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ORIGINAL

Transforming Teacher Competency in Coastal Areas through Training on Digital Worksheet Design Using Canva

Transformación de la competencia docente en zonas costeras a través de la capacitación en el diseño de hojas de trabajo digitales utilizando Canva

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ABSTRACT

Introduction: this inquiry seeks to overcome the insufficient technological and pedagogical capabilities observed among educators in the coastal district of Muara Gembong, Indonesia. Structured training in designing digital Student Worksheets (LKPD) using the Canva application was delivered to advanced participants to enhance their digital literacy and instructional design expertise. The initiative was framed within the Independent Curriculum and sought to generate a sustainable uplift in teacher competencies through context-sensitive and practice-based professional development.
Method: employing a Participatory Action Research (PAR) paradigm, the investigation incorporated 15 junior secondary teachers as collaborative co-researchers. The design unfolded across four interrelated phases: a needs diagnostic, training workshops, the classroom deployment of developed materials, and a reflective evaluation. Quantitative indicators comprised digital literacy levels, instructional design proficiency, and overall participant satisfaction. Data were subjected to descriptive statistical treatment and normalized gain (N-Gain) computations to quantify cognitive advancements.
Results: aggregate teacher performance on teacher knowledge assessments rose from a mean of 43,33 (pretest) to 81,33 (posttest), yielding a normalized gain of 0,67, which situates the level of enhancement within the moderate-to-high category. The majority of participants produced digital worksheets characterized by visually coherent design and congruence with specified curriculum goals. Aggregate satisfaction ratings for trainers and the training itinerary eclipsed the threshold of 81 points, thereby classifying feedback as "very good." In addition to cognitive strides, teachers conveyed heightened self-efficacy and observable increases in student engagement during the materials' classroom application.
Conclusions: the program significantly enhanced teachers' expertise in creating digital instructional strategies. Its emphasis on collaborative, hands-on engagement demonstrated both effectiveness and flexibility in contexts traditionally lacking resources. The initiative, therefore, presents a replicable framework for ongoing professional advancement and actively cultivates networks of peer learning among educators in underserved communities.

Keywords: Teacher Competency; Coastal Areas; Digital Worksheet; Canva; Technology Integration.

RESUMEN

Introducción: este estudio aborda las limitaciones en competencias tecnológicas y pedagógicas de docentes en zonas costeras de Indonesia, en particular en Muara Gembong. El programa tuvo como objetivo mejorar la alfabetización digital y las habilidades en diseño instruccional mediante formación en el desarrollo de Hojas de Trabajo del Estudiante (LKPD) utilizando Canva. El objetivo principal fue transformar la competencia docente mediante una capacitación contextualizada y basada en la práctica, alineada con el Currículo Independiente.
Método: se utilizó un enfoque de Investigación Acción Participativa (IAP), con la participación de 15 docentes de nivel secundario como co-investigadores. El estudio se desarrolló en cuatro fases: diagnóstico de necesidades, formación, implementación en aula y evaluación. Se midieron variables como competencia digital, habilidades de diseño instruccional y satisfacción de los participantes. Los datos se analizaron mediante estadísticas descriptivas y el cálculo del índice de ganancia normalizada (N-Gain) para evaluar la mejora cognitiva.
Resultados: la puntuación promedio de los docentes aumentó de 43,33 (pretest) a 81,33 (postest), con un N-Gain de 0,67, indicando una mejora moderada a alta.

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La mayoría produjo hojas de trabajo digitales visualmente atractivas y alineadas con los objetivos curriculares. La satisfacción con los facilitadores y el programa superó los 81 puntos, clasificados como "muy bueno". También se reportó mayor confianza docente y participación estudiantil en el aula.

Conclusiones: el programa mejoró significativamente las competencias de los docentes en diseño instruccional digital. Su modelo participativo y experiencial fue eficaz y adaptable a regiones desfavorecidas. Esta iniciativa ofrece un modelo escalable para la formación profesional y fomenta la creación de comunidades de aprendizaje docente en zonas marginadas.

Palabras clave: Competencia Docente; Zonas Costeras; Hoja de Trabajo Digital; Canva, Integración Tecnológica.

INTRODUCTION

Educational challenges facing coastal regions, such as Muara Gembong, Bekasi Regency, manifest across multiple dimensions, with a critical gap in teachers' proficiency in integrating educational technology. The scarcity of both training opportunities and instructional resources intensifies the problem, leaving educators without the foundational competencies needed to create engaging learning media.[1,2] Investigations conducted in the past year reveal that pedagogical practices in coastal schools remain predominantly traditional; these approaches lack interactive elements and do not meet the stipulations of the Independent Curriculum, which calls for learning that is contextual and differentiated.[3,4] The curriculum's design mandates that educators acquire the ability to create instructional materials that are meaningful, technology-enhanced, and engaging, positioning professional development as a critical priority for the region.

