THE IMPACT OF PERSONAL FACTORS, SUCH AS AGE, EDUCATION LEVEL, AND OPERATIONAL EXPERIENCE ON THE TECHNOLOGY AND INFORMATION USED IN A RURAL SECONDARY SCHOOL FOR MANAGING EDUCATIONAL INFORMATION IN THE CONTEXT OF INTERNET PLUS

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ABSTRACT

The objective of this research is to study the level of development of the technology and information used in a rural secondary school for the management of educational information under Internet Plus. And aims to compare the technology and information used in a rural secondary school for managing educational information under Internet Plus based on personal factors such as age, education, and work experience. A random sample of 55 teachers from the junior section of School X in Dunhua City participated in the study. Among the respondents, 39 teachers (78.00% of the total) had undergone IT course training. Data was collected through questionnaires and analyzed using various statistical methods, including frequency, percentage, mean, standard deviation, as well as hypothesis t-tests and F-tests.

The general data analysis indicates that the majority of respondents are female, aged 40 or older, hold a bachelor's degree, and have less than 5 years of operational experience. Notably, respondents express the highest level of opinion on the technology and information used, with each aspect—infrastructure, learning, curriculum, human resource development, and management—sorted in descending order based on average values. Moreover, various personal factors such as age and education level significantly affect the overall perception of technology and information used, demonstrating statistical significance at the 0.05 level. Specifically, in the context of the curriculum, statistical significance is also observed at the 0.05 level.

Keywords: Development technology; information used; Internet Plus

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1. INTRODUCTION

The ‘Internet Plus’ action plan, initially proposed by Premier Li Keqiang in the government work report of the third session of the 12th National People’s Congress, has been widely interpreted across various sectors (Wang, Chen, Guo, Yo, & Zhou, 2016). This transformative plan revolutionizes education by connecting classrooms, laboratories, parking facilities, and buildings to the Internet, paving the way for smart education. It represents more than a simple addition of multiple elements; rather, it signifies a profound transformation in outcomes (Mohammed Ali & Nihad, 2021). During a press conference in Beijing, Wang Qiang, chairman of Together.com and founding partner of the True Foundation, emphasized the government’s commitment to Internet Plus in education. He stated, ‘In this year’s government work report, it was clearly stated for the first time that Internet Plus, specifically in the field of education, can be roughly summarized as a simple equation: Internet + Education = Smart Education’ (Xingyi, 2018). The implementation of the ‘Internet + Education’ plan continues to advance the progress of smart education in Chinese primary and secondary schools. This initiative aims to cultivate wisdom and happiness in the hearts of children (Wang & Yu, 2022).

The onset of the ‘Internet Plus’ era has ushered in significant transformations across all aspects of human social life. As early as the 1990s, information technology (IT) found applications in schools, contributing to teaching, moral education, and publicity (Hong, 2017). This integration led to a gradual increase in the enrollment rate for compulsory education. The enrollment rate in junior secondary schools rose from 74.6% in 1990 to 94.9% in 2000, with overarching goals to eradicate illiteracy and enhance the quality of life for rural populations (Qiao, 2018). The informatization of campus education is a natural progression in the development of school education. As a crucial component of modern network informatization construction, it plays an indispensable role in cultivating talents for network informatization and realizing modern informatization education (Zhao, 2021). This includes the integration of high-quality teaching resources, with the ‘Internet Plus’ advantage being a practical manifestation of Internet thinking. This approach promotes knowledge evolution, injects vitality, and provides a robust network platform for reform, innovation, and development (Wenxia, 2020).

At present, information technology in education management has rapidly evolved from the initial stage of infrastructure construction and educational resources to the more advanced stage of information management within schools (Saide & Sheng, 2021). The ‘Internet Plus’ approach is anticipated not only to share and enhance existing offline educational resources but also to create more engaging and dynamic educational modes (Tsytsiura & Wanquan, 2020). Specifically, open and shared education has become a developmental trend in the ‘Internet Plus’ era, encompassing two distinct aspects. First, there is the construction of intelligent classrooms or campuses using IT, such as interactive teaching platforms. The second trend involves providing education or training services through the Internet, including online classes and online training platforms (Wang et al., 2016).

