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Journeying through Digital Transformation: Experiences of Teachers and Administrators in the Adaption of Digital Professional Development in Public Schools

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ABSTRACT

This study examined teachers' and school administrators' experiences of Digital Professional Development (DPD) in selected rural public schools in Bohol, Philippines. A sequential explanatory mixed-methods design was used, in which survey responses from 348 educators—305 teachers and 43 school administrators—preceded the analysis of 19 written accounts from 13 teachers and six school administrators. A 100-item, four-point questionnaire measured engagement, challenges, and coping and adaptation. Responses were analyzed using descriptive statistics and nonparametric tests (Mann–Whitney U, Kruskal–Wallis H, chi-square, and Spearman correlation), while the written accounts were examined through thematic analysis. Overall engagement was high (M = 3.19), with very high perceived relevance (M = 3.35) and participation rated lowest among the dimensions (M = 3.07). Challenges were also high (M = 3.06), led by workload and time demands (M = 3.16) and technological and access barriers (M = 3.11), and coping and adaptation were high (M = 3.23). Overall engagement differed by role, age group, and educational attainment and was associated with service and DPD-attendance categories, while gender differences were not significant (p = .504). Engagement was positively related to challenges (r_s = .205) and to coping and adaptation (r_s = .629), both p < .001. Six themes emerged: useful learning in everyday work; infrastructure, time, and confidence gaps; collegial help, practice, and resourcefulness; uneven institutional support; practical, sustained, and equitable DPD; and gradual progress and adaptation. Recognized usefulness thus coexisted with continuing barriers to participation and application. The integrated evidence supports practical training, protected learning time, reliable resources, and continuing peer and institutional assistance, which informed a proposed six-month action plan built around a six-hour practical training activity. Because the evidence is self-reported and integration was conducted at the group level, the findings establish neither causal effects nor improvements in learner outcomes.

Keywords: *digital professional development, digital transformation, teacher engagement, school administrators, mixed methods, rural public schools*

INTRODUCTION

Digital Professional Development (DPD) now reaches Philippine teachers through online in-service training (INSET), webinars, and learning platforms, extending the Department of Education's (DepEd) provision for curriculum change and the development of teaching practice. Access and application, however, remain distinct. The value of a professional learning activity depends on whether educators can participate consistently, examine its content, and use what they learn within the responsibilities that occupy their working day. Heavy workloads,

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 11 (November 2026)

geographic barriers, uneven training opportunities, and inconsistent funding and support can constrain participation before a course's instructional merits become relevant (Rivera et al., 2025).

Learning a digital procedure also leaves an interpretive task: educators must judge what new knowledge means for their circumstances, adapt it, and put it to use (Desimone, 2009; Philipsen et al., 2019). Filipino educators' own accounts of this process have received less attention in the literature, leaving limited explanation of how digital training enters teachers' and school leaders' daily responsibilities and becomes usable within them. In Bohol, urban, rural, and island school communities differ in resources and working conditions, so educators offered the same digital activity may have quite different opportunities to remain involved and apply its content.

Most studies of DPD measure access, competence, participation, or perceived training effectiveness. Such indicators describe patterns and programs but offer less detail about how educators experience a particular activity, judge its relevance, or manage its demands alongside schoolwork. Few studies have examined engagement, challenges, and coping together, or combined survey evidence with educators' own interpretations in a provincial Philippine setting. This study addresses that gap by examining engagement alongside the difficulties educators encountered and their ways of coping and adapting, using a sequential explanatory mixed-methods design in which a phenomenological qualitative strand followed and helped explain the survey findings.

Specifically, the study sought to determine (a) the profile of the respondents in terms of role, age, gender, highest educational attainment, years of service, and number of DPD activities attended in the last two years; (b) the level of engagement in DPD in terms of access to digital platforms and resources, participation, perceived relevance of training programs, preparedness for digital learning, and institutional support; (c) the level of challenges encountered in terms of technological and access, workload and time, institutional and support-related, and emotional and psychological challenges; (d) the level of coping and adaptation strategies employed; (e) whether DPD engagement differs significantly across profile groups; (f) whether engagement is significantly related to the challenges encountered and to the coping and adaptation strategies employed; (g) how the adaption of DPD relates to educators' professional growth and instructional effectiveness as reflected in both strands; (h) how the qualitative findings explain, complement, or diverge from the quantitative findings; and (i) what DPD action plan may be proposed to strengthen Digital INSET in the Division of Bohol. Two null hypotheses were tested at the .05 level: that there is no significant difference in overall engagement or its five dimensions across profile groups, and that there is no significant relationship between engagement and challenges or between engagement and coping and adaptation.

The findings provide teachers with a basis for identifying strengths and assistance needs in DPD; help school administrators make decisions about DPD schedules, technical assistance, resources, mentoring, and School Improvement Plans; show DepEd how DPD and INSET arrangements operate under different school conditions; guide training designers in selecting examples, activities, and platform requirements; and contribute provincial evidence for further research on DPD adaptation and support needs.

Literature Review

Digital Professional Development and Effective Professional Learning

DPD encompasses organized and self-directed learning through digital platforms—webinars, online courses, virtual mentoring, online communities of practice, and blended activities—for the development of teachers' professional knowledge and skills. Its usefulness depends on educators' opportunities to participate, practise, and carry the content into their work. Face-to-face INSET has traditionally required attendance at a fixed venue and time, bringing teachers with different needs into a common program whose continuity and classroom relevance can be limited when activities are short and isolated (Darling-Hammond et al., 2017). Moving online leaves that difficulty unresolved when educators complete a requirement without time to try its content or obtain subsequent assistance.

