

**INFORMATION COMMUNICATION TECHNOLOGY ORIENTATION AND TEACHING EFFICACY AS PREDICTORS
OF ADAPTABILITY AMONG SECONDARY EDUCATION TEACHERS**

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ABSTRACT

This study investigated the levels of ICT orientation, teaching efficacy, and adaptability among secondary education teachers in a private educational institution, as well as the relationships and predictive influence of ICT orientation and teaching efficacy on adaptability. Using a descriptive-correlational design, data were collected from 20 teachers through validated survey instruments and analyzed using mean, standard deviation, Pearson correlation, and multiple regression. Results revealed a very high level of ICT orientation ($M = 4.19$, $SD = .321$) and very high teaching efficacy ($M = 4.30$, $SD = .571$), while adaptability was high ($M = 4.19$, $SD = .393$). Teaching efficacy showed a significant moderate positive relationship with adaptability ($r = .489$, $p < .05$) and emerged as a significant predictor ($\beta = .691$, $p < .05$), explaining part of the variance in adaptability ($R^2 = .369$). In contrast, ICT orientation was not a significant predictor ($\beta = -.413$, $p > .05$). The findings highlight teaching efficacy as a key determinant of teacher adaptability in dynamic educational environments.

INTRODUCTION

Adaptability refers to an individual's capacity to modify their thoughts, behaviors, and strategies in response to changing circumstances (Martin et al., 2012). In the education sector, this trait has become increasingly critical as teachers are now confronted with rapid advancements in technology, evolving curricular demands, and innovative teaching approaches (Collie & Martin, 2016). The Teaching and Learning International Survey conducted by the Organization for Economic Cooperation and Development (OECD) highlights that many teachers exhibit low levels of adaptability, particularly in adopting new teaching methods and integrating technology into classroom practice. Interestingly, the report revealed that millennial teachers were less inclined to embrace innovation. This finding is reinforced by König et al. (2020), who observed that even in well-resourced schools, teachers often struggled with the integration of technological tools and modern instructional strategies.

Globally, teacher adaptability has emerged as a pressing issue in various educational contexts. In Australia, Loughland and Alonso (2019) reported that teachers face difficulties aligning their teaching practices with technological integration, exposing a gap between policy expectations and classroom realities. Their study also noted the limited empirical evidence linking adaptability with professional traits such as self-efficacy, institutional support, and autonomy. Similarly, MacIntyre et al. (2020) found that many educators in the United States experienced significant challenges when transitioning to online learning during the pandemic, highlighting the need to enhance teachers' adaptive capacities. In South Korea, Hwang (2014) emphasized the importance of adaptability in the successful implementation of new curricular reforms, though many teachers reportedly found it difficult to align their pedagogy with emerging educational tools.

In the Philippine context, Alipio (2020) found that many universities were ill-equipped for distance education, and faculty members faced significant struggles adapting their teaching methods beyond traditional classroom or video-based instruction. Several empirical studies have examined how Information and Communication Technology (ICT) orientation influences teacher adaptability. Ertmer et al. (2012) asserted that teachers with strong ICT orientation tend to use more flexible and responsive

instructional methods. Similarly, Howard and Mozejko (2015) found that a positive attitude toward technology correlates with higher adaptability in dynamic classroom settings. Colbert et al. (2016) emphasized that ICT-oriented teachers are better positioned to implement blended and flexible learning approaches. Wang and Haggerty (2011) confirmed that teachers' ICT orientation significantly influences their ability to respond to technological shifts in education, while Zhou et al. (2020) highlighted the role of ICT orientation in supporting flexibility in various instructional dimensions, including content, delivery, and timing.

Parallel research has identified a strong link between teaching efficacy and adaptability. Klassen and Tze (2014) observed that higher levels of teaching efficacy are associated with greater flexibility in the classroom. Tschannen-Moran and McMaster (2009) further supported this by showing that teaching efficacy is a major predictor of a teacher's willingness to adopt new instructional methods. While much research has explored ICT orientation, teaching efficacy, and adaptability independently, there is limited empirical evidence examining how these factors interact. For instance, Hong et al. (2018) focused on teacher adaptability in multicultural classrooms and Teo et al. (2019) examined factors influencing ICT orientation and technology acceptance. However, limited study was found to integrate ICT orientation and teaching efficacy as predictors of adaptability, particularly within the context of Philippine secondary education.