The integration of technology and information in ‘Internet Plus’ education has triggered a transformative shift in teaching methodologies (Smith & Casserly, 2017). However, the extent of this integration is

shaped by personal factors such as age, education level, and operational experience. Ertmer's research (1999) emphasizes that educators' beliefs about the usefulness of technology significantly impact their willingness to incorporate it into teaching practices. Younger educators, often more technologically adept and open to innovation, contrast with older counterparts who may encounter challenges adapting to technology (Teo et al., 2009). Furthermore, educators with higher levels of formal education tend to possess a deeper understanding of pedagogy and technology's potential, influencing their readiness to adopt digital tools in teaching (Smith & Casserly, 2017). Operational experience, encompassing years spent in teaching and administrative roles, significantly shapes educators' perspectives. Qiao's study (2018) underscores that experienced educators may lean towards traditional teaching methods and resist technological changes.

Understanding the impact of personal factors is crucial for educational institutions. It informs the development of tailored professional development programs (Rasheed et al., 2016), addressing educators' specific needs and fostering technological proficiency. This insight also facilitates more efficient resource allocation, prioritizing support for educators who may require assistance in technology integration (Nelson, Voithofer, & Cheng, 2019). Adapting technology strategies to educators' individual profiles can lead to enhanced learning outcomes (Huang, Li, Poitras, & Lajoie, 2021). By comprehending how personal factors influence educators' practices, institutions can actively contribute to the discourse on effective technology integration in 'Internet Plus'-enabled education. This research ensures that educational institutions remain innovative in the digital age, aligning with the goal of realizing the full potential of 'Internet Plus' in transforming education.

2. OBJECTIVES

1. To study the opinion level of the technology and information used in a Rural Secondary School.

2. To study personal factors, such as age, education level, and operational experience, affect the technology and information used in a Rural Secondary School.

3. HYPOTHESIS

Differences in personal factors, such as age, education level, and operational experience, affect the technology and information used in a Rural Secondary School.

4. LITERATURE REVIEW

In China's 2015 government work report, the 'Internet Plus' plan emerged as a key strategic goal for the country's economic and social development in the realm of network information technology. Notably, this plan has been extended to the field of education, termed 'Internet + Education' (Lee, Kim, Kim, & Choi, 2019). In the same report, Premier Li Keqiang emphasized the importance of proper education management. He suggested ensuring sufficient investment, allocating resources judiciously for educational practices, and addressing the vertical mobility of students in impoverished and rural areas. The goal is to provide everyone with the opportunity to alter their fate through education.

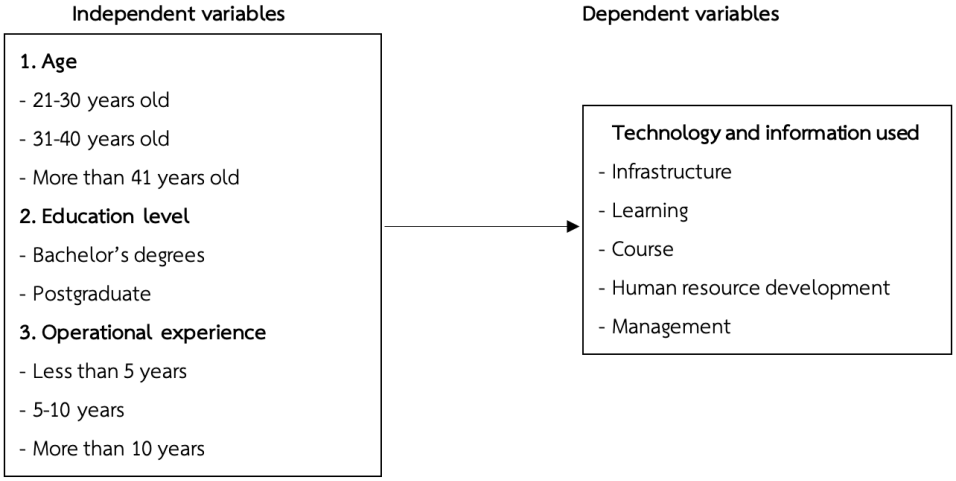
The term ‘Internet + Education’ signifies the utilization of Internet information technology to advance the development of China’s education network informatization. This involves implementing specific measures such as defining teaching objectives, reforming teaching and assessment methods, condensing teaching content, and constructing teaching resources through innovation in evaluation methods (Zhang & Yang, 2020). The aim is to facilitate the sharing of excellent educational resources, leading to genuine dissemination of educational information and a significant reduction in the education gap between urban and rural areas. The advent of ‘Internet + Education’ has revolutionized the traditional teaching paradigm in China. The conventional classroom model, where teachers impart knowledge and students passively receive it, has undergone unprecedented changes with the evolution of Internet technology. Teachers, in response, need to update their educational ideas and teaching methods to align with the contemporary pace and trends (Liao, 2021). Notably, under the backdrop of ‘Internet + Education,’ new educational modes such as MOOCs, micro-lessons, flipped classrooms, and cloud classrooms have experienced substantial growth. These innovations expand the functionality and value of quality education resources, accelerating the self-evolutionary capacity of education (Zhang & Yang, 2020).

