

**PROGRAM *TEACHERS PROFESSIONAL DEVELOPMENT* (TPD)  
BERBASIS PENDEKATAN *PARTNERSHIP, TECHNOLOGY,  
ETHNOSCIENCE* (PaTE<sub>n</sub>) UNTUK MENINGKATKAN TPACK GURU  
IPA DAN MINAT BELAJAR SISWA DI NTT**

**DISERTASI**

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



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Dengan ini saya menyatakan bahwa disertasi yang berjudul “**Program *Teachers Professional Development* (TPD) berbasis Pendekatan *Partnership, Technology, Ethnoscience* (PaTEn) untuk meningkatkan TPACK guru IPA dan minat belajar siswa di NTT**” beserta seluruh isinya adalah benar-benar karya saya sendiri, dan saya tidak melakukan penjiplakan atau pengutipan dengan cara-cara yang tidak sesuai dengan etika ilmu yang berlaku dalam masyarakat keilmuan. Atas pernyataan tersebut, saya siap menanggung resiko yang dijatuhkan kepada saya apabila dikemudian hari ditemukan adanya pelanggaran terhadap etika keilmuan dalam karya saya ini, atau ada klaim dari pihak lain terhadap karya saya ini.

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Berbasis Pendekatan *Partnership, Technology,  
Ethnoscience* (PaTE*n*) Untuk Meningkatkan TPACK  
Guru IPA Dan Minat Belajar Siswa Di NTT**

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Sebuah Disertasi yang diajukan untuk memenuhi salah satu syarat memperoleh gelar  
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ETHNOSCIENCE* (PaTEen) UNTUK MENINGKATKAN TPACK GURU  
IPA DAN MINAT BELAJAR SISWA DI NTT**

**ABSTRAK**

Di era kemajuan teknologi saat ini seorang guru dikatakan profesional apabila memiliki kemampuan *Technological Pedagogical Content Knowledge* (TPACK) yang baik. Namun, kemampuan TPACK guru IPA di Indonesia masih rendah, sehingga berakibat pada kurangnya minat belajar siswa. Penelitian ini bertujuan untuk meningkatkan TPACK guru dan minat belajar siswa melalui program *Teachers Professional Development* (TPD) berbasis pendekatan *partnership, technology, ethnoscience* (PaTEen). Metode penelitian ini adalah *Mixed-method* dengan desain *mixed methods* tipe *Exploratory Sequential Design pada Instrument Development Model*. Partisipan dalam penelitian ini berjumlah 28 orang Guru IPA SMP yang berasal dari Kabupaten Nagekeo, Provinsi Nusa Tenggara Timur (NTT). Instrumen yang digunakan adalah soal TPACK, rubrik analisis RPP guru, lembar observasi praktik pembelajaran, angket persepsi guru dan siswa serta panduan wawancara guru. Program TPD berbasis pendekatan PaTEen terdiri dari empat tahapan yaitu *Introduction, Explaining and Reading using module, Collaborating* dan *Evaluating* dengan menggunakan modul program meliputi: 1) hakikat pembelajaran IPA dan etnosains, 2) teknologi dalam pembelajaran IPA, 3) model-model pembelajaran IPA, dan 4) pengembangan kegiatan pembelajaran IPA berbasis budaya. Guru mendapatkan motivasi dari ahli, mengerjakan soal TPACK dan mengirimkan RPP sebelum dan setelah program, guru membagikan informasi tentang budayanya, melakukan analisis konsep sains dalam aktivitas budaya yang dikaitkan dengan kompetensi dasar, mengembangkan RPP dan melakukan praktik pembelajaran pembelajaran. Analisis terhadap dokumen hasil penelitian menggunakan uji *Paired sampel t-Test* hasil tes TPACK awal dan akhir, analisis korelasi hubungan konstruk pembangun TPACK dan analisis secara deskriptif. Hasil penelitian menunjukkan terdapat perbedaan yang signifikan antara hasil tes awal dan akhir TPACK, artinya ada kebermanfaatannya program TPD berbasis PaTEen terhadap peningkatan TPACK guru. Selain itu, hasil analisis korelasi konstruk TPACK adalah PCK dan TPK memberikan pengaruh dalam membangun pengetahuan TPACK guru, kecuali TCK. Selanjutnya, setelah mengikuti program dokumen RPP guru IPA berbasis budaya juga meningkat menjadi kategori sangat baik (95,8). Kemampuan guru IPA (4 guru) melakukan praktik pembelajaran berbasis budaya dengan memanfaatkan teknologi masuk pada kategori baik (75-100). Minat belajar siswa untuk keempat sekolah masuk pada kategori sangat baik dengan rentang nilai 3,49-3,85. Terdapat keterkaitan antara kemampuan TPACK guru dengan peningkatan minat belajar siswa. Rekomendasi penelitian ini menunjukkan bahwa kemampuan TPACK satu guru masih belum maksimal sehingga perlu untuk menyempurnakan modul dengan banyak contoh RPP pembelajaran IPA berbasis budaya. Dalam penelitian tersebut tidak menggunakan data awal praktik pembelajaran guru, sehingga perlu dilakukan penelitian dengan menggunakan data awal bisa menggunakan video atau observasi secara langsung. Selanjutnya, dinas pendidikan dapat memberdayakan program TPD berbasis PaTEen ini untuk digunakan dalam kegiatan MGMP sehingga mampu meningkatkan TPACK guru IPA dalam mengembangkan pembelajaran IPA berbasis budaya dengan memanfaatkan teknologi.

