

Digital Competence and Professional Development as Predictors of Teachers' Efficacy among High School Teachers

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ABSTRACT

Teachers' efficacy, or teachers' belief in their capability to engage students, apply effective instructional strategies, and manage classrooms, is consistently linked to instructional quality and learner outcomes. Although digital competence and professional development are emphasized in Philippine teacher-quality reforms, few studies have examined their combined contribution to teachers' efficacy. This study determined the levels of digital competence, professional development, and teachers' efficacy among high school teachers; examined the relationships of digital competence and professional development with teachers' efficacy; and tested whether the two variables significantly predict teachers' efficacy. A quantitative, non-experimental descriptive-correlational design with a predictive component was employed. Data were gathered from 130 public and private high school teachers in Davao City, General Santos City, and Zamboanga City using a researcher-adapted 57-item questionnaire grounded in the DIGCOMP framework, the OECD TALIS framework and the Department of Education's Learning Action Cell policy, and the Teachers' Sense of Efficacy Scale. Data were analyzed using mean, standard deviation, Pearson product-moment correlation, and multiple linear regression at the .05 level of significance. Teachers reported high to very high levels of digital competence, professional development, and teachers' efficacy. Digital competence ($r = .494, p < .001$) and professional development ($r = .674, p < .001$) were each significantly and positively related to teachers' efficacy. Together, the two variables explained 48.2% of the variance in teachers' efficacy, $F(2, 127) = 59.07, p < .001$, with professional development ($\beta = .571, p < .001$) emerging as a stronger predictor than digital competence ($\beta = .197, p = .010$). The findings indicate that sustained, collaborative professional learning, complemented by digital competence, strengthens teachers' beliefs in their instructional capabilities. School leaders and the Department of Education may prioritize job-embedded professional development that integrates digital-skills building as a pathway to stronger teacher efficacy.

Keywords: digital competence, professional development, teachers' efficacy, high school teachers, Philippines

INTRODUCTION

Improving teacher quality remains a central priority of education systems worldwide because teachers play a crucial role in shaping students' learning experiences and outcomes. Beyond subject knowledge and pedagogical skill, teachers must be confident in their ability to deliver instruction, manage classrooms, engage learners, and respond to diverse learning needs. This confidence, termed teachers' efficacy, has been consistently associated with greater instructional effectiveness, stronger commitment to teaching, resilience in addressing classroom challenges, and improved student achievement (Klassen & Tze, 2014; Tschannen-Moran & Hoy, 2001). Strengthening teachers' efficacy has therefore become an important concern for researchers and policymakers in an increasingly dynamic and technology-driven educational environment.

The need to strengthen teachers' efficacy is evident in the Philippine context. Filipino learners have performed below the international average in reading, mathematics, and science in the Programme for International Student Assessment, raising concerns about the quality of teaching and learning in basic education (OECD, 2023). While achievement is shaped by school, home, and societal factors, teachers remain among the most significant school-

based influences on learning. The Department of Education (DepEd) has responded through the Philippine Professional Standards for Teachers (PPST) and the Results-based Performance Management System (RPMS), both of which emphasize continuous professional growth, instructional excellence, reflective practice, and the effective integration of technology in teaching (DepEd Order No. 2, s. 2015; DepEd Order No. 42, s. 2017).

Two factors that may shape teachers' efficacy are digital competence and professional development. Almost every part of a teacher's job, from preparing lessons and grading work to talking with parents and colleagues, now involves some form of technology, so teachers must know how to combine it well with content and pedagogy (Mishra & Koehler, 2006; Redecker, 2017). Professional development, in turn, provides continuous opportunities for teachers to update their knowledge, strengthen instructional practice, and adapt to reforms; sustained, collaborative, and job-embedded professional learning has been shown to foster both instructional competence and stronger beliefs in teachers' own capabilities (Darling-Hammond et al., 2017). Despite this policy emphasis, existing studies have usually examined digital competence, professional development, or teachers' efficacy separately, and few have tested how digital competence and professional development jointly predict teachers' efficacy among Philippine high school teachers. This study addresses that gap.