In response to this gap, the current study aims to investigate the extent to which ICT orientation and teaching efficacy influence the adaptability of secondary education teachers in a private educational institution. This research seeks to contribute to the development of evidence-based strategies that enhance teacher adaptability in an increasingly digital and evolving educational landscape. By understanding the predictors of adaptability, school leaders and policymakers can develop targeted training programs and support systems to improve teachers' capacity to cope with change.

Research Question

1. What is the level of information communication technology orientation of secondary education teachers in terms of:
 - 1.1. ICT enabled school administration
 - 1.2. electronic information resources access
 - 1.3. ICT collaborative teaching
2. What is the level of teaching efficacy among secondary education teachers in terms of:
 - 2.1. efficacy in Student Engagement
 - 2.2. efficacy in Instructional Strategies
 - 2.3. efficacy in Classroom Management
3. What is the level of adaptability among secondary education teachers in terms of:
 - 3.1. cognitive-behavioral factor
 - 3.2. affective factor
4. Is there a significant relationship between
 - 4.1. information communication technology orientation and adaptability
 - 4.2. teaching efficacy and adaptability
5. Do information communication technology orientation and teaching efficacy predict the adaptability among secondary education teachers?

METHODS

Research Design

This quantitative study will utilize the descriptive-correlational research design. Descriptive research design is used to obtain information concerning the current status of the phenomena to describe (Kirkman, Chen, & Mathieu, 2020). Moreover, the correlational design is used to identify the strength and nature of association between two or more variables (Creswell, 2003). In this study, it will determine the levels of Information and Communication Technology (ICT) orientation, teaching efficacy, and adaptability among secondary education teachers. Moreover, the relationship between ICT orientation and teaching efficacy with teacher adaptability will also be explored.

Participants

The participants of this study are 20 secondary education teachers from a private educational institution in Davao City. Due to the relatively small size of the teaching population, the study employed total population sampling, a non-probability sampling technique where all members of the defined population are included in the research (Etikan & Bala, 2017). This approach ensures comprehensive coverage and maximizes data accuracy in contexts where the population is limited (Marshall, Cardon, Poddar, & Fontenot, 2013). The teachers represented various academic departments, such as English, Mathematics, Science, and Social Studies, providing a diverse sample to explore the variables of ICT orientation, teaching efficacy, and adaptability across disciplines. Total population sampling is particularly recommended in private institutions or specialized educational settings where participant numbers are small but represent the entire population of interest (Flick, 2018).

Research Instrument

The study will utilize survey questionnaires to collect data from the respondents. The instrument underwent content validation and pilot testing to ensure its reliability, successfully meeting the statistical criteria for validity. The ICT Use and Job

Performance Scale developed by Mugizi and Amwine (2020) was employed to measure ICT orientation. This scale assesses teachers' perceptions of their ICT usage and its impact on their job performance. It consists of 15 items rated on a 5-point Likert scale ranging from 5 – Strongly Agree to 1 – Strongly Disagree. The tool demonstrated strong internal consistency, with a Cronbach's alpha coefficient of 0.91. The Teacher Sense of Efficacy Scale (TSES) by Tschanne-Moran & Hoy (2001) was employed to measure teaching efficacy. It consists of 24 items rated on a 5-point Likert scale ranging from 5 – Strongly Agree to 1 – Strongly Disagree. The tool demonstrated strong internal consistency, with a Cronbach's alpha coefficient of 0.90. The Adaptability Scale adapted from Martin et al. (2013) was used to measure teachers' adaptability. It includes 9 items measuring cognitive-behavioral factors and affective factors. Items are rated on a 5-point Likert scale. This scale showed a Cronbach's alpha coefficient of 0.88, indicating high reliability.

