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# Technology and Information Management that Affect the Quality of Teachers' Learning in Secondary Schools, Ratchaburi Province

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## Abstract

Purpose:1) the factors in technology and information management 2) the quality of teachers learning management situation, and 3) the factors in technology and information management influencing the quality of teachers' learning management in the new normal era post-COVID-19 in secondary schools in Ratchaburi Province. Research design, data and methodology: The sample group consists of 312 individuals, including administrators and teachers. The research instrument was a questionnaire with a validity .67-1.0 and a reliability was .889. The statistical analyses include means, percentage, standard deviations, and multiple regression analysis. Result: The results show the hypotheses were 1. the factors in technology and information management in situation were, overall, at a high level. When considering each aspect individually, the findings indicated a high level across all dimensions, ranked in descending order of mean values as follows: information, rules and regulations, instructional media, teaching methods, teachers, information, infrastructure, technology, and students. 2. The overall quality of teachers' learning management in secondary schools was at a high level. When examining individual aspects, the results indicated a high level across all dimensions, ranked in descending order of mean values as follows: assessment and evaluation, learning efficiency, learning management, and student satisfaction. 3 The factors in technology and information management influencing the quality of teachers' learning management were identified as: 1) students, 2) infrastructure, and 3) overall technology and information factors (Xtot). These factors demonstrated an 85.10% predictive efficiency in the raw score-based equation. The equation is expressed as follows:  $\hat{Y}_{tot} = 0.132 + 0.125X_3 + 0.120X_7 + 0.981X_{tot}$  and the raw score-based equation:  $Z\hat{y}_{tot} = 0.112 + 0.049X_3 + 0.056X_7 + 0.412X_{tot}$ Conclusions: The variables should be emphasized and strengthened in the management of information technology for teaching in schools are students, information technology infrastructure. and overall management which includes 1) Technology 2) Information 3) Learners 4) Teachers 5) Teaching media 6) Teaching methods 7) Infrastructure 8) Information 9) Regulations

Keywords: Technology and information, learning management, secondary school

# 1. Introduction

management to support and promote the missions of educational institutions to achieve success according to their objectives. The goal is to develop human resources, particularly at the fundamental education level where children and youth enter the education system. Schools would develop children and youth to become well-rounded individuals. Effective education management involves maximizing the potential and quality of education, contributing to the development of individuals into complete human beings Therefore, education management is vital for national development, representing a valuable resource for Thailand country. Key management

The emergence of the COVID-19 virus in 2019 has led to a global pandemic, impacting various aspects of the economy, society, public health, and education. As a response, information technology and communication have been utilized in the new normal lifestyle, especially in education. During the COVID-19 outbreak, the virus spread globally, affecting more than 1.5 billion children and youth who had to stop attending schools. A shift to remote learning, facilitated by technology, became necessary. Many had to

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adapt to changes in the education system, particularly children and youth in basic education. Learning during this period has been heavily reliant on parental involvement, with parents playing a significant role in supporting their children's education at home. The initial adjustment period prompted changes to ensure that children's education was not disrupted. In the first semester of the academic year 2027-2025, although schools were allowed to conduct onsite teaching, not all students could attend simultaneously, leading to rotational attendance to reduce density. Various distance learning systems, such as DLTV, television-based instruction, and online systems via the internet, were employed. The mode of instruction varied according to the suitability of each school, with preparations and trials conducted to facilitate a smooth transition before the commencement of the academic term.

Following the COVID-19 situation, which has been alleviated to some extent, until the Ministry of Education declared (2024) a relaxation of online education management, allowing a return to onsite teaching. However, this decision is subject to the discretion of school administrators. Therefore, after the decline in the spread of COVID-19 and the reopening of the country, education management still requires a combination of onsite and online teaching, with rotations when there is a risk. Teachers may need to adapt and change their teaching methods, creating a situation where school administrators must make decisions to ensure continuous leaning without interruptions. This is crucial for the quality of students, which directly affects the future quality of the population. The adaptation of various teaching formats and the emergence of diverse innovative ideas by teachers have become driving forces, leading to the incorporation of new educational technologies and innovations. These new models accommodate the diverse contexts of different regions worldwide. According to a study by Phumisaran Thongliamnak (2021), an expert in educational economics at the Research Institute for Equitable Education Fund (EEF), an assessment of the education situation in Thailand was conducted in late 2024. The study focused on the impacts of COVID-19, leading to changes in various aspects of the education sector. Despite efforts to address problems such as classroom closures and the shift to online learning, it was found that online learning was not as effective as traditional classroom learning. This resulted in learning disruptions, especially for students in basic education, leading to issues such as learning loss during the COVID-19 period when students had to stay at home or lacked opportunities for lesson reviews. Apart from the loss of knowledge during this period, it may have implications for fundamental knowledge, crucial for human resource development in society. Various organizations attempted to address these challenges by providing additional equipment, internet access, and training for teachers to cope with