Studies on the definition of the connotation of ‘Internet + Education’ characterize it as data-driven, visualized, online, autonomous, and personalized education. This includes educational forms of learning and teaching based on cloud computing, big data mining, multimedia, and other information technologies, with the Internet serving as the carrier (Yuzhu, 2020). According to Jiang & Zhang (2022), ‘Internet + Education’ further eliminates the limitations of time and space, enabling students to study without restrictions, making educational forms more diverse and the system more flexible. While ‘Internet Plus’ presents significant opportunities for education, it also brings notable challenges. Sadiku, Adebo & Musa (2018) highlight that online education is preferred by students who cannot participate in traditional classroom settings due to its convenience, allowing for study anywhere with Internet access. This change facilitates a better integration of the Internet and education. Although online education is applicable across various disciplines, including engineering, computer science, medicine, nursing, business, music, and the social sciences, it is particularly seen as cost-effective in some less-developed countries. Notably, online teaching and learning are becoming increasingly common, even in business organizations.

5. CONCEPTUAL FRAMEWORK

Figure 1

conceptual framework



6. RESEARCH METHODOLOGY

1. Population and sample

A random sample of 55 teachers from the junior section of School X in Dunhua City participated in this study. Among the respondents, 39 teachers, comprising 78.00% of the total, had attended IT course training. It's important to note that this research employed a convenient sampling method, wherein participants voluntarily chose to participate of their own accord.

2. Research instrumentals

This study aimed to investigate the current situation and challenges of educational management information technology in rural junior high schools, with a focus on 'Internet Plus.' To gather insights, a semi-structured interview method was employed. Prior to conducting the interviews, the researcher developed an interview questionnaire, encompassing topics related to the utilization of education management information systems, as well as the construction of campus networks and classroom communication.

Based on existing research literature and considering factors relevant to educational management informatization at the junior high school level, the questionnaire for this study was designed to explore the current status of educational management informatization construction at School X in Dunhua from three dimensions. The questionnaire consisted of 23 questions, categorized into 'awareness of information technology in education management' (12 questions), 'attitude towards information technology in education management' (5 questions), and 'behavioral aspects of information technology in education management' (6 questions). The Likert five-point scale was utilized for each question, ranging from 'strongly disagree' to 'strongly agree,' with score ranges on a scale of 1 to 5. Higher scores indicate better performance in educational information technology at Dunhua X School.

The questionnaire underwent content validity checks using IOC testing, and its content validity was further assessed through experimental distribution to a group resembling the sample group, employing Cronbach's alpha coefficient. The test results revealed that the questionnaire has an IOC value exceeding 0.67, indicating good content validity (values above 0.5 are considered acceptable). Additionally, in terms of reliability testing, the questionnaire demonstrated a reliability coefficient of 0.972, surpassing the threshold of 0.7 and indicating a high level of reliability (Naidu & Freer, 2013).

3. Data analysis

1. Descriptive statistics, including frequency, percent, mean, and standard deviation.

2. Hypothesis testing, including t-tests and F-tests (One-way ANOVA).

7. RESEARCH RESULTS

1. The majority of respondents were female (54.5%), over 40 years of age (52.7%), held a bachelor's degree (61.8%), and had work experience of under 5 years (45.5%). Respondents expressed their highest level of opinion on the technology and information used ($\bar{X}$ = 4.50, SD = 0.70), with specific aspect averages as follows: infrastructure ($\bar{X}$ = 4.01, SD = 0.78), learning ($\bar{X}$ = 4.65, SD = 0.75), curriculum ($\bar{X}$ = 4.62, SD = 0.75), human resource development ($\bar{X}$ = 4.60, SD = 0.79), and management ($\bar{X}$ = 4.61, SD = 0.8 0).

2. Hypothetical test results

Table 1

show hypothesis test results

Technology and information used	Age (F-test)	Education level (t-test)	Operational experience (F-test)
- Infrastructure	**3.160*** (Sig. = 0.05)	**1.977*** (Sig. = 0.05)	0.983 (Sig. = 0.38)
- Learning	2.968 (Sig. = 0.06)	**2.100*** (Sig. = 0.05)	2.815 (Sig. = 0.07)
- Curriculum	2.626 (Sig. = 0.08)	1.962 (Sig. = 0.06)	**3.134*** (Sig. = 0.05)
- Human resource development	**3.166*** (Sig. = 0.05)	2.003 (Sig. = 0.06)	2.398 (Sig. = 0.10)
- Management	**3.597*** (Sig. = 0.03)	**2.116*** (Sig. = 0.04)	1.892 (Sig. = 0.16)
Overall	**3.468*** (Sig. = 0.04)	**2.215*** (Sig. = 0.04)	2.644 (Sig. = 0.08)

* Statistical significance level of .05

** Statistical significance level of .01

*** Statistical significance level of .001

According to Table 1, indicates that differences in personal factors, such as age and education level, significantly affect the overall the technology and information used, demonstrating statistical significance at the 0.05 level. Additionally, in the context of the curriculum, the statistical significance is also observed at the 0.05 level.