Kata-kata kunci: *Teachers Professional Development*, TPACK guru IPA, minat belajar siswa, pendekatan *Partnership, Technology, Ethnoscience*.

**TEACHERS PROFESSIONAL DEVELOPMENT (TPD) PROGRAM BASED  
ON PARTNERSHIP, TECHNOLOGY, AND ETHNOSCIENCE (PaTen)  
APPROACH TO INCREASE TPACK OF SCIENCE TEACHERS AND  
STUDENTS LEARNING INTEREST IN EAST NUSA TENGGARA**

**ABSTRACT**

*In the current era of technological progress, a teacher is said to be professional if he has good Technological Pedagogical Content Knowledge (TPACK) skills. However, the TPACK ability of science teachers in Indonesia is still low, resulting in a lack of interest in student learning. This study aims to increase teacher TPACK and student interest in learning through the Teachers Professional Development (TPD) program based on a partnership, technology, ethnoscience (PaTen) approach. This research method is a Mixed-method with a mixed methods design of the Exploratory Sequential Design type on the Instrument Development Model. The participants in this study were 28 junior high school science teachers from Nagekeo Regency, East Nusa Tenggara Province (NTT). The instruments used are TPACK questions, teacher rpp analysis rubrics, learning practice observation sheets, teacher and student perception questionnaires and teacher interview guides. The TPD program based on the PaTen approach consists of four stages, namely Introduction, Explaining and Reading using modules, Collaborating and Evaluating using program modules including: 1) the nature of science and ethnoscience learning, 2) technology in science learning, 3) science learning models, and 4) development of culture-based science learning activities. Teachers get motivation from experts, do TPACK questions and send lesson plans before and after the program, teachers share information about their culture, analyze science concepts in cultural activities that are associated with basic competencies, develop lesson plans and carry out learning practices. Analysis of the research result documents using paired t-test samples of initial and final TPACK test results, correlation analysis of TPACK builder construct relationships and descriptive analysis. The results showed that there was a significant difference between the initial and final test results of TPACK, meaning that there was a benefit of the PaTen-based TPD program for increasing teacher TPACK. In addition, the results of the TPACK construct correlation analysis are that PCK and TPK have an influence in building teachers' TPACK knowledge, except for TCK. Furthermore, after participating in the rpp document program, culture-based science teachers also increased to an excellent category (95.8). The ability of science teachers (4 teachers) to practice culture-based learning by utilizing technology is in the good category (75-100). Students' interest in learning for all four schools falls into the excellent category with a score range of 3.49-3.85. There is a correlation between teachers' TPACK ability and students' interest in learning. The recommendations of this study show that the TPACK ability of one teacher is still not optimal so it is necessary to improve the module with many examples of cultural-based science learning lesson plans. In this study, it did not use the initial data on teacher learning practices, so it is necessary to conduct research using preliminary data using videos or direct observations. Furthermore, the education office can empower this PaTen-based TPD program to be used in MGMP activities so that it can improve the TPACK of science teachers in developing culture-based science learning by utilizing technology.*

*Key words: Teachers Professional Development, TPACK science teachers, students learning interest, Partnership, Technology & Ethnoscience approach.*

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