Darling-Hammond et al. (2017) located effective professional development in sustained learning, attention to content, collaboration, and connections with classroom practice. Digital platforms can support these

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 11 (November 2026)

features when teachers revisit material, pursue a problem after a session, and continue working with colleagues. Trust and Whalen (2020) pointed to the potential of online learning to reduce distance, time, and cost barriers, while also drawing attention to teachers' confidence in using technology. These possibilities, however, must be read alongside the pedagogical reconsideration described by Rapanta et al. (2020): a course made easier to reach still requires a design through which educators can learn and revise their practice.

The COVID-19 shift to remote learning made these demands urgent, as teachers had to acquire unfamiliar technical procedures while reconsidering how to teach through them (Rapanta et al., 2020). Adjustment required experimentation and persistence amid limited technology, heavier workloads, and emotional strain. Philipsen et al. (2019) emphasized that professional development for online and blended learning must attend to how teachers interpret and adapt new practices, so that learning to operate a tool is understood as related to, but distinct from, deciding how to organize teaching around it.

Online Professional Learning Communities and Networks

Online professional learning communities create opportunities to discuss work with colleagues across school boundaries and beyond scheduled activities. Vangrieken et al. (2017) emphasized collaboration in the exchange of ideas, the development of knowledge, and collegial support, while Kearney and Maher (2019) located teacher learning in classroom experience. Read together, these perspectives direct attention to whether discussions across online forums, learning management systems, and social media groups help teachers examine a difficulty, consider an alternative, and judge its suitability for their own context.

In a study of 732 P–12 teachers, Trust et al. (2016) found that professional learning networks accessible across time and place could respond to varied interests and support growth, giving teachers in remote communities access to resources and advice beyond their immediate workplace. Availability alone, however, does not guarantee that exchanges remain relevant enough for educators to sustain participation. Facilitation matters: moderators and instructional leaders can invite contributions, pose questions, and reconnect discussion with classroom concerns, without which a group may become inactive or function chiefly as a repository of materials.

The Organisation for Economic Co-operation and Development (OECD, 2021) identified administrative encouragement, technical assistance, and opportunities for continued learning as conditions that become concrete when teachers return to their duties and encounter questions that training did not resolve. Together, these studies suggest that DPD is most likely to support practice when formal provision is accompanied by professional relationships through which educators seek assistance, share resources, and reflect with colleagues on what worked under local conditions.

The Philippine Policy Context and Local Evidence

Philippine expectations for teacher development and technology use are set partly through DepEd standards and programs. The Philippine Professional Standards for Teachers specify expectations across career stages that include technology use, reflection, and continued learning (Department of Education, 2017), while the MATATAG Agenda addresses teacher and school-leader capacity and instructional quality (Department of Education, 2023). Through Learning Action Cells, webinars, and online INSET programs, DepEd provides routes into professional learning, but participation occurs under conditions in which one educator may have a dependable device and connection while another shares equipment, works around unstable service, and fits attendance between other duties.

Rivera et al. (2025) identified uneven provision, inconsistent funding, workload and geographic barriers, and content insufficiently connected to pedagogical needs, recommending digital tools, school-based learning communities, and mentoring. Dioquino and Paglinawan (2024), examining 150 long-serving teachers, found training and assistance gaps even where respondents generally had sufficient resources, with institutional support and training predicting digital competence. Among 274 Filipino teachers, Abella and Dela Rosa (2023) found higher digital literacy among those with fewer than ten years of experience and associations of literacy and competence with resources, pre-service preparation, and favorable ICT attitudes.

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 11 (November 2026)

Other local studies qualify assumptions about format and outcomes. Duterte (2025) found that elementary educators valued convenient webinar access but noted reduced personal interaction and preferred combined online and in-person activities, with relevance, presenter expertise, interaction, and platform usability shaping engagement. In Bohol, Dosaban and Beltran-Salipong (2025) found no significant relationship between teachers' computer literacy and learners' EPP–ICT performance among 62 public elementary teachers, cautioning against treating teachers' digital skills as sufficient evidence of improved learner outcomes while still recommending training, better infrastructure, and hands-on technology use.

Barriers to Participation and Application

Access carries its own workload. The resource disparities identified by the OECD (2021) become concrete in the difference between dependable personal equipment and a shared device or intermittent mobile data, since reaching a webinar or obtaining materials can consume time and personal resources when service is unreliable. In rural settings, limited bandwidth, shared devices, and unstable service may prevent a teacher from following a live session, and an interruption becomes harder to recover from when lesson preparation, assessment, or reporting already occupies the time in which missed content might be revisited.

Instructional relevance and confidence introduce further conditions. Teachers need a connection between general guidance and their subjects, learners, and classrooms, which the content-focused, practice-grounded professional development emphasized by Darling-Hammond et al. (2017) calls for. A teacher unfamiliar with a platform may need procedural assistance before attending closely to its instructional content (Trust & Whalen, 2020), and limited confidence may be accompanied by anxiety or reluctance. Because teaching and reporting continue during professional learning, sustained engagement must also be considered in relation to time for attendance, later use, and assistance during application—work that may otherwise be left to teachers to fit around undiminished responsibilities.

Theoretical Framework

Four perspectives informed the study. Kolb's (1984) Experiential Learning Theory relates concrete experience, reflective observation, abstract conceptualization, and active experimentation, directing attention to whether DPD offers opportunities to practise and reflect after a session. Adult Learning Theory (Knowles et al., 2015) foregrounds self-direction, purpose, and relevance to adult responsibilities, raising the question of whether an activity addresses problems educators have reason to invest time in solving.

Mishra and Koehler's (2006) Technological Pedagogical Content Knowledge (TPACK) framework places content, pedagogy, and technology within the same instructional decision, helping interpret whether skills developed through DPD fit participants' instructional responsibilities. Fullan's (2016) Change Theory situates that decision within an organization whose resources, routines, beliefs, and expectations affect implementation, so that a teacher who understands a tool may still need leadership, collaboration, or technical assistance to incorporate it into everyday work. Together, these perspectives connected learning through practice, adult professional judgment, instructional technology decisions, and school arrangements, and kept the analysis from attributing every difficulty to individual skill or motivation.