8. Discussions

Firstly, based on the research findings and our objective, respondents expressed the highest level of opinion on technology and information used, with learning receiving the highest average. In today's educational landscape, technology and information play a crucial role in managing education, supporting tasks like information retrieval in teaching and learning, making it a top priority. The curriculum follows closely, as its goal is to prepare students to become competent adults, ensuring success in life and adaptability to future societal demands. In the twenty-first century, there is a shift towards teaching less and encouraging more self-directed learning. This approach emphasizes learning management, providing learners with opportunities to take charge of their own education. Additionally, human resource development aims to foster and advance education for individuals. Recognizing the importance of continuous self-development for individuals to become effective human resources, it is considered a key factor in both organizational and national development. On the other hand, infrastructure received the lowest average. Despite this, it remains a critical element as the foundational support for learners' education. This encompasses learning materials, equipment, libraries, community learning centers, resources, networks, and various technologies—all working together to maximize the benefits of learning. This aligns with Alfahad's (2012) study on the effectiveness of information technology in higher education in Saudi Arabia. Alfahad found that the utilization of information technologies can address the evolving demands of students, offering more flexible access to university studies. By reducing time and location barriers, students gain increased options for their education. Similarly, Odhiambo's (2013) research, titled 'Use of Information Communication Technology in Teaching and Learning Processes in Secondary Schools in Rachuonyo South District, Homa-Bay County, Kenya,' underscores the crucial impact of information technology on teaching and learning. Information technology emerges as an indispensable tool in the educational process. The study's findings emphasize the need for teachers to embrace a paradigm shift from traditional teaching methods to new, technology-integrated approaches. Such a shift is essential for effectively implementing information technology in education, enabling educators to meet the diverse needs of 21st-century learners.

Secondly, the research findings reveal that differences in personal factors, such as age and education level, significantly affect the overall the technology and information used, demonstrating statistical significance at the 0.05 level. Moreover, in the context of the curriculum, these factors exhibit statistical significance at the 0.05 level. This underscores the transformative impact of technology in today's dynamic world, acting as an intermediary in people's lives. The current technological landscape has become an integral part of modern society, necessitating adjustments in people's lifestyles. Notably, the younger generation effortlessly navigates technology and internet access, swiftly developing related skills compared to older individuals. Technology facilitates quick, anytime, anywhere access to education, enabling students to explore knowledge from diverse teaching materials,

including traditional curricula and online resources. This, in turn, promotes lifelong learning for individuals of all ages. These findings align with the research conducted by Intharawiset et al. (2019) on 'Technology and Innovation for Instruction in Digital Ages.' Their study emphasizes that digital technology serves as a tool to broaden educational opportunities and foster lifelong learning across age groups and professions. Similarly, Mapae's (2017) study on 'Problems and Guidelines for Using Information Technology in Education Management of Teachers in Soidao District under The Chanthaburi Primary Educational Service Area Office 2' found that gender, education, work experience, and school size were statistically significantly related to the utilization of technology, reinforcing the importance of personal factors in technology adoption in educational settings.

Finally, the integration of technology and information into educational settings, particularly in the context of 'Internet Plus,' has emerged as a pivotal focus in the field of education. Understanding these differences is crucial for educators, policymakers, and institutions aiming to optimize technology-enhanced learning environments. In terms of age, it plays a significant role in shaping individuals' comfort and proficiency with technology. Younger educators, often referred to as 'digital natives,' have grown up in a technology-rich environment and are more naturally inclined to adopt and adapt to new digital tools (Prensky, 2001). They are more likely to embrace innovative teaching methods that incorporate technology, such as online collaborative platforms and multimedia resources (Teo et al., 2009). In contrast, older educators may encounter challenges in keeping pace with rapidly evolving technology and might exhibit a degree of resistance to change (Leng, 2019). It is crucial to recognize these age-related differences to provide tailored training and support to educators of all generations (Helsper & Eynon, 2010). Educational attainment is another critical factor influencing the adoption of technology in education. Educators with higher levