ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202406_7(6).0015

University Administrators Technology Leadership and Faculty Knowledge on Technology Education

Jianliang Zhang

Emilio Aguinaldo College, Manila, 1113, Philippines

Abstract

This study investigated the relationship between university administrators' technology leadership and faculty knowledge of technology education, and their combined effect on university compliance with China's Education Informatization initiative. The study used a quantitative research design and employed a survey questionnaire adapted from the improved ISTE Standard Tool. Through this study, the relationship and influence between the technical leadership ability of university administrators and the technical education knowledge level of teachers, the differences in cognition of technical leadership and technical education by faculty of different ages, education levels and years of service, and the compliance of universities to the Chinese education informatization Initiative will be discussed.

Keywords

Technology leadership, Technology education, Education informatization.

1. Introduction

In the rapidly evolving digital landscape, technology has become an indispensable tool for enhancing educational outcomes and fostering 21st-century skills among learners (Rosales, 2021). The Education Informatization initiative in China aims to seamlessly integrate technology into all educational facets, enhancing educational outcomes and fostering 21st-century skills like digital literacy, innovation, and collaboration among students and teachers (Yan & Yang, 2021). The initiative's success depends critically on the leadership of university administrators and the technological proficiency of faculty members (Zhu, 2022). These educators must continuously update their tech skills to effectively implement and utilize technology in their pedagogical practices, thereby preparing students for the demands of a technology-driven world.

1.1. Background of the Study

China's Education Informatization is a national strategy designed to enhance the quality and efficiency of education by integrating information and communication technology (ICT) into various educational aspects, including curriculum reform, teaching methods, and infrastructure (Wang, 2023). Critical to its implementation are the university leaders and faculty, whose role in technology education innovation is vital (Yuting, Adams & Lee, 2022). The strategy aligns with the International Society for Technology in Education (ISTE) standards, which advocate for empowering learners to become problem-solvers and lifelong digital citizens (International Society for Technology in Education, 2018). This study selected a public university in northern China (hereinafter referred to as SDU) to examine the effectiveness of technical education, which is known for its strong engineering profession and international collaboration, highlighting the importance of technical leadership and faculty knowledge in achieving educational outcomes.

University administrators play a pivotal role in integrating technology within their institutions, aligning technological strategies with broader university goals, fostering innovation, and

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202406_7(6).0015

ensuring compliance with China's Education Informatization policies by developing supportive environments and utilizing tools such as AI and data analytics (Li & Zhang, 2022). University faculty complement this by continuously updating their tech skills and integrating technology into education, thereby enhancing student engagement and outcomes, supported by significant government investments in technology infrastructure and training (Ministry of Education of the People's Republic of China, 2018; Zhang, 2022). The International Society for Technology in Education (ISTE) Standards further guide these efforts by providing a framework for using technology to enhance educational practices and align with national goals, encompassing standards for students, educators, leaders, and coaches to ensure high-impact, equitable learning experiences and to support China's strategy of Education Informatization. These standards focus on empowering educators, fostering innovation, and personalizing learning, which are essential for preparing students for a technology-driven future (ISTE, 2018). Together, these elements underscore a holistic approach to enhancing education through technology, emphasizing continuous improvement and alignment with global standards to position China at the forefront of educational innovation.

1.2. Synthesis of the Review of Related Literature and Studies

The existing research results mainly focus on the integration of the International Society for Technology in Education (ISTE) Standards in higher education and their influence on teaching and administration. The ISTE Standards are crucial for university administrators and faculty who aim to enhance educational practices through technology. Studies such as those by Connie Miller (2022) and Rochelle Anne McCoy (2021) illustrate how adherence to ISTE standards improves teaching outcomes and fosters engaging learning environments, highlighting the standards' role in promoting effective technology integration and educational equity.