The effectiveness of instruction is closely tied to educators' competence in crafting purposeful learning artefacts, of which student worksheets (LKPD) are a central component. When LKPD are thoughtfully designed, they can stimulate student interest, deepen conceptual grasp, and bolster overall learning achievements.[2] Instructional design theory posits that powerful learning resources must be oriented toward clear objectives, systematically arranged, and presented in a manner that captures student attention.[1] Online design environments, such as Canva, equip teachers to produce interactive, visually appealing digital learning materials that meet these criteria. Adoption of such platforms not only elevates the calibre of educational materials but also enhances educators' digital literacy, a core competency for effective 21st-century instruction.[5,6]

Teachers across Indonesia's 3T (Underdeveloped, Frontier, and Outermost) areas encounter persistent challenges in professional development, particularly regarding the design and dissemination of standardised yet locally relevant learning materials. The resulting reliance on generic resources dampens student motivation and limits classroom dynamism.[7] Systematically crafted worksheets can elevate educational quality, yet insufficient technical capacity in LKPD authoring continues to impede progress in such regions.[8,9,10] On a more promising note, platforms like Liveworksheets and Quizizz have demonstrably increased student engagement while acclimatising educators to digital pedagogies.[11] When integrated thoughtfully, innovative LKPD production reinforces inquiry-based pedagogy, a cornerstone of the Independent Curriculum, and adeptly aligns local contexts with curricular expectations.[12,13,14]

To address these challenges, a community service initiative was developed to equip teachers at SMP Madinatul Ilmi Muara Gembong with the skills to create digital LKPD using the Canva platform. The initiative was framed around four interconnected phases: a needs assessment, LKPD design training, classroom implementation with sustained mentoring, and a reflective evaluation with follow-up support. The initial phase employed surveys and interviews to map the teachers' specific difficulties and to gauge their baseline digital literacy.[1,15,16] Second phase featured focused training workshops on Canva for Education, complemented by on-site implementation and continuous technical mentoring.[3,17] The concluding phase involved a pretest–posttest evaluation to quantify gains in teacher competencies, alongside a participant satisfaction survey designed to generate actionable feedback for refining future iterations.[18]

The project aimed to enhance educators' abilities to create digital teaching resources while fostering digital literacy among teachers in coastal communities. Evaluation findings revealed that participants gained a deeper conceptual grasp of digital pedagogy, acquired the capacity to design independent LKPD instruments, and successfully implemented the acquired competencies in live teaching contexts. Crucially, the program also produces a scalable training framework applicable to other remote, underserved (3T) regions, thereby aligning with the national strategy for expanding technology-enhanced learning. By bridging these pedagogical and infrastructural gaps, the intervention enhances professional teacher development, improves instructional quality, and promotes equitable access to inclusive educational opportunities.

METHOD

Research Design

This study employed a Participatory Action Research (PAR) design,[19,20] conducted over a three-month period from March to May 2025 in Muara Gembong, Bekasi Regency, Indonesia. The setting was selected due to its coastal location and its status as a disadvantaged educational area under Indonesia's 3T classification (Tertinggal, Terdepan, dan Terluar / Underdeveloped, Frontier, and Outermost). The choice of PAR was based on its strength in merging targeted interventions with the collaborative engagement of all stakeholders, positioning them as co-researchers rather than passive recipients.[21,22] This approach prioritizes mutual dialogue, power-sharing, and contextual understanding, which are critical in building trust and credibility among educators. By working side by side with local teachers to diagnose challenges, design solutions, and evaluate outcomes, the research team cultivated an

inclusive and empowering environment. In the context of Muara Gembong's coastal schools, PAR offers a responsive and adaptive strategy that aligns with the area's unique socio-cultural, geographical, and infrastructural realities.[23] The cyclical and reflective nature of PAR ensures continuous improvement in professional practice, while the locally embedded training fosters pedagogical growth that is both sustainable and context-sensitive.[24] This dual alignment—between national education policy and local needs—reinforces the reliability and relevance of the intervention.[25]

Participants

The population for this study consisted of all junior secondary school teachers at SMP Madinatul Ilmi Muara Gembong, a school located in a coastal and underserved area of Bekasi Regency, Indonesia. A total of 15 participants were selected using purposive sampling. This technique was chosen because it enables the deliberate inclusion of individuals who possess the most relevant characteristics for achieving the research objectives. The sample was determined to be adequate and representative based on specific inclusion and exclusion criteria that ensured alignment with the study's scope and goals. Inclusion criteria included: (1) current teaching status at SMP Madinatul Ilmi, (2) willingness to participate voluntarily in all phases of the study, (3) availability during the three-month intervention period, and (4) basic digital literacy, particularly in operating computers or mobile devices. These criteria were aligned with the program's digital and pedagogical requirements. Exclusion criteria included: (1) administrative staff or non-teaching personnel, (2) teachers currently on leave or with conflicting schedules, and (3) individuals without any access to digital devices or who declined consent.