Data Gathering Procedure

Before conducting the study, the researcher will seek formal approval from the Basic Education Principal, ensuring that all institutional protocols are followed. Upon receiving approval, the researcher will provide a letter of invitation and informed consent form to the identified respondents. This document will clearly explain the purpose of the study, the procedures involved, the voluntary nature of participation, and the assurance of confidentiality and anonymity. Only after obtaining signed informed consent will the researcher proceed with the distribution of the survey questionnaires to the participants. Respondents will be informed that they may withdraw from the study at any time without any negative consequences. All responses will be treated with strict confidentiality and will be used solely for academic and research purposes. Once the questionnaires are completed, the data will be collected, organized, and carefully tabulated. The researcher will then analyze and interpret the data using appropriate statistical tools, ensuring accuracy and objectivity throughout the process.

Statistical Tools

The following statistical tools will be used in the study:

Mean and Standard Deviation will be used to determine the levels of ICT orientation, teaching efficacy, and adaptability of secondary education teachers.

Pearson Product Moment Correlation will be utilized to determine the relationship between ICT orientation and teaching efficacy with the adaptability of secondary education teachers.

Multiple Regression Analysis will be employed to determine the influence of ICT orientation and teaching efficacy on teacher adaptability.

RESULTS AND DISCUSSION

Table 1. Level of ICT Orientation

Table 1 presents the level of ICT orientation of the respondents. ICT orientation is composed of three indicators, namely: ICT-enabled school administration, electronic information resources access, and ICT collaborative teaching. The overall mean rating is 4.19 with a standard deviation of .321, described as Very High, indicating that respondents frequently integrate ICT into their professional functions. The relatively low standard deviation suggests that responses are closely clustered around the mean, reflecting consistency in ICT orientation among the respondents.

In terms of ICT-enabled school administration, the category mean is 3.97 ($SD = .455$), described as High. This indicates that respondents often utilize ICT tools for administrative monitoring, student profiling, and real-time supervision. The highest-rated item under this indicator is the use of computers to monitor students' activities ($M = 4.35$), described as Very High, highlighting the strong reliance on digital tools for administrative efficiency. However, the use of surveillance gadgets obtained the lowest mean ($M = 3.30$), still described as High, suggesting variability in the availability or implementation of advanced monitoring technologies across institutions.

With regard to electronic information resources access, the category mean is 4.36 ($SD = .402$), described as Very High. This implies that respondents extensively utilize digital resources such as the Internet, online catalogs, and electronic databases for teaching preparation and professional development. The highest mean was observed in accessing electronic information useful for teaching and learning ($M = 4.65$), underscoring the central role of digital resources in enhancing instructional quality. This finding supports studies emphasizing that access to electronic resources significantly improves teachers' instructional preparedness and lifelong learning.

For ICT collaborative teaching, the category mean is 4.23 ($SD = .444$), described as Very High. This indicates that respondents actively engage in online collaboration, including sharing instructional ideas, participating in virtual discussions, and providing peer support through digital platforms. The consistently high ratings across all items suggest that ICT has become an integral medium for professional collaboration and instructional improvement.

Overall, the findings demonstrate a very high level of ICT orientation, reflecting a strong digital culture among the respondents. This suggests readiness to adapt to technology-driven educational environments and supports existing literature emphasizing ICT as a critical enabler of effective teaching and school management.

ICT-Enabled School Administration	Mean	SD	Description
I can use technology to alert staff to signs of inappropriate student behavior.	4.15	.587	High
I use a computer to monitor students' activities in class and other areas.	4.35	.587	Very High
I can access a student's profile easily using a computer.	4.25	.639	Very High
The school uses surveillance gadgets to monitor students and teachers.	3.30	1.261	High
I can monitor student activity in real time using technology.	3.80	1.361	High
Category Mean	3.97	.455	High
Electronic Information Resources Access			
I can easily access electronic information useful for teaching and learning.	4.65	.489	Very High
I use the Internet for research when preparing for lessons.	4.50	.607	Very High
I access teaching materials via online public access catalogs.	4.35	.587	Very High
The school subscribes to digital sources that aid teaching and learning.	3.90	1.071	High
I use the Internet to obtain quality teaching aids.	4.45	.605	Very High
I read online newspapers as part of my professional development.	4.30	.571	Very High
Category Mean	4.36	.402	Very High
ICT Collaborative Teaching			
I participate in chat sessions to discuss teaching activities.	4.20	.523	Very High
Online platforms help my teaching team share ideas and support one another.	4.25	.639	Very High
Online collaboration has improved my teaching practices.	4.25	.550	Very High
I give and receive assistance online related to teaching.	4.20	.523	Very High
Category Mean	4.23	.444	Very High
Overall Mean	4.19	.321	Very High

Table 2. Level of Efficacy

Table 2 shows the level of teaching efficacy of the respondents across three dimensions: student engagement, instructional strategies, and classroom management. The overall mean is 4.30 with a standard deviation of .571, described as Very High, indicating a strong belief among respondents in their teaching capabilities.