REVIEW OF RELATED LITERATURE

Teachers' Efficacy

Bandura (1997) proposed that people act on what they believe they can accomplish, and this idea became the basis for research on teachers' efficacy. Applied to the classroom, the construct describes how strongly a teacher expects to succeed at particular teaching tasks and to make a difference in students' learning, including learners who are hard to reach (Tschannen-Moran & Hoy, 2001). It is a judgment about one's own capability, which is why it can differ from a teacher's measured performance. Tschannen-Moran and Hoy (2001) organized it into three areas that remain the most widely used today: engaging students, choosing and using instructional strategies, and managing the classroom. A meta-analysis by Klassen and Tze (2014) showed that teachers who hold stronger efficacy beliefs tend to be rated as more effective and tend to have students who perform better.

Philippine teacher policy points in the same direction even though it does not use the term. The competencies in the PPST, such as planning learner-centered lessons, reflecting on practice, and pursuing professional growth, all assume that a teacher is confident enough to carry them out (DepEd Order No. 42, s. 2017). The RPMS supports this confidence in a practical way, because its cycle of goal setting, coaching, and performance feedback gives teachers repeated evidence of what they can achieve (DepEd Order No. 2, s. 2015).

Digital Competence

Instefjord and Munthe (2017) argue that using technology is now a basic part of what it means to be a professional teacher. Knowing how to operate a device is only one part of this. Ferrari (2013) and From (2017) describe digital competence as a combination of knowledge, practical skill, attitude, and ethical judgment that allows a person to use technology in purposeful and responsible ways. Two European frameworks are commonly used to describe it. DigCompEdu lists six areas that are specific to educators (Redecker, 2017), while DIGCOMP groups the skills of any working adult into five areas (Ferrari, 2013). These cover finding and judging information, communicating and working with others online, producing digital content, staying safe, and solving problems with technology. This study adopted the five DIGCOMP areas because they cover the full range of teachers' digital work, including tasks outside the lesson itself.

Research also shows how this competence develops in practice and why it varies among teachers. Teachers' pedagogical beliefs are closely tied to how they use technology in their lessons (Tondeur et al., 2017), and digital competence is better seen as something that grows with practice than as a fixed trait (Blömeke et al., 2015). Local studies describe an uneven picture. Filipino high school teachers are generally comfortable with routine digital tasks but less so with producing their own digital materials (Calzado & Abo, 2024); the gap widens across age groups and depends on the support schools provide (Wong et al., 2025); and teachers' competence affects how well they plan lessons that use technology (Panganiban, 2026). Studies abroad add that attitudes such as perceived usefulness shape teachers' competence (Althubyani, 2024) and that colleagues within a school play a

central role in building it (Oikarinen et al., 2026). A review of pre-service teachers likewise found uneven competence across dimensions, with digital content creation and problem solving among the weaker areas (Zhang et al., 2026), and a recent scale-development study stresses the need for reliable measures of teachers' digital competence to inform training programs (Aydin et al., 2024).

Professional Development

Professional development covers the planned learning that teachers take part in after their initial training so that they can keep improving their knowledge and practice over a whole career (Desimone, 2009; Guskey, 2002). Research agrees on what makes it work. Programs have more effect when they last longer, focus on subject content, involve active and collaborative learning, fit the teacher's actual classroom, and leave room for reflection (Desimone, 2009). Darling-Hammond et al. (2017) add that coaching, mentoring, peer observation, and shared lesson planning tend to produce stronger results than single seminars. In Philippine public schools, this approach is formalized in the Learning Action Cell, a regular school-based meeting in which teachers study, plan, and solve problems together (DepEd Order No. 35, s. 2016).

