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STRENGTHENING CIVICS TEACHERS' CAPACITY FOR DEEP LEARNING THROUGH TECHNOLOGY-ENHANCED PROFESSIONAL DEVELOPMENT: A PARTICIPATORY ACTION RESEARCH INITIATIVE IN BANGKALAN, INDONESIA

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Abstract
This paper reports a professional-development initiative designed to support senior high school civics teachers in integrating deep-learning principles with educational technology. Conducted with the Civics Teacher Working Group (MGMP PPKn) in Bangkalan Regency, Indonesia, the initiative was framed as participatory action research (PAR) and comprised needs analysis, a face-to-face workshop, mentoring in lesson-plan development, and evaluation. The source report identifies 28 participating teachers and describes activities addressing mindful, meaningful, and joyful learning; the Technological Pedagogical Content Knowledge (TPACK) framework; interactive learning platforms; and technology-supported formative assessment. The report also contains pretest–posttest and normalized-gain tables, but both are explicitly labelled "illustrative data." They cannot therefore be treated as verified participant-level evidence or used to establish intervention effectiveness. The documented process suggests the practical relevance of subject-specific, collaborative professional learning that connects pedagogical principles with teachers' instructional designs. The paper contributes a context-sensitive account of a teacher-community initiative while identifying the evidence required for a defensible impact evaluation, including anonymized paired scores, instrument documentation, implementation records, and follow-up classroom observations.
Keywords: deep learning; civics education; teacher professional development; TPACK; educational technology; participatory action research

Abstrak
Makalah ini melaporkan sebuah inisiatif pengembangan profesional yang dirancang untuk mendukung guru Pendidikan Pancasila dan Kewarganegaraan (PPKn) di jenjang sekolah menengah atas dalam mengintegrasikan prinsip-prinsip pembelajaran mendalam (deep learning) dengan teknologi pendidikan. Inisiatif ini dilaksanakan bersama Musyawarah Guru Mata Pelajaran (MGMP) PPKn di Kabupaten Bangkalan, Indonesia, dengan menggunakan pendekatan penelitian tindakan partisipatif (participatory action research atau PAR). Rangkaian kegiatannya mencakup analisis kebutuhan, lokakarya tatap muka, pendampingan dalam penyusunan rencana pembelajaran, serta evaluasi. Laporan ini mencatat keterlibatan 28 guru dan menjabarkan berbagai kegiatan yang berfokus pada pembelajaran yang penuh kesadaran (mindful), bermakna, dan menyenangkan; kerangka kerja Technological Pedagogical Content Knowledge (TPACK); platform pembelajaran interaktif; serta penilaian formatif berbasis teknologi. Laporan ini juga menyertakan tabel hasil pretest–posttest dan normalized-gain, namun data tersebut secara eksplisit diberi label sebagai "data ilustratif". Oleh karena itu, data tersebut

tidak dapat dianggap sebagai bukti terverifikasi di tingkat peserta ataupun digunakan untuk menentukan efektivitas intervensi. Proses yang didokumentasikan ini menunjukkan relevansi praktis dari pembelajaran profesional kolaboratif yang spesifik untuk mata pelajaran tertentu, yang menghubungkan prinsip-prinsip pedagogis dengan rancangan pembelajaran para guru. Makalah ini memberikan gambaran yang kontekstual mengenai inisiatif komunitas guru, sekaligus mengidentifikasi bukti-bukti yang diperlukan untuk melakukan evaluasi dampak yang dapat dipertanggungjawabkan, seperti skor berpasangan yang telah dianonimkan, dokumentasi instrumen, catatan pelaksanaan, serta observasi kelas lanjutan.
Kata kunci: pembelajaran mendalam (deep learning); pendidikan kewarganegaraan; pengembangan profesional guru; TPACK; teknologi pendidikan; penelitian tindakan partisipatif

INTRODUCTION

Teacher professional development has become increasingly important as schools respond to changing curricular expectations, digital environments, and demands for active and meaningful learning. Professional learning is more likely to influence teaching when it is content-focused, collaborative, active, coherent with teachers' work, supported by expert guidance, and sustained over time (Darling-Hammond et al., 2017; Desimone, 2009; Sims & Fletcher-Wood, 2021). Short workshops may introduce new concepts, but their influence on classroom practice depends on opportunities to rehearse, adapt, receive feedback, and revisit instructional decisions.

In Indonesia, the policy discourse on pembelajaran mendalam emphasizes learning that is mindful, meaningful, and joyful. For civics education (Pendidikan Pancasila dan Kewarganegaraan; PPKn), this orientation is particularly relevant because learning concerns constitutional principles, democratic participation, rights, responsibilities, and social diversity. These topics require more than factual recall; they call for reasoned discussion, perspective-taking, critical inquiry, and application of civic concepts to real situations (Banks, 2008; Hess & McAvoy, 2015; Parker, 2003).