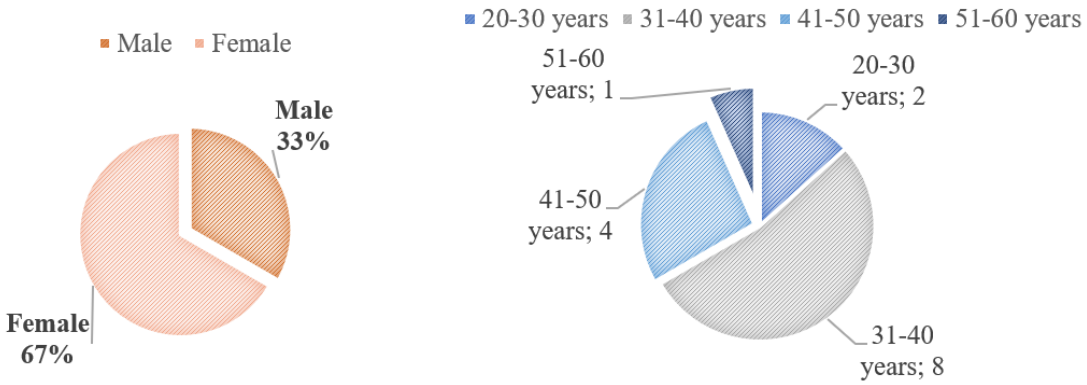

Figure 1. Participant characteristics based on gender and age

The final sample of 15 teachers (8 females and 7 males), aged between 20 and 60 years, represented various general subjects commonly taught at the junior secondary level. Their academic backgrounds ranged from associate (D3) to bachelor's degrees (S1), meeting the professional qualification standards set by national education policies. Given the homogeneity of the teaching staff in terms of qualifications and subject matter, and the alignment with the inclusion criteria, this sample was considered sufficient for the study and provides a valid foundation for practical generalization within similar educational settings in coastal and underserved regions. The demographic distribution of the participants is illustrated in figure 1.

The program proceeded through four sequential phases, illustrated in figure 2: (a) Preliminary analysis, which included a needs assessment, introductory meetings with partner schools, and the formulation of instructional instruments; (b) Training and workshops, which comprised five modules: a pretest, a presentation of LKPD design principles via Canva, guided practical sessions, peer presentations with feedback, and a concluding posttest; (c) Implementation and mentoring, during which teachers executed their LKPD prototypes in the classroom, receiving sustained support from the PkM team; and (d) Evaluation and follow-up, incorporating impact evaluation, reflective dialogues, and the formulation of subsequent training cycles.

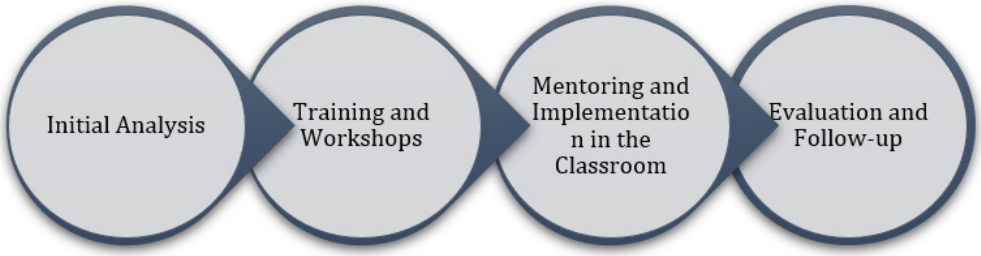

Figure 2. Stages of implementing PkM activities

Data Collection and Instruments

The study investigated three primary variables of interest: (1) teachers' digital literacy, (2) instructional design skills in developing digital Student Worksheets (LKPD) using Canva, and (3) participant satisfaction with the training and implementation process. To

measure these variables, the study utilized three validated instruments, each aligned with the stages of intervention and designed for specific analytic purposes:

Cognitive Assessment – Pretest and Posttest.

A 10-item multiple-choice test was administered before and after the intervention to assess cognitive gains. Each question was constructed according to Bloom's Taxonomy across six levels (C1–C6). The scoring method assigned 10 points per correct answer, with a maximum score of 100 (table 1).

