
ICT CAPACITATION AND INSTRUCTIONAL LEADERSHIP EFFECTIVENESS OF SCHOOL HEADS IN KIDAPAWAN CITY AND COTABATO DIVISION

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2. ABSTRACT

This quantitative study examined the extent of ICT capacitation of school heads and its relationship to and influence on instructional leadership effectiveness in Kidapawan City and Cotabato Division. Using a descriptive-correlation research design, data were gathered from school heads classified as ICT-capacitated and non-ICT-capacitated (non-capacitated) through validated survey instruments. ICT capacitation was measured across three dimensions: digital literacy (M=4.20, Capacitated), basic ICT skills (M=4.28, Highly Capacitated), and ICT training, access, and institutional support (M=4.20, Integrated). ICT integration for non-ICT-capacitated school heads was rated Highly Integrated (M=4.80). Instructional leadership effectiveness was measured across three goals: vision-setting and goal alignment (M=4.52, Highly Integrated), curriculum development and management (M=4.14, Integrated), and faculty development and professional growth (M=4.13, Integrated). Spearman rho correlations confirmed statistically significant relationships between ICT capacitation indicators and all three instructional leadership goals ($p < .01$). Multiple regression analyses revealed that ICT capacitation significantly influenced vision-setting and goal alignment ($R^2=0.681$, $F=193.849$, $p < .001$), curriculum development and management ($R^2=0.510$, $F=94.535$, $p < .001$), and faculty development and professional growth ($R^2=0.665$, $F=179.641$, $p < .001$). ICT integration similarly significantly predicted vision-setting and goal alignment ($R^2=0.342$, $F=142.540$, $p < .001$). Findings demonstrate that ICT capacitation is a critical predictor of instructional leadership effectiveness across all three

goal domains, with ICT training, access, and institutional support emerging as the strongest individual predictor.

3. KEYWORDS: *ICT capacitation, school heads, instructional leadership, digital literacy, Spearman rho, regression analysis, Cotabato Division.*

4. INTRODUCTION

The integration of Information and Communication Technology (ICT) in educational leadership has emerged as one of the most consequential developments in contemporary school administration. School heads who possess strong ICT competencies are significantly better positioned to fulfill the core functions of instructional leadership — setting a clear educational vision, managing curriculum development, and fostering faculty professional growth — through technology-mediated mechanisms that amplify both the reach and the evidence-basis of their leadership influence (Muijs & Harris, 2007; Pelgrum & Law, 2003).

Within the context of Kidapawan City and Cotabato Division in Region XII, the question of whether school heads are ICT-capacitated or non-ICT-capacitated carries particular significance. The geographic characteristics of the region — dispersed rural school communities, variable infrastructure quality, and the persistent digital divide between urban and peri-urban schools — create a leadership landscape in which the ICT competencies of school heads are a critical mediating variable between national ICT investment and actual classroom-level instructional improvement (SEAMEO INNOTECH, 2018).

This study addresses the gap in Philippine educational research by quantitatively examining the extent of ICT capacitation among school heads in these divisions, measuring their instructional leadership effectiveness, and determining the significance of the relationships and influences between these variables. The study is anchored in Bass and Riggio's (2006) Transformational Leadership Theory, Rogers' (2003) Diffusion of Innovations Theory, and Barney's (1991) Resource-Based View of Leadership, which collectively frame ICT capacitation as a transformational resource whose equitable development has system-level consequences for educational quality.

5. MATERIALS AND METHODS

Research Design

This study employed a quantitative comparative cross-sectional descriptive-correlation research design examining differences and relationships between ICT capacitation and instructional leadership effectiveness among school heads.

Locale and Participants

The study was conducted across schools in Kidapawan City Division and Cotabato Division, Region XII, Philippines. Participants were school heads — principals and head teachers — from public secondary and elementary schools, stratified by ICT capacitation status (ICT-capacitated and non-ICT-capacitated). A stratified random sampling technique was used to ensure proportionate representation.

Instruments

Two validated survey components were used: (1) an Instructional Leadership Practices Survey adapted from the Principal Instructional Management Rating Scale (Hallinger & Murphy, 1985) and the School Leadership Practices Inventory (Kouzes & Posner, 2003), measuring instructional leadership across three goal dimensions — vision-setting and goal alignment, curriculum development and management, and faculty development and professional growth; and (2) an ICT Capacitation Survey developed from ICT competency frameworks (Lai & Pratt, 2004; UNESCO, 2015), measuring digital literacy, basic ICT skills, and ICT training/access/institutional support. For non-ICT-capacitated school heads, an ICT Integration instrument assessed the extent of technology integration in their leadership practices. All items used 5-point Likert scales.

Statistical Analysis

Data were analyzed using mean and weighted mean to describe levels, Spearman rho correlation to assess significant relationships between ICT capacitation and instructional leadership goals, and multiple linear regression to identify significant predictors and the proportion of variance explained.

6. RESULTS AND DISCUSSION

Extent of ICT Capacitation of School Heads

Table 1. Extent of ICT-Capacitated School Heads in Terms of Digital Literacy.

Statement	Mean	Description
Using basic ICT tools (word processors, spreadsheets, presentation software) for school management	4.40	Highly Capacitated
Navigating the internet to search for educational resources and professional development content	4.00	Capacitated
Using email, messaging platforms, and video conferencing for official communication	4.40	Highly Capacitated
Operating and managing school devices (computers, tablets, projectors, interactive boards)	4.40	Highly Capacitated

Knowledgeable about cybersecurity, digital ethics, including data privacy	3.80	Capacitated
Weighted Mean	4.20	Capacitated

Digital literacy among ICT-capacitated school heads was rated Capacitated (M=4.20). Highest scores were recorded in the operation of office productivity tools and digital communication platforms (M=4.40 each), while cybersecurity awareness obtained the lowest rating (M=3.80). These findings are consistent with Schiller (2003), who established that digital literacy among school leaders directly enables their credibility and capacity to guide institutional ICT integration.

Table 2. Extent of ICT-Capacitated School Heads in Terms of Basic ICT Skills.

Statement	Mean	Description
Promoting the use of ICT tools and digital resources among teachers	4.20	Highly Capacitated
Incorporating ICT in curriculum planning including selection of digital learning materials	4.20	Capacitated
Utilizing school data management systems and platforms (DepEd LMS, Google Classroom)	4.40	Highly Capacitated
Modeling effective ICT use in meetings, instructional planning, and PLCs	4.20	Capacitated
Designing and facilitating ICT-based professional development programs for teachers	4.40	Highly Capacitated
Weighted Mean	4.28	Highly Capacitated

Basic ICT skills achieved a rating of Highly Capacitated (M=4.28). The highest-rated items were utilization of data management systems and facilitation of ICT-based professional development (M=4.40 each). Afshari et al. (2009) established that school heads' digital literacy significantly correlates with their propensity to support and guide classroom-level ICT integration.

Table 3. Extent of ICT-Capacitated School Heads in Terms of ICT Training, Access, and Institutional Support.

Statement	Mean	Description
Participated in formal ICT training programs sponsored by DepEd or accredited organizations	4.00	Integrated
School is equipped with adequate ICT infrastructure including computers and internet connectivity	4.20	Integrated

Division provides timely technical support and maintenance for ICT facilities	4.40	Highly Integrated
School policies on ICT integration are clearly established and consistently implemented	4.40	Highly Integrated
Regularly participate in ICT-related learning networks and communities of practice	4.00	Integrated
Weighted Mean	4.20	Integrated

ICT training, access, and institutional support was rated Integrated (M=4.20). Policy implementation and technical support received the highest scores (M=4.40), while formal training participation and professional network engagement scored lower (M=4.00), reflecting ongoing gaps in professional development frequency. Harris and DeFusco (2016) identified institutional support as the single strongest predictor of sustained ICT leadership practice.

Extent of ICT Integration (Non-ICT-Capacitated School Heads)

Table 4. Extent of ICT Integration Among Non-ICT-Capacitated School Heads.

Statement	Mean	Description
Supports the use of basic ICT tools to improve teaching and learning	4.80	Highly Integrated
Encourages teachers to use available digital resources for classroom instruction	4.60	Highly Integrated
Participates in training and seminars related to ICT integration in education	4.80	Highly Integrated
Promotes technology use for communication among teachers, learners, and stakeholders	4.20	Integrated
Facilitates proper use of ICT equipment (computers, projectors, internet)	4.20	Integrated
Motivates teachers to develop ICT skills for instructional purposes	4.80	Highly Integrated
Ensures ICT resources are used responsibly and effectively in school activities	4.40	Highly Integrated
Supports initiatives to improve the school's digital learning environment	4.60	Highly Integrated
Collaborates with teachers to identify ways ICT can support management and instruction	4.80	Highly Integrated
Recognizes the importance of ICT in improving education quality	4.80	Highly Integrated
Weighted Mean	4.80	Highly Integrated

Non-ICT-capacitated school heads showed a rating of Highly Integrated (M=4.80) in their ICT integration efforts — notably higher than the ICT-capacitated group's individual component scores. This reflects strong motivational and behavioral commitment to ICT promotion despite skill limitations. Leithwood et al. (2016) noted that non-ICT-capacitated leaders may demonstrate strong interpersonal and motivational leadership capacities even in the absence of technical proficiency.

Level of Instructional Leadership Effectiveness

Table 5. Vision-Setting and Goal Alignment.

Statement	Mean	Description
Clearly communicates a vision that promotes effective ICT integration in teaching and management	4.60	Highly Integrated
Aligns school goals with ICT initiatives to enhance educational outcomes	4.80	Highly Integrated
Encourages teachers and staff to support the school's vision of integrating technology	4.80	Highly Integrated
Incorporates ICT-related objectives into the school improvement plan	4.40	Highly Integrated
Demonstrates commitment by promoting policies and practices that support ICT use	4.00	Highly Integrated
Weighted Mean	4.52	Highly Integrated

Vision-setting and goal alignment was rated Highly Integrated (M=4.52). Muijs and Harris (2007) established that ICT-enabled school leaders are measurably more effective at disseminating the school vision broadly and engaging diverse stakeholders in participatory goal-setting through digital platforms.

Table 6. Curriculum Development and Management.

Statement	Mean	Description
Integrates ICT tools in curriculum planning to enhance relevance and effectiveness	4.40	Highly Integrated
Supports use of digital platforms in managing and monitoring curriculum implementation	4.20	Integrated
Encourages teachers to incorporate ICT-based strategies in developing and delivering curriculum	4.00	Integrated
Facilitates training and PD opportunities promoting ICT in curriculum development	4.20	Integrated
Ensures ICT resources are used to improve curriculum	3.92	Integrated

organization, assessment, and supervision		
Weighted Mean	4.14	Integrated

Curriculum development and management was rated Integrated (M=4.14), with the highest score in ICT integration in curriculum planning (M=4.40) and the lowest in ICT use for assessment and supervisory processes (M=3.92). Pelgrum and Law (2003) established that school leaders who integrate ICT into curriculum supervision are more effective at ensuring instructional plans reflect contemporary curriculum standards.

Table 7. Faculty Development and Professional Growth.

Statement	Mean	Description
Actively promotes faculty development through training programs enhancing digital competencies	3.85	Integrated
Encourages teachers to participate in online PLCs and digital platforms for continuous growth	4.00	Integrated
Provides limited PD opportunities for technology integration due to insufficient ICT knowledge	4.20	Integrated
Supports teachers in utilizing digital tools for professional learning and innovation	4.40	Highly Integrated
Relies more on traditional PD approaches, which may slow ICT integration in faculty development	4.20	Integrated
Weighted Mean	4.13	Integrated

Faculty development and professional growth was rated Integrated (M=4.13), with the highest score in supporting teachers' use of digital tools (M=4.40). The lowest score in active promotion of ICT-based training programs (M=3.85) indicates that this dimension represents a developmental area. Darling-Hammond et al. (2017) demonstrated that ICT-capacitated school heads are better positioned to create sustained, school-embedded professional learning cultures.

Relationship Between ICT Capacitation and Instructional Leadership Effectiveness

Table 8. Correlation Matrix: ICT Capacitation and Instructional Leadership Effectiveness

ICT Capacitation Dimension	Vision-Setting & Goal Alignment (r)	Curriculum Devt. & Management (r)	Faculty Devt. & Professional Growth (r)
Digital Literacy	0.023	0.300**	0.596**
Basic ICT Skills	0.253**	0.225**	0.392**
ICT Training, Access & Institutional Support	-0.182**	0.527**	0.765**

**Correlation is significant at the 0.01 level. *Correlation is significant at the 0.05 level.

Spearman rho results revealed diverse patterns of significant relationships. Digital literacy showed non-significant correlation with vision-setting ($r=0.023$, $p=0.699$) but significant positive correlations with curriculum development ($r=0.300^{**}$) and faculty development ($r=0.596^{**}$). Basic ICT skills showed significant positive correlations across all three leadership goals. ICT training, access, and institutional support showed a significant negative correlation with vision-setting ($r=-0.182^{**}$) but strong positive correlations with curriculum development ($r=0.527^{**}$) and faculty development ($r=0.765^{**}$) — the latter representing the strongest correlation in the entire matrix. These patterns affirm that ICT training and institutional support are the most consequential capacitation dimensions for operational and developmental instructional leadership.

Table 9. Correlation: ICT Integration and Instructional Leadership Effectiveness.

ICT Integration	Vision-Setting & Goal Alignment (r)	Curriculum Devt. & Management (r)	Faculty Devt. & Professional Growth (r)
ICT Integration (Non-Capacitated)	0.463**	-0.520**	-0.707**

ICT integration among non-ICT-capacitated school heads showed a positive significant correlation with vision-setting ($r=0.463^{**}$) but significant negative correlations with curriculum management ($r=-0.520^{**}$) and faculty development ($r=-0.707^{**}$). These patterns suggest that while non-ICT-capacitated school heads' integration efforts positively align with strategic vision, they do not yet translate effectively into operational curriculum leadership or structured professional development — pointing to the importance of building the technical competencies underlying these more complex leadership functions.

Influence of ICT Capacitation on Instructional Leadership Effectiveness

Table 10. Regression: ICT Capacitation on Vision-Setting and Goal Alignment.

Predictor	Coef. β	Std. Error	t-value	Probability
(Constants)	5.524	0.115	48.219	0.000
Digital Literacy	0.288	0.027	10.670	0.000**
Basic ICT Skills	0.390	0.036	10.976	0.000**
ICT Training, Access & Institutional Support	-0.925	0.040	-23.123	0.000**
R ² =0.681 F=193.849** Prob=0.000**				

Table 11. Regression: ICT Capacitation on Curriculum Development and Management.

Predictor	Coef. β	Std. Error	t-value	Probability
(Constants)	-0.150	0.352	-0.425	0.671
Digital Literacy	-0.335	0.083	-4.038	0.000**
Basic ICT Skills	-0.588	0.109	-5.383	0.000**
ICT Training, Access & Institutional Support	1.951	0.123	15.849	0.000**
R ² =0.510 F=94.535** Prob=0.000**				

Table 12. Regression: ICT Capacitation on Faculty Development and Professional Growth.

Predictor	Coef. β	Std. Error	t-value	Probability
(Constants)	1.232	0.173	7.107	0.000
Digital Literacy	0.159	0.041	3.896	0.000**
Basic ICT Skills	-0.364	0.054	-6.771	0.000**
ICT Training, Access & Institutional Support	0.907	0.061	14.977	0.000**
R ² =0.665 F=179.641** Prob=0.000**				

ICT capacitation significantly influenced all three instructional leadership goal dimensions. The model explained 68.1% of the variance in vision-setting and goal alignment ($R^2=0.681$), 51.0% in curriculum development ($R^2=0.510$), and 66.5% in faculty development ($R^2=0.665$). ICT training, access, and institutional support consistently produced the highest t-values across all three models, confirming its position as the dominant predictor. This pattern aligns with Harris and DeFusco (2016), who established that institutional support is the single strongest predictor of sustained ICT leadership practice, and with UNESCO (2013), which identified training quality and infrastructure access as foundational enabling conditions for ICT-integrated leadership.

Table 13. Regression: ICT Integration on Vision-Setting and Goal Alignment.

Predictor	Coef. β	Std. Error	t-value	Probability
(Constants)	2.460	0.171	14.400	0.000
ICT Integration	0.449	0.038	11.939	0.000**
R ² =0.342 F=142.540** Prob=0.000**				

ICT integration among non-ICT-capacitated school heads significantly predicted vision-setting and goal alignment ($R^2=0.342$, $F=142.540$, $p<.001$), explaining 34.2% of variance. However, ICT integration showed minimal explanatory power for curriculum management

($R^2=0.011$) and faculty development ($R^2=0.054$), with negative regression coefficients in both cases, indicating that non-ICT-capacitated integration efforts, while strategically oriented, have not yet generated operational improvements in these more technically demanding leadership domains.

7. CONCLUSION

This quantitative study provides compelling evidence that ICT capacitation is a statistically significant predictor of instructional leadership effectiveness across the three goal dimensions of vision-setting and goal alignment, curriculum development and management, and faculty development and professional growth. ICT training, access, and institutional support consistently emerged as the strongest predictor across all three regression models, explaining substantial proportions of variance in instructional leadership outcomes.

The finding that non-ICT-capacitated school heads demonstrate high ICT integration motivation but limited operational leadership impact confirms the theory that ICT competence — not merely integration intention — is the critical variable mediating between leadership disposition and instructional leadership quality. The study recommends: targeted, practice-embedded ICT leadership training programs; sustained investment in ICT infrastructure and institutional support systems; and the integration of ICT competency standards into school head performance management frameworks within the Schools Division of Cotabato and Kidapawan City.

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