Pedagogical Content Knowledge of Pre Service Elementary Education Teachers in Using Traffic Park Diorama for Thematic Learning Process

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Abstract. This research discusses the pedagogical content knowledge (PCK) within thematics learning process using diorama. This research is qualitative research. The subject of this study are pre service elementary education teachers (PSEETs) in Muria Kudus University consist of two groups. First group are PSEETs who have gone through microteaching courses and practice teaching experience, the second group are PSEETs which have not been. Observation, interview and documentation used to collected the data. The results show that PSSETs in the first group doing well in thematics learning process they can use pre requisite material from the real context, construct content knowledge using traffic park diorama, giving conclusion and evaluation. There are some misconception the PCK from PSEETs in the second group like pre requisite, furthermore they can doing well of the learning process

Keywords: Pedagogical Content Knowledge, Pre Service Elementary Education Teachers, Traffic Park Diorama, Thematic Learning Process.

1. Introduction

Article 8 of teacher and lecturer laws (*Undang – Undang Guru dan Dosen)*, and Article 28 Government Regulation of Indonesian Republic (*Peraturan Pemerintah Republik Indonesia No. 19/2005*), requires academic qualifications for a teacher, and mastery of 4 competencies. Competencies as agents of learning include pedagogic competencies, personal competencies, professional competencies, and social competencies. Pedagogical competence is an ability with regard to the understanding of students and learning managers who educate and dialogs. Substantially, this competency includes the ability to understand students, design and implement learning, evaluate learning outcomes, and develop students to actualize the various potentials they have. Professional competence is an ability relating to the mastery of learning material in a broad and in-depth field of study which includes mastery of the content of curriculum subject matter in schools and the scientific substance that houses the curriculum material, as well as increasing scientific insights as teachers. These two competencies are important competencies in addition to personality and social competencies.

Elementary School Teachers Education of Muria Kudus University is an educational program study that prepares professional elementary teachers. Here students are provided with pedagogical knowledge and balanced content knowledge. Pedagogy and subject matter are given continuously for six semesters which are then continued in collaborative teaching practice in the professional community. Pedagogical Content Knowledge is a blend of content

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and pedagogy into understanding how certain topics, problems, or problems are organized, represented, and adapted to diverse interests and learning abilities, and presented for teaching, and PCK is a special form of content knowledge that embodies the aspects that are most closely related to teaching ability [1]. Two topic-specific PCK categories: knowledge of teaching strategies and knowledge of students' thinking patterns [2]. PCK is an important knowledge for teachers and prospective teachers to have. Beginner teachers and prospective teachers should be able to begin developing their content representations (CoRes) and Pedagogical and Professional experience (PaP-eRs) [3]. PCK is a useful idea for understanding the teaching process and producing an appropriate teaching strategy [4], although PCK as a teacher's professional knowledge is difficult to define, categorize, articulate, and documented, it is increasingly important to do so because PCK is teacher's professional knowledge [5], references to successful teaching collections from experienced teachers and experts from research on specific PCK topics can be used as a guide to enlighten teaching and learning and as teaching material in programs teacher education [6]. Due to the importance of PCK knowledge, a study was conducted to see the PCK owned by pre service elementary school teachers at PGSD Muria Kudus University. This research is limited regarding the process of preparing learning designs that are part of PCK. Learning preparation is made in the form of thematic learning lesson design using a traffic park diorama.

2. Method

This research is case study in quLITtive descriptive research. The goal of descriptive research is to describe a phenomenon and its characteristics, One fundamental characteristic is involve naturalistic data [7]. The subjects are two groups of pre service elementary education teachers (PSEETs) in Muria Kudus University. First group are 2 PSEETs who have gone through microteaching courses and practice teaching experience, the second group are 2 PSEETs which have not been. Data collected by Observation, interview and documentation.

The study began with searching a background of semester level of PSEETs and practical teaching experience. The four PSEETs were asked to make CoRes and PaP-eRs in using the learning media: traffic parks diorama in thematic learning process. Next, interviews were conducted with participants, relating to CoRes and PaP-eRs that they made. Data were analyzed using qualitative descriptive techniques. The process of data collection and data analysis is carried out continuously through a process of check and re-check, then analysis and re-analysis, so that overall results are obtained.

3. Results and Discussion

The PSEETs analyzed traffic park diorama as learning media to construct thematics learning process. Figure 1 below is the picture of diorama.