Digital platforms and interactive applications can support inquiry, feedback, collaboration, and differentiated learning. Nevertheless, technology integration should not be equated with device or application use. Its pedagogical value depends on alignment with subject matter, instructional strategy, learner needs, and context. The TPACK framework conceptualizes this alignment through the interaction of technological, pedagogical, and content knowledge (Mishra & Koehler, 2006; Koehler et al., 2013; Voogt et al., 2013).

The source report identifies a professional-learning need among members of the MGMP PPKn in Bangkalan Regency: teachers were reported to have uneven understanding of deep-learning principles and limited pedagogical use of learning technologies. Prior studies have examined TPACK, teacher professional development, and technology integration, but local documentation of an integrated intervention for senior high school civics teachers through an MGMP forum remains limited.

This paper addresses three questions: (1) How was the professional-development program organized around deep-learning principles and TPACK? (2) What forms of teacher engagement and instructional-design support were documented during workshop and mentoring? and (3) What can and cannot be concluded from the evaluation evidence reported in the source document? The third question is essential because the source tables identify numerical results as illustrative. This paper distinguishes documented implementation outputs from unverified numerical examples and avoids unsupported causal claims.

Theoretical Framework

Deep learning as a pedagogical orientation

Here, deep learning refers to an instructional orientation that promotes thoughtful engagement, meaningful connections, and positive learning experiences. Mindful learning concerns attention, awareness, and reflection; meaningful learning concerns connections between new ideas, prior knowledge, learners' lives, and authentic problems; and joyful learning concerns supportive participation, curiosity, belonging, and positive affect. These are treated as design principles, not as a validated scale or measured outcomes in this activity. Deep approaches require learners to connect ideas, examine evidence, explain reasoning, and transfer understanding, in contrast to surface approaches focused on reproducing information (Marton & Säljö, 1976; Biggs & Tang, 2011). Active and collaborative learning can support these processes when tasks make learners' thinking visible (Bonwell & Eison, 1991; Freeman et al., 2014; Prince, 2004).

TPACK and purposeful technology integration

TPACK extends pedagogical content knowledge by recognizing that effective teaching with technology requires an integrated understanding of content, pedagogy, and technological affordances (Mishra & Koehler, 2006; Koehler et al., 2013). The framework is not a checklist of applications; it supports context-sensitive decisions about which technology can improve the teaching of particular concepts to particular learners. Reviews show that TPACK has informed teacher knowledge and professional learning, although definitions and measures vary across studies (Chai et al., 2013; Voogt et al., 2013). Teachers should begin with curricular goals and learning activities and then select tools that serve those goals, rather than begin with a platform and search for a pedagogical use (Harris et al., 2009; Koehler & Mishra, 2009).

Teacher professional learning and collaborative communities

Effective professional development involves active learning, collaboration, modelling, feedback, reflection, and opportunities to apply new knowledge in instructional practice (Darling-Hammond et al., 2017; Desimone, 2009; Garet et al., 2001). Coaching and mentoring can help teachers translate general principles into lesson design and classroom decisions (Kraft et al., 2018). Teacher working groups can provide communities in which participants exchange subject-specific knowledge and develop shared resources (Wenger, 1998).

Civic education and deep learning

Civic education concerns the knowledge, skills, dispositions, and experiences needed for democratic participation. Deliberation, evidence-based discussion, analysis of public issues, and engagement with multiple perspectives are central to meaningful civic learning (Hess & McAvoy, 2015; Parker, 2003). Digital resources may widen access to civic information and enable collaboration, but they also require critical evaluation of sources and ethical participation (Bennett et al., 2009; Kahne et al., 2016). Technology-enhanced PPKn learning should therefore be evaluated by the quality of civic reasoning and participation it supports, not by the number of digital tools used.

METHOD

Design and setting

The activity was reported as a community-engagement initiative using a PAR orientation. PAR emphasizes collaboration in identifying needs, planning action, reflecting on practice, and considering improvement (Kemmis et al., 2014; Reason & Bradbury, 2008; Stringer, 2014). The program involved the MGMP PPKn for senior high schools in Bangkalan Regency, East Java. The face-to-face workshop was held in the hall of SMA Negeri 1 Bangkalan.

