

Technology Leadership, Teacher Motivation, and Pedagogical Competence in Senior High Schools of the Schools Division of Sultan Kudarat

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Abstract

This study examined the relationships among technology leadership, teacher motivation, and pedagogical competence in Senior High Schools of the Schools Division of Sultan Kudarat. It used a sequential explanatory mixed-methods design, with quantitative data gathered from 210 senior high school teachers through a validated survey questionnaire and qualitative insights obtained from open-ended responses. Findings revealed that technology leadership was perceived at a high level, particularly in vision-setting, planning, and professional development support, although budget allocation, internet reliability, and technical support remained areas of concern. Teacher motivation and pedagogical competence were both rated very high, showing that teachers were highly motivated to integrate technology and perceived themselves as competent in using digital tools, interactive lessons, feedback mechanisms, and ethical digital practices. Correlation analysis showed significant positive relationships among technology leadership, teacher motivation, and pedagogical competence. Regression and mediation analyses further indicated that technology leadership and teacher motivation significantly predicted pedagogical competence, with teacher motivation partially mediating the relationship between leadership and competence. The study concluded that strong technology leadership and teacher motivation support pedagogical competence, but infrastructure, preparation time, devices, and technical support must be strengthened to sustain effective technology integration.

Keywords: Technology leadership, teacher motivation, pedagogical competence, technology integration, senior high school teachers, digital tools, Sultan Kudarat

1. Introduction

Technology has become an essential part of modern education, transforming teaching and learning from traditional classroom instruction into more interactive and digitally supported experiences. Anderson and Dexter (2005) emphasize that effective technology integration requires strong school leadership to guide teachers in adopting digital tools and instructional innovations. In senior high schools, teachers are expected to design lessons that promote digital literacy, collaboration, creativity, and learner engagement, which requires both motivation and pedagogical competence (Deci & Ryan, 2000; Ryan & Deci, 2020).

Technology leadership refers to administrators' ability to provide direction, resources, professional development, and encouragement for technology use in instruction. Hallinger and Heck (2020) note that leadership clarity and support are strongly associated with teacher engagement and instructional effectiveness. Similarly, teacher motivation encompasses internal and external factors that drive teachers to explore, adopt, and sustain the use of educational technologies (SEAMEO INNOTECH, 2020; Zhu & Zhang, 2021). Pedagogical competence refers to the teachers' ability to select appropriate digital tools, design interactive lessons, provide timely feedback, follow ethical digital practices, and collaborate through technology-supported platforms (Mishra & Koehler, 2006; Tondeur, Scherer, Siddiq, & Baran, 2019; Petko, Prasse, & Cantieni, 2018).

In the Schools Division of Sultan Kudarat, senior high school teachers have demonstrated willingness to integrate technology into instruction, but challenges such as unreliable internet connectivity, limited devices, insufficient technical support, and constrained preparation time continue to affect full integration. Creswell and Plano Clark (2018) emphasize that understanding contextual constraints is crucial in evaluating the impact of leadership and motivation on instructional competence. Therefore, this study examined the relationships among technology leadership, teacher motivation, and pedagogical competence, and determined whether teacher motivation mediated the relationship between leadership and competence. The findings serve as a basis for proposing an intervention framework aimed at strengthening technology integration, teacher support, and digital pedagogical practices in senior high schools.

2. Material and methods

2.1 Research Design

This study employed a descriptive-correlational research design to examine the relationships among technology leadership, teacher motivation, and pedagogical competence. Creswell and Creswell (2022) note that descriptive-correlational designs are ideal for exploring naturally occurring variables and assessing relationships without manipulation. Anderson and Dexter (2005) highlight that this design is suitable for evaluating how school leadership and support systems influence teacher engagement and instructional practices.

2.2 Locale of the Study

The study was conducted in senior high schools under the Schools Division of Sultan Kudarat. Hallinger and Heck (2020) emphasize that evaluating educational interventions in their natural context is essential for understanding the influence of leadership, motivation, and competence. The selected schools provide a representative sample of technology integration practices across the division, allowing the study to capture both challenges and effective strategies.

2.3 Respondents of the Study

The respondents consisted of 85 senior high school teachers actively involved in classroom instruction and technology-supported teaching. SEAMEO INNOTECH (2020) notes that including teachers directly engaged in instruction ensures accurate evaluation of pedagogical competence and technology use. Zhu and Zhang (2021) also emphasize that teacher engagement and motivation are best assessed through participants with direct experience in technology-mediated classrooms.

2.4 Sample and Sampling Procedure

A purposive sampling technique was used to select participants who had at least one semester of experience teaching with digital tools. Creswell and Plano Clark (2018) explain that purposive sampling ensures participants have relevant expertise, increasing the validity of findings. Teachers who were on extended leave or assigned to administrative roles only were excluded to ensure responses reflected active instructional practice (Mishra & Koehler, 2006).

2.5 Research Instrument

Data were collected using a structured survey questionnaire adapted from validated instruments on technology leadership, teacher motivation, and pedagogical competence (Tondeur, Scherer, Siddiq, & Baran, 2019; Petko, Prasse, & Cantieni, 2018). The instrument included three sections: teacher demographics, perceptions of technology leadership, and self-reported pedagogical competence. Likert-scale items were used to quantify responses, following the approach recommended by Likert (1932).

2.6 Data Gathering Procedure

Before data collection, permissions were secured from the school division and individual schools. Participants were oriented on the study's objectives, confidentiality, and voluntary participation (Creswell & Creswell, 2022). Questionnaires were administered electronically and collected using secure submission protocols to maintain data integrity and privacy.

2.7 Data Analysis Techniques

Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to summarize teacher demographics and assess levels of motivation and pedagogical competence. Pearson Product-Moment Correlation was applied to examine relationships between technology leadership, motivation, and competence, consistent with recommendations from Field (2018) and Fraenkel, Wallen, and Hyun (2019). Mediation analysis was conducted to determine whether teacher motivation mediated the relationship between leadership and competence (Baron & Kenny, 1986).

2.8 Ethical Considerations

Ethical standards were strictly observed throughout the study. Informed consent was obtained from all participants, who were assured of confidentiality, anonymity, and the right to withdraw at any time (World Health Organization, 2020). All data were used solely for research purposes and reported in aggregate form to protect participant privacy.

3. Results and Discussion

3.1 Profile of the Respondents

The study involved 85 senior high school teachers from selected schools in the Schools Division of Sultan Kudarat. Ahmad and Qahmash (2021) note that demographic characteristics such as age, gender, teaching experience, and educational background can influence both teacher motivation and instructional competence. Most respondents were female (57%) and between 28 and 48 years old, with the majority having at least three years of experience integrating technology in their

teaching. Creswell and Creswell (2022) emphasize that including teachers with direct classroom and technology experience ensures that findings reflect authentic instructional practices.

3.2 Level of Technology Leadership

Findings indicated that teachers perceived a moderate-to-high level of technology leadership in their schools. Anderson and Dexter (2005) highlight that administrators who provide clear direction, support, and resources foster greater teacher engagement with technology. Teachers reported strong leadership support for digital resources and professional development, while support for collaborative technology planning was slightly lower. Hallinger and Heck (2020) note that effective leadership directly influences how teachers implement innovations in classroom practice.

3.3 Level of Teacher Motivation

Teacher motivation to integrate technology into instruction was generally high, with mean scores indicating strong intrinsic and extrinsic motivation. SEAMEO INNOTECH (2020) and Zhu and Zhang (2021) explain that both internal factors (interest, self-efficacy) and external factors (administrative support, recognition) contribute to sustained teacher engagement in technology-based teaching. Teachers expressed confidence in experimenting with digital tools, although some reported time constraints and competing responsibilities as limiting factors.

3.4 Level of Pedagogical Competence

Teachers reported a high level of pedagogical competence in designing lessons, providing feedback, and using technology to enhance learning outcomes. Mishra and Koehler (2006) and Tondeur, Scherer, Siddiq, and Baran (2019) emphasize that teachers' ability to integrate digital tools effectively is a key component of pedagogical competence. Petko, Prasse, and Cantieni (2018) further note that collaboration, ethical digital practices, and timely feedback are critical skills that support student learning in technology-mediated environments.

3.5 Relationship Between Technology Leadership, Motivation, and Competence

Correlation analysis revealed significant positive relationships between perceived technology leadership and teacher motivation, as well as between teacher motivation and pedagogical competence. Ahmad and Qahmash (2021) and Hallinger and Heck (2020) explain that supportive leadership enhances teacher motivation, which in turn facilitates effective pedagogical practices. Mediation analysis indicated that teacher motivation partially mediated the relationship between technology leadership and pedagogical competence, consistent with the findings of Ryan and Deci (2020) on the role of intrinsic and extrinsic motivation in educational outcomes.

3.6 Proposed Action Plan

Based on these findings, the study proposed an action plan to strengthen technology integration and pedagogical competence. Creswell and Plano Clark (2018) and SEAMEO INNOTECH (2020) emphasize that targeted professional development, collaborative planning, and mentoring programs are essential for sustaining effective technology use. Recommendations include regular workshops on digital tools, structured peer coaching, and monitoring mechanisms to ensure alignment between leadership support, teacher motivation, and instructional competence. This action plan aims to create a school culture where technology integration enhances learning outcomes while supporting teacher development.

4. Conclusion & Recommendations

The study concludes that technology leadership, teacher motivation, and pedagogical competence are significantly related in Senior High Schools of the Schools Division of Sultan Kudarat. Technology leadership was rated high, while teacher motivation and pedagogical competence were rated very high. However, challenges remained in budget allocation, internet reliability, technical support, digital devices, and preparation time.

The study further concludes that teacher motivation partially mediates the relationship between technology leadership and pedagogical competence. This means that strong leadership supports teacher competence both directly and indirectly by improving teacher motivation.

It is recommended that schools strengthen digital infrastructure, provide reliable internet access, update digital devices, improve technical support, and reduce workload barriers that limit preparation time. Continuous hands-on professional development should also be provided to sustain teachers' motivation and improve technology-integrated teaching practices. Future studies may include classroom observations or student performance data to validate teachers' self-reported competence.

Compliance with ethical standards

This study complied with applicable academic, institutional, and ethical standards in the conduct of research involving teacher-respondents. Permission was secured from the concerned institutional and education authorities before data collection. Participation was voluntary, and informed consent was obtained from all respondents. The respondents were

informed of the purpose of the study, the nature of their participation, and their right to withdraw at any time without penalty. Confidentiality and anonymity were strictly observed, and all data were reported in aggregate form to protect the identity of the participants. The researcher ensured honest data handling, proper attribution of sources, and responsible interpretation of findings. No conflict of interest was declared, and all cited materials were duly acknowledged in accordance with scholarly and ethical standards.

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