A similar study by Scott Sheelhorn (Lindenwood University, 2019) entitled "Comparing Administrator and Teacher Perceptions of Technology Integration Using the Technological Pedagogical Content Knowledge Framework and 2017 ISTE Standards for Educators", identifies gaps in perceptions between administrators and teachers regarding technology's role in education, underlining the need for professional development to bridge these gaps and improve instructional practices.

The implementation of ISTE Standards aligns closely with China's Education Informatization initiative, which seeks to improve educational quality and efficiency through technology. These standards provide a framework for developing digital skills and pedagogical methods that support innovative and equitable educational practices, crucial for meeting national educational goals and enhancing global competitiveness. This review underscores the importance of strategic collaboration between university leadership and faculty to leverage technology effectively, enhancing educational outcomes in alignment with both ISTE standards and China's national policies.

1.3. Statement of the Problem

This study aimed to explore the relationship between university administrators' technology leadership and faculty knowledge of technology education in improving compliance with China's Education Informatization policy. It addressed several key questions: (1) the demographic profile of respondents including age, sex, educational attainment, and length of service; (2) respondents' assessment of university administrators' technology leadership across five dimensions—equity and citizenship advocate, visionary planner, empowering leader, systems designer, and connected learner; (3) whether there's a difference in technology leadership among administrators based on their profiles; (4) faculty's self-assessment of their technology education knowledge in seven areas — learner, leader, citizen, collaborator, designer, facilitator, and analyst; (5) if faculty knowledge varies according to their demographic

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202406_7(6).0015

profiles; (6) the relationship between the administrators' technology leadership and faculty knowledge on technology education; and (7) recommendations for development programs for administrators and faculty to better align with China's educational technology initiatives. These areas of inquiry are crucial for identifying strategies to enhance the integration of technology in education and meeting national standards.

1.4. Significance of the Study

This study examines the relationship between the technology leadership of university administrators and the technology education knowledge of faculty at SDU in China, aiming to enhance the university's compliance with China's Education Informatization initiative. The significance of this study is multi-faceted: (1) It aids the university by potentially improving its alignment with national education policies. (2) It helps university administrators by identifying strengths and areas for improvement in their technology leadership, thereby enhancing service to faculty and students. (3) It assists faculty in evaluating and strengthening their technology education skills, contributing to the university's overall compliance. (4) It benefits students by ensuring they receive high-quality education supported by well-equipped staff. (5) It provides a foundation for future researchers to expand upon this work in different contexts or with larger samples. The scope of this research is limited to the technology leadership and technology education knowledge at SDU, focusing specifically on full-time faculty's assessment of administrators' leadership and their own skills in technology education.

2. Methodology

This study was conducted at selected Chinese University SDU, to assess the relationship between the technology leadership of university administrators and the technology education knowledge of faculty. The study utilized a descriptive-correlational design and a random sample of 310 faculty members from SDU's total of 1,585 faculty. Data were collected using a modified ISTE Standard Tool survey, distributed online, and analyzed using IBM SPSS software. Statistical methods included ANOVA and Pearson correlation, with a four-point Likert scale to measure responses, assessing at a 0.05 level of significance. Ethical considerations were meticulously followed, with participant confidentiality maintained according to International Data Privacy Law.

The study aimed to enhance university compliance with China's Education Informatization, integrating technology into education effectively.

3. Findings and Results

This chapter seeks to present the data gathered, their analysis as well as interpretation. The presentation follows the sequence of specific questions presented above.

3.1. Profile of the Respondents

According to the statistics in Table 1, the majority of respondents are aged 31-50 and female. They finished their master's degree. Most of them had been working at the university for 6-15 years, making them a good source of information for this study.