Table 1. Distribution of Pretest–Posttest Items Based on Cognitive Levels

Cognitive Level	Description	Number of Items	Item Score
C1	Remembering	1	5
C2	Understanding	2	10
C3	Applying	2	20
C4	Analyzing	2	20
C5	Evaluating	2	30
C6	Creating	1	15
Total		10	100

Performance Evaluation

This instrument was used to assess the effectiveness and delivery quality of the training facilitators, based on participant perceptions. It contained five statements, each rated using a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) in table 2.

Table 2. Structure of Facilitator Evaluation Instrument

Indicator	Number of Items	Scale
Clarity of delivery	1	1–5 Likert
Mastery of training content	1	1–5 Likert
Responsiveness to participant inquiries	1	1–5 Likert
Use of relevant examples	1	1–5 Likert
Presentation style and engagement	1	1–5 Likert
Total	5	Max: 25

Training Implementation Evaluation

This instrument captured participant satisfaction with the training environment, structure, and impact. It included five core aspects related to implementation success, measured using the same 5-point Likert scale (table 3).

Table 3. Structure of Training Implementation Evaluation Instrument

Indicator	Number of Items	Scale
Timeliness of training (schedule adherence)	1	1–5 Likert
Comfort and conduciveness of the training venue	1	1–5 Likert
Availability of supporting facilities (projector, laptops)	1	1–5 Likert
Relevance of training materials to participants' needs	1	1–5 Likert
Impact on participants' ability to create digital LKPD	1	1–5 Likert
Total	5	Max: 25

The data collection process was systematically structured into four interconnected phases, ensuring a comprehensive and multi-layered evaluation of the intervention's impact on teacher competency. Each phase integrated both formative and summative components to capture not only observable behaviors but also cognitive, reflective, and contextual outcomes. In the initial phase, a needs assessment was conducted using diagnostic surveys, classroom observations, and semi-structured interviews with school leaders and participating teachers. These tools were designed to identify existing gaps in digital literacy, instructional design capabilities, and the contextual barriers to integrating technology in the classroom. The results informed the customization of the training content to better reflect the teachers' specific pedagogical challenges and professional development goals.

During the training workshops, data were collected through a pretest–posttest instrument specifically constructed to measure cognitive improvement. The test consisted of ten multiple-choice items aligned with Bloom's Revised Taxonomy, ranging from C1

(remembering) to C6 (creating).[26] For example, a C1-level item required recalling the initial step in registering for a Canva account, while a C6-level item asked participants to sequence the design steps for creating an LKPD on "Global Warming." This test design offered a robust measure of conceptual understanding and higher-order thinking skills in instructional design. Each correct answer was scored 10 points, for a total maximum of 100.

To complement the cognitive data, a facilitator performance evaluation instrument was administered. This questionnaire comprised five key indicators: (1) clarity of content delivery, (2) depth of content mastery, (3) responsiveness to participant questions, (4) relevance of examples used, and (5) overall delivery style.[27] Participants rated each item using a 5-point Likert scale, and the scores were subsequently rescaled to a 100-point scale for quantitative analysis. This feedback served as a key mechanism for assessing the quality of the training process and the credibility of its facilitators.

Furthermore, a third instrument was used to evaluate the implementation quality of the training program. It addressed five core dimensions: (1) adherence to the training schedule, (2) conduciveness of the training venue, (3) availability and quality of support facilities (e.g., projector, laptops, internet), (4) relevance of the instructional materials to participants' backgrounds, and (5) observable impact on participants' teaching practices.[28] Like the facilitator evaluation, this instrument also used a 5-point Likert scale, with scores normalized to a 100-point continuum and interpreted using a predefined set of quality categories: excellent, good, fair, poor, and very poor.

Data Analysis

The analysis of information in this study utilized descriptive quantitative techniques to interpret results across cognitive improvement, facilitator performance, and program implementation. The pretest and posttest scores, which assessed teacher competencies in digital worksheet (LKPD) design, were calculated based on a 0–100 scale, assigning 10 points per correct response. Cognitive gain was then quantified using the Normalized Gain (N-Gain) formula, as formulated by Hake[29]:

$$N - Gain = \frac{Posttest - Pretest}{100 - Pretest}$$

The average N-Gain score of 0,67 indicated a moderate-to-high level of cognitive improvement, reflecting the training's effectiveness in strengthening participants' understanding and application of digital instructional design (table 4).