Research Gap and Conceptual Framework

Access, relevance, digital preparation, and continued assistance recur across the reviewed literature, but educators encounter them in combination, and the literature gives less attention to educators' own interpretations of DPD. Confidence with unfamiliar tools, reasons for persisting, and ways of seeking assistance may influence application even among educators with similar access or training histories. This study therefore combined survey measures of engagement, challenges, and coping with teachers' and administrators' accounts of their DPD experiences in selected rural public schools in Bohol.

Figure 1 presents the theoretical and conceptual framework. Experiential Learning Theory, Adult Learning Theory, TPACK, and Change Theory, together with UN Sustainable Development Goal 4, the PPST,

ISSN: 3116-3475
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of Education, Research, and Innovation Perspectives
Volume 2 Issue 11 (November 2026)

DepEd digitalization initiatives, and the MATATAG Agenda, frame teachers' and school administrators lived experiences of DPD. The study examined the respondent profile, DPD engagement, challenges encountered, and coping and adaptation strategies, integrated the quantitative and qualitative findings, and used the integrated evidence to develop a DPD action plan.

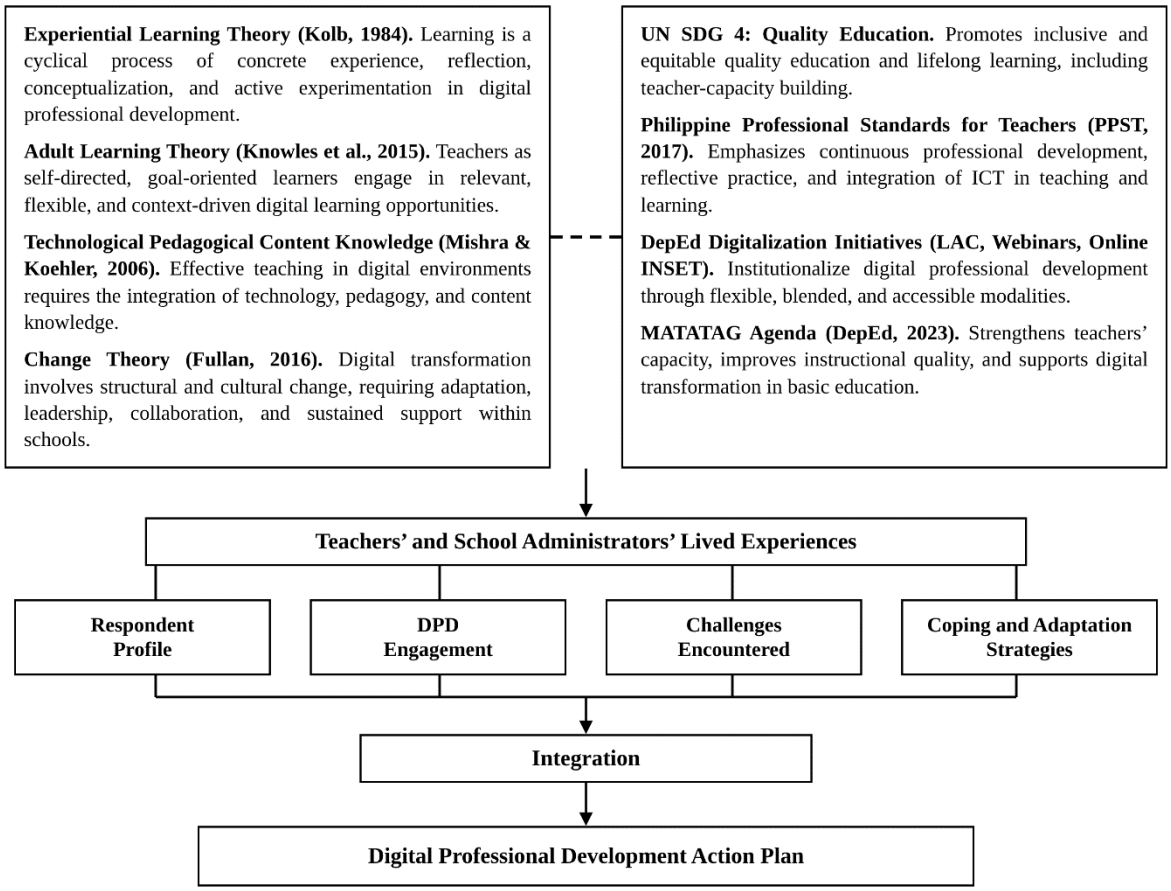


Figure 1. *Theoretical and Conceptual Framework of the Study*

METHODS

Research Design

The study used a sequential explanatory mixed-methods design (QUAN → qual). The survey first described respondent profiles, engagement, challenges, and coping and adaptation and examined differences and associations; written accounts then explored, through a phenomenological approach, how teachers and school administrators understood the experiences surrounding those patterns. Integration occurred at the group level: quantitative findings guided the focus of the subsequent qualitative collection and analysis, but because survey records and written accounts could not be linked by participant, the comparison informed the action plan without tracing individual scores to individual experiences.

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 11 (November 2026)

Research Locale

The study was conducted in selected rural public elementary and secondary schools under the DepEd Schools Division of Bohol, Philippines. Connectivity, devices, technical assistance, workload, and access to training formed the rural context for interpreting both the survey and the written accounts. The available records did not identify the achieved sample by school or district.

Participants and Sampling Technique

The quantitative dataset contained 348 records: 305 teachers (87.64%) and 43 school administrators (12.36%). The original plan proposed proportional stratified random sampling by area and role from official personnel lists, but the achieved population count, sample-size calculation, recruitment flow, and response rate were not documented; a verified probability sample therefore cannot be claimed. Eligible participants were teachers, principals, head teachers, teachers-in-charge, or other designated school administrators in a selected rural public school in Bohol with at least six months in their present school and experience of a DPD activity or digital practices during the previous two years, who were willing to give informed consent. Personnel assigned solely to non-school offices, private-school personnel, those outside the approved rural sampling frame, and substitute or temporary staff with less than six months in their present school were excluded.

