PCK (PEDAGOGICAL CONTENT KNOWLEDGE) GURU DALAM MENGIMPLEMENTASIKAN *STEM (SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS)* DAN DAMPAKNYA TERHADAP KEMAMPUAN *ENGINEERING DESIGN PROCESS* PESERTA DIDIK SEKOLAH DASAR

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Abstrak

Tujuan dari penelitian ini adalah untuk memberikan gambaran PCK guru SD dalam mengimplemnetasikan *STEM* pada materi kalor sebelum pelatihan, sesudah pelatihan dan sesudah *lesson study* dan dampaknya terhadap kemampuan *engineering design proces* peserta didik. Metode penelitian yang digunakan adalah penelitian kualitatif dengan jenis penelitian *a case study.* Subyek pada penelitian ini adalah salah seorang guru dan peserta didik kelas V di salah satu sekolah dasar negeri di Kota Bandung Jawa Barat. Instrumen utama yang digunakan dalam penelitian adalah lembar *CoRe* dan *PaPeRs* diisi oleh guru sebelum pelatihan, sesudah pelatihan dan sesudah *lesson study*. Hasil penelitian menunjukkan bahwa sebelum dan sesudah pelatihan, PCK guru dalam mengimplementaikan STEM dikategorikan pada kategori yang paling rendah yaitu *pre-PCK*. Sesudah *lesson study, PCK* guru dalam mengimplementasikan STEM mengalami peningkatan dan dikategorikan menjadi *growing PCK*. Hal ini dikarenakan melalui pelatihan guru diberikan informasi mengenai *PCK, STEM* dan *engineering design process.* Selain itu lewat *lesson study,* guru juga langsung mengimplementasikan *STEM* dalam kegiatan pembelajaran sehingga lebih menambah wawasan dan pengetahuan guru dalam mengintegrasikan *STEM* ke dalam *PCK*. Temuan tersebut berdasarkan analisis terhadap jawaban-jawaban guru pada lembar *CoRe* dan sesudah *lesson study* juga didukung oleh jawaban guru pada lembar *PaP-eRs.* Kemampuan PCK guru juga memiliki dampak terhadap kemampuan *engineering design process* peserta didik yang bervariasi di setiap indikator kemampuannya dimana pada kemampuan mengidentifikasi masalah digolongkan dalam *level pemula,* kemampuan merancang dalam *level tumbuh,* kemampuan membuat dalam *level berkembang* dan kemampuan menguji dan merefleksi dalam *level tumbuh.*

Kata kunci: *pedagogical content knowledge, science technology engineering mathematics, engineering design process, pelatihan, lesson study*

TEACHER'S PCK (PEDAGOGICAL CONTENT KNOWLEDGE) IN IMPLEMENTING STEM AND ITS EFFECT TO ABILITY OF STUDENTS' ENGINEERING DESIGN PROCESS

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Abstract

The aims of this study is provide an overview of teacher's PCK in implementing STEM in heat subject before the workshop, after the workshop and after the lesson study and the impact on the ability of the students to design engineering processes. A qualitative method with a case study type is used in this study. The subject in this study were one the teacher and the students of class V is one of the state elementary schools in Bandung, West Java. The main instruments used in this study were CoRe and PaPeRs sheets which filled out by the teacher before the workshop, after the workshop and after the lesson study. The results showed that before and after workshop the teacher's PCK in implementing STEM still categorized as the lowest category is pre-PCK. After the lesson study teacher's PCK in implementing STEM has improved to be growing PCK. This is because through workshop the teacher is given the information about PCK, STEM and engineering design process. Moreover through the lesson study, the teacher also immediately implements STEM in learning activity so that adds more perception and knowledge to teachers in implementing STEM. The findings based on this study of the teacher's answers on the CoRe sheets and after the lesson study were also supported by the teacher's answers to the PaPeRs sheets. The teacher's ability in PCK also has an impact on the students' engineering design process abilities vary in each indicator of their ability where the ability to identify problems is classified as a beginning designer level, ability to designing in emerged designer level, ability to create in developing designer levels and the ability to test and reflect in emerged designer level.

Keywords*: pedagogical content knowledge, science technology engineering mathematics, engineering design process, workshop, lesson study*