distance learning. Therefore, the researcher aims to study the research topic "Factors in Technology and Information Management that Affect the Quality of Teachers' Learning in the New Normal Era After the COVID-19 Pandemic in Secondary Schools in Ratchaburi Province. The study encompasses nine dimensions: 1) Technology, 2) Information, 3) Students, 4) Teachers, 5) Instructional Media, 6) Teaching Methods, 7) Infrastructure, 8) Data, and 9) Rules and Regulations, as aligned with the framework proposed by Beerens (2000) covering five dimensions: 1) Teaching, 2) Learning Climate, 3) Assessment and Evaluation, 4) Learning Efficiency, and 5) Student Satisfaction, leading to the current research endeavor.

## 2. Objectives of the Research

1. To investigate the management factors in technology and information in the new normal era, especially after the COVID-19 situation, among school administrators in secondary schools in Ratchaburi Province.

2. To investigate the quality of teachers' learning management in the new normal era, following the COVID-19 situation, in secondary schools in Ratchaburi Province.

3. To investigate the management factors in technology and information affecting the quality of teachers' learning management in the new normal era after the COVID-19 situation in secondary schools in Ratchaburi Province.

## **3. Scope of Research**

#### 3.1 Population and Sample

Population: The population for this research comprises administrators and teachers in government secondary schools in Ratchaburi Province in the 2022 academic year, totaling 1,618 individuals from 25 schools.

Sample group: The sample group consists of administrators and teachers from government secondary schools in Ratchaburi Province in the 2022 academic year. Using Darwen Hendel sample size table (Darwin Hendel, 1977) with a confidence level of 95%, the sample size was determined to be 312 individuals, considering the proportion of administrators and teachers in each school.

# 3.2 Variable

Independent Variables: Derived from the conceptual framework related to management factors in information technology of Sukhothai Thammathirat Open University, comprising 9 factors: 1) Technology, 2) Information, 3) Students, 4) Techers, 5) Instructional Media, 6) Teaching Methods, 7) Infrastructure, 8) Data, and 9) Rules and Regulations.

Dependent Variables: Reflecting the quality of teachers' learning management according to Beeren (Beerens, 2000) conceptual framework, encompassing 5 dimensions: 1) Teaching, 2) Learning Climate, 3) Assessment and Evaluation, 4) Learning Efficiency, 5) Student Satisfaction.





### 3.3 Scope of Area

Secondary schools in Ratchaburi Province.

## 3.4 Scope of Time

The research conducted in the academic year 2022 (B.E.2566)

# 4. Research Methodology

1. Research design: conducting a quantitative research study

2. Research Procedure

Step 1: Reviewing documents related to the management of information technology for teaching and learning at Sukhothai Thammarthirat Open University (2016) to identify independent variables. The 9 identified dimensions include: 1) Technology, 2) Information, 3) Students, 4) Teachers, 5) Instructional Media, 6) Teaching Methods, 7) Infrastructure, 8) Data, 9) RulesandRegulations. Additionally, considering the teaching characteristics of teachers based on Beerens'framework (Beerens, 2000), covering 5 dimensions: 1) Teaching, 2) Learning Climate, 3)

Assessment and Evaluation, 4) Learning Efficiency, 5) Student Satisfaction.

Step 2: Defining terms and concepts to set the scope of research questions and constructing questions with a Likert Scale of 5 levels according to Likert's scale.

Step 3: Assessing the effectiveness of research tools and proceeding to data collection with the sample group.

## **4.1 Research Instruments**

Utilizing a questionnaire for data collection, comprising three parts.