For the qualitative strand, the plan proposed purposive recruitment across roles, experiences, and school contexts. After the survey, 19 participants—13 teachers (68.42%) and six school administrators (31.58%)—voluntarily supplied usable written accounts. They represented several career stages, from 6–10 years of service (15.79%) to 31 years or more (26.32%). Consent for the qualitative strand was sought separately from survey participation.

Research Instrument

The quantitative questionnaire obtained profile information and responses to 100 four-point rating items arranged in ten sections of ten items: five engagement sections (50 items), four challenge sections (40 items), and one coping and adaptation section (10 items). It combined published constructs and researcher-developed statements: Goh (2023) informed DPD measurement; Bozkus (2021) and Wu et al. (2023), ICT infrastructure and readiness; Aydin et al. (2024), digital competence; and Liu et al. (2024), DPD and instructional integration. Items were adapted to Philippine public-school teaching and administration. The qualitative instrument consisted of ten open-ended prompts on DPD experiences, difficulties, support, coping, professional meaning, metaphors of the digital journey, future practice, and recommendations, answered in writing.

Means were interpreted as Very High (3.25–4.00), High (2.50–3.24), Low (1.75–2.49), or Very Low (1.00–1.74) using unrounded values; higher engagement and coping scores indicate stronger agreement with favorable statements, whereas higher challenge scores indicate greater reported difficulty. Expert review of the questionnaire and guide for clarity, relevance, and alignment was reported. Internal consistency, estimated from the first 20 complete records, yielded Cronbach's alpha coefficients of 0.885 to 0.974 across the ten sections (0.975 for the 50 engagement items and 0.949 for the 40 challenge items). Because alpha describes response consistency but cannot by itself establish validity or a single-factor structure (Cronbach, 1951), and because the independence of these records from the main analysis was not documented, the coefficients are treated as preliminary estimates.

Data Gathering Procedure

Approval was obtained through the School of Advanced Studies of Bohol Island State University and then from the Schools Division Superintendent of Bohol, and coordination with district supervisors and school heads supported entry to the selected schools and identification of eligible educators. Consenting teachers and administrators who met the eligibility criteria completed the survey, producing 348 records for encoding and analysis. Following the survey, consenting educators answered the ten open-ended questions in writing, yielding 19 usable accounts, which were labeled P1–P19 in spreadsheet order. Finally, the statistical findings were

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 11 (November 2026)

compared with the qualitative themes to identify agreement, additional explanation, and divergence, and the integrated results informed the proposed action plan.

Data Analysis

Frequencies and percentages described the respondent profile, and item and domain means with standard deviations summarized engagement, challenges, and coping and adaptation. Because Shapiro–Wilk tests indicated significant non-normality (all $p < .001$), Mann–Whitney U tests with rank-biserial effect sizes compared respondents by role and gender, and Kruskal–Wallis H tests compared age groups (21–30, 31–40, 41–50, 51–60, and 61 and above) and educational-attainment groups, with Holm-adjusted pairwise comparisons for attainment. Pearson chi-square tests with Monte Carlo p values and Cramér's V examined associations between service and DPD-attendance categories and engagement levels. Spearman rank-order correlations examined the relationships of overall engagement with challenges and with coping and adaptation. All tests used the .05 level of significance and were run in Jamovi, supplemented by Python and SciPy.

The written accounts were analyzed using Braun and Clarke's (2006) six-phase thematic analysis: familiarization, initial coding, searching for themes, reviewing themes, defining and naming themes, and producing the report. Codes concerned perceptions, emotions, difficulties, coping strategies, and reflection on Digital INSET, and six themes were developed and checked against both their coded passages and the full response set. A participant was counted once per subtheme, so counts describe coverage within the 19 accounts rather than population prevalence.

Ethical Consideration

The study was conducted with the approval of the university and the Schools Division Office. Participation was voluntary and required informed consent, and consent for the written qualitative accounts was sought separately from survey participation. Qualitative participants were identified only by codes (P1–P19), and extracts were reported in participants' original wording. Because the evidence was self-reported, the reliability estimates were based on a small subset, and the two strands could not be linked by participant, findings are reported with attention to these limits and without claims of causal effects or population prevalence.

RESULTS AND DISCUSSION

Profile of the Respondents

As shown in Table 1, most respondents were teachers (87.64%), female (90.52%), and aged 31–40 (52.30%). A master's degree was the most common qualification (31.90%), followed by a bachelor's degree (27.01%). Longer service predominated, with 58.91% reporting at least ten years, and the largest DPD-attendance category was one to two activities in the recent period (43.68%), while 12.93% reported none. This mid-career profile is comparable to that described by Aydin et al. (2024), whose 271 teachers had a mean age of 40.61 years and a mean service of 16.70 years, although the samples are not equivalent.

Table 1. *Profile of the Respondents*

Profile	f	%
Respondent role		
Teacher	305	87.64
School administrator	43	12.36
Age		
21–30 years	30	8.62
31–40 years	182	52.30
41–50 years	95	27.30
51–60 years	36	10.34
61 years and above	5	1.44

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 11 (November 2026)

Profile	f	%
Gender		
Female	315	90.52
Male	33	9.48
Highest educational attainment		
Bachelor's degree	94	27.01
Master's units	43	12.36
Master's degree	111	31.90
Doctoral units	45	12.93
Doctoral degree	28	8.05
Other or unclear	27	7.76
Years of service		
Less than 1 year	8	2.30
1–3 years	17	4.89
4–6 years	18	5.17
7–9 years	100	28.74
10 years and above	205	58.91
Recent DPD activities attended		
None	45	12.93
1–2 activities	152	43.68
3–6 activities	78	22.41
6 activities and above	73	20.98

Note. $N = 348$. Attendance categories reproduce the questionnaire labels, which overlap at six activities.