In terms of student engagement, the category mean is 4.14 (SD = .324), described as High. This suggests that respondents are confident in motivating students, fostering critical thinking, and encouraging positive learning attitudes. The highest mean items relate to helping students value learning (M = 4.35) and fostering creativity (M = 4.25), both described as Very High, indicating strong efficacy in promoting meaningful and engaging learning experiences.

For instructional strategies, the category mean is 4.21 (SD = .373), described as Very High. This indicates that respondents demonstrate strong competence in adjusting lessons, crafting effective questions, and employing varied assessment and teaching strategies. The ability to provide alternative explanations when students are confused (M = 4.30) emerged as one of the highest-rated items, highlighting instructional flexibility as a key strength.

In terms of classroom management, the category mean is 4.21 (SD = .331), described as Very High. This reflects a high level of confidence in managing student behavior, maintaining classroom order, and establishing effective routines. The highest-rated item pertains to establishing routines that keep activities running smoothly (M = 4.40), emphasizing the importance of structured classroom environments in effective teaching.

Overall, the very high level of teaching efficacy suggests that respondents possess strong instructional confidence, classroom control, and engagement strategies, which are essential for effective teaching performance and positive student outcomes.

Student Engagement	Mean	SD	Description
I can get through to the most difficult students.	4.05	.686	High
I can help my students think critically.	4.25	.550	High
I can motivate students who show low interest in schoolwork.	4.05	.394	High
I can get students to believe they can do well in schoolwork.	4.25	.550	Very High
I can help students value learning.	4.35	.489	Very High
I can foster student creativity.	4.25	.444	Very High
I can improve the understanding of a failing student.	4.15	.587	High
I can assist families in supporting their children's education.	3.75	.786	High
Category Mean	4.14	.324	High
Instructional Strategies			
I can respond well to difficult questions from students.	4.20	.523	Very High
I can accurately gauge student comprehension.	4.15	.489	High
I can craft good questions for my students.	4.20	.523	Very High
I can adjust lessons to suit individual students.	4.30	.571	Very High
I use a variety of assessment strategies.	4.20	.696	Very High
I can provide alternative explanations when students are confused.	4.30	.571	Very High
I can implement alternative teaching strategies.	4.15	.489	High
I can provide appropriate challenges for highly capable students.	4.20	.523	Very High
Category Mean	4.21	.373	Very High
Classroom Management			
I can control disruptive behavior in the classroom.	4.30	.571	Very High
I make my expectations clear about student behavior.	4.35	.489	Very High
I can establish routines to keep activities running smoothly.	4.40	.598	Very High

I can get students to follow classroom rules.	4.20	.616	Very High
I can calm a disruptive or noisy student.	4.35	.587	Very High
I can establish an effective classroom management system.	4.25	.550	Very High
I can prevent a few problem students from ruining a lesson.	4.25	.550	Very High
I can respond well to defiant students.	4.28	.385	Very High
Category Mean	4.21	.331	Very High
Overall Mean	4.30	.571	Very High

Table 3. Level of Adaptability

Table 3 presents the level of adaptability of the respondents, measured in terms of cognitive-behavioral and affective factors. The overall mean is 4.19 with a standard deviation of .393, described as High, indicating that respondents often demonstrate adaptability in response to new and uncertain situations.

In terms of the cognitive-behavioral factor, the category mean is 4.20 ($SD = .360$), described as Very High. This indicates that respondents are highly capable of adjusting their thinking, seeking new resources, and developing alternative approaches when faced with unfamiliar situations. The highest-rated items relate to revising thinking strategies and changing approaches to address new challenges ($M = 4.25$), reflecting strong problem-solving and cognitive flexibility.