In addition to cognitive analysis, participant satisfaction data were collected through Likert-based evaluation instruments and then rescaled into a 100-point continuum. These included the facilitator performance questionnaire and the training implementation evaluation form, both of which contained five indicators each. The resulting scores were interpreted using a set of predefined criteria to maintain analytical consistency across instruments.[30]

Table 4. Activity Evaluation Interpretation Categories

Score Range (0–100)	Quantitative Interpretation	Criteria
85 – 100	Excellent	Implementation is very effective, exceeds expectations
70 – <85	Good	Implementation is effective and meets expectations
55 – <70	Fair	Implementation is adequate, needs improvement
40 – <55	Poor	Implementation is not yet effective, requires a comprehensive evaluation
< 40	Very Poor	Implementation fails to achieve objectives

Ethical Considerations

This study adhered strictly to ethical research principles, emphasizing voluntary participation, informed consent, and data confidentiality. Prior to the intervention, participants received a clear explanation of the study's purpose, procedures, and their rights, followed by the signing of informed consent forms. All involvement was entirely voluntary, with participants assured of their freedom to withdraw at any stage without consequence. Data collection was conducted without external influence; responses to tests and evaluations were completed independently and without facilitator interference. Participant identities were anonymized using coded identifiers, and all data were stored securely to ensure confidentiality. The research design was sensitive to the local cultural context and positioned teachers as co-researchers to foster empowerment and shared ownership. No vulnerable populations were involved, and all procedures conformed to established educational research ethics.

RESULTS

The community service initiative was designed employing a participatory methodology and unfolded through four interrelated phases: needs analysis, professional training and workshops, classroom enactment and mentoring, and evaluation, followed by follow-up actions. Each phase produced data that documented not only procedural advancement but also measurable growth in teachers' abilities to create technology-enhanced Student Worksheets (LKPD).

Initial Analysis: Identifying Problems and Partner Needs

The opening phase involved a thorough needs analysis, which included classroom observations, brief interviews with the principal and administration, and the administration of diagnostic questionnaires. Results indicated that the majority of teachers had not yet integrated technology into the creation of instructional materials. Pedagogical methods remained largely conventional; instructional resources were repetitive and lacked contextual relevance. Many educators had not acquired the skills to align LKPD development with clearly stated learning objectives and were unfamiliar with design tools such as Canva. A notable intergenerational digital divide emerged, as senior faculty encountered more pronounced difficulties navigating digital resources than their younger colleagues. The cumulative effect of these challenges was a learning environment in which LKPDs lacked visual appeal and failed to provoke meaningful student engagement.

Training and Workshop Phase: Enhancing Digital Understanding and Skills

The training model centred on equipping participants with the essentials of effective LKPD design and seamless incorporation of visual elements via Canva for Education. Structured across five consecutive sessions, the model comprised: (1) a diagnostic pretest; (2) a theoretical exposition of LKPD design principles and the pedagogical function of visual media; (3) guided, hands-on practice in formulating digital worksheets with Canva; (4) a formal presentation of participant outputs followed by a peer-review dialogue; and (5) a concluding posttest, as depicted in figure 3.

The design of the training resulted in marked gains in participants' capacity to draft interactive, visually engaging, and curriculum-aligned worksheets. Peer feedback, interwoven with reflective practice, strengthened the community of practice and catalysed digital creativity. A pretest mean of 43,33 rose to 81,33 by the posttest, yielding a computed N-Gain of 0,67, which Hake (1998) categorises as medium to high. The results testify to effective and sustained knowledge acquisition.[29]

Who indicated that Canva can appreciably enhance both conceptual grasp and design proficiency.[31] When forward-looking platforms are paired with carefully constructed workshops, they can effectively close instructional fissures.[32] The positive outcome of this segment reaffirms the instructional potency of experiential learning, in which conceptual frameworks and applied practices are seamlessly fused through engaged involvement.[33]