Level of Engagement in Digital Professional Development

Overall engagement was high ($M = 3.19$). As Table 2 shows, perceived relevance was rated very high ($M = 3.35$), while access ($M = 3.20$), institutional support ($M = 3.17$), preparedness ($M = 3.16$), and participation ($M = 3.07$) were rated high. Respondents thus endorsed the value of training more strongly than sustained involvement in it. Within dimensions, reliable internet connectivity was rated more favorably than logging in to required platform accounts, and completing assigned tasks was rated more favorably than contributing questions or ideas during sessions ($WM = 2.82$). Applicability of learning to professional practice received the highest relevance rating ($WM = 3.45$), but the fit between course examples and respondents' actual duties was rated lowest ($WM = 3.20$). Basic file handling was rated more favorably than troubleshooting or finding technical help ($WM = 2.93$), and alignment with division-level priorities was rated higher than school assistance in gaining platform access ($WM = 3.05$).

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 11 (November 2026)

Table 2. *Level of Engagement in Digital Professional Development by Dimension*

Dimension	M	Level	Highest-rated indicator (WM)	Lowest-rated indicator (WM)
Access to digital platforms and resources	3.20	High	Reliable internet connectivity is available (3.33)	Logging in to required accounts without persistent problems (3.08)
Participation in DPD activities	3.07	High	Completing assigned tasks and learning activities (3.20)	Contributing questions, ideas, or responses during sessions (2.82)
Perceived relevance of training programs	3.35	Very high	Knowledge and skills can be applied to improve practice (3.45)	Examples and activities reflect situations encountered at work (3.20)
Preparedness for digital learning	3.16	High	Managing basic file operations (3.31)	Resolving basic technical difficulties or identifying sources of help (2.93)
Institutional support	3.17	High	School support aligned with division-level ICT initiatives (3.30)	School provides or facilitates access to required platforms (3.05)
Overall engagement	3.19	High		

Note. $N = 348$. Very high = 3.25–4.00; High = 2.50–3.24; Low = 1.75–2.49; Very low = 1.00–1.74. WM = weighted mean.

The emphasis on usable learning is consistent with the positive relationship between DPD and classroom integration reported by Liu et al. (2024), while the gap between relevance and participation adds a practical qualification: valuing content does not ensure that an educator has the opportunity to attend, interact, and practise. Althubyani (2024) associated perceived usefulness and supportive social expectations with digital competence, and Adult Learning Theory (Knowles et al., 2015) similarly directs attention to immediate professional relevance. Recognized value did not establish full involvement, suggesting that practical tasks, interaction, and accessible assistance warrant attention in DPD design.

Level of Challenges Encountered

Challenges were high overall ($M = 3.06$). Workload and time ranked first ($M = 3.16$), followed by technological and access ($M = 3.11$), institutional and support-related ($M = 3.01$), and emotional and psychological challenges ($M = 2.95$) (Table 3). Overlapping deadlines for school tasks and DPD requirements was the only indicator rated very high ($WM = 3.27$). Connectivity problems during live sessions was the most strongly endorsed technological barrier ($WM = 3.18$), and limited follow-up mentoring or coaching and limited ICT planning or budget allocation shared the highest institutional mean ($WM = 3.08$). Lengthy sessions that hindered concentration ranked highest among emotional challenges ($WM = 3.09$), while anxiety over unfamiliar platforms and isolation from limited colleague interaction were lowest ($WM = 2.85$), though still within the high category.

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 11 (November 2026)

Table 3. *Level of Challenges Encountered in Digital Professional Development by Dimension*

Dimension	M	Level	Highest-rated indicator (WM)	Lowest-rated indicator (WM)
Technological and access	3.11	High	Connectivity problems in live sessions (3.18)	Limited troubleshooting knowledge or skills (3.03)
Workload and time	3.16	High	Overlapping deadlines for school tasks and DPD requirements (3.27)	Fatigue from participation after regular work hours (3.01)
Institutional and support-related	3.01	High	Limited follow-up mentoring or coaching; limited ICT planning or budget (3.08 each)	DPD not adequately integrated into school policies or plans (2.90)
Emotional and psychological	2.95	High	Lengthy sessions make concentration difficult (3.09)	Anxiety over unfamiliar platforms; isolation from limited colleague interaction (2.85 each)
Overall challenges	3.06	High		

Note. Higher scores indicate greater reported difficulty.

The prominence of workload, time, and access is consistent with Chin et al. (2022), who found that time constraints and inadequate financial and logistical assistance hindered the professional development of Philippine teachers. Klapproth et al. (2020) likewise reported medium to high teacher stress alongside common technical barriers during distance teaching; although emergency instruction differs from DPD participation, their findings provide context for the technological and emotional difficulties reported here. Together, these results show how educators could value DPD while overlapping deadlines, failed access, or lengthy sessions constrained their involvement.

Level of Coping and Adaptation Strategies

Coping and adaptation were rated high (M = 3.23; Table 4). Consulting ICT coordinators, technical personnel, or facilitators (WM = 3.39), seeking help from colleagues (WM = 3.35), collaborating with colleagues to share solutions (WM = 3.34), using tutorials and recorded sessions, and gradually applying new skills (WM = 3.29 each) were rated very high. Using alternative devices, platforms, or connections was rated lowest (WM = 3.06), suggesting that obtaining material alternatives may be harder than obtaining advice, although this explanation was not directly tested.

