



Empowering Teachers through Digital Competency Training: A Community Service Initiative in Central Isulan District, Sultan Kudarat, Philippines

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ABSTRACT

This community service program aimed to strengthen the digital competency of public elementary school teachers in the Central Isulan District, Sultan Kudarat, through structured digital literacy training and mentoring. Building on prior research linking digital competency and teaching effectiveness, the program designed workshops focusing on digital skills, pedagogical innovation, and technological adaptability. Using a participatory training approach, 169 teachers and school heads joined in a series of interactive workshops and follow-up mentoring sessions. Evaluation through pre- and post-training assessments showed significant improvement in teachers' confidence, classroom technology integration, and digital lesson design. Teachers demonstrated greater engagement in online instruction and developed contextualized digital learning resources. The project contributed to enhancing instructional quality and aligning local teaching practices with the Department of Education in digital transformation goals. This initiative underscores the importance of continuous professional development and inclusive access to digital technologies in improving educational outcomes in rural communities.

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1. INTRODUCTION

The rapid digitalization of education has transformed how teachers design, deliver, and assess learning. However, in many developing regions, including the Philippines, the transition toward technology-enhanced teaching remains uneven. Teachers in provincial and rural districts often face barriers such as limited access to infrastructure, insufficient training, and a lack of confidence in integrating digital tools into instruction (Ertmer *et al.*, 2012). This digital divide affects not only teaching quality but also students' opportunities to develop 21st-century skills needed for lifelong learning (Voogt *et al.*, 2013; Wang & Lee, 2019). Addressing this gap requires not just research-based understanding but concrete, community-based interventions that empower teachers as digital practitioners and innovators.

The Central Isulan District in Sultan Kudarat represents a microcosm of these challenges. Although teachers have demonstrated commitment and adaptability, many continue to struggle with integrating technology into classroom instruction. Previous studies have shown that digital competency (comprising digital skills, pedagogical innovation, and technological adaptability) is significantly correlated with teaching effectiveness (Mishra & Koehler, 2006; Ertmer & Ottenbreit-Leftwich, 2013). Yet, most initiatives in this area have remained limited to academic research without extending practical, capacity-building support to local educators (Choi & Kim, 2017; Park & Lee, 2021). Recognizing the need to bridge research and practice, this community service program was developed to translate empirical findings into a direct community empowerment project for teachers in Isulan, Sultan Kudarat.

Aligned with the Department of Education's (DepEd) Basic Education Learning Continuity Plan and its digital transformation agenda, this program sought to strengthen teachers' ability to utilize technology for interactive, student-centered learning. The initiative also supports the United Nations Sustainable Development Goal 4 (Quality Education), which emphasizes inclusive and equitable access to quality education and lifelong learning opportunities for all. By designing a structured digital training and mentoring program, the project provided a sustainable model of community engagement that fosters both professional and institutional growth.

This initiative specifically aimed to (1) enhance teachers' digital literacy through practical workshops, (2) develop pedagogical competence for designing and implementing digital lessons, and (3) promote technological adaptability for blended and online learning environments. Furthermore, it encouraged collaboration among teachers, school heads, and university partners to create a community of practice focused on innovation and continuous improvement (Koh *et al.*, 2015). Ultimately, the program aspired not only to improve individual teaching effectiveness but also to contribute to the long-term digital readiness of schools in Sultan Kudarat.

Through this initiative, community service became a transformative platform where higher education institutions and local schools co-created solutions for educational development. The integration of research evidence, practical training, and community partnership exemplifies how extension programs can sustain educational quality, reduce digital inequities, and empower teachers to thrive in the digital era (Ifenthaler & Yau, 2022).

2. METHODS

This program adopted a descriptive-participatory approach designed to translate research findings on digital competency and teaching effectiveness into direct community empowerment for public elementary school teachers in the Central Isulan District, Sultan Kudarat. The initiative was carried out through a combination of training workshops,

mentoring sessions, and evaluation activities aimed at enhancing teachers' digital literacy, pedagogical practices, and technological adaptability (Etikan *et al.*, 2016). The program emphasized inclusivity and collaboration, involving teachers, school heads, and representatives from the Department of Education (DepEd) as active participants in both planning and implementation stages.