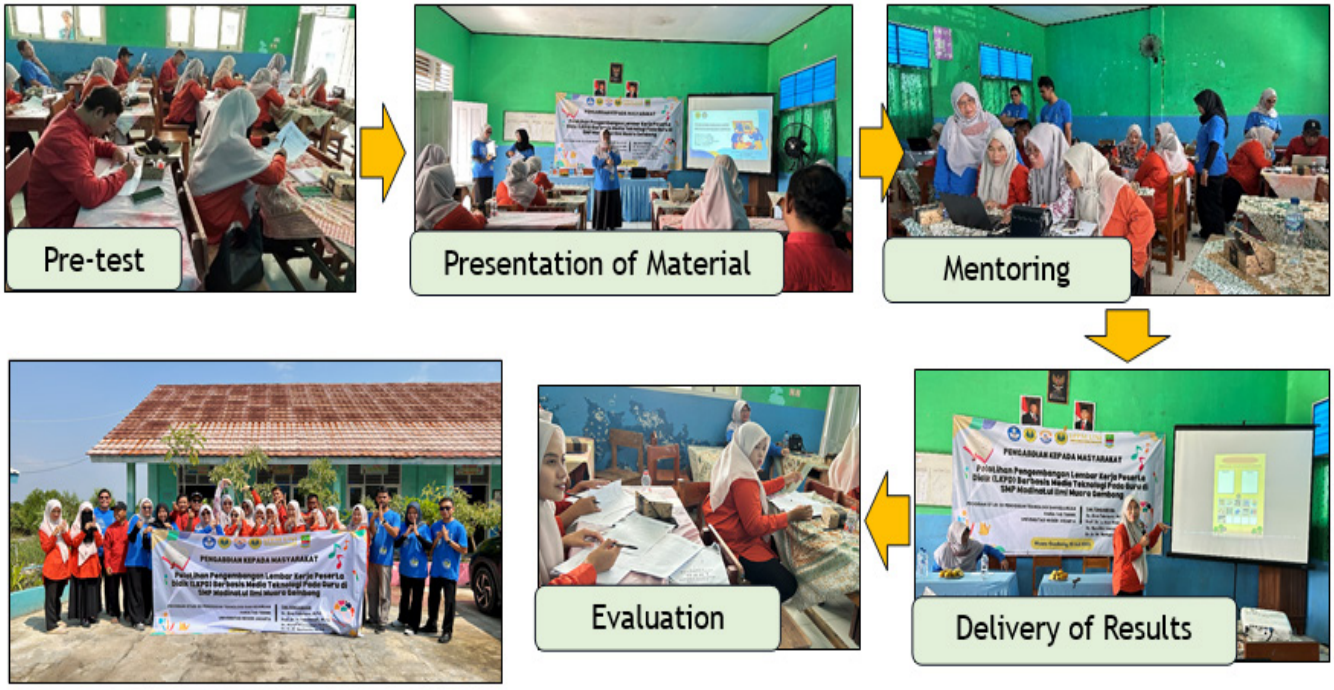

Figure 3. Stages of implementing the creation of Canva-based LKPD

The training programme unfolded through carefully sequenced modules that introduced participants to foundational LKPD principles, familiarised them with the Canva interface, guided them in Canva-based instructional architecture, facilitated material amalgamation, provided practical engagement, and outlined classroom implementation tactics (figure 4).

For the majority of the cohort, Canva represented uncharted territory. In the practical components, participants collaborated in small groups to design digital LKPDs equipped with visually striking layouts, coherent organisational hierarchies, and interactive features, including hyperlinks and graphic icons. Each team subsequently showcased their product, receiving constructive critique from facilitators and classmates alike. The finished LKPDs illustrated that the groups successfully harmonised worksheet content with the learning pathways of the *Kurikulum Merdeka* while embedding graphic elements that stimulated active learning.

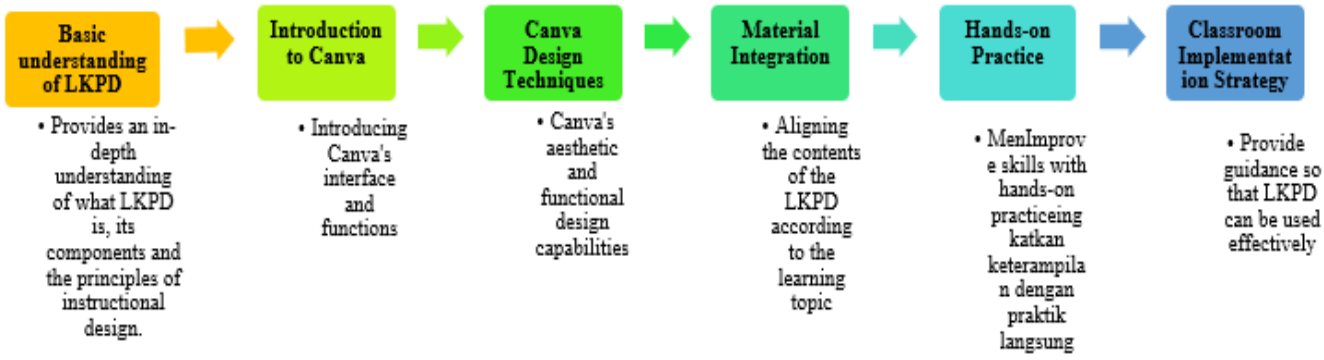

Figure 4. LKPD Training Materials using Canva

Comprehension Evaluation: Pretest–Posttest and N-Gain Analysis

Cognitive improvement was measured using a pretest-posttest design, which included ten multiple-choice items constructed according to Bloom's taxonomy, addressing cognitive levels from C1 to C6. Average pretest performance was 43,33, rising to 81,33 in the posttest, a statistically significant gain that reflects strong conceptual and practical assimilation of the training objectives. The N-Gain, calculated at 0,67, falls into the moderate-to-high range on Hake[34] scale, as illustrated in figure 5. Moreover, 14 of the 15 participants (93 %) surpassed the Minimum Mastery Criteria (KKM) threshold of 70, as defined in Permendikbudristek No. 21 of 2022 on process standards. Collectively, these indicators affirm the training's efficacy in enriching digital literacy alongside pedagogical proficiency.