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202406_7(6).0015

Table 1. Frequency Distribution of Respondents' Profile

Profile	Frequency	Percentage
Age		
20 – 30 years old	37	11.9%
31 – 50 years old	198	63.9%
51 years old and above	75	24.2%
Total	**310**	**100%**
Sex		
Male	152	49.0%
Female	158	51.0%
Total	**310**	**100%**
Highest Educational Attainment		
Bachelor's degree	40	12.9%
Master's degree	191	61.6%
Doctorate degree	79	25.5%
Total	**310**	**100%**
Length of Service		
5 years and below	53	17.1%
6 – 15 years	130	41.9%
16 years and above	127	41.0%
Total	**310**	**100%**

3.2. Extend of Technology Leadership of University Administrators

In this module, the researcher investigated respondents' assessments of the technical leadership of university administrators in terms of equity and citizenship advocate, visionary planner, empowering leader, systems designer, and connected learner, and analyzed and summarized the data results. (See Table 2)

Among the technology leadership indicators of university administrators' equity and citizenship has the highest mean assessment of 2.62 (Ranked 1) described as "often" and interpreted as "high extent", followed by visionary planner and systems designer both having a mean assessment of 2.61 Ranked 2.5) described as "often" and interpreted as "high extent", followed by connected learner with a mean assessment of 2.59 (Ranked 4) described as "often" and interpreted as "high extent", and last is empowering leader with a mean assessment of 2.57 (Ranked 5) described as "often" and interpreted as "high extent".

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202406_7(6).0015

Table 2. Summary of the Respondents' Assessment on the Extent of Technology Leadership of the University Administrators

Technology Leadership Indicators	Mean	SD	Qualitative Description	Interpretation	Rank
1. Equity and Citizenship Advocate	2.62	0.97	Often	High Extent	1
2. Visionary Planner	2.61	0.99	Often	High Extent	2.5
3. Empowering Leader	2.57	0.99	Often	High Extent	5
4. Systems Designer	2.61	1.01	Often	High Extent	2.5
5. Connected Learner	2.59	1.03	Often	High Extent	4
Over-all Mean	**2.60**	**0.81**	**Often**	**High Extent**	

Legend: 3.51-4.00 Always/Very High Extent; 2.51-3.50 Often/High Extent; 1.51-2.50 Seldom/Low Extent; 1.00-1.50 Not at All/No Extent at all

The overall mean for the technology leadership of university administrators is 2.60, which implies that they often display high extent of their abilities and readiness to use technology to enhance the learning and teaching of students and faculty respectively. This is line with the study of Mendoza & Catiis, (2022), Wei, Piaw, Kannan (2017) and Alkrdem (2014) where the level of technology leadership of administrators are at a high level and administrators generally demonstrated a high level of technological leadership in providing and using of educational technologies. This is a positive sign for students and faculty, as it suggests that they will benefit from more effective learning experiences and resources, thanks to the increasing proficiency of university administrators in using technology to improve learning and teaching.

In essence, university administrators play a critical role in fostering an inclusive and effective educational environment through strategic, responsible, and innovative use of technology, enhancing both student success and faculty development.

3.3. Difference in the level of university administrators' technology leadership when they are grouped according to profile

In this module, researcher focused on the group differences in respondents' assessment of technical leadership of university administrators. The results of the data show that there are mainly the following differences:

1. Age difference: According to the data research of differences in the assessment of the respondents on the university administrators' technology leadership when grouped according to age and the follow-up test, there are significant differences in the evaluation of technical leadership ability of university administrators in different age groups. In particular, the 20-30 age group scored significantly differently on all five technical leadership indicators (equity and citizenship advocate, visionary planner, empowering leader, systems designer, and connected learner) than the 51 and older age group, with the former rating administrators' technical leadership more highly.

2. Gender differences: According to the data research of differences in the assessment of the respondents on the university administrators' technology leadership when grouped according to sex, there is no significant difference in the evaluation of technical leadership ability of university administrators by men and women in terms of gender, which indicates that the sexes are equal in this evaluation.

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202406_7(6).0015

In the paper of Alan, Ertac, Kubilay, & Loranth. (2019) they examined the impact of gender on technology leadership in higher education and concludes that gender does not have a significant impact on the technology leadership of administrators. This may be because technology is widely used in our society, and both sexes have positive experiences with technology in their personal lives.