The community engagement began with a needs assessment that identified the teachers' levels of digital competence and the specific areas requiring support. Based on this assessment, modules were designed using the European Commission's Digital Competence Framework for Citizens and the DigCompEdu model. The training cycle included workshops on digital communication tools, technology-enhanced lesson design, online assessment methods, and adaptive teaching using blended learning strategies (Garrison & Kanuka, 2004; Mishra & Koehler, 2006). Teachers participated in group discussions, simulations, and peer-sharing activities to foster collaboration and reflective learning (Koh *et al.*, 2015).

To evaluate program effectiveness, data were collected through pre- and post-training surveys distributed via Google Forms, along with focus group reflections and classroom observation feedback. Ethical clearance and permission were obtained from the Division Superintendent and participating schools (APA, 2020). The same instrument from the original study was adapted to capture teachers' improvement in digital skills, pedagogical integration, and technological adaptability. Evaluation also considered participants' perceptions of teaching effectiveness, including student engagement, academic performance, classroom management, and their performance in the Classroom Observation Tool (COT) (Ifenthaler & Yau, 2022).

The training involved 169 participants (162 teachers and 7 school heads) from seven schools within the district. Activities were held both onsite and online to ensure accessibility, with materials distributed through the official DepEd email network. Continuous mentoring followed the workshops to support teachers in applying their new competencies in actual classroom settings.

To provide an overview of the demographic composition of participants, **Table 1** presents the distribution of respondents according to sex. This table offers insight into gender representation among public elementary teachers in the Central Isulan District, which has implications for instructional leadership, collaboration, and the implementation of technology-based teaching strategies (Buchmann *et al.*, 2018).

Table 1. Distribution of respondents by sex.

Category	Frequency	Percentage
Male	32	19 %
Female	137	81 %
Total	169	100 %

To illustrate the profile of participants, **Table 2** presents the age distribution of teachers in the Central Isulan District. As shown in **Table 2**, the age distribution reveals a predominantly mid-career workforce, indicating a mix of experienced educators and early-career teachers receptive to digital innovation (Ertmer & Ottenbreit-Leftwich, 2013).

Furthermore, **Table 3** presents the educational attainment of the teachers, reflecting their academic background and pursuit of professional advancement. As presented in **Table 3**, most teachers have either completed or are pursuing graduate studies, indicating strong professional motivation despite barriers such as limited financial support and research opportunities (Voogt *et al.*, 2013).

Table 2. Age profile of the teachers.

Category	Frequency	Percentage
30 years old and below	33	20%
31–40 years old	58	34%
41–50 years old	40	24%
51–60 years old	37	22%
60 years old and above	1	1%
Total	169	100%

Table 3. Educational attainment of the teachers.

Category	Frequency	Percentage
Bachelor's Degree	65	38%
With units in Master's	45	27%
Master's Degree	48	28%
With units in a PhD	7	4%
Doctorate Degree	4	2%
Total	169	100%

In addition, **Table 4** summarizes the teachers' length of service, providing a view of their experience distribution across the district. As reflected in **Table 4**, the majority of teachers (56%) are early in their careers, which presents opportunities for sustainable digital transformation through continuous mentoring and skill enhancement (Ertmer & Ottenbreit-Leftwich, 2013; Mishra & Koehler, 2006). The project capitalized on this composition by pairing younger, tech-oriented teachers with seasoned mentors during collaborative lesson design sessions.

Table 4. Length of service of the teachers.

Category	Frequency	Percentage
1–10 years	95	56%
11–20 years	52	31%
21–30 years	19	11%
31–40 years	3	2%
41–50 years	0	0%
Total	169	100%

Throughout the program, teachers practiced developing lesson plans using online platforms such as Google Workspace, Canva, and Padlet. The mentoring sessions emphasized contextualization adapting technology to local curriculum goals and student needs (Voogt *et al.*, 2015).

At the end of the engagement, post-assessment data demonstrated measurable improvement in teachers' perceived digital competence and teaching effectiveness. The integration of digital pedagogy was further validated through classroom observation and feedback, consistent with the Community of Inquiry framework (Garrison *et al.*, 2000). These outcomes provide the foundation for the next section, which details the results and impact of the program.

3. RESULTS AND DISCUSSION

The implementation of the digital competency training program for teachers in the Central Isulan District produced measurable improvements in participants' digital literacy,

pedagogical integration, and technological adaptability. The program evaluation utilized pre- and post-assessment surveys, classroom observations, and reflection notes to determine the impact of the workshops and mentoring sessions. The results demonstrated that the community-based intervention effectively enhanced teaching effectiveness through the development of digital competencies.