Figure 1. Traffic Park Diorama

3.1 Lesson Design

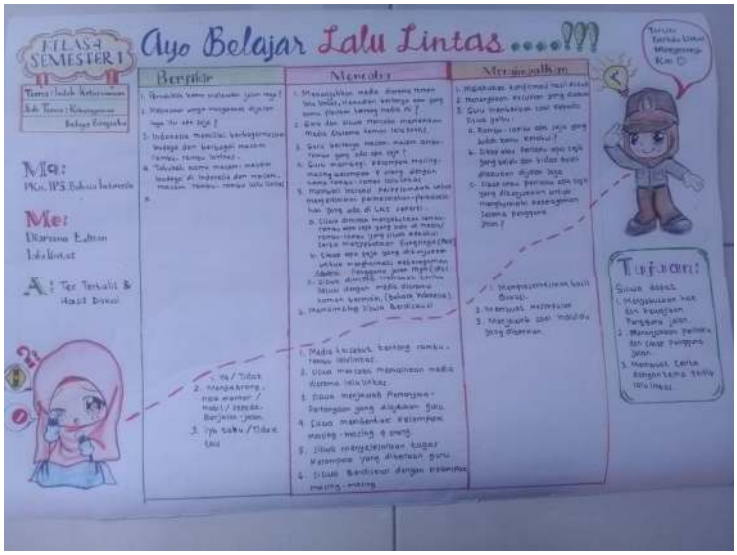

Figure 2. Lesson Design of G1 PSEETs1

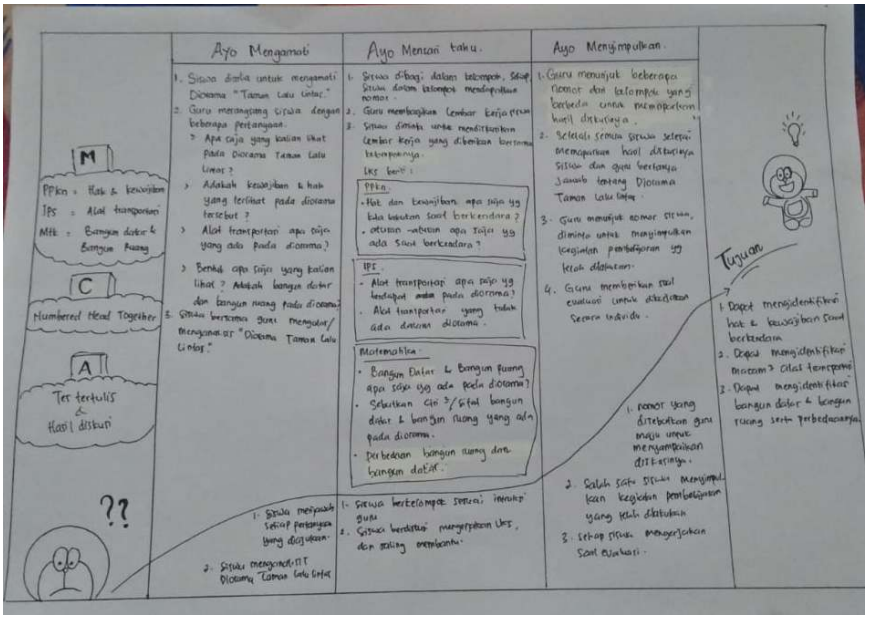

Figure 2. Lesson Design of G1 PSEETs2

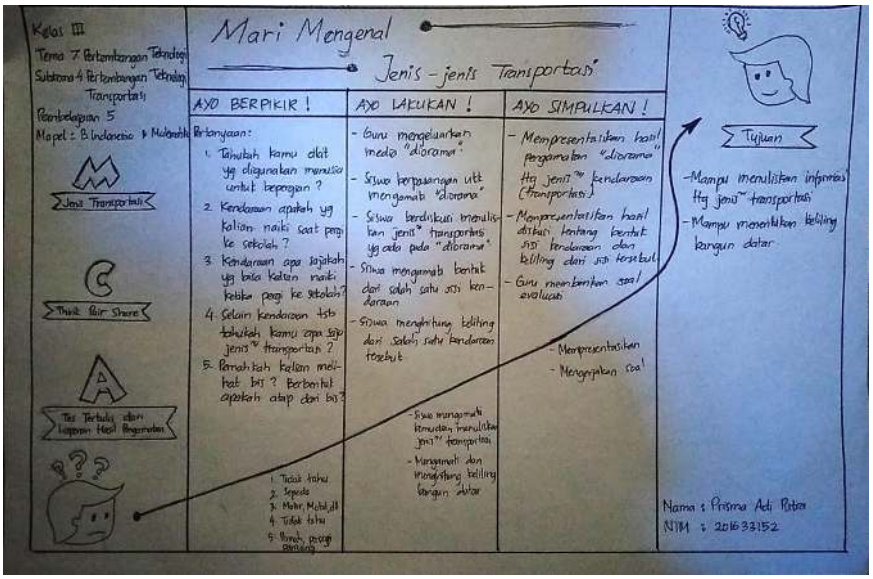

Figure 3. Lesson Design of G2 PSEETs1

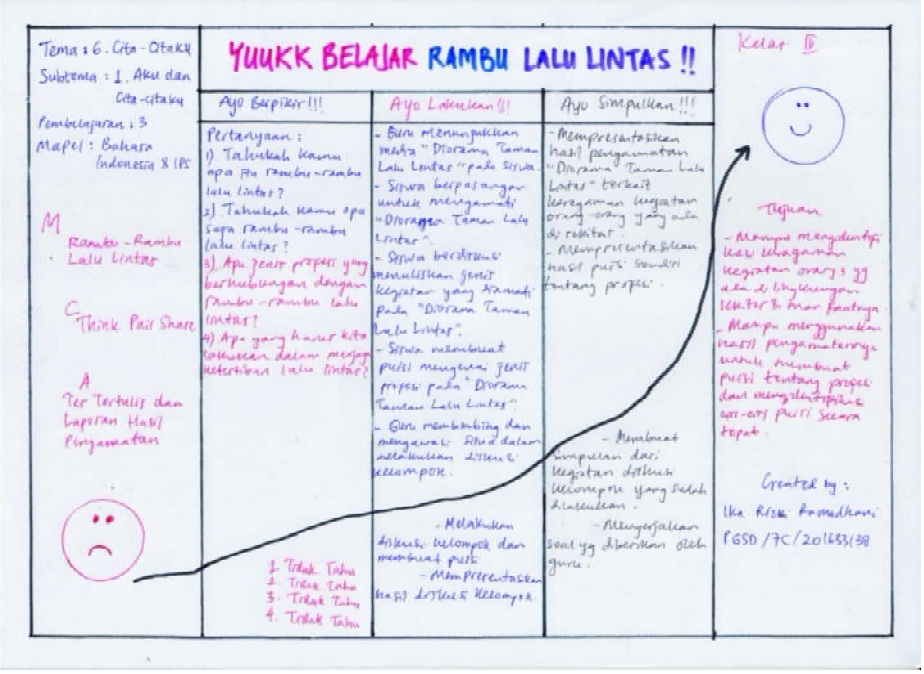

Figure 4. Lesson Design of G2 PSEETs2

3.2 Skills Specific Subjects of Teacher Pedagogy

Table 1. Exixsting Concepts on Thematics Learning Process consists of 4 subject material (Civic Education, Social Sciences, Indonesian Language and Mathematics)

Concepts	G1 PSEETs1 (Civic Education, Social Sciences and Indonesian Language)	G1 PSEETs2 (Civic education, Social Sciences and Mathematics)	G2PSEETs1 (Indonesian Language and Mathematics)	G2PSEETs2 (Indonesian Language and Social Sciences
Pre requisite material: Indonesian citizens' habits when on the highway	√	√		
Various kinds of traffic signs	√	√	√	
Types of transportation (Social Sciences)	√	√	√	√
Profession (Social Sciences)				√
Traffic ethics (Civic Education)	√	√		√
Rights and obligations of road users (Civic Education)				
Retelling traffic ethics (Indonesian Language)	√	√	√	√
The types and characteristics of plane and solid in dioramas (Mathematics)		√	√	

Note:
G1 PSEETs: Pre service elementary education teachers who have gone through microteaching courses and practice teaching experience
G2 PSEETs: Pre service elementary education teachers which have not been

From table 1 above it appears that PSEETs in group 1 are able to bring up more concepts than PSEETs in group 2 with details of G1 PSEETs1 of 5 concepts and G2 PSEETs of 6 concepts while in group 2 each PSEETs raises 4 concepts without prerequisite material. Prerequisite material is important to give because it become bridge of old knowledge and new knowledge constructed.