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 11 (November 2026)

Table 4. *Level of Coping and Adaptation Strategies*

Indicator	WM	Level
I consult ICT coordinators, technical personnel, or training facilitators when I need technical assistance.	3.39	Very high
I seek assistance from colleagues when I encounter difficulties during DPD or while using digital tools in school.	3.35	Very high
I collaborate with colleagues to share solutions to problems encountered in digital practices.	3.34	Very high
I use tutorials, guides, recorded sessions, or other online resources to address difficulties.	3.29	Very high
I gradually apply newly learned digital skills to my professional responsibilities.	3.29	Very high
I use available school-level adaptation measures, such as adjusted schedules or ICT mentoring, when provided.	3.22	High
I practice using unfamiliar digital tools repeatedly until I become more confident.	3.17	High
I reorganize or reschedule my tasks to make time for DPD activities.	3.09	High
I review training materials after a session when I need additional time to understand the content.	3.07	High
I use alternative devices, platforms, or internet connections when technical problems prevent participation.	3.06	High
Overall	3.23	High

Note. Ratings summarize endorsement, not observed frequency of use.

Most teachers in Klapproth et al. (2020) regarded themselves as able to cope despite technical barriers, a coexistence of difficulty and adaptation also evident here. Liu et al. (2024) identified professional learning communities as a pathway between DPD and instructional integration, which is consistent with the strong endorsement of colleague assistance and collaboration. High coping, however, did not mean that access and workload problems had been removed.

Differences in Engagement across Respondent Profiles

Table 5 summarizes the profile comparisons. Overall engagement differed significantly by role (U = 3967.5, $p < .001$, $r$rb = −.39), with administrators reporting a higher median (3.48) than teachers (3.08); differences were significant for participation, relevance, preparedness, and institutional support—the last showing the largest separation (3.80 versus 3.00)—but not for access. Schmitz et al. (2023) found that principals' transformational leadership was positively associated with teachers' digital skills and beliefs, which provides context for the higher administrator ratings without explaining their source. Gemma Rodriguez (2022) reported high self-rated ICT proficiency among Philippine teachers and administrators, although proficiency and DPD engagement are distinct.

Table 5. *Differences in Digital Professional Development Engagement across Respondent Profiles*

Profile (test)	Overall result	Significant dimensions	Decision
Role (Mann–Whitney U)	U = 3967.5, p < .001, rrb = −.39; Mdn: teachers 3.08, administrators 3.48	Participation, relevance, preparedness, support (access NS)	Reject H₀
Age group (Kruskal–Wallis H)	H(4) = 52.02, p < .001, η²H = .140	All five dimensions	Reject H₀
Gender (Mann–Whitney U)	U = 4829.5, p = .504, rrb = −.07; Mdn: 3.12 for both	None	Fail to reject H₀
Educational attainment (Kruskal–Wallis H)	H(5) = 16.90, p = .005, η²H = .035	Relevance, preparedness, support (access and participation NS)	Reject H₀
Years of service (χ^2)	$\chi^2(8) = 48.66$, pMC < .001, V = .264	All five dimensions	Reject H₀

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 11 (November 2026)

Profile (test)	Overall result	Significant dimensions	Decision
Recent DPD attendance (χ^2)	$\chi^2(6) = 75.03$, pMC < .001, V = .328	All five dimensions	Reject H_0

Note. $N = 348$; $\alpha = .05$. NS = not significant; *r*rb = rank-biserial correlation; η^2H = eta squared based on H; V = Cramér's V; *p*MC = Monte Carlo p value (999,999 simulations).

Overall engagement also differed across age groups ($H(4) = 52.02$, $p < .001$, $\eta^2H = .140$), as did all five dimensions. Medians were 3.38 for ages 21–30, 3.28 for 31–40, 3.06 for 41–50, 2.96 for 51–60, and 3.02 for 61 and above, showing lower values in several older groups without a uniform decrease; the oldest group had only five respondents. Mas García et al. (2024) found that older secondary teachers rated some digital-competence dimensions lower, and Abella and Dela Rosa (2023) reported negative associations of age with digital literacy and competence among Filipino teachers. The present omnibus tests, however, do not identify which age groups differ or establish a linear age effect.

Gender comparisons were not significant for overall engagement (both $Mdn = 3.12$; $U = 4829.5$, $p = .504$) or any dimension, although the groups were unequal (315 female, 33 male). This is consistent with Moreira-Choez et al. (2024), who found no significant gender differences in university teachers' digital competence, and with Mas García et al. (2024), who found no overall gender difference although some dimensions differed. Educational attainment yielded a significant overall difference ($H(5) = 16.90$, $p = .005$), with significant differences in relevance, preparedness, and institutional support. After Holm adjustment, master's degree holders exceeded those with master's units in overall engagement (3.30 versus 3.00, $p = .044$), but other overall pairwise comparisons were not significant. Moreira-Choez et al. (2024) similarly located the highest digital-competence mean among master's degree holders, whereas Abella and Dela Rosa (2023) found no significant association between attainment and digital competence, cautioning against assuming a uniform advantage across qualification levels.

Years of service ($\chi^2(8) = 48.66$, $p < .001$, $V = .264$) and recent DPD attendance ($\chi^2(6) = 75.03$, $p < .001$, $V = .328$) were both associated with engagement-category distributions across overall engagement and all five dimensions. Lapada et al. (2020) found that Philippine teachers' distance-learning readiness differed by teaching experience, and Liu et al. (2024) linked DPD participation with digital instructional integration, while Chin et al. (2022) related previous professional development experiences to teachers' learning needs. These category associations, however, establish neither the direction of a relationship nor that each additional activity increases engagement. The first null hypothesis was therefore rejected for role, age, educational attainment, service, and attendance, but not for gender.