To quantify the improvement, participants' self-assessment scores before and after the program were compared across three key dimensions—digital skills, pedagogical practices, and technological adaptability (see **Table 5**).

Table 5. Comparison of pre-training and post-training mean scores on digital competency.

Dimension	Pre-training Mean	Post-training Mean	Mean Gain	Interpretation
Digital Skills	3.76	4.25	+0.49	Improved
Pedagogical Practices	3.81	4.30	+0.49	Improved
Technological Adaptability	3.89	4.37	+0.48	Improved
Overall Mean	3.82	4.31	+0.49	Significantly Improved

As shown in **Table 5**, teachers' overall digital competency increased from a mean score of 3.82 before the program to 4.31 after the intervention, reflecting a substantial enhancement in their ability to utilize digital tools for teaching. These results validate prior findings that training interventions grounded in the DigCompEdu and TPACK frameworks significantly improve teachers' professional digital skills (Mishra & Koehler, 2006; Koh *et al.*, 2015). Participants reported increased confidence in creating interactive lesson plans, using learning management systems, and conducting online assessments—an outcome consistent with previous studies highlighting the positive link between digital fluency and teaching performance (Ertmer & Ottenbreit-Leftwich, 2013; Ifenthaler & Yau, 2022).

In addition to self-assessment, improvements in teaching effectiveness were observed during classroom evaluations and feedback sessions. These were measured across four indicators—student engagement, academic achievement, classroom management, and performance based on the Classroom Observation Tool (COT). **Table 6** summarizes the mean ratings obtained after the training.

Table 6. Teaching effectiveness indicators after digital competency training.

Dimension	Mean	SD	Verbal Description
Student Engagement	4.40	0.61	Very High
Academic Achievement	4.36	0.72	Very High
Classroom Management	4.39	0.64	Very High
Classroom Observation Tool (COT)	4.46	0.58	Very High
Overall Mean	4.40	0.64	Very High

As indicated in **Table 6**, teachers demonstrated very high teaching effectiveness after completing the program (overall mean = 4.40, SD = 0.64). These findings echo the correlation established in prior research where digital competence strongly predicts instructional performance ($r = 0.811$, $p < 0.05$) (Voogt *et al.*, 2013). Improved teaching performance was most evident in classroom management and student engagement dimensions that benefit most from interactive digital learning tools (Fredricks *et al.*, 2023; Simonsen *et al.*, 2022).

Qualitative feedback gathered from reflection forms and focus group discussions further supported these quantitative results. Teachers expressed greater confidence in using online platforms such as Google Classroom, Microsoft Teams, and Canva for Education. Many reported that students became more responsive, participative, and self-directed during lessons when technology was integrated. One participant shared that “digital platforms have made learning more enjoyable for students; they are excited to participate when lessons use interactive slides and videos,” confirming the motivational value of technology in classroom engagement (Garrison *et al.*, 2000).

Moreover, the mentoring sessions played a crucial role in sustaining teachers’ adaptability to technological changes. Through peer collaboration, teachers learned to design contextualized digital lesson materials relevant to the local curriculum and culture bridging the gap between theory and practice. This approach resonates with the principles of the Community of Inquiry framework, emphasizing teaching, social, and cognitive presence as interrelated dimensions of effective learning (Garrison & Kanuka, 2004; Voogt *et al.*, 2015).

Table 7 presents the correlation results between digital competency and teaching effectiveness after the intervention.

Table 7. Correlation between digital competency and teaching effectiveness after training.

Variable	Correlation Coefficient (r)	Significance (p < 0.05)	Interpretation
Digital Skills and Teaching Effectiveness	0.74	Significant	Strong Positive
Pedagogical Practices and Teaching Effectiveness	0.76	Significant	Strong Positive
Technological Adaptability and Teaching Effectiveness	0.79	Significant	Strong Positive
Overall Digital Competency and Teaching Effectiveness	0.81	Significant	Strong Positive

The correlation results in **Table 7** confirm a strong positive association between digital competency and teaching effectiveness ($r = 0.81$, $p < 0.05$), supporting the theoretical assumption that teachers’ ability to integrate technology directly enhances instructional delivery, engagement, and learning outcomes (Mishra & Koehler, 2006; Ifenthaler & Yau, 2022). This outcome mirrors the findings of some researcher (Wang & Lee, 2019), which emphasized that digital readiness and continuous professional development are essential to achieving instructional excellence in 21st-century classrooms.