## 4.2 Development of Research Instruments

1. Developed a questionnaire based on the predefined structure, comprising three sections:

Section 1: Constructed a checklist-type questionnaire regarding respondents' Demographics, consisting of 4 items.

Section 2: Developed a questionnaire on the use of information technology for teaching and learning, utilizing a Likert Scale with 5 levels (Likert, 2007) totaling 45 items.

Section 3: Formulated a questionnaire on the

quality of teaching, and again using a Likert Scale with 5 levels (Likert, 2007) comprising 25 items.

2. Presented the questionnaire to three qualified experts for content validation, employing the Item Objective Congruence Index (IOC). The questionnaire achieved an IOC value between .67-1.00, meeting acceptable standards.

3. Conducted a try-out with a non-sample group of 30 individuals to assess the reliability of the questionnaire. Calculated the Cronbach's Alpha Coefficient, yielding a reliability coefficient of .889 (Cronbach, 1970).

### 4.3 Data Collection

Collected a total of 250 data sets, representing 80.13% of the intended sample.

## 4.4 Data Analysis

1. Analyzed respondents' demographic information using frequency and percentage;

2. Evaluated information technology management factors using mean and standard deviation;

3. Assessed the quality of teaching using mean and standard deviation;

4. Conducted a stepwise multiple regression analysis to identify information technology management factors influencing the quality of teaching

## 5. Research Findings

1. The analysis of information technology management factors among school administrators in the new normal era post-COVID-19 in secondary schools, Ratchaburi Province is presented in Table 1

Table 1: Mean, Standard Deviation, and ranking of information technology management Factors used in the overview ( $X_{tot}$ ) n=250

Information Technology Management Factors	X	S.D.	Level	Ranking
1. Technology (X1)	3.61	0.65	High	8
2. Information (X <sub>2</sub> )	3.64	0.81	High	6
3. Students (X <sub>3</sub> )	3.08	0.91	Moderate	9
4. Teachers (X <sub>4</sub> )	4.00	0.63	High	5
5. Instructional media $(X_5)$	4.03	0.68	High	3
6. Teaching Methods (X <sub>6</sub> )	4.01	0.66	High	4
7. Infrastructure (X <sub>7</sub> )	3.63	0.90	High	7
8. Data (X <sub>8</sub> )	4.07	0.70	High	1
9. Rules and Regulation (X <sub>9</sub> )	4.07	0.67	High	2

From Table 1, it is evident that the information technology management factors in the new normal era post-COVID-19 in secondary schools in Ratchaburi province, represented by the total score ( $X_{tot}$ ), is at a high level ( $\overline{X}$ =3.79, S.D.= 0.56 A detailed breakdown by factors reveals that the highest-ranked factors, in terms of mean score, are Data ( $X_8$ ) at high level ( $\overline{X}$ =4.07, S.D.=0.70), Rules and Regulation ( $X_9$ ) at high level ( $\overline{X}$ =4.07, S.D.=0.67), Instructional media ( $X_5$ ) at high level ( $\overline{X}$ =4.03, S.D.=0.68), Teaching Methods ( $X_6$ ) at high level ( $\overline{X}$ =4.03, S.D.=0.68), Teaching Methods ( $X_6$ ) at high level ( $\overline{X}$ =4.00, S.D.=0.63) Information ( $X_2$ ) at high level ( $\overline{X}$ =3.64, S.D=0.81) Infrastructure ( $X_7$ ) at high level ( $\overline{X}$ =3.61, S.D.=0.65) and Students ( $X_3$ ), which is rated at a moderate level ( $\overline{X}$ =3.08, S.D.=0.91).

2. The analysis of teaching management quality in the new normal era post-COVID-19 is presented in Table 2

 Table 2: Mean, Standard Deviation, and ranking of teaching management quality in the new normal era post-COVID-19 (Ytot)

Teaching Management Quality in the New Normal Era	$\overline{\mathbf{X}}$	S.D.	Level	Ranking
1. Teaching $(\mathbf{Y}_1)$	4.04	0.72	High	4
2. Learning Climate (Y <sub>2</sub> )	4.11	0.70	High	2
3. Assessment & Evaluation(Y <sub>3</sub> )	4.20	0.65	High	1
4. Learning Efficiency (Y <sub>4</sub> )	4.05	0.66	High	3
5. Student Satisfaction $(Y_5)$	3.86	0.75	High	5
$Total\left(Y_{tot}\right)$	3.83	0.59	High	