There are also signs that professional learning builds teachers' confidence. In a study comparing four training formats, Tschannen-Moran and McMaster (2009) reported the largest efficacy gains among teachers who were coached while trying out a new strategy. Local research is consistent with this. Cerafica (2024) linked professional development to stronger job performance in public secondary schools, and Dicediquin et al. (2023) proposed training programs as a way to improve how mathematics teachers teach. In the study by Romorosa and Uchang (2025), public school teachers saw their professional learning as a source of fresh ideas for the classroom, not merely as a compliance task. Servancia (2024) went further and found that digital competence and professional development together predicted how capable teachers were of doing action research. On the international side, Guskey (2021) urges schools to evaluate programs by their effect on actual teaching, while Darling-Hammond (2017) and Hattie (2009) identify teacher expertise, developed through continuing learning, as one of the strongest influences on student achievement.

Synthesis and Research Gap

Taken together, the studies reviewed suggest three things. Teachers' efficacy matters for how well teachers teach and how well students learn. Digital competence and professional development are each associated with stronger teaching and greater confidence. However, most of this research looks at one factor at a time, or relates these factors to outcomes other than efficacy, such as performance, technology use, or research capability. Few studies have tested whether digital competence and professional development, considered together, predict the efficacy of Philippine high school teachers. This study was designed to provide that evidence.

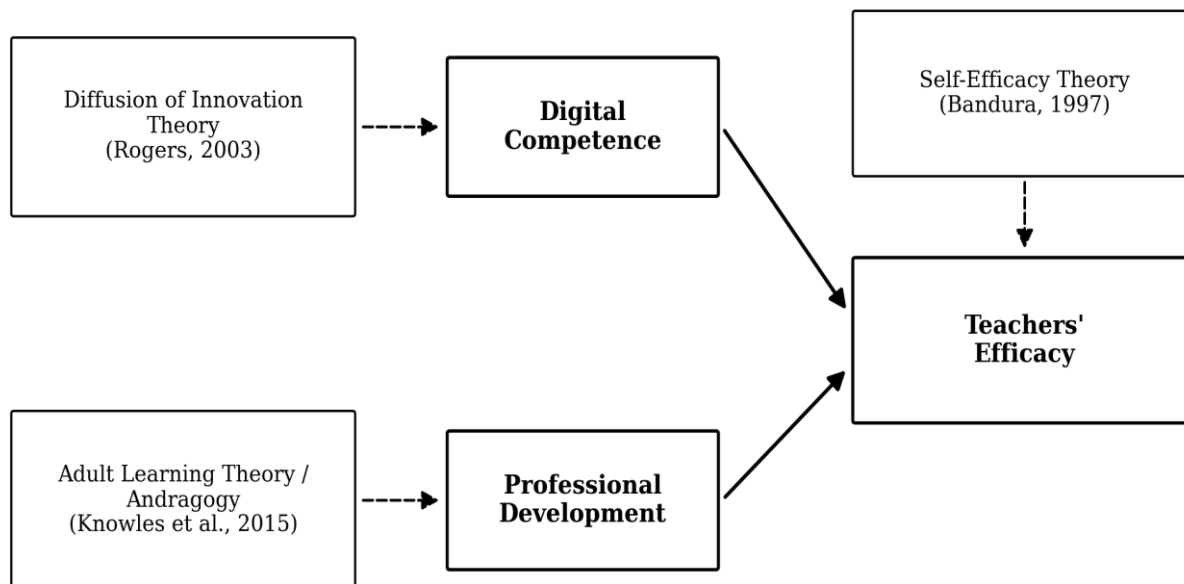
Theoretical Framework

Each variable in the study is linked to one theory (Figure 1). Digital competence is explained by **Diffusion of Innovation Theory** (Rogers, 1962, 2003). Rogers argued that people take up a new practice at different rates depending on how they judge its advantage over current practice, its fit with their existing habits, how difficult it is, whether it can be tried on a small scale, and whether its results can be seen. For teachers, digital tools are such an innovation. As teachers try these tools and see them work in their own classes, their skill grows, and so does their expectation that they can teach well with technology.