The success of this program underscores the transformative role of community-based digital training initiatives in strengthening local education systems. Beyond measurable gains, the project cultivated a community of practice among educators who continue to share innovations through school-based learning action cells. This collaborative culture ensures sustainability, as participants now serve as peer mentors for other teachers within the district (Teo *et al.*, 2014; Johnson & Smith, 2020).

Overall, the results affirm that empowering teachers through localized, research-informed community service can bridge the digital divide, elevate instructional quality, and contribute to the realization of SDG 4: Quality Education. The integration of practical digital skills with pedagogical competence not only enhances teacher performance but also strengthens students’ learning experiences in an increasingly digital world.

4. CONCLUSION

The community-based digital competency training successfully enhanced teachers' digital literacy, pedagogical integration, and technological adaptability in the Central Isulan District. The program demonstrated that empowering teachers through localized digital training leads to measurable improvement in teaching effectiveness, student engagement, and classroom innovation. The strong positive correlation between digital competence and instructional quality confirms that sustained professional development and inclusive access to technology are vital for 21st-century education. This initiative aligns with DepEd's digital transformation agenda and supports SDG 4 by promoting equitable, technology-driven learning opportunities for all learners.

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6. AUTHORS' NOTE

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7. REFERENCES

- Buchmann, C., DiPrete, T. A., and McDaniel, A. (2018). Gender inequalities in education. *Annual Review of Sociology*, 34(1), 319–337.
- Choi, H., and Kim, J. (2017). Digital competency and its impact on teaching effectiveness: A longitudinal analysis. *Educational Technology Research and Development*, 65(4), 869–892.
- Ertmer, P. A., and Ottenbreit-Leftwich, A. T. (2013). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education*, 42(3), 255–284.
- Ertmer, P. A., Ottenbreit-Leftwich, A. T., Sadik, O., Sendurur, E., and Sendurur, P. (2012). Teacher beliefs and technology integration practices: A critical relationship. *Computers and Education*, 59(2), 423–435.
- Etikan, I., Musa, S. A., and Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1–4.
- Fredricks, J. A., Wang, M. T., and Schallert, D. (2023). Engagement in education: Current developments in theory, research, and practice. *Educational Psychologist*, 58(1), 1–17.

- Garrison, D. R., and Kanuka, H. (2004). Blended learning: Uncovering its transformative potential in higher education. *The Internet and Higher Education*, 7(2), 95–105.
- Garrison, D. R., Anderson, T., and Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, 2(2–3), 87–105.
- Ifenthaler, D., and Yau, J. Y.-K. (2022). Digital teaching competence of educators—Technology acceptance and adoption. *Education and Information Technologies*, 27(4), 5179–5199.
- Johnson, M., and Smith, T. (2020). Barriers to digital transformation in Philippine public schools: A rural perspective. *Asia Pacific Journal of Education*, 40(4), 563–578.
- Koh, J. H. L., Chai, C. S., and Tsai, C. C. (2015). Examining the technological pedagogical content knowledge of Singapore pre-service teachers with a large-scale survey. *Journal of Computer Assisted Learning*, 31(6), 493–506.
- Mishra, P., and Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017–1054.
- Park, S., and Lee, H. (2021). Exploring the relationship between digital competence and teaching effectiveness: A meta-analysis. *Education and Information Technologies*, 26(5), 5349–5369.
- Simonsen, B., Freeman, J., and Sugai, G. (2022). Effective classroom management: Evidence-based practices for student success. *Preventing School Failure*, 66(2), 89–98.
- Teo, T., Fan, X., and Du, J. (2014). Technology acceptance among pre-service teachers: Does gender matter? *Australasian Journal of Educational Technology*, 30(3), 235–251.
- Voogt, J., Fisser, P., Pareja Roblin, N., Tondeur, J., and van Braak, J. (2013). Technological pedagogical content knowledge – A review of the literature. *Journal of Computer Assisted Learning*, 29(2), 109–121.
- Voogt, J., Fisser, P., Pareja Roblin, N., Tondeur, J., and van Braak, J. (2015). Integrating technology in teaching: The TPACK framework revisited. *Journal of Educational Computing Research*, 51(1), 1–20.
- Wang, Y., and Lee, J. (2019). The impact of digital readiness on teaching performance in Southeast Asian schools. *Educational Research for Policy and Practice*, 18(1), 23–41.