

ANALYSIS OF PEDAGOGICAL CONTENT KNOWLEDGE (PCK) STUDENT OF ELEMENTARY EDUCATION AT BOOK CONCEPT CURRICULUM 2013

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Abstract: The study is discusses the analysis of Pedagogical Content Knowledge (PCK) student in elementary school grade 1 through grade 6. This study is intended to get an overview of the results of a analysis Pedagogical Content Knowledge (PCK) conducted by 4th semester students of Elementary School Teacher Education to study the subject of Natural Sciences in Elementary Schools in the teacher's book and student's book of Curriculum 2013. This study uses descriptive qualitative method with the subject of the study is the teacher's book and the student's book in elementary school grade 1 to grade 6 in the implementation of the curriculum 2013. The population is all the study material on all the chapters in the teacher's book and student's book in elementary schools. Teachers' book and student book in the Curriculum 2013 are reference books in the implementation of the Curriculum 2013 process, so it's necessary to analyze teacher books and student books by students of elementary school teacher education as provisions for prospective elementary school teachers. Based on data analysis, research result are acquired: (1) the result of the analysis of Pedagogical Content Knowledge (PCK) student in the teacher's book and student's book in the curriculum 2013 at Elementary Schools grade 1 to grade 6 in particular examine the depth of science education presented in the mind mapping in each group, (2) analysis of a student of each group about a wide and depth of material is 84%, suitability material with SK-KD is 86%, and suitability material with the media is 84%, (3) the student is able to communicate the result of the analysis of Pedagogical Content Knowledge (PCK) based on the mind mapping that they made. So it can be concluded that the results of Pedagogical Content Knowledge (PCK) analysis of students on the Curriculum 2013 book can provide support students' competence of Elementary School Teacher Education's student as a provision to be a teacher who can analyze material content, book concept, and the characteristics of child development.

Keywords: *Pedagogical Content Knowledge (PCK), teacher's book and student's book, curriculum 2013, and the mind mapping*

1. Introduction

Schools as formal educational institutions need to prepare students for skilled in meeting the needs as individuals in society for the future. This requirement requires the school to print the learners who are skilled, agile, smart intellectually, emotionally, and socially. There is in Law number 20 of 2003 on National Education System states that the purpose of education is the "development of students' potentials to become a man of faith and fear of God Almighty, noble, healthy, knowledgeable, skilled, creative, independent and become citizens of a democratic and responsible. "

The high national education goals requires the teacher as a facilitator of teacher education has the task is not easy. Because of this unease, the teacher must underlie all forms of education with a full sense of responsibility. Because of advances in basic education is strongly influenced by the professionalism of teachers. Teachers as education motors must work play any role with the maximum so that educational goals can be achieved with the maximum. Therefore, teachers need good skills to be able to achieve that goal. Teacher educators need readiness to carry out its role in honing the skills for the learning process may be optimized by increasing the professionalism of teachers from Pedagogical competence, competence, personality, professional competence.

However, it can not be realized without the efforts and responsibilities of the inside of each teacher. Therefore, every teacher should have a strong desire to develop pedagogical abilities in order to become a facilitator of education capable of creative and innovative thinking in any deal with any problems of education, especially in the learning process. The teacher's task is not merely to convey sciences that are cognitive, but also provide valuable learning experiences and more fun for students. The thoughts that requiring each teacher is not just understand the professionalism of teachers, but also have the skills to apply it in the learning process well for educational purposes is achieved by means of effective and efficient.

PCK has three components, namely the understanding of the content, understanding of the curriculum and pedagogical understanding. In the implementation of Curriculum 2013, the student handbook and teacher handbooks have been provided by the government, so that teachers could apply models, strategies, methods appropriate to the theme that has been formulated. Handbook of teachers and handbooks students a reference book in implementing the learning process in the implementation of Curriculum 2013, which applies today, so it is considered necessary and important to analyze a book teacher and student books in accordance with the rules of Pedagogical Content Knowledge (PCK) Student PGSD as stock as a prospective elementary school teachers.

2. Related Works / Literature Review

Education is very important from time to time. Education is also a measure of the progress of a nation. The progress of a nation can be seen from an education system that runs on the nation, a nation is a developed nation if it has a good education system. It deals with the purpose of education itself. Each country must have educational goals vary. However, despite these different objectives, the general purpose of education is definitely more leads to the development and progress of the nation. Therefore, the professionalism of a teacher is required to be able to achieve the ideals of a nation that stems from the learning process at school and then learners can apply it in daily life in the community. In the learning process the teacher should be able to develop all the existing potential in the students according to their age characteristics, teachers are expected to not only convey the subject matter, but also be able to invite students to participate in finding the knowledge that will be owned by the students after participating in the learning process. On the basis of this that a teacher should have an understanding of knowledge, content and pedagogy or known by the name of Pedagogical Content Knowledge (PCK).