Professional development is explained by **Adult Learning Theory**, or andragogy (Knowles, 1980, 1984; Knowles et al., 2015). Knowles held that adults learn best when they direct their own learning, when they can build on what they already know, and when the content solves problems they face at work. Teachers fit this description. Seminars, mentoring, peer collaboration, and independent study help them most when they are practical and connected to their classrooms, and learning of this kind is expected to leave teachers more confident in their daily work.

Teachers' efficacy is explained by **Self-Efficacy Theory** (Bandura, 1977, 1986, 1997). Bandura named four ways in which efficacy beliefs are formed: succeeding at a task oneself, watching others succeed, being

encouraged by others, and interpreting one's own emotional and physical reactions. Personal success is the strongest of these. Building digital skills and taking part in professional learning give teachers many chances to succeed and to observe colleagues who succeed, which should strengthen their efficacy. On this basis, the study expected digital competence and professional development to be related to teachers' efficacy and to predict it jointly. The two predictors are treated as parallel influences rather than as steps in a sequence, which matches the correlational design of the study.



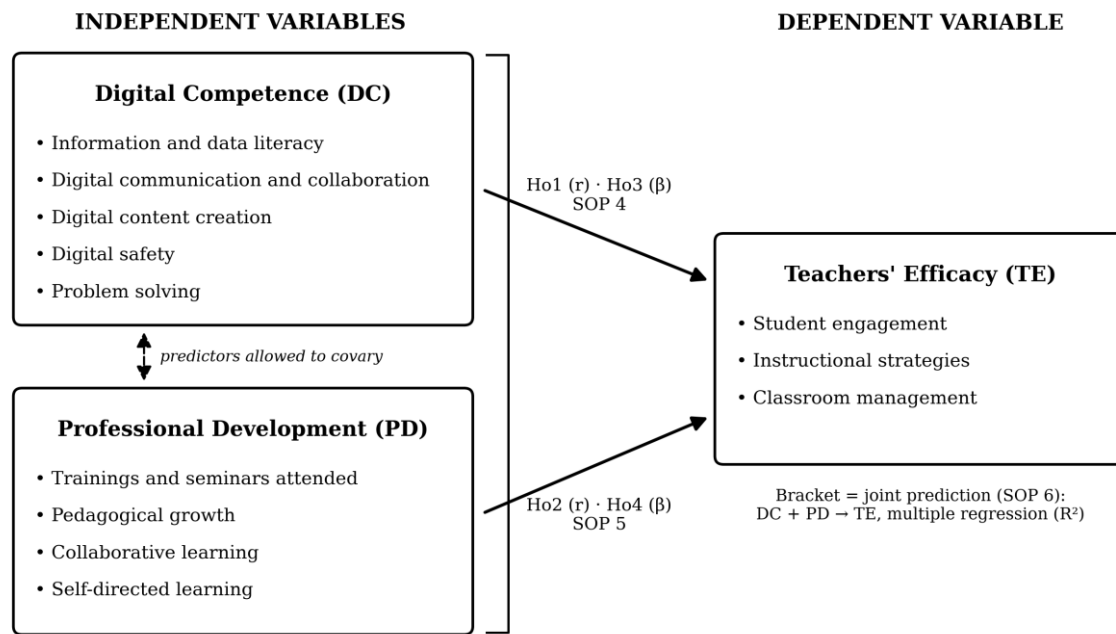
Dashed arrows: theory anchoring each construct. Solid arrows: hypothesized relationships tested in the study.

Figure 1. Theoretical framework of the study showing the theory anchoring each variable and the hypothesized relationships

Conceptual Framework

Figure 2 presents the conceptual framework, which operationalizes the theoretical framework and maps each part of the model to the research objectives and hypotheses. The two independent variables are **digital competence**, measured through five indicators (information and data literacy, digital communication and collaboration, digital content creation, digital safety, and problem solving), and **professional development**, measured through four indicators (trainings and seminars attended, pedagogical growth, collaborative learning, and self-directed learning). The dependent variable is **teachers' efficacy**, measured through three indicators (student engagement, instructional strategies, and classroom management).

Consistent with the descriptive-correlational design, the framework represents three levels of analysis. First, the indicators within each box are described in terms of their levels (Objectives 1–3). Second, each arrow from an independent variable to teachers' efficacy represents a bivariate relationship tested through Pearson correlation (Objectives 4 and 5; Ho1 and Ho2). Third, the bracket enclosing both independent variables represents their joint prediction of teachers' efficacy through multiple linear regression, in which the unique contribution of each predictor is also tested (Objective 6; Ho3 and Ho4). The dashed line between the two predictors indicates that they are allowed to correlate with each other, so the regression estimates each variable's contribution while controlling for the other.



SOP 1-3: level of each variable and its indicators (mean and standard deviation)

Figure 2. Conceptual framework showing the study variables, their indicators, and the relationships tested under each research objective and hypothesis

Research Objectives

This study aimed to determine whether digital competence and professional development significantly predict the efficacy of high school teachers. Specifically, it sought to answer the following questions:

1. What is the level of digital competence among high school teachers in terms of information and data literacy, digital communication and collaboration, digital content creation, digital safety, and problem solving?
2. What is the level of professional development among high school teachers in terms of trainings and seminars attended, pedagogical growth, collaborative learning, and self-directed learning?
3. What is the level of teachers' efficacy among high school teachers in terms of student engagement, instructional strategies, and classroom management?
4. Is there a significant relationship between digital competence and teachers' efficacy?
5. Is there a significant relationship between professional development and teachers' efficacy?
6. Do digital competence and professional development significantly predict teachers' efficacy?

Hypotheses

Corresponding to Objectives 4 to 6, the following null hypotheses were tested at the .05 level of significance:

Ho1: There is no significant relationship between digital competence and teachers' efficacy.

Ho2: There is no significant relationship between professional development and teachers' efficacy.

Ho3: Digital competence does not significantly predict teachers' efficacy.

Ho4: Professional development does not significantly predict teachers' efficacy.

METHODOLOGY

Research Design

The study employed a quantitative, non-experimental, descriptive-correlational design with a predictive component. The descriptive component determined the levels of digital competence, professional development, and teachers' efficacy (Objectives 1–3); the correlational component examined the relationships of each independent variable with teachers' efficacy (Objectives 4–5); and the predictive component used multiple linear regression to determine the extent to which the two variables predict teachers' efficacy (Objective 6). No variable was controlled or altered by the researchers; the teachers simply reported on their own practices and beliefs, and the study examined how these responses varied together. A non-experimental correlational approach was therefore the appropriate choice (Creswell & Creswell, 2018).

Research Locale

The study was conducted in selected public and private secondary schools in Davao City, General Santos City, and Zamboanga City, Philippines. These schools implement the PPST, LAC sessions, in-service training, and other continuing professional development initiatives, and they provide varied technological and institutional contexts appropriate for examining the relationships among the study variables.

Respondents and Sampling

The respondents were high school teachers currently teaching in the identified schools, regardless of subject area, employment status, or length of service. Teachers on leave and those with less than one full year of teaching service were excluded to ensure sufficient classroom experience. The target population consisted of 135 teachers. Using Yamane's (1967) formula, $n = N / (1 + Ne^2)$, with $e = .05$, the minimum required sample was 101. Simple random sampling was used to select respondents, and all 135 teachers were invited to allow for non-response. A total of 130 valid responses were retained for analysis, exceeding both the Yamane minimum and Green's (1991) recommended minimum of $50 + 8m = 66$ for a regression model with two predictors.