3. Educational differences: According to the data research of differences in the assessment of the respondents on the university administrators' technology leadership when grouped according to highest educational attainment and the follow-up test, respondents with different educational backgrounds also differ in their evaluation of technical leadership ability of university administrators. Specifically, respondents with a bachelor's degree have a more positive view of the technical leadership performance of university administrators than master's or doctoral degree holders.

This is not consistent with the study of Erden, H. & Erden, A. (2007) which might be attributed to several factors, such as (a) experience - respondents with a bachelor's degree may have less experience with technology leadership in higher education and therefore have a more idealized view of it, (b) expectations - respondents with a master's degree or doctorate degree may have higher expectations for technology leadership due to their advanced education and professional experiences, and (c) different perspectives - respondents with different levels of educational attainment may have different perspectives on what constitutes effective technology leadership.

4. Length of service difference: According to the data research of differences in the assessment of the respondents on the university administrators' technology leadership when grouped according to length of service and the follow-up test, respondents with different service years also have different evaluation on technical leadership ability of university administrators. For all five technology leadership indicators, respondents with 5 years of service or less have significantly higher perceptions than both respondents with 6-15 years of service and 16 years of service or more.

This is not consistent with the result of the study of Erden, H. & Erden, A. (2007) that shows no relationship between the administrators technology leadership assessment and the respondents length of service.

The different result could be attributed to several factors, such as (a) initial expectations - respondents with less experience may have initial expectations about technology leadership that are not yet tempered by real-world challenges, (b) idealization - respondents with less experience may have an idealized view of technology leadership due to limited exposure to its complexities, (c) adaptability - respondents with more experience may have adapted their expectations of technology leadership to align with the realities of higher education.

In general, the survey data show that the evaluation of technical leadership ability of university administrators is affected by factors such as age, gender, education level and service life of respondents. These differences reflect the diversity of technology application and leadership perceptions among different groups.

3.4. Respondents Self-Assessment of their Knowledge in Technology Education

In this module, the researcher investigated Respondents self-assessment of their knowledge in technology education in terms of learner, leader, citizen, collaborator, designer, facilitator, and analyst, and analyzed and summarized the data results. (See Table 3)

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202406_7(6).0015

Table 3. Summary of the Respondents' Self-Assessment on the Extent of their Knowledge in Technology Education

Technology Education Knowledge Indicators	Mean	SD	Qualitative Description	Interpretation	Rank
1. Learner	2.67	1.01	Often	High Extent	1
2. Leaders	2.60	1.02	Often	High Extent	5.5
3. Citizen	2.60	0.99	Often	High Extent	5.5
4. Collaborator	2.61	0.96	Often	High Extent	4
5. Designer	2.59	1.05	Often	High Extent	7
6. Facilitator	2.65	0.98	Often	High Extent	2
7. Analyst	2.62	1.05	Often	High Extent	3
Over-all Mean	**2.62**	**0.79**	**Often**	**High Extent**	

Legend: 3.51-4.00 Always/Very High Extent; 2.51-3.50 Often/High Extent; 1.51-2.50 Seldom/Low Extent; 1.00-1.50 Not at All/No Extent at all

Overall, the respondents have a high level of self-assessment of their knowledge in technology education across all seven areas. The overall mean score for all seven indicators is 2.62, which falls within the "Often" category and the "High Extent" interpretation. This suggests that the respondents feel confident in their ability to leverage technology to support student learning in a variety of ways.

The Learner indicator has the highest mean score (2.67), indicating that respondents feel most confident in their ability to create learning experiences that promote positive contributions and responsible participation in the digital world. This suggests that respondents prioritize fostering digital literacy and media fluency among their students. The Leaders, Citizen, and Facilitator indicators all have mean scores of 2.60, indicating that respondents feel confident in their ability to lead others in technology education initiatives, promote responsible digital citizenship, and facilitate learning with technology.