From Table 2 reveals that the teaching management quality in the new normal era post-COVID-19 in secondary schools in Ratchaburi province, represented by the total score (Y<sub>tot</sub>), is at a high level ( $\overline{X} = 3.83$ , S.D.= 0.59). When examining individual aspects, all dimensions are classified as high, ranked from the highest mean score to the lowest as follows: Assessment and Evaluation (Y<sub>3</sub>) ( $\overline{X} = 4.20$ , S.D.=0.65), Learning Climate(Y<sub>2</sub>)( $\overline{X} = 4.11$ , S.D.=0.70), Learning Efficiency(Y<sub>4</sub>) ( $\overline{X} = 4.05$ , S.D.= 0.66), Teaching (Y<sub>1</sub>) ( $\overline{X} = 4.04$ , S.D.=0.72), and Student Satisfaction (Y<sub>5</sub>) ( $\overline{X} = 3.86$ , S.D.=0.75).

3. The analysis of the relationship between information technology management factors and teaching management quality in the new normal era post-COVID-19 in secondary schools, Ratchaburi Province using simple correlation, is presented in Table 3.

**Table 3**: Correlation Coefficients between information technology

 management factors (X) and teaching management quality (Y)

	<b>Y</b> <sub>1</sub>	$\mathbf{Y}_2$	<b>Y</b> 3	Y4	Y5	Ytot
<b>X</b> 1	.422**	.145**	.431**	.351**	.471**	.531**
$X_2$	.648**	.534**	.524**	.293**	.443**	.623**
<b>X</b> <sub>3</sub>	.372**	.305**	.549**	.246**	.485**	.647**
$X_4$	.700**	.771**	.336**	.671**	.593**	.756**
X5	.577**	.773**	.222**	.690**	.558**	.688**
X6	.741**	.759**	.940**	.620**	.667**	.827**
$X_7$	.710**	.597**	.607**	.342**	.499**	.703**
X8	.810**	.824**	.342**	.632**	.539**	.775**
X9	.627**	.723**	.216**	.707**	.548**	.687**
Xtot	.809**	.814**	.639**	.637**	.692**	.903**

From Table 3, it is evident that the variables related to information technology management significantly correlate with the teaching management quality of teachers in the new normal era post-COVID-19 in secondary schools in Ratchaburi province at a statistically significant level of .01 in a positive direction.

**Table 4:** Analysis of information technology management factors affecting teaching management quality in the new normal era post-COVID-19 in secondary schools in Ratchaburi Province (Y<sub>tot</sub>)

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Regression	74.317	9	8.257	153.280***	.000a
Residual	12.983	241	.054		
Total	87.300	250			

\*\*\* Statistical significance observed at the .001 level

Multiple Correlation Coefficient (Multiple R)	=.923 <sup>a</sup>
Coefficient of Determination (R <sup>2</sup> )	= .851
Adjusted Coefficient of Determination Adjusted	$R^2$ ) = .846
Standard Error	=.23210

**Table 5:** Selected variables included in the regression equation with information technology management factors related to teaching management quality of teachers in the new normal era post-COVID-19 in secondary schools in Ratchaburi Province (Y<sub>tot</sub>)

Predictive	Unstandardized Coefficients		standardized Coefficients	t	<b>6</b> :-
Variable	β	Std. Error	Beta	ι	Sig
(Constant)	.132	.112		1.182	.238
1. Students (X <sub>3</sub> )	.125	.049	.191	2.569*	.011
2. Infrastructure (X <sub>7</sub> )	.120	.056	.184	2.150*	.034
3. Information Technology Management Factors (X <sub>tot</sub> )	.981	.412	.930	2.380*	.018

From Table 4 and 5 found the variables selected to be included in the regression equation with information technology management factors related to the teaching management quality of teachers in the new normal era post-COVID-19 in secondary schools in Ratchaburi province (Ytot) are presented. The selected variables in order are Students  $(X_3),$ Infrastructure  $(X_7)$ , Information Technology Management Factors (X<sub>tot</sub>). The standardized coefficients  $(\hat{\beta})$ indicate the strength and direction of the relationship. It is noteworthy that all three variables have positive standardized coefficients, suggesting a positive relationship with teaching management quality. The statistical significance of these relationships is evidenced by the p-value (\*p<0.05). Additionally, the multiple correlation coefficient (Multiple R) is reported as .923<sup>a</sup>, signifying a strong positive relationship between the predictor variables and the outcome variable. The coefficient of determination  $(\mathbb{R}^2)$  is .851, indicating that 85.10% of the variability in teaching management quality can be explained by the selected variables. The adjusted  $R^2$ ,

considering the number of predictors, remains high at .846. The standard error of the estimate is .23210, providing an indication of the average deviation of the observed values from the predicted values. In summary of this context, it is evident that the three information technology management factors collectively have a statistically significant impact on the teaching management equality of teachers in the new normal era post-COVID-19 in secondary schools in Ratchaburi province ( $Y_{tot}$ ). This significance is substantiated by statistical analysis. The relationship between the predictor variables and the outcome variable can be expressed through a regression equation derived from raw scores:

$$\begin{split} \hat{Y}_{tot} = 0.132 + 0.125 X_3 + 0.120 X_7 + 0.981 X_{tot} \\ The raw score-based equation: \\ Z_{\hat{Y}tot} = 0.112 + 0.049 X_3 + 0.056 X_7 + 0.412 X_{tot} \end{split}$$

This equation outlines the quantitative influence of students ( $X_3$ ), infrastructure ( $X_7$ ), and Information technology management factors in total ( $X_{tot}$ ) on the overall teaching management quality ( $Y_{tot}$ ). The statistically significant nature of this relationship indicates the meaningful contribution of these information technology management factors to the observed variability in the teaching management quality of teachers in the specified context.

# 6. Discussion of Research

The research findings can be interpreted as follows:

1. In the context of the new normal after the COVID-19 situation, information and technology management factors significantly influence the quality of learning management among secondary schools in Ratchaburi province. The overall level is notably high, as indicated by statistical analysis. This can be dissected into various aspects, arranged in descending order of mean scores; data, rules and regulations, instructional media, teaching methods, teachers, information, infrastructure, technology, and students. The substantial emphasis on data utilization can be attributed to the prolonged separation of students from physical school environments due to the COVID-19 situation. With the shift towards online teaching and limited peer interactions, teachers have given paramount importance to leveraging content, environmental, student, and information data as instructional media. This approach has been integral in orchestrating the learning process, teaching activities, and school management. Teachers' focuses on data utilization has proven essential for adapting educational institutions to

contemporary challenges and ensuring student engagement. These findings align with the research conducted by Panapak Phongputtharak (2019) conducted a research study on the factors influencing the integration of information technology and communication in teaching practices among teachers in the lower northeastern region of Thailand. The objective of this research was threefold: 1) to examine the level of technology and information management integration in teaching practices, 2) to investigate the factors influencing the integration of technology and information management, and 3) to explore the development directions of factors influencing the integration of technology and information management in teaching practices among teachers in primary schools in the lower northeastern region. The findings indicate a high level of information technology integration, consistent with the research conducted by Nilubon Tatachai (2021), which aimed to study the use of information technology for teaching among teachers in Phraya Manthat Ratchasri Phichit School Bang Bon District office, under Bangkok Metropolitan Administration, with the overall level being high. The research findings revealed that the utilization of information technology for teaching purposes by instructors teaching at Phraya Manthat Ratchasri Phichit School Bang Bon District office, under Bangkok Metropolitan Administration, is generally at a high level. This aligns with the research conducted by Nawaphon and Thapanee (2022) which investigated research the factors influencing the acceptance of integrating information technology into teaching practices among teachers in schools affiliated with the educational district of Pattani province. The objective of this research is threefold 1) to examine the level of acceptance regarding the integration of information technology into teaching practices among teachers, 2) to investigate the factors influencing the acceptance of incorporating information technology into teaching practices among teachers, 3) to study the factors that have an impact and formulate predictive equations for factors influencing the acceptance of applying information technology in teaching practices among teachers in schools affiliated with the educational district of Pattani province. The research findings indicated that, overall, the level of acceptance towards integrating information technology into teaching practices among teachers in schools affiliated with the educational district of Pattani province is at a high level.