Research Instrument

Data were gathered using a researcher-adapted questionnaire in four parts. Part I gathered the respondents' age, sex, highest educational attainment, and years of teaching experience. Part II measured digital competence through 25 items (five per indicator) adapted from the DIGCOMP framework (Ferrari, 2013), with reference to DigCompEdu (Redecker, 2017). Part III measured professional development through 20 items (five per indicator) informed by the TALIS framework (OECD, 2019) and DepEd's LAC strategy (DepEd Order No. 35, s. 2016). Parts II and III used a five-point frequency scale (5 = Always, 4 = Often, 3 = Sometimes, 2 = Rarely, 1 = Never). Part IV measured teachers' efficacy through 12 items (four per indicator) adapted from the Teachers' Sense of Efficacy Scale (Tschannen-Moran & Hoy, 2001), for which respondents indicated their level of agreement on a five-point scale, with 5 as the highest and 1 as the lowest level of agreement.

The instrument was content-validated by a panel of experts in educational research and instrument construction. Internal consistency in the present sample was excellent, with Cronbach's alpha coefficients of .969 for digital competence (indicators: .877–.918), .935 for professional development (indicators: .835–.903), and .960 for teachers' efficacy (indicators: .899–.924). For interpretation, the five-point range was divided into equal intervals of 0.80. A mean from 4.21 to 5.00 was read as Very High, 3.41 to 4.20 as High, 2.61 to 3.40 as Moderate, 1.81 to 2.60 as Low, and 1.00 to 1.80 as Very Low.

Data Gathering Procedure

After approval of the research proposal, respondents were given an informed consent form explaining the purpose of the study, the voluntary nature of participation, and the confidentiality of responses. Those who agreed completed the questionnaire through Google Forms, distributed through professional and educational communication channels accessible to the teachers in the identified schools. Responses were compiled

automatically into a spreadsheet and screened for completeness and entry errors. Indicator scores were computed as the mean of their constituent items, and overall variable scores as the mean of their indicators, directly from the item-level responses. One item response was missing (0.01% of all responses); the affected indicator score was computed from the respondent's remaining items.

Statistical Treatment

Mean and standard deviation were used to describe the levels of the three variables (Objectives 1–3). Pearson product-moment correlation was used to test the relationships of digital competence and professional development with teachers' efficacy (Objectives 4–5; Ho1 and Ho2). Multiple linear regression was used to determine whether the two variables jointly and uniquely predict teachers' efficacy (Objective 6; Ho3 and Ho4). Regression assumptions of normality of residuals, independence of errors, and absence of multicollinearity were examined. All tests were conducted at the .05 level of significance.

Ethical Considerations

The study adhered to ethical standards for research involving human participants. Participation was voluntary, respondents could withdraw at any time without penalty, and informed consent was obtained before data collection. No personally identifiable information was collected or reported, and all data were handled in accordance with the Data Privacy Act of 2012 (Republic Act No. 10173, 2012). The study was conducted as a supervised graduate course requirement at the School of Counseling and Psychology, San Pedro College, and formal institutional ethics review was not obtained. The authors declare no conflict of interest.

RESULTS

Level of Digital Competence

Table 1 Level of Digital Competence of High School Teachers (N = 130)

Indicator	Mean	SD	Interpretation
Information and data literacy	4.15	0.692	High
Digital communication and collaboration	4.27	0.634	Very High
Digital content creation	4.12	0.690	High
Digital safety	4.28	0.668	Very High
Problem solving	3.98	0.660	High
Overall digital competence	4.16	0.603	High

Note. 4.21–5.00 = Very High; 3.41–4.20 = High; 2.61–3.40 = Moderate; 1.81–2.60 = Low; 1.00–1.80 = Very Low.

Table 1 shows that teachers' overall digital competence was High ($M = 4.16$, $SD = 0.603$). Digital safety ($M = 4.28$) and digital communication and collaboration ($M = 4.27$) were rated Very High, while information and data literacy ($M = 4.15$), digital content creation ($M = 4.12$), and problem solving ($M = 3.98$) were rated High. Teachers were thus most confident in protecting data and communicating through digital platforms, and they saw the most room for growth in solving technical and instructional problems with digital tools and in locating, evaluating, and producing digital content.

Level of Professional Development

Table 2 Level of Professional Development of High School Teachers (N = 130)

Indicator	Mean	SD	Interpretation
Trainings and seminars attended	4.08	0.715	High
Pedagogical growth	4.27	0.601	Very High
Collaborative learning	4.31	0.687	Very High
Self-directed learning	4.22	0.631	Very High
Overall professional development	4.22	0.549	Very High

As shown in Table 2, teachers' overall professional development was Very High ($M = 4.22$, $SD = 0.549$). Collaborative learning obtained the highest mean ($M = 4.31$), followed by pedagogical growth ($M = 4.27$) and self-directed learning ($M = 4.22$). Trainings and seminars attended obtained the lowest, though still High, mean ($M = 4.08$), suggesting that teachers engage more in collegial and self-initiated growth than in formal training, which may be less frequent or less accessible.

Level of Teachers' Efficacy

Table 3 Level of Teachers' Efficacy of High School Teachers (N = 130)

Indicator	Mean	SD	Interpretation
Student engagement	4.44	0.602	Very High
Instructional strategies	4.39	0.607	Very High
Classroom management	4.45	0.594	Very High
Overall teachers' efficacy	4.43	0.563	Very High

Table 3 shows that teachers' overall efficacy was Very High ($M = 4.43$, $SD = 0.563$). All three indicators were rated Very High and closely clustered: classroom management ($M = 4.45$), student engagement ($M = 4.44$), and instructional strategies ($M = 4.39$), indicating strong and fairly uniform efficacy beliefs across domains.

Relationships of Digital Competence and Professional Development with Teachers' Efficacy

Table 4 Correlations of Digital Competence and Professional Development with Teachers' Efficacy (N = 130)

Variables	r	df	p	Decision	Interpretation
Digital competence and teachers' efficacy	.494	128	< .001	Reject Ho1	Significant, moderate positive
Professional development and teachers' efficacy	.674	128	< .001	Reject Ho2	Significant, strong positive

Table 4 shows that digital competence had a significant, moderate, positive relationship with teachers' efficacy ($r = .494$, $p < .001$); thus, Ho1 was rejected. Professional development had a significant, strong, positive

relationship with teachers' efficacy ($r = .674, p < .001$); thus, Ho2 was rejected. Teachers with higher digital competence and greater engagement in professional development tended to report higher efficacy.

Digital Competence and Professional Development as Predictors of Teachers' Efficacy

Table 5 Multiple Regression of Teachers' Efficacy on Digital Competence and Professional Development (N = 130)

Predictor	B	SE	t	β	p	Decision
(Intercept)	1.194	0.304	3.93	—	< .001	—
Digital competence	0.184	0.070	2.63	.197	.010	Reject Ho3
Professional development	0.585	0.077	7.63	.571	< .001	Reject Ho4

Note. $R = .694, R^2 = .482, \text{Adjusted } R^2 = .474, F(2, 127) = 59.07, p < .001$.

As shown in Table 5, the regression model was significant, $F(2, 127) = 59.07, p < .001$, with digital competence and professional development jointly explaining 48.2% of the variance in teachers' efficacy ($R^2 = .482$). Both variables were significant unique predictors. Professional development was the stronger predictor ($\beta = .571, p < .001$), followed by digital competence ($\beta = .197, p = .010$). Hence, Ho3 and Ho4 were rejected.

Regression assumptions were examined before interpretation. The Durbin-Watson statistic ($DW = 1.86$) indicated independence of residuals, the variance inflation factor ($VIF = 1.37$ for both predictors) indicated no multicollinearity, and the Shapiro-Wilk test ($W = .980, p = .057$) indicated that the residuals did not significantly depart from normality. All assumptions were therefore satisfied.