Pedagogical and Professional experience (PaP-eRs) assessments were carried out to see PSEET's pedagogical abilities in teaching material. It appears in the lesson design PSEETs in G1 tend to fill it about strategies in teaching that include models and teaching methods related to the characteristics of the material and appropriate learning strategies combined with the use of diorama media. The difference between G1 and G2 is that G1 in choosing methods is not only related to the characteristics of the material but also related to the use of media in accordance with the material. In addition, G1 tends to use models, media and methods, whereas G2 is only media. This shows that G1 is more concerned about how content and pedagogy together provide learning experiences that fit the needs of students. However, the results of CoRe and PaP-eRs show that both G1 and G2 have used their knowledge to make effective decisions about learning objectives, teaching strategies, assessment tasks and curriculum materials.

4. Conclusion

Berdasarkan hasil penelitian yang telah dilakukan, maka dapat ditarik suatu kesimpulan bahwa ada beberapa perbedaan antara G1 PSEETs dan G2 PSEETs dalam membuat dokumen CoRe dan PaP-eRs. Perbedaan ini terkait pada penjabaran dan pengelompokan materi. G1 memunculkan lebih banyak konsep materi yang harus diajarkan dibandingkan dengan G2. G1 lebih fleksibel dalam memilih strategi mengajaR, model dan penggunaan media diorama yang tepat, G2 belum. Perbedaan ini disebabkan oleh latar belakang dan pengalaman praktik mengajar PSEETs.

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