2. The quality of learning management by teachers in the new normal era after the COVID-19 situation in secondary schools in Ratchaburi province is overall at a high level. When classified into specific aspects, it is observed to be high in all dimensions, listed in descending order of mean scores as follows: Assessment and Evaluation, Learning Climate, Learning Efficiency, Teaching, and Student Satisfaction. This may be attributed to the fact that teachers have been conducting online teaching for an extended period during the COVID-19 pandemic. With the implementation of online teaching, sometimes necessitated by circumstances, teachers have placed greater emphasis on learning management. This is increased teacher preparedness involving the preparation of teaching materials and instructional media. Teachers are more ready for teaching, highlighting the importance of creating a conducive learning environment and conducting effective evaluation and assessment. Due to the challenges posed by the past experiences with COVID-19, the assessment and evaluation processes were not as effective as desired. Consequently, teachers have become more active in organizing highly effective learning processes, leading to a high level of educational outcomes. This consistence with the research of Busaba (2019), research on learning management models using information technology of educational institutions, under Bangkok Metropolitan Administration. The objective of this research is to enhance the learning management framework using information technology at schools under Bangkok Metropolitan Administration. The research found that the learning management framework employing information technology at these schools consists of three main components; 1) Technology and information in schools, consists of two sub-components: the foundational infrastructure of information technology and the application of information technology in the field of education, 2) Learning management comprises five sub-components: organization of teaching and learning activities with an emphasis on learner-centric approaches, implementation of integrated teaching and learning activities, utilization of diverse teaching methods, deployment of media and learning resources, assessment and evaluation processes. 3) Factors influencing the use of information technology in schools comprises four sub-components: Teacher's competencies in learning management using information technology, support from school administrators in learning management, technological readiness, competencies of supporting staff. From the results of experimentation and evaluation of the developed model, it is evident that the model is highly beneficial and viable. Furthermore, it is in line with Michels' research titled "Two-Year Colleges and the Internet: An Investigation of the Integration Practices and Beliefs of Faculty Internet Users." This study examines the ways in which the internet is used in teaching by faculty members and their quest for knowledge and understanding regarding the role of the internet in conjunction with related technologies. The research findings indicate that faculty members are enthusiastic about using the internet and webbased resources, believing that it positively impacts students by enhancing the content of course materials and preparing learners to use information technology in their future professions. The research also points out time constraints in developing instructional media, a lack of technical support,

and a shortage of resources as obstacles to internet use.

3. Factors in Technology and Information Management that Affect the Quality of Teachers' Learning in the New Normal Era After the COVID-19 Pandemic in Secondary Schools, Ratchaburi Province, selected for equation analysis in sequence, are 1) Student-related factor (X3), 2) Infrastructure-related factor (X7), and 3) Overall technology and information factors (Xtot). These factors sequentially impact the quality of teacher-led learning in secondary schools in Ratchaburi Province. The multiple correlation coefficient for predicting the quality of teacherled learning in secondary schools in Ratchaburi Province is 0.923a, with a coefficient of determination (R2) of 0.851. This means that all three variables together predict the quality of teacher-led learning (Ytot) with an accuracy of 85.10%. The adjusted R2 is 0.846, and the standard error of prediction is 0.23259. This indicates that student-related factors, infrastructure-related factors, and overall technology and information factors collectively influence the quality of teacher-led learning in the new normal era post- COVID-19 in secondary schools in Ratchaburi Province. This is because the nine technology-related factors are crucial for effective and learning management. The research has yielded positive outcomes for learning management, aligning with the study conducted by Panapak Phongputtharak (2019), which investigates the factors influencing the integration of information technology and communication in the teaching and learning practices of teachers in the lower northeastern region. The objective of this research is, 1) To explore the level of integration of information technology and communication in teaching and learning; 2) To study the factors influencing the integration of information technology and communication; and 3) To examine the development strategies affecting the integration of information technology and communication in teaching and learning practices among primary school teachers in the lower northeastern region. The research findings indicate that the overall level of integration of information technology and communication in teaching and learning practices of teachers is high. It identifies seven factors that can predict the integration of information technology and communication in teaching and learning, namely; 1) Learning community, 2) Pressure to use information technology and communication, 3) Support from administrators, 4) Attitude towards educational technology, 5) Professional development in information technology and communication, 6) Support from colleagues in information technology and communication, and 7) Selfperceived ability in information technology and communication. Together, these factors predict integration by 55%, demonstrating high suitability and feasibility for all factors. Moreover, it aligns with the research of Premyuda

and Samanchit (2021) on the impact of teaching technology on the effectiveness of teachers' learning management in the vocational colleges affiliated with the Private Vocational Education Committee in the lower northeastern region. The research findings indicate that teaching technology significantly influences the learning management effectiveness of teachers, reaching a high level. Seven variables have been identified that can be used in the prediction equation, namely: integrating technology into the learning process, incorporating technology into assessment and evaluation, setting learning goals, organizing learning activities, instructional media, teaching methods, and technology impacting learning. These seven variables collectively explain 87.00% of the variance, and the statistical significance of the F-test is observed at a .05 significance level. This implies that teaching technology significantly influences the learning management effectiveness of teachers at a high level, with all seven predictors. variables being statistically significant Additionally, it aligns with the research conducted by Nawaphon and Thapanee (2022), investigating the factors influencing the acceptance of integrating information technology into teaching practices among teachers in the opportunity-expanding schools affiliated with the Educational Service Area Office in Pattani Province. The research findings reveal that the factors influencing the integration of information technology into teaching practices among teachers in the opportunity-expanding schools affiliated with the Educational Service Area Office in Pattani Province are statistically significant at the .05 level. Specifically, the personal factors of teachers (X1) and the socio-cultural context, environment, and teaching atmosphere of the school (X4) are the two significant predictors. Together, these two factors can predict 69.10% of the variance

## 7. Recommendations

In this research study, the researchers provide the following recommendations:

1. Recommendations for the application of research findings, based on the research findings that identified the management factors related to technology and information that affect the quality of teachers' learning management in the new era after the COVID-19 situation in high schools in Ratchaburi Province, the recommendations include aspects such as data, rules and regulations, instructional media, teaching methods, teachers, information, infrastructure, technology, and students. These recommendations aim to enable teachers to utilize the findings for planning learning processes in every subject they are responsible for.

2. Recommendations for future research, it is suggested that future research should focus on studying the patterns of academic management support for learning processes using digital platforms at the foundational education level.

# References

- Beerens, D. R. (2000). Evaluating Teachers for Professional Growth: Creating a Culture of Motivation and Learning. Corwon Press.
- Busaba, S. (2019). Learning management model using information technology of Educational institutions under Bangkok. Journal of Educational Sciences Faculty of Education Srinakharinwirot University, 2, 27-40.
- Cronbach, L. J. (1970). *Essentials of psychological testing* (5th ed.). Harper Collins Publishers.
- Hendel, D. (1977). Statistic. AERA Mini Presentation.
- Likert, R. (2007). *The Method of Constructing and Attitude Scale.* Wiley & Son.
- Nawaphon, K., & Thapanee, T. (2022). Factors affecting the adoption of technology. Information for application in teaching of teachers at the Opportunity Extension School under Area office Pattani Primary Education Pattani Province. Faculty Humanities and Social Sciences Prince of Songkla University.
- Nilubon, T. (2021). Conditions of school teachers' use of information technology for teaching. Phraya Manthat Ratchasri Phichit. *Graduate Journal Bansomdej Rajabhat University Chao Phraya*, 6(2), 55-60

http://service.nso.go.th/nso/nsopublish/service/s ervstat.html

- Panapak, P. (2019). Factors affecting the integration of information technology and Communication in teaching and learning of primary school teachers in the northeast Lower section. *Community Research Journal*, 13(1), 214-227.
- Phumisaran, T. (2021). Learning recession after the epidemic situation. COVID-19 among learners with special needs in inclusive schools: problems and Help. *Teachersuksa Journal Udon Thani Rajabhat University*, 5(1), 83-100.
- Premyuda, L., & Samanchit, P. (2021). Teaching technology that affects the efficiency of Organize learning for teachers in colleges under the Office of the Private Vocational Education Commission, Region Northeast. Academic Journal of Management Sciences, 7(1), 335-345.
- Sukhothai Thammathirat Open University. (2016). Development of project management information systems and Application of Units 11-15: Course content. Sukhothai Thammathirat Open University.