DISCUSSION

The first set of findings shows that teachers rated themselves high to very high in digital competence, professional development, and efficacy. The relatively lower ratings for problem solving, digital content creation, and information and data literacy are in line with local findings. Filipino teachers tend to be comfortable with everyday tasks such as messaging and online communication, but they are less confident when asked to design their own digital materials (Calzado & Abo, 2024; Wong et al., 2025). Similarly, the higher ratings for collaborative and self-directed learning than for formal trainings are consistent with the institutionalization of school-based LAC sessions (DepEd Order No. 35, s. 2016) and with the view that teachers increasingly regard professional development as ongoing pedagogical renewal rather than one-time compliance (Romorosa & Uchang, 2025).

The significant positive relationships of both variables with teachers' efficacy support the theoretical proposition of the study. The strong relationship between professional development and teachers' efficacy ($r = .674$) is consistent with Self-Efficacy Theory, in which mastery and vicarious experiences are primary sources of efficacy beliefs (Bandura, 1997). Working with colleagues, observing their lessons, and trying new strategies in one's own class give teachers precisely these kinds of experiences. This agrees with Tschannen-Moran and McMaster (2009), whose teachers gained the most confidence when training included coaching, and with Darling-Hammond et al. (2017), who found that long-term, team-based professional learning improves teaching more than short, isolated sessions. The moderate relationship between digital competence and teachers' efficacy ($r = .494$) supports the Diffusion of Innovation view that successful adoption and use of digital tools build confidence in technology-mediated teaching (Rogers, 2003).

The regression results show that the two variables together explained nearly half of the variance in teachers' efficacy, extending Servancia's (2024) finding that digital competence and professional development jointly predict teachers' professional capabilities. Notably, the contribution of digital competence decreased when professional development was controlled for (from $r = .494$ to $\beta = .197$), indicating that part of its association

with efficacy is shared with professional development. This pattern suggests that digital competence contributes most to efficacy when it is developed and applied through sustained professional learning, echoing recommendations for job-embedded support over isolated seminars (Darling-Hammond et al., 2017). Consistent with Adult Learning Theory, professional development that is relevant, problem-centered, and immediately applicable appears to be the more powerful pathway to teachers' confidence (Knowles et al., 2015).

Limitations

The study relied on self-report measures, which may be affected by social desirability and may partly explain the high mean ratings. The cross-sectional correlational design does not permit causal conclusions, and the sample of 130 teachers from three cities limits generalizability to other regions. The closely clustered, very high efficacy scores also suggest a possible ceiling effect that may have constrained the observed relationships. Future studies may use larger and more diverse samples, include objective or observational measures, and adopt longitudinal or mixed-methods designs.

CONCLUSION AND RECOMMENDATIONS

High school teachers in the study demonstrated high to very high levels of digital competence, professional development, and efficacy. Both digital competence and professional development were significantly and positively related to teachers' efficacy and jointly predicted it, with professional development being the stronger predictor. These results confirm that teachers' confidence in engaging students, applying instructional strategies, and managing classrooms is closely tied to their continuous professional learning and, to a lesser but significant extent, to their ability to use digital technologies effectively.

Based on these findings, school heads and instructional supervisors may prioritize sustained, collaborative, and job-embedded professional development such as LAC sessions, mentoring, and peer observation, and integrate digital-skills training within these activities rather than offering it as isolated seminars. Teachers may continue engaging in collaborative and self-directed learning while strengthening their digital problem-solving, content creation, and information and data literacy skills. The Department of Education may expand access to formal training, which obtained the lowest professional development rating, particularly in schools with limited resources. Future researchers may examine other predictors such as school climate, administrative support, workload, and teaching experience, and may test whether professional development mediates the relationship between digital competence and teachers' efficacy.

Declarations

Data availability: The data supporting the findings of this study are available from the corresponding author upon reasonable request. The data are not publicly available to protect participants' confidentiality in accordance with the Data Privacy Act of 2012.

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