These findings suggest that respondents recognize the importance of technology education as a collaborative effort that extends beyond individual classrooms. The Collaborator and Designer indicators have mean scores of 2.61 and 2.59, respectively, indicating that respondents feel moderately confident in their ability to collaborate with colleagues and students to create authentic learning experiences and design innovative digital learning environments. These findings suggest that respondents may benefit from additional professional development in these areas. The Analyst indicator has a mean score of 2.62, indicating that respondents feel confident in their ability to use data to drive their instruction and support students in achieving their learning goals.

The results show that the respondents have a high extent of technology education knowledge, which means that they often demonstrate the skills and competencies related to the use of technology in education. The respondents are most confident in their ability to be learners, who can effectively use technology tools to access, manage, integrate, evaluate, and create information to improve learning in content areas and to acquire lifelong knowledge and skills in the 21st century.

The respondents are least confident in their ability to be designers, who can apply technology tools to create instructional materials, resources, and assessments that are aligned with learning outcomes and that address the diverse needs and characteristics of learners. The

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202406_7(6).0015

respondents have similar levels of technology education knowledge across the other five indicators: leader, citizen, collaborator, facilitator, and analyst, which reflect their various roles and responsibilities that involve the use of technology in education.

The results also indicate that the respondents have consistent and homogeneous self-assessments of their technology education knowledge, as shown by the relatively low standard deviations for each indicator (Christensen, R., & Knezek, G., 2017). It shows how faculty value data-driven decision-making in technology education. The study of Balaoro, Aquino, Salvidar, Prado & Amemita (2022) noted that the faculty respondents are conforming to the international standards for educators crafted by ISTE particularly as they resolutely consider themselves as facilitators, learners, collaborators, leaders, citizens, analysts, and designers in the technology-driven classroom.

3.5. Difference in the University Faculty Knowledge in Technology Education

In this module, the researcher focused on the university faculty knowledge in technology education, which were analyzed according to different categorical variables such as age, gender, highest educational attainment, years of service. These data help to reveal the current situation and development trend in the field of technical education, which is of great significance for formulating corresponding education strategies and improving teaching quality. The results of the data show that there are mainly the following differences:

1. Age difference: According to the data research of differences in the assessment of faculty respondents on their knowledge in technology education when grouped according to age and the follow-up test, the results show that the respondents who are 20-30 years old rated their knowledge on technology education significantly higher than the respondents who are 31-50 years old and the respondents who are 51 years old and above. This means that the age of the respondents is a significant factor in how they assess their knowledge on technology education.

This could be due to a number of factors, such as the 20-30 year old group being more comfortable with technology and having higher expectations for technology use in higher education. The younger faculty respondents have more knowledge in technology education than older faculty respondents. This could be explained by the fact that younger faculty respondents are more exposed to and familiar with technology and its applications in education, and that they have more positive attitudes and beliefs towards technology integration in the curriculum consistent with the study of Tan, et al. (2021).

2. Gender differences: According to the data research of differences in the assessment of faculty respondents on their knowledge in technology education when grouped according to sex, the results show that gender does not have a significant impact on the assessment of technical education knowledge.

3. Educational differences: According to the data research of differences in the assessment of faculty respondents on their knowledge in technology education when grouped according to highest educational attainment and the follow-up test, there is a significant difference in the perception of the faculty respondents with different educational backgrounds. The findings indicate that respondents with Bachelor’s degrees generally hold a more positive view of their knowledge on technology education than respondents with Master’s degrees and Doctorate degrees. This could be due to a number of factors, such as the different levels of exposure to technology education concepts and practices among these groups.

Consistent with the study of Timotheou, et al. (2023) where faculty respondents who have a bachelor’s degree have a higher level of knowledge in technology education than those who have a master’s degree or a doctorate degree that could be due to various factors, such as the curriculum, the teaching methods, the learning resources, the motivation, or the experience of the faculty respondents. A possible implication of this finding is that the faculty respondents

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202406_7(6).0015

with a higher degree may need more training or support to enhance their knowledge in technology education.

4. Length of service difference: According to the data research of differences in the assessment of faculty respondents on their knowledge in technology education when grouped according to length of service and the follow-up test, there is a statistically significant difference between the means of the 5 years & below and 16 years & above groups. This suggests that the respondents with 5 years & below service rate themselves higher on all five indicators than the respondents with 16 years & above service indicating that those new to the university are satisfied with the level of technology leadership of their administrators.

3.6. Relationship Between the University Administrators' Extent of Technology Leadership and the Extent of the Faculty Knowledge in Technology Education

The data from Table 4 illustrates a consistently positive correlation between the extent of technology leadership exhibited by university administrators and the level of technology education knowledge among faculty. It highlights significant relationships across several leadership roles—Equity and Citizenship Advocate, Visionary Planner, Empowering Leader, Systems Designer, and Connected Learner. As administrators enhance their leadership capabilities in these areas, faculty knowledge in technology education correspondingly increases. This trend supports the broader implication that effective technology leadership within universities significantly boosts faculty's technology education expertise, thereby enhancing the overall quality and implementation of technology education programs. These findings align with previous research indicating that robust technology leadership is crucial for integrating and enhancing technology competencies among educators.

This result of the study is consistent with the study of Thannimalai, R. & Raman, A. (2018) that there is a significant relationship between Principal's Technology Leadership and Teacher's Technology Integration in the classroom. University administrators play a key role in promoting the use of technology in teaching and learning by providing faculty members with the resources and support they need to develop and implement effective technology-based instructional strategies. Similarly, the research of Zhang, Y., et al (2020) found out that technology leadership had a significant direct effect on teacher ICT competency, and that all five dimensions of technology leadership (visionary leadership, digital age learning culture, excellence in professional practice, systemic improvement, and digital citizenship) showed significant positive effects on teachers. This result also agree with the result of the study of Hero, J. (2018) where principals' technology leadership had a significant positive influence on the teachers' technological proficiency, and that the principals' technology leadership was composed of four dimensions: technology vision, technology planning, technology implementation, and technology evaluation.

4. Conclusions and Recommendations

4.1. Conclusions

The present study determined the profile of the faculty respondents in terms of age, sex, highest educational attainment, and length of service. It also presented the extent of the university administrators' technology leadership in terms of equity and citizenship advocate, visionary planner, empowering leader, systems designer, and connected learner. The study also presented the extent of faculty knowledge on technology education in terms of learner, leader, citizen, collaborator, designer, facilitator, and analyst. The results had lead the researcher to come up with the proposed enhancement in the university compliance to China's Education Informatization.

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202406_7(6).0015

Table 4. Relationship Between the University Administrators' Extent of Technology Leadership and the Extent of Faculty Knowledge in Technology Education

Technology Leadership of University Administrators	Faculty Knowledge on Technology Education	Computed r	Sig	Decision on Ho	Interpretation
1. Equity and Citizenship Advocate	Learner	0.58	0.00	Rejected	Significant
	Leader	0.58	0.00	Rejected	Significant
	Citizen	0.61	0.00	Rejected	Significant
	Collaborator	0.59	0.00	Rejected	Significant
	Designer	0.54	0.00	Rejected	Significant
	Facilitator	0.54	0.00	Rejected	Significant
	Analyst	0.59	0.00	Rejected	Significant
	Average	**0.74**	**0.00**	**Rejected**	**Significant**
2. Visionary Planner	Learner	0.57	0.00	Rejected	Significant
	Leader	0.60	0.00	Rejected	Significant
	Citizen	0.57	0.00	Rejected	Significant
	Collaborator	0.59	0.00	Rejected	Significant
	Designer	0.59	0.00	Rejected	Significant
	Facilitator	0.60	0.00	Rejected	Significant
	Analyst	0.57	0.00	Rejected	Significant
	Average	**0.75**	**0.00**	**Rejected**	**Significant**
3. Empowering Leader	Learner	0.56	0.00	Rejected	Significant
	Leader	0.57	0.00	Rejected	Significant
	Citizen	0.55	0.00	Rejected	Significant
	Collaborator	0.52	0.00	Rejected	Significant
	Designer	0.53	0.00	Rejected	Significant
	Facilitator	0.50	0.00	Rejected	Significant
	Analyst	0.53	0.00	Rejected	Significant
	Average	**0.68**	**0.00**	**Rejected**	**Significant**
4. Systems Designer	Learner	**0.55**	0.00	Rejected	Significant
	Leader	**0.54**	0.00	Rejected	Significant
	Citizen	**0.54**	0.00	Rejected	Significant
	Collaborator	**0.54**	0.00	Rejected	Significant
	Designer	**0.50**	0.00	Rejected	Significant