Participants and program stages

The source reports 28 teachers in the pretest–posttest summary. Participants were MGMP PPKn members at senior high school level, with variation in age, teaching experience, and familiarity with educational technology. A participant roster, recruitment criteria, and school-level breakdown are not provided. The program comprised four stages: (1) needs analysis through coordination with MGMP administrators, brief interviews, and initial observations; (2) a workshop combining presentations, interactive discussion, and hands-on practice; (3) mentoring in the development of lesson plans or teaching modules, with small-group discussion and feedback; and (4) evaluation through pretest–posttest measures, observation of participation, and oral reflection.

Measures and analysis

The source states that a concept test concerning deep learning and technology integration was administered before and after the activity. It refers to a one-group pretest–posttest design, descriptive statistics, and normalized gain (N-Gain), using Hake's (1998) categorization. The source reports N = 28, pretest mean = 58.4, posttest mean = 82.6, and standard deviations of 9.7 and 8.1. It also reports 9 participants in the high N-Gain category, 16 in the medium category, and 3 in the low category, with an overall N-Gain of approximately 0.58.

A valid reanalysis requires anonymized paired scores for all participants, the maximum possible score, item content, scoring rules, and missing-data information. If authentic data are available, authors should report paired descriptive statistics, the distribution of change scores, a suitable paired-sample test where justified, effect size with confidence interval, and N-Gain with transparent calculations. A one-group design cannot rule out testing effects, maturation, history, or other explanations (Shadish et al., 2002).

RESULTS AND DISCUSSION

Program implementation

The initiative was conducted through collaboration between Universitas Negeri Surabaya and the MGMP PPKn of Bangkalan Regency. The source describes a formal opening attended by school and program representatives, followed by presentations, group discussion, and practical mentoring. Figure 1 in the source document (page 5) shows the opening session in the school hall. Figure 2 (page 6) shows interactive discussion and mentoring, with teachers seated in groups and using personal laptops during technology exploration and lesson-planning activities.

The workshop addressed mindful, meaningful, and joyful learning; TPACK as a framework for technology integration; exploration of interactive learning platforms; and technology-supported formative assessment. Mentoring focused on preparing lesson plans or teaching modules relevant

to teachers' own classes. Participants worked in small groups and received feedback from the facilitation team.

Teacher participation and professional context

The source reports differences in participants' age, teaching experience, and familiarity with digital tools. It interprets these differences as both a challenge and an opportunity for peer learning across generations. However, it provides no quantified participation indicators, group-task completion rates, or rubric-based assessment of lesson plans. The claim that MGMP enabled peer knowledge exchange is therefore an implementation observation, not a measured outcome.

Evaluation information reported in the source

Table 1 in the source reports 28 participants, pretest minimum and maximum scores of 40 and 80, posttest minimum and maximum scores of 65 and 100, means of 58.4 and 82.6, and standard deviations of 9.7 and 8.1. Table 2 reports 9 participants (32%) in the high N-Gain category, 16 (57%) in the medium category, and 3 (11%) in the low category, with an overall N-Gain of approximately 0.58. Both tables are labelled illustrative data in the original document.

Because the numerical tables are explicitly identified as illustrative, this paper does not interpret the mean difference or N-Gain distribution as observed changes among the 28 teachers. Nor does it infer that older teachers were overrepresented in the low-gain category: the source provides no participant-level cross-tabulation or verified score records. These numerical values must be replaced with actual anonymized results or removed before submission.

Implementation constraints and enabling conditions

The source identifies limited mentoring time, unstable internet access in some schools, and variation in teachers' access to personal digital devices as constraints. Enabling conditions include support from the host school and MGMP administrators, participant engagement during question-and-answer sessions, and the facilitation team's willingness to provide online follow-up. The source does not document the duration or completion of online follow-up, so it should be described as planned support unless records confirm implementation.

DISCUSSION

The initiative's main contribution lies in its design logic: it connects a broad pedagogical orientation to a subject-specific professional community and supports teachers in developing instructional artefacts. This is consistent with evidence that teacher learning is more likely to influence practice when it includes active participation, collaboration, content focus, modelling, and feedback rather than one-way presentations (Darling-Hammond et al., 2017; Desimone, 2009; Garet et al., 2001; Sims & Fletcher-Wood, 2021).

TPACK provides a basis for examining the relationship between PPKn content, pedagogy, and digital tools. A technology choice for a lesson on constitutional rights, for example, should be justified by the learning activity it enables—comparing sources, deliberating about a public issue, or providing formative feedback—not by novelty alone. This is consistent with TPACK scholarship cautioning against technocentric approaches that treat technology as an independent instructional objective (Harris et al., 2009; Mishra & Koehler, 2006; Voogt et al., 2013).

The MGMP setting may support professional learning through shared contextual knowledge and collaborative refinement of instructional designs. Communities of practice develop through

sustained mutual engagement around shared concerns and practices (Wenger, 1998). However, a single workshop should not automatically be described as a sustained professional learning community. Evidence of recurring meetings, shared artefact development, peer observation, classroom trials, and iterative revision would be needed.

