PENGEMBANGAN PROGRAM *PROFESSIONAL LEARNING COMMUNITY* (PLC) BERBASIS TPACK UNTUK MENUMBUHKAN KREATIVITAS GURU IPA PADA PEMBELAJARAN STEM *FOR SUSTAINABLE DEVELOPMENT*

DISERTASI

Diajukan untuk Memenuhi Sebagian dari Syarat untuk Memperoleh Gelar Doktor Pendidikan Ilmu Pengetahuan Alam

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Pengembangan Program *Professional Learning Community* (PLC) Berbasis TPACK untuk Menumbuhkan Kreativitas Guru IPA Pada Pembelajaran STEM *for Sustainable Development*

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PENGEMBANGAN PROGRAM *PROFESSIONAL LEARNING COMMUNITY* (PLC) BERBASIS TPACK UNTUK MENUMBUHKAN KREATIVITAS GURU IPA PADA PEMBELAJARAN STEM *FOR SUSTAINABLE DEVELOPMENT*

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PENGEMBANGAN PROGRAM *PROFESSIONAL LEARNING COMMUNITY* (PLC) BERBASIS TPACK UNTUK MENUMBUHKAN KREATIVITAS GURU IPA PADA PEMBELAJARAN STEM *FOR SUSTAINABLE DEVELOPMENT*

ABSTRAK

Penelitian ini bertujuan untuk mengembangkan program Professional Learning Community (PLC) berbasis TPACK untuk meningkatkan kreativitas guru IPA pada pembelajaran STEM for Sustainable Development. Metode yang digunakan dalam penelitian ini adalah mix-method desain embedded. Subjek penelitian adalah 24 guru IPA di Kabupaten Sukabumi yang dipilih secara purposive sampling. Instrumen yang digunakan meliputi kuesioner disposisi kreatif, lembar penilaian kreativitas, rekaman audio, kuesioner respon, dan catatan lapangan. Data kuantitatif dikumpulkan melalui kuesioner dan dianalisis menggunakan statistik deskriptif, sementara data kualitatif dari rekaman audio dan catatan lapangan dianalisis secara tematik untuk mendapatkan pemahaman lebih mendalam mengenai pelaksanaan program. Hasilnya adalah terciptanya program komunitas pembelajaran profesional yang memiliki karakteristik yaitu bervisi untuk memperbaiki praktek pembelajaran STEM, berbasis pengembangan TPACK-CPORP, menekankan kerja kolaboratif, reflektif, dan berkelanjutan melalui siklus inquiry dan lesson study. Program ini valid dengan nilai kritis 0,62. Keterlaksanaan program ini mencapai 100% terlaksana dengan partisipasi aktif peserta dan dukungan fasilitator yang baik. Terdapat perbedaan yang signifikan antara nilai disposisi kreatif sebelum implementasi dan setelah implementasi. Nilai fluency, flexibility, dan originality peserta sangat baik pada saat diskusi. Tingginya nilai kreativitas produk yang dihasilkan peserta yang terdiri dari modul ajar dan produk teknologi. Peserta memberikan respon positif terhadap program. Program ini relevan dengan kebutuhan guru IPA. Diharapkan program PLC berbasis TPACK ini diterapkan lebih luas dan dipadukan dengan pelatihan yang lebih mendalam untuk memperkuat integrasi pembelajaran STEM untuk pembangunan berkelanjutan.

Kata Kunci: *Professional Learning Community, TPACK COPR, STEM for Sustainable Development, Kreativitas Guru IPA*

PROGRAM BASED ON TPACK TO ENHANCE SCIENCE TEACHER CREATIVITY IN STEM EDUACTION FOR SUSTAINABLE DEVELOPMENT

ABSTRACT

The purpose of this study is to develop a professional learning community (PLC) program based on TPACK to enhance science teachers' creativity in STEM for Sustainable Development learning. The research method used in this study was mixed methods embedded design. The research subjects were 24 science teachers in Sukabumi district selected by purposive sampling. The instruments used included creative disposition questionnaire, creativity assessment sheet, audio recording, response questionnaire, and field notes. Quantitative data were collected through questionnaires and analysed using descriptive statistics, while qualitative data from audio recordings and field notes were analysed thematically to gain a deeper understanding of program implementation. The result is the professional learning community program that has the characteristics of having a vision to improve STEM learning practices, based on TPACK-CPORP development, emphasizing collaborative, reflective, and sustained work through inquiry cycle and lesson study. The program is valid with a critical value of 0.62. The implementation of this program reached 100% implementation with active participation of participants and good support from facilitators. There was a significant difference between the participants' creative disposition scores before and after implementation. The participants' fluency, flexibility, and originality scores were very good during the discussion. The high value of product creativity produced by the participants consisting of teaching modules and technology products. Participants responded positively to the program. This program is relevant to the needs of science teachers. It was expected that this program will be more widely used and combined with more in-depth training to strengthen the integration of STEM learning for sustainable development.

Keywords: Professional Learning Community, TPACK-COPR, STEM Education for Sustainable Development, Science Teachers' Creativity

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