The ability of the teachers to link or ask correctly will lead the students to think about solutions. The raw material that must be owned by the teachers to manage these components is a lot of related references so that the teachers have the skills to ask further questions that can lead the students to think analytically. 73.3% of the teachers' way of managing this component was still dominantly asking the questions that need single answers and memorization. This percentage is higher than the associating or asking questions that need analytical answers, whose percentage was just 26.3%.

According to Permendikbud No. 81A/2013, the component of "communicating" as a scientific approach pattern is a learning component that gives students the chance to present the results of observations and conclusions based on the analysis of oral, written, or other media. This component intended to train the students to build a network, communicate and most importantly train them to cooperate.

The principle of emphasizing the management of components is providing enough time so that the students have the opportunity to express ideas and opinions. The success of "communicating" component in the students' educational development is achieved when teachers are willing to listen to and give affirmations that help the students develop their self-esteem. This affirmation is a brief statement proposed by the teachers in a decidedly simple and positive connotation expressed orally or in writing (Cameron, 2002). With full awareness, teachers should avoid creating barriers of creativity on the students such as finding too

many mistakes, accepting passively without asking, not giving students the opportunity to reflect on the results of the delivered exposure.

CONCLUSIONS

Based on the data and the results of the discussion of this study, it can be concluded that:

The implementation of the component of "asking" done by the teachers in the management of the five components of the scientific approach to learning PJOK reached 71.6%.

The lowest percentage in the management of the five components of the scientific approach to learning PJOK was the implementation the "associating" component conducted by the teacher, i.e. 34.1%.

The implementation of the component of "asking" done by teachers is the fourth highest percentage compared to the other four components. Ironically, it is not directly proportional to the component of "associating" which is actually the lowest percentage. This indicates that the teachers do not fully understand how to manage the five components as a whole approach when serving PJOK learning. Although the teachers need to implement these components, the pattern still looks inconsistent and inappropriate.

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