The civics context adds a substantive criterion for judging technology integration. Deep learning in PPKn should support learners' ability to reason about public issues, assess evidence, consider competing perspectives, and participate constructively. Deliberative approaches emphasize structured discussion and exposure to disagreement in developing democratic judgment (Hess & McAvoy, 2015; Parker, 2003). Digital media can support civic participation but also create demands for source evaluation and critical digital literacy (Bennett et al., 2009; Kahne et al., 2016).

A critical issue concerns evaluation. The source refers to a one-group pretest–posttest design, but the numerical tables are labelled illustrative. Therefore, the document does not provide verifiable quantitative evidence that teacher knowledge improved. Even if authentic paired scores are recovered, a one-group design provides limited causal inference because observed change may reflect testing, history, maturation, or regression to the mean (Shadish et al., 2002). Results should be framed as within-group change, not definitive proof that the workshop caused improved classroom practice.

N-Gain can summarize normalized change under specified assumptions, but it does not replace raw scores, instrument quality, uncertainty, or a comparison condition. Hake's (1998) original use of normalized gain was situated in a particular educational context; its categories should not be treated as universal evidence of intervention effectiveness. Future evaluation should combine authentic paired test data with performance-based assessment of lesson plans, teacher reflection, classroom observation, and follow-up evidence.

The source suggests that teachers with different levels of digital familiarity may require differentiated support. This is plausible, but the report provides no subgroup data to test relationships between age, teaching experience, digital literacy, and learning gains. Future work should measure baseline digital competence directly rather than use age or seniority as proxies.

Implications

Implications for teacher professional development

Professional development for PPKn teachers should be organized as a cycle: needs assessment, modelling, collaborative design, classroom enactment, peer feedback, and revision. MGMP can coordinate recurring subject-specific learning when it has scheduled follow-up and shared responsibility for implementation.

Implications for instructional design

Lesson-planning support should begin with explicit learning outcomes and civic reasoning tasks. Teachers can then select digital tools that enable evidence analysis, deliberation, collaboration, reflection, or formative feedback. A TPACK-informed rubric should assess coherence among content, pedagogy, technology, and learner context rather than count applications.

Implications for policy and school leadership

School leaders and local education authorities should support connectivity, devices, technical assistance, and protected time for collaborative planning. Professional learning should accommodate different starting levels without assuming that age determines digital competence. MGMP administrators can coordinate peer mentoring and maintain a repository of reviewed lesson plans and resources.

Limitations and Future Research

This paper is limited by the evidence available in the source report. Participant characteristics are described generally, but detailed demographic and school-level information is absent. Needs-analysis instruments, workshop duration, mentoring schedule, specific digital applications, lesson-plan products, and follow-up records are not fully documented. Interviews, observations, and reflections are mentioned but are not supported by transcripts or a transparent analytic procedure. Most importantly, the pretest–posttest and N-Gain tables are explicitly labelled illustrative data, preventing their use as empirical evidence. The source also lacks a comparison group, classroom observation measures, and longitudinal follow-up.

Future research should recover and archive original paired assessment records, document the test instrument and scoring rubric, and report participant flow and missing data. Where feasible, evaluation should include a comparison group or staggered implementation, alongside effect sizes and confidence intervals. A performance-based rubric could assess lesson-plan quality across content accuracy, pedagogical alignment, technology selection, formative assessment, civic reasoning, and inclusiveness. Follow-up classroom observations and teacher interviews would help establish whether workshop learning transfers to practice.

Further studies should examine how MGMP-based learning can be sustained through peer coaching, lesson study, collaborative inquiry, and digital repositories. Research should investigate baseline digital competence, school infrastructure, teaching experience, and leadership support without relying on age as a proxy. Student outcomes should be measured directly if claims concern improved deep learning among learners; teacher participation or knowledge gains alone cannot establish changes in student learning.

CONCLUSION

The Bangkalan MGMP PPKn initiative demonstrates a practical model for connecting deep-learning principles, TPACK, collaborative workshop activities, and mentoring in civics lesson planning. The source documents the program structure, group discussion, hands-on technology exploration, and contextual challenges involving connectivity, device access, and limited mentoring time. These features support the value of subject-specific professional learning oriented toward instructional design. However, the numerical evaluation tables are explicitly labelled illustrative and cannot substantiate measured improvement or intervention effectiveness. A defensible assessment requires authentic paired data, documented instruments, classroom-level evidence, and follow-up evaluation. The initiative is best presented as a promising practice-based professional-development case whose impact remains to be established.

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