The first person to put forward the idea of PCK is Lee Shulman in 1986. PCK is an academic idea that presents the intriguing idea, which is growing continuously and through experience how to teach specific content in a special way so that the students' understanding will reached (Loughran, Berry & Mulhall, 2012). PCK is an idea that belief that teaching requires more than just knowledge transfer to students and student learning must not only absorb information but also can apply it. However, knowledge of PCK content of a subject matter must be owned by teacher especially on aspects of syntactic and substantive aspects in shaping the structure of matter.

PCK is derived from two components that are interconnected, namely Pedagogical Knowledge (PK) and Content Knowledge (CK). So the concept of PCK has a close connection with the formulation of the concept, pedagogical techniques, the content of science and epistemology theory. The PCK involve conceptual knowledge of learning strategies that aim to overcome the difficulties and misconceptions in fostering understanding for students. PCK more direct understanding of how certain topics can be tailored to the interests and abilities of students in the learning process. The ability of PCK refers to how the mastery of certain teachers in presenting the material to be easily taught and easily understood by students. Therefore, each teacher can develop their own PCK in accordance with the teaching experience and life experiences in order to influence the improvement of the quality of the learning process. PCK can be the same for some of the teachers and can be different for other teachers, but at least is the common ground of teacher professional competence and expertise of teachers in the learning process.

According Subanji (2013), PCK is a systematic process designed by the teacher to teach students so that students are able to: 1) construct knowledge (material) just by association with the old knowledge, 2) understanding the material is more than just knowing, 3) able to answer any, why, and how, 4) internalized into self-knowledge so it will shape the student's behavior, and 5) the process behavior into the characters themselves. Therefore, as prospective teachers, especially primary school teachers is very important to master the PCK in the learning process in order to improve the quality of the learning process. Because one of the factors the learning process goes well that the teacher must master several categories realm of knowledge to some specific content.

In NSTA (National Science Teachers Association) there are indicators of ability to be owned by prospective teachers, are:

- a. Demonstrate understanding of key concepts across many disciplines according to the NSTA standards and make an assessment in accordance with the needs of the teachers at a certain level,
- b. Demonstrate the ability to develop a unified theme framework of concepts across various disciplines,
- c. Demonstrate the ability to design and lead the open-ended research and report the results in the context of one or more disciplines, and
- d. Proven ability in using the data to analyze and interpret the data as a science context (Lee Shulman, 1986).

3. Materials & Methodology

The research was conducted in the fourth semester students on the course for Elementary Education FKIP Pasundan University academic year 2017/2018 in the science subject. This research is a qualitative descriptive study. The population in this study is all the material in books whether in student's book and teacher's books which is implemented in the curriculum of 2013. Samples were taken using random sampling technique that adapts themes in the book Thematic which is only focused on subject of Natural Sciences (IPA) of the class 1 grade to grade 6.

The technique data collecting is by documentation. The analysis data done by way of data reduction, data presentation, and drawing conclusions based on research results. This research will be presented the data obtained from the student PCK task analysis the depth of material Natural Science in Primary Schools both the teacher books and student books of Curriculum 2013 and interpreted in the form of a mind mapping. Based on mind mappings that made by students with conditions predetermined by the lecturer, then the analysis scores understanding of content and how to communicate the results of understanding through mind mappings.

4. Results and Discussion

a. Result

In this study, the ability of PCK students are divided into two, namely the ability Content Knowledge (CK) and the ability Pedagogical Knowledge (PK). The results of this study concerning the ability of Content Knowledge (CK) and the suitability of CK and PK are as follows:

Table 4.1 Summary of Students PCK ability PGSD

Aspect	sub Aspects	Group. 1	Group. 2	Group. 3	Group. 4	Group. 5	Average (%)
Knowledge, Concepts and Materials	Breadth and depth of material	80	90	100	70	80	84
Suitability CK and PK	The suitability of the material with SK-KD	90	80	100	80	80	86
	The suitability of the material with the media	80	80	70	90	100	84
The mean (%)		83.33	83.33	90	80	86.66	

From the analysis above shows that the third result sub aspects PCK has almost the same results of the assessment are categorized either. One of the components in the PCK is a Subject Matter Knowledge (SMK), SMK plays an important role in developing a prospective teacher PCK in order to determine the extent of teachers' mastery of vocational candidates through mind mappings. Understanding the concept should be realized in a conceptual framework and these concepts can be mastered in a unified framework which looks logical relationship between these concepts with experience as outlined in the mind mapping. Below is one example of a mind mapping analysis results of students, as follows:

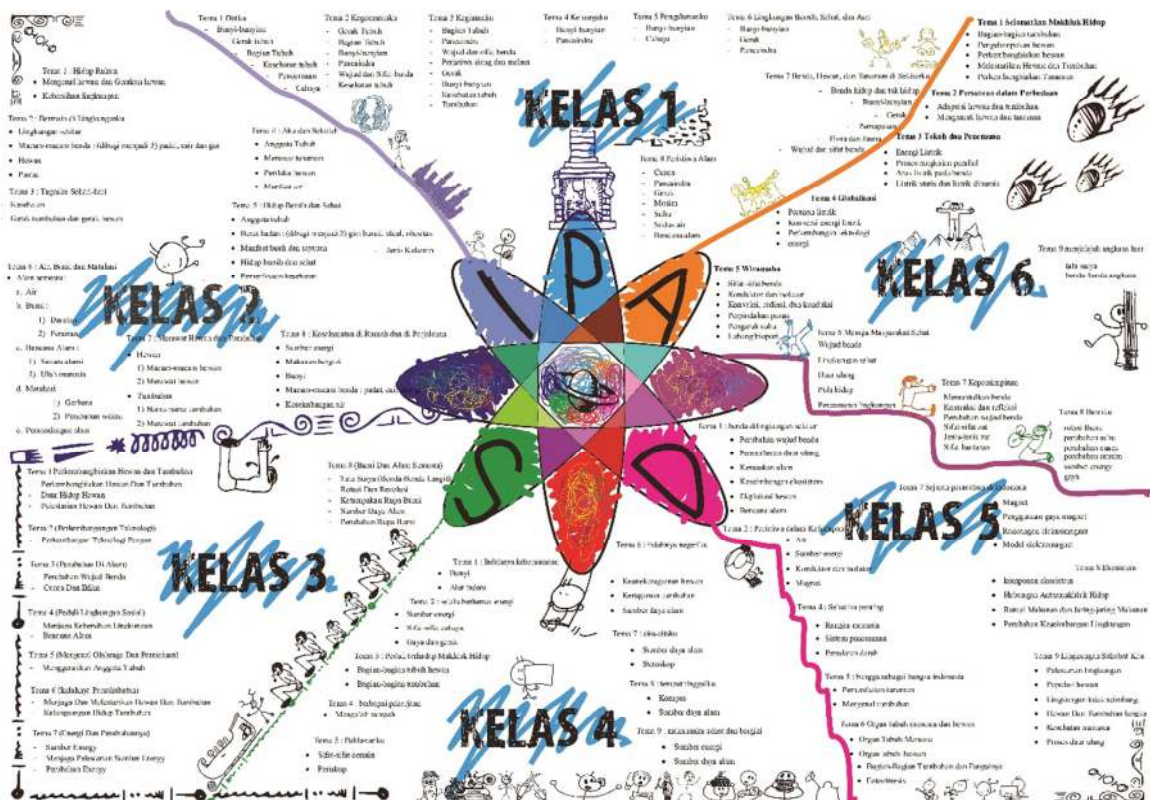




Figure 4.1 Mind mapping Analysis of Student Books and Teacher Books Curriculum 2013

c. Discussion

Mind mapping is a dynamic way to capture the main points of significant information. Mind mappings emphasis on new insights gained by the students as a result of learning that is constructed from previous knowledge. Understanding the mind mappings started from the idea that knowledge is constructed in the mind of students who are learning through its cognitive structure and a theoretical basis for the distinction between meaningful learning and memorizing learn some vital lessons. With the help of mind mappings, learning can solve a complex problem into smaller sub-sections, then that section will be broken down to the edges (Divide and Conquer). By looking at the mind mapping, learners can see the speed of absorption of each to understand the complex problems in the learning process. through mind mappings, students can visualize one's frame of mind and also give a person early knowledge so he can imagine the concept about.

A person can only develop if the mind mappings concepts is correct. Lack of proper understanding of the concept, will lead to maps that are not logical, so elusive. In order for students, as prospective teachers can use their knowledge and understanding of pedagogic Content Knowledge (PCK) optimally, students have to learn and practice on the content and pedagogical knowledge. Prospective teacher as college student not only need to master the material in school, but also must have knowledge of strategy, media, and components so the students in elementary school can learn easily.

An understanding of the orientation of science teaching, will guide teachers in making appropriate learning strategies to achieve learning objectives. Selection of learning strategies should be tailored to the content matter or science concept. Because not all of the material suited Science strategy common science learning cycle, such as cycle or cycles EEK 5E. Some special materials science needs to be taught with a special strategy. Even the direct instruction was very likely used when the knowledge of science to be covered is procedural.

Components that are lacking in this book, namely their specific strategies for specific Science material. Because almost all of the material in this book uses common learning strategy, which is an activity of learning that begins with the observation, research, conclusions that became known as the

scientific approach. The thing that less in this book is knowledge to represent the material or the concept of science in the form of charts, tables, graphs or model that is easily understood by students.

5. Conclusion

Teachers book and students book curriculum 2013 should unite all pedagogic aspects or categories of Content Knowledge (PCK) in preparation to carry out meaningful learning. PCK categories include learning orientation, knowledge of curriculum, knowledge of learning strategies, knowledge of students in learning science understanding and knowledge about assessment. In this regard, the book brings together all categories analyzed already PCK of each group of students about is drawing on the mind mapping.

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