Relationships of Engagement with Challenges and Coping

As shown in Table 6, overall engagement correlated positively with challenges ($r_s = .205$, 95% CI [.084, .319], $p < .001$) and with coping and adaptation ($r_s = .629$, 95% CI [.556, .693], $p < .001$), leading to the rejection of the second null hypothesis for both pairs. The relationship with challenges was weak, whereas the relationship with coping was moderately strong. Klapproth et al. (2020) found that teachers anticipating external barriers used more functional coping, placing difficulty and adaptation within the same experience, and Liu et al. (2024) related DPD to professional learning communities, consistent with the stronger engagement–coping association. The correlations, however, do not establish causal direction: engagement may have preceded, followed, or varied alongside difficulties and coping.

Table 6. *Relationships of Engagement with Challenges and Coping and Adaptation*

Variable pair	r_s	95% CI	p	Decision
Overall engagement – challenges	.205	[.084, .319]	< .001	Reject H_0
Overall engagement – coping and adaptation	.629	[.556, .693]	< .001	Reject H_0

Note. $N = 348$. Spearman correlations, two-tailed. Higher challenge scores indicate greater difficulty.

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 11 (November 2026)

Lived Experiences of Digital Professional Development

Six themes were developed from the 19 written accounts (Table 7). The first, *useful learning in everyday work*, appeared in 18 accounts: all 13 teachers described instructional or classroom uses, and five of the six administrators described monitoring, reporting, communication, or leadership. One participant (P5) described limited understanding and reliance on younger teachers, showing that recognition of digital learning's value could coexist with difficulty using it independently. These accounts complement the very high perceived-relevance rating and the DPD–integration findings of Liu et al. (2024), although they remain reports of application rather than evidence of gains in teaching quality or learner achievement.

Table 7. *Themes on Teachers' and School Administrators' Digital Professional Development Experiences*

Theme	Coverage (of 19 accounts)	Illustrative statement
Useful learning in everyday work	Practical application or growth (18)	"I apply what I learn by using technology in lesson preparation, assessment, and classroom activities." (P2)
Infrastructure, time, and confidence gaps	Connectivity (14); equipment (11); time/workload (12); confidence (17)	"It's hard to participate well when you still a lot of things attending too (classes, reports and sometimes urgent meetings)." (P12)
Collegial help, practice, and resourcefulness	Peer/ICT help (16); practice (16); alternatives (13)	"We watch or join together with my co-teachers in school or in place where internet connectivity is strong." (P16)
Uneven institutional support	Some school or DepEd support (17)	"Since the school head never provided technical assistance, the support from colleagues… have been valuable." (P9)
Practical, sustained, and equitable DPD	Practical training (16); infrastructure/funding (14); protected time (10); mentoring/follow-up (10)	"Trainings should be scheduled with consideration for teachers' workload, and follow-up sessions or mentoring should be provided." (P19)
Gradual progress and adaptation	Future learning (19); bridge (7); lighthouse (2); other images (10)	"A racing turtle – walking slowly but surely." (P10)

Note. Accounts could contribute to more than one theme; counts describe coverage within the group, not population prevalence. Extracts retain participants' original wording.

The second theme, *infrastructure, time, and confidence gaps*, captured how access, time, and confidence were experienced together. Connectivity appeared in 14 accounts, equipment limitations in 11, time or workload conflict in 12, and readiness or confidence concerns in 17. Interrupted access reduced guided practice, while other duties limited opportunities to revisit a task. These descriptions provide context for the workload and time and technological and access means and for the lower participation rating, and they echo the access and logistical concerns reported by Chin et al. (2022) and Klapproth et al. (2020). The third theme, *collegial help, practice, and resourcefulness*, described help from peers or ICT personnel (16 accounts), practice or persistence (16), and the use of alternative devices, locations, platforms, or arrangements (13), such as downloading materials at home or joining colleagues where connectivity was stronger. These accounts give practical meaning to the high coping mean and the engagement–coping association, and can be understood through Experiential Learning Theory (Kolb, 1984) and the collegial learning described by Liu et al. (2024).

The fourth theme, *uneven institutional support*, showed that while 17 participants mentioned some school or DepEd assistance and all six administrators described formal support, some teachers emphasized missing equipment or absent school-level technical help, and even accounts acknowledging strong support identified continuing gaps. These differing accounts provide context for the gap between administrator and teacher institutional-support medians (3.80 versus 3.00), although unlinked records prevent them from explaining that difference conclusively; Fullan's (2016) Change Theory directs attention to such organizational conditions. The

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of Education, Research, and Innovation Perspectives
Volume 2 Issue 11 (November 2026)

fifth theme, *practical, sustained, and equitable DPD*, gathered participants' recommendations: practical, regular, or needs-responsive training (16 accounts), infrastructure, devices, or funding (14), protected time or workload-sensitive scheduling (10), and technical assistance, mentoring, follow-up, or monitoring (10). These requests, interpretable through Adult Learning Theory and Change Theory, extend planning beyond the number of activities educators attend.

The sixth theme, *gradual progress and adaptation*, emerged from participants' metaphors and future-learning accounts. Seven described their journey as a bridge, two as a lighthouse, and ten used other images, including a staircase and a "racing turtle – walking slowly but surely," conveying connection, transition, guidance, and gradual progress. All 19 accounts addressed continuing or future digital learning, although priorities differed, from emerging technologies such as artificial intelligence and cybersecurity to, for one participant nearing retirement, the needs of a successor. This variety suggests that a single activity or pace may leave some learning needs unaddressed.

Integration of Quantitative and Qualitative Findings

Table 8 brings the survey patterns and qualitative themes together. Perceived relevance ranked highest and participation lowest, and accounts of lesson preparation, assessment, reporting, and leadership explained usefulness alongside interruptions to participation; one participant's report of only short-term learning (P16) cautions that attendance and valued content do not establish sustained learning. Unstable connections, equipment shortages, school duties, and unfamiliar tools contextualized the high challenge ratings. Peer and ICT help, repeated practice, advance downloading, and group participation accompanied the high coping mean and the engagement–coping association, though neither strand establishes causal direction. Finally, high institutional support overall coexisted with a substantial gap between administrators and teachers, and accounts ranged from available coordinators and equipment to absent technical help.