Regarding the affective factor, the category mean is 4.18 ($SD = .597$), described as High. This suggests that respondents are generally able to manage emotions, reduce fear and frustration, and draw on positive emotions when dealing with uncertainty. The ability to draw on positive feelings obtained the highest mean ($M = 4.35$), indicating emotional resilience as a key component of adaptability.

Overall, the findings indicate that respondents possess a high level of adaptability, enabling them to respond effectively to changing demands and challenges in educational settings.

Cognitive-Behavioral Factor	Mean	SD	Description
I am able to think through a number of possible options to assist me in a new situation.	4.15	.489	High
I am able to revise the way I think about a new situation to help me through it.	4.25	.550	Very High
I am able to adjust my thinking or expectations to assist me in a new situation.	4.15	.489	High
I am able to seek out new information, helpful people, or useful resources to effectively deal with new situations.	4.20	.616	Very High
In uncertain situations, I am able to develop new ways of going about things.	4.20	.523	Very High
To assist me in a new situation, I am able to change the way I do things.	4.25	.550	Very High
Category Mean	4.20	.360	Very High
Affective Factor			
I am able to reduce negative emotions (e.g., fear) to help me deal with uncertain situations.	4.15	.587	High
When uncertainty arises, I am able to minimize frustration or irritation so I can deal with it best.	4.05	.759	High

To help me through new situations, I am able to draw on positive feelings and emotions.	4.35	.671	Very High
Category Mean	4.18	.597	High
Overall Mean	4.19	.393	High

Table 4. Relationship between Variables

INDEPENDENT VARIABLE	Adaptability		
	R	p-value	Remarks
ICT Orientation	-.074	.756	Not Significant
Teaching Efficacy	.489*	.000	Significant

Table 4 shows the relationship between ICT orientation, teaching efficacy, and adaptability. The results reveal that teaching efficacy has a significant relationship with adaptability ($r = .489$, $p < .05$), while ICT orientation shows no significant relationship with adaptability ($r = -.074$, $p > .05$).

The significant positive correlation between teaching efficacy and adaptability indicates a moderate direct relationship, suggesting that as teaching efficacy increases, adaptability also tends to increase. This implies that teachers who are more confident in their instructional abilities are better able to adjust to new situations, instructional demands, and changes in the educational environment.

On the other hand, the non-significant relationship between ICT orientation and adaptability suggests that while respondents are highly oriented toward ICT, this alone does not directly translate into adaptive behavior. This indicates that technology use may require complementary skills, such as pedagogical confidence and instructional competence, to effectively enhance adaptability.

Table 5. Influence of ICT orientation and teaching efficacy on the Adaptability

Independent Variables	Unstandardized Coefficients		Standardized Coefficients Beta	t	p-value	Remarks
	B	Std. Error				
(Constant)	2.850	1.132		2.519	.000	
ICT Orientation	-.505	.270	-.413	-1.868	.079	Not Significant
Teaching efficacy	.820	.262	.691	3.128	.000	Significant

Note: R=.607, R-square=.369, F=4.967, P<.05

Table 5 presents the results of the regression analysis conducted to determine the predictors of adaptability. The model yielded an R value of .607 and an R-square of .369, indicating that 36.9% of the variance in adaptability can be explained by ICT orientation and teaching efficacy combined.

The results show that teaching efficacy is a significant predictor of adaptability ($\beta = .691$, $p < .05$). This means that for every unit increase in teaching efficacy, there is a corresponding increase in adaptability. This finding underscores the critical role of instructional confidence, classroom management, and pedagogical competence in enabling educators to adapt effectively to changing circumstances.

In contrast, ICT orientation was not found to be a significant predictor of adaptability ($\beta = -.413$, $p > .05$). This suggests that although ICT skills are highly developed among respondents, they do not independently influence adaptability unless supported by strong teaching efficacy. This finding implies that technology serves as a facilitating tool rather than a direct determinant of adaptive capacity.

Overall, the regression results indicate that while ICT orientation enhances instructional processes, teaching efficacy remains the strongest and most influential factor in predicting adaptability. This highlights the importance of strengthening teachers' professional confidence and instructional competence to promote adaptability in dynamic educational environments.