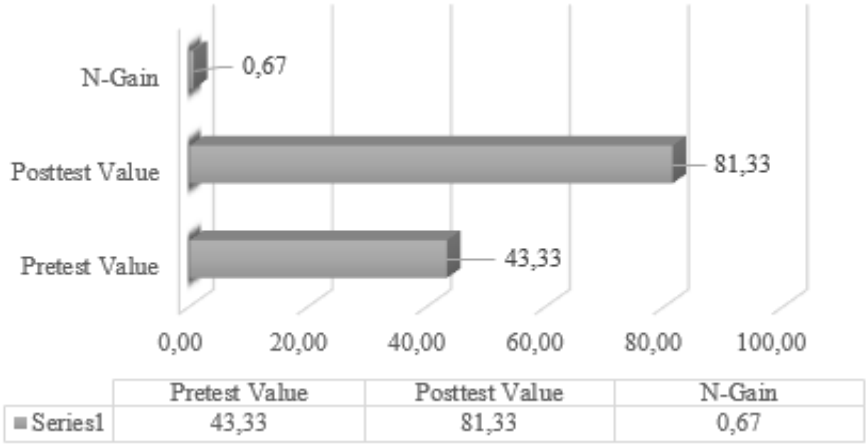

Figure 5. Level of Participant Understanding

Training Evaluation: Participant Satisfaction with Resource Persons and Program Delivery

Table 5. Evaluation Results of Resource Persons

No	Indicators	Score	Mean	SD	Interpretation
1	The material presented was clear and easy to understand.	82,67	81,50	1,92	Strongly Agree
2	The resource person had a thorough understanding of the training material.	81,33	80,80	2,15	Strongly Agree
3	The resource person was able to answer participants' questions effectively.	80,00	79,90	2,34	Agree
4	The resource person used relevant and applicable examples.	85,33	84,10	1,76	Strongly Agree
5	The resource person's presentation style was engaging and engaging.	80,00	79,50	2,42	Agree
Average Score		81,87	-	-	Strongly Agree

Participant satisfaction was gauged through a structured questionnaire employing a 5-point Likert scale. The evaluation of resource persons was structured around five criteria: clarity of presentation, command of the subject matter, responsiveness to queries, incorporation of practical illustrations, and delivery technique (see table 5). The overall mean score for these criteria was 81,87, placing it within the "very good" band. The assessment of training delivery, which examined timeliness, comfort of the venue, availability of facilities, relevance of content, and perceived overall utility, yielded a mean score of 82,13 (table 6) and was similarly classified as "very good." These results indicate that the training effectively addressed participant requirements and was carried out with a high standard of professionalism. Participants expressed strong interest in enrolling in subsequent sessions focused on educational technology.

Table 6. Evaluation Results of Activity Implementation

No	Indicator	Score	Mean	SD	Interpretation
1	The training was conducted according to the established schedule.	77,33	78,50	2,65	Agree
2	The venue was comfortable and conducive to learning.	85,33	84,20	2,12	Strongly Agree
3	Supporting facilities (focus projectors, laptops, etc.) were well-supplied.	82,67	83,10	1,98	Strongly Agree
4	The training materials were tailored to the needs and backgrounds of the participants.	81,33	80,70	2,54	Strongly Agree
5	The training helped me create Canva-based student worksheets.	84,00	83,60	1,87	Strongly Agree
Average Score		82,13	-	-	Strongly Agree

Classroom Implementation and Follow-Up: Applying Digital LKPDs and Capacity-Building Plans

Following the training, teachers began deploying LKPDs crafted in Canva in the classroom. The project team maintained continuous support through technical direction and formative assessment throughout this deployment phase. Teachers exhibited a proactive stance, broadening their LKPD designs by customising content and visual elements to the profiles of their students and the particular demands of subject matter.

Post-implementation analysis has indicated that the integration of Canva-based digital LKPDs markedly heightened student engagement, streamlined content delivery, and strengthened formative assessment for educators. These outcomes denote a discernible evolution in pedagogical approaches, illustrating a decisive reconfiguration of how instructors conceive and orchestrate classroom environments. Subsequent follow-up endeavours will concentrate on two principal domains: First, the deployment of structured advanced training modules on educational technology, including digital assessment tools, educational animations, and interactive media scaffolds. Second, the formal establishment of a teacher learning community that will underpin continuous peer review and digital collaboration. Collectively, these initiatives are designed to anchor the gains of the PkM program and to foster an enduring culture of self-guided, iterative professional development among educators serving coastal and underserved populations.