It found that most faculty are well-educated, experienced women in the 31-50 age group. Administrators play a critical role in promoting equitable and inclusive use of technology,

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202406_7(6).0015

enhancing digital citizenship, and supporting transformative learning practices. Younger faculty and those with less experience view administrators' technology leadership more positively. The study also noted a need for more professional development in technology education among faculty, who are generally confident in using data-driven approaches. There is a variance in perceptions of administrators' leadership based on faculty's age, education level, and length of service, with newer and younger staff members showing more satisfaction and higher expectations. Overall, effective technology leadership by administrators correlates positively with faculty's knowledge and implementation of technology in education, suggesting that strong leadership can significantly enhance educational practices. This supports recommendations for boosting compliance with China's Education Informatization policies.

4.2. Recommendations

Based on the conclusions generated from the results of the study, the following are the recommendations:

1. Enhance Technology Leadership: Offer ongoing professional development for university administrators focusing on skills like strategic planning and systems design to improve their technology leadership.
2. Promote Faculty Engagement: Encourage faculty to participate in technology education programs through workshops and online courses.
3. Foster Data-Driven Cultures: Support the use of data in decision-making by providing access to analytics tools and relevant training to faculty.
4. Support Experienced Faculty: Tailor professional development and mentorship to meet the needs of faculty with extensive experience in higher education.
5. Empower Equitable Use of Technology: Train faculty to use technology in ways that foster equity and inclusion in learning environments.
6. Enhance Digital Citizenship: Support faculty in teaching digital citizenship through integrated courses or new educational content.
7. Create Support Networks: Establish networks for those interested in technology leadership to share practices and collaborate.
8. Assess Technology Leadership: Regularly evaluate the impact of technology leadership on faculty and education practices to identify improvement areas.
9. Disseminate Findings: Share research outcomes with the broader academic community to inform their technology strategies.
10. Continue Related Research: Investigate further how technology leadership affects faculty knowledge and student outcomes to refine educational technology practices.

Acknowledgments

This study was made possible through the wholehearted help and guidance of the following persons to whom the researcher would like to express his profound gratitude. Dr. Lino C. Reynoso, Dean of the Graduate School and the chairperson of the Oral Examination Committee, Dr. Ronaldo A. Tan, the adviser, Dr. Pamela Mantuhac, Dr. Norita Manly, Dr. Maria Sharon Ricamora, and Dr. Luvimi Casihan, the panel members, for all the kindness and help they provided to improve this study, and all those who supported and contributed in any way in the completion of this study. More importantly, the researcher offers praises and thanksgiving to his family for their support to finish this study.

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202406_7(6).0015

References

[1] Rosales, L. K. G. (2021). Technology Integration: Implication for Teachers' Professional Development. In The Southeast Asian Conference on Education 2021 Official Conference Proceedings. Ateneo de Manila University, Philippines. Retrieved from https://papers.iafor.org/wp-content/uploads/papers/seace2021/SEACE2021_59677.pdf.