Table 8. *Integration of Quantitative and Qualitative Findings*

Quantitative finding	Qualitative theme/evidence	Integrated implication
Engagement high (M = 3.19); relevance very high (3.35); participation lowest (3.07)	Useful learning in everyday work; application in 18 of 19 accounts	Connect valued training with practical workplace tasks and opportunities for application
Challenges high (M = 3.06), led by workload/time (3.16) and access (3.11)	Infrastructure, time, and confidence gaps; connectivity in 14 accounts, time/workload in 12	Accompany training content with protected time, usable resources, and guided practice
Coping high (M = 3.23); engagement–coping r_s = .629, p < .001	Collegial help, practice, and resourcefulness; peer/ICT help and practice each in 16 accounts	Maintain peer mentoring and accessible technical help, recognizing that the association is not causal
Support high (M = 3.17); administrator/teacher medians 3.80/3.00, p < .001	Uneven institutional support; practical and equitable DPD; gradual progress	Review access and workplace use over time and adapt support to local needs

Note. Integration was conducted at the group level; individual survey records could not be linked to written accounts.

Taken together, the two strands indicate that recognized usefulness and continued participation coexisted with access, workload, and confidence difficulties, and that peer assistance and practice helped educators respond under uneven institutional support. In relation to professional growth and instructional effectiveness, educators reported applying DPD to teaching and administration and described their journeys as gradual progress, but these are perceptions rather than independent measures of teaching quality or learner outcomes.

ISSN: 3116-3475
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of Education, Research, and Innovation Perspectives
Volume 2 Issue 11 (November 2026)

Proposed Action Plan

Based on the integrated findings, the study proposed the Responsive Digital Professional Development Program, a six-month cycle for an initial cluster of 30 teachers and school administrators in a rural public-school cluster in Bohol (Table 9). The program links a six-hour practical training activity in Month 2—covering platform access and file management, troubleshooting and low-bandwidth work, a role-based output workshop, responsible digital practice and peer review, and application planning—with needs assessment, mentoring, peer learning through Learning Action Cells, workplace application review, and final evaluation using a four-level task-performance rubric. Its components draw on Kolb's learning cycle, adult learning principles, TPACK, and educational change theory. The program's effectiveness remains to be evaluated after implementation.

Table 9. *Summary of the Proposed Responsive Digital Professional Development Program*

Objective	Key activities	Timeline	Success indicator
Identify access and learning needs and set realistic goals	Audit needs and access; agree on schedules and referrals; baseline tasks; assign mentors	Month 1	30 needs/access profiles; one learning goal per participant
Develop two usable role-based digital outputs	Six-hour practical training; mentoring to refine a second output	Months 2–3	At least 80% complete two usable, accurate, accessible outputs
Provide peer or ICT mentoring	Assign support contacts; monthly consultations; referrals and catch-up work	Months 3–5	Each participant has a mentor and monthly mentoring records
Improve practical task performance	Comparable baseline and final tasks rated on a four-level rubric	Months 1 and 6	At least 80% improve one level or maintain Level 4
Apply learning at work with reflection and peer learning	Workplace application within 30 days; monthly Learning Action Cells	Months 4–5	At least 75% document application within 30 days
Plan for sustainability	Review portfolios and mentoring; finalize individual and cluster plans	Month 6	Individual development plans and a cluster sustainability plan

Note. Proposed for an initial cluster of 30 participants; effectiveness has not been tested.

CONCLUSION

Teachers and school administrators in selected rural public schools in Bohol valued DPD for its usefulness while continuing to experience workload, time, access, and confidence difficulties. Engagement was high, but participation lagged behind perceived relevance, and challenges led by workload and connectivity remained substantial. The conditions surrounding participation are therefore central to understanding professional learning: activities connected to practical responsibilities need to be accompanied by time to practise, dependable resources, guidance, and help after training.

Engagement differed by role, age group, and educational attainment and was associated with service and attendance categories, but not with gender, and it was more strongly associated with coping than with challenges. Educators adapted by drawing on colleagues, ICT personnel, repeated practice, and available resources, but assistance needs differed and institutional support was uneven, particularly between administrators and teachers. The study contributes integrated survey and narrative evidence from a provincial Philippine setting, showing how DPD is experienced within everyday school work. Its conclusions are bounded by self-report measures, correlational findings, and group-level integration; causal effects and gains in learner achievement were not established.

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Volume 2 Issue 11 (November 2026)

Recommendation

The Schools Division Office and school administrators may audit connectivity, devices, platform access, and technical assistance to locate the greatest constraints and guide resource decisions, using available Maintenance and Other Operating Expenses (MOOE) and other authorized funds for connectivity, maintenance, and shared equipment according to identified needs. School administrators may protect DPD time by scheduling around teaching, reporting, and peak duties, reducing conflicting requirements, and offering recorded, asynchronous, face-to-face, or blended options where these make participation more workable.

Training providers may organize practical learning around participants' roles, starting skills, and workplace tasks, using smaller steps, guided practice, and repeated attempts where lower preparedness or participation indicates a need; assistance for older or longer-serving educators should follow assessment rather than be assigned on the basis of age or service alone. Schools may strengthen peer mentoring and ICT coaching through Learning Action Cells, scheduled consultations, and clear referral arrangements, so that every educator using unfamiliar tools has an identifiable support contact. Organizers may also examine workplace use alongside attendance through application plans, coaching, and progress reviews, and the Division may consider piloting the proposed six-month program.

Future studies may link survey and qualitative records through participant codes, assess digital practice and learner outcomes directly, and evaluate the proposed program through intervention research. Comparative and longitudinal studies can examine whether the reported patterns persist over time and across other public-school settings.

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