DISCUSSION

A key outcome from this training was the significant improvement in teachers' ability to create tech-based Student Worksheets (LKPD) using Canva. They started with an average pretest score of 43,33 but shot up to 81,33 by the posttest. That is a big jump. The N-Gain score of 0,67 falls within the moderate-to-high range on Hake's scale, indicating that the training was highly effective in boosting both digital skills and the ability to design lessons. Who found that Canva training helps teachers gain a better understanding of digital learning tools.[31] Interactive digital platforms fill in the gaps and enable teachers to become more skilled in practical tasks.[32] Canva helps build digital literacy and sparks creativity when teachers compile learning materials.[35]

The training was practical because it employed experiential learning. Teachers did not just sit and listen to PowerPoints; they practised, thought about what they did, and discussed real classroom problems in groups. As a result, they felt less stress around technology and were more confident in using it.[33] Mixing these hands-on activities with tech tools helped them understand both how to teach and how to weave digital tools into their lessons. Canva's easy design allowed teachers of all ages to create visually appealing worksheets that aligned with the curriculum. These results demonstrate how experiential learning can significantly impact the development of practical, real-world skills in teacher.[36]

Feedback from both the trainers and the training space provided additional evidence that the program was effective. The average ratings—81,87 for trainers and 82,13 for how the program was delivered—landed in the "very good" zone. These numbers show that what participants learned mattered, but so did how the trainers taught, the methods they used, and how welcoming the space felt. Great trainers can make or break any professional development event.[37] Here, peer reviews and team chats were key for helping everyone make the new skills feel like their own. Still, when we reviewed the lesson plan products, we noticed that some teachers required additional support. They are still working on articulating their learning goals and integrating ongoing assessments. Many participants invested energy in flashy visuals but overlooked the fundamental principles of effective instructional design.

Implementation challenges continually arose during our discussions. Teachers mentioned that in the coastal regions, the internet connection was spotty, and many kids did not have the right devices, so they struggled to use the digital LKPDs. This is the same

digital divide that researchers like Hamsiah et al. and Qaribilla et al.[1] pointed out earlier in the year. It demonstrates that schools and local governments must collaborate to provide every student with a fair opportunity to access ICT tools. Linhalis and Silva suggested setting up local network-based systems that do not rely on the wider internet, which could be a solid, low-cost way to close the tech gap in areas with limited access.[38] The activity program demonstrated the importance of teachers collaborating to create effective learning communities. Activities like peer reviews and group discussions helped teachers work together and adopt new teaching practices. Hossain et al.[39] found that when teachers engage in hands-on learning with one another, great ideas spread faster, and teachers feel more independent. When we enhance teamwork among teachers, they become more effective at creating lessons that utilise technology, especially in areas with limited resources. The online teacher group that started during the program continues to foster conversation, allowing teachers to share ideas and successful methods. This supports a thoughtful and flexible teaching culture that keeps up with new curriculum and technology changes.

Overall, the training program effectively addressed the primary issue: teachers lacked confidence in designing lessons that incorporated technology. The clear growth in teachers' skills, their positive feedback about the program, and the improved quality of the LKPDs they created all demonstrate that the program was effective. This shows that when training is responsive to the local context, hands-on, and encourages reflection, it can truly change and improve teachers' skills in a lasting and meaningful way.

CONCLUSIONS

This study aimed to bolster the digital competencies of teachers in coastal regions by guiding them in the development of technology-enhanced Student Worksheets (LKPD) via the Canva platform. The program enabled educators to produce contextualized, interactive, and curriculum-aligned learning materials, fostering both creativity and effective technology integration into their pedagogy. By combining experiential learning with a user-friendly platform, participants moved beyond conceptual understanding to sustained classroom application, supported by iterative design, critical reflection, and peer collaboration. The high levels of participant satisfaction underscore that impactful professional development depends not only on content quality, but also on facilitation methods, varied pedagogical strategies, and a supportive learning environment. This initiative offers a replicable model for practice-oriented technology training in under-resourced and remote (3T) contexts and promotes the formation of digital educator communities as active hubs for sharing expertise and co-creating innovative teaching practices. The insights and reflective practices generated here provide a robust foundation for future programs that prioritize contextual relevance, sustainability, and responsiveness to the challenges of marginalized educational settings.

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CONFLICT OF INTEREST

None.

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