[2] Yan, S., & Yang, Y. (2021). Education Informatization 2.0 in China: Motivation, Framework, and Vision. ECNU Review of Education, 4(2), p. 410-428. https://doi.org/10.1177/2096531120944929. Retrieved from Education Informatization 2.0 in China: Motivation, Framework, and Vision (sagepub.com).

[3] Zhu, Haoyuan. (2022). Comparative Study and Implications of Education Informatization Policies in China and the United States. Advances in Educational Technology and Psychology. Vol. 6: p. 25-30. DOI: http://dx.doi.org/10.23977/aetp.2022.060904.

[4] Wang, Y. (2023). Report on Smart Education in China. In: Zhuang, R., et al. Smart Education in China and Central & Eastern European Countries. Lecture Notes in Educational Technology. Springer, Singapore. Retrieved from https://doi.org/10.1007/978-981-19-7319-2_2.

[5] Yuting, Z., Adams, D. & Lee, K.C.S. (2022). The relationship between technology leadership and teacher ICT competency in higher education. Educ Inf Technol 27, 10285–10307. Retrieved from https://doi.org/10.1007/s10639-022-11037-0.

[6] International Society for Technology in Education. (2018). ISTE Standards for Students, Educators, Coaches, and Educational Leaders. Retrieved from https://iste.org/standards

[7] Li, X., & Zhang, J. (2022). The role of university administrators in promoting compliance with China's education informatization policies: A case study of three universities. International Journal of Educational Technology, 13(2), p. 123-138.

[8] Zhang, Q. (2022). The impact of technology on Chinese education. In Q. Zhang (Ed.), Technology and education in China (pp. 1-20). Springer.

[9] Alan, Ertac, Kubilay, & Loranth. (2019). Understanding Gender Differences in Leadership. The Economic Journal, Volume 130, Issue 626, February 2020, p.263–289, https://doi.org/10.1093/ej/uez050.

[10] Erden, H. & Erden, A. (2007). Teachers' Perception in Relation to Principles' Technology Leadership: 5 Primary School Cases in Turkish Republic of Northen Cyprus. https://files.eric.ed.gov/fulltext/ED500091.pdf.

[11] Christensen, R., & Knezek, G. (2017). Validating the Technology Proficiency Self-Assessment for 21st Century Learning (TPSA C21) Instrument. Journal of Digital Learning in Teacher Education, 33(1), p. 4-15. https://iittl.unt.edu/sites/default/files/tpsa2rc4scoringguide.pdf.

[12] Balaoro, Aquino, Salvidar, Prado & Amemita. (2022). The Roles of Teachers in Technology-Driven Classroom Using ISTE Standards for Educators. International Journal of Research and Innovation in Social Science (IJRISS) |Volume VI, Issue III, March 2022|ISSN 2454-6186.

[13] Tan, S.C., Chan, C., Bielaczyc, K., Ma, L., Scardamalia, M., & Bereiter, C. (2021). Knowledge building: aligning education with needs for knowledge creation in the digital age. Educational Technology Research and Development, 69, 2243–22661.

[14] Timotheou, S., Koutsopoulos, K., & Jimoyiannis, A. (2023). Impacts of digital technologies on education and factors influencing schools' digital capacity and transformation: A literature review. Computers & Education, 166, 104287.

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202406_7(6).0015

[15] Thannimalai, R. & Raman, A. (2018). Principals' Technology Leadership & Teachers' Technology Integration in the 21st Century Classroom. International Journal of Civil Engineering and Technology (IJCIET) Volume 9, Issue 2, February 2018, p. 177–187. https://iaeme.com/MasterAdmin/Journal_uploads/IJCIET/VOLUME_9_ISSUE_2/IJCIET_09_02_018.pdf.

[16] Zhang, Y. (2021). The relationship between faculty technology integration knowledge and student learning outcomes in Chinese higher education. The Internet and Higher Education, 50, 100809.

[17] Hero. (2020). Exploring the principal's technology leadership: Its influence on teachers' technological proficiency. International Journal of Academic Pedagogical Research, 4(6), p. 4–10.