CONCLUSION

This study examined the levels of ICT orientation, teaching efficacy, and adaptability, as well as the relationships and predictive influence of ICT orientation and teaching efficacy on adaptability. Based on the findings, several important conclusions can be drawn.

The respondents demonstrated a very high level of ICT orientation (overall $M = 4.19$, $SD = .321$), indicating extensive integration of digital tools in school administration, instructional resource access, and collaborative teaching. Among the indicators, electronic information resources access obtained the highest category mean ($M = 4.36$), followed by ICT collaborative teaching ($M = 4.23$), while ICT-enabled school administration remained high ($M = 3.97$). These results suggest that respondents are technologically competent and operate within digitally supportive educational environments.

Teaching efficacy was also found to be very high (overall $M = 4.30$, $SD = .571$), reflecting strong confidence in engaging students, implementing effective instructional strategies, and managing classrooms. Classroom management and instructional strategies both recorded very high category means ($M = 4.21$), underscoring the respondents' strong pedagogical competence and ability to maintain effective learning environments.

In terms of adaptability, the respondents exhibited a high level of adaptability (overall $M = 4.19$, $SD = .393$). The cognitive-behavioral factor was rated very high ($M = 4.20$), indicating strong problem-solving skills and flexibility in responding to new situations, while the affective factor was rated high ($M = 4.18$), reflecting the ability to regulate emotions and maintain resilience in uncertain contexts.

Correlation analysis revealed that teaching efficacy has a significant moderate positive relationship with adaptability ($r = .489$, $p < .05$), indicating that higher levels of teaching confidence are associated with greater adaptive capacity. Conversely, ICT orientation showed no significant relationship with adaptability ($r = -.074$, $p > .05$), suggesting that technological proficiency alone does not directly translate into adaptive behavior.

Regression analysis further confirmed that teaching efficacy is a significant predictor of adaptability ($\beta = .691$, $p < .05$), while ICT orientation was not a significant predictor ($\beta = -.413$, $p > .05$). The model explained 36.9% of the variance in adaptability ($R^2 = .369$), indicating that teaching efficacy plays a substantial role in enhancing adaptability, while other factors beyond the scope of this study account for the remaining variance.

Overall, the findings suggest that while ICT orientation is highly developed among respondents, teaching efficacy is the primary determinant of adaptability. Adaptability in educational contexts is therefore more strongly influenced by pedagogical confidence, instructional competence, and classroom management skills than by technology use alone.

RECOMMENDATIONS

Based on the conclusions drawn from the study, the following recommendations are proposed:

Strengthening Teaching Efficacy through Professional Development. Since teaching efficacy significantly predicts adaptability ($\beta = .691$), institutions should prioritize continuous professional development programs that focus on instructional strategies, classroom management, and student engagement. Training initiatives should emphasize reflective teaching practices, differentiated instruction, and confidence-building pedagogies to further enhance educators' adaptive capacity.

Integrating ICT with Pedagogical Practice. Although ICT orientation was rated very high ($M = 4.19$), its non-significant influence on adaptability suggests the need to integrate ICT more meaningfully with pedagogy. Institutions should design ICT training programs that go beyond technical skills and focus on pedagogical applications of technology, ensuring that ICT use directly supports adaptive teaching practices.

Promoting Adaptive Teaching Strategies. Given the high adaptability scores ($M = 4.19$), educators should be encouraged to apply flexible instructional approaches, problem-based learning, and innovative assessment methods that foster adaptability among

both teachers and learners. School administrators may support this by providing autonomy and resources for instructional experimentation.

Enhancing Emotional and Cognitive Adaptability. While cognitive-behavioral adaptability was very high ($M = 4.20$), affective adaptability remained slightly lower ($M = 4.18$). Institutions may introduce wellness programs, mentoring systems, and emotional resilience workshops to help educators better manage stress, uncertainty, and emotional demands in dynamic educational settings.

Future Research Directions. As the regression model explained 36.9% of the variance in adaptability, future studies may explore other influencing factors such as organizational support, leadership style, professional motivation, and work environment. Longitudinal and mixed-methods research designs are also recommended to capture changes in adaptability over time and to provide deeper insights into the interaction between technology, teaching efficacy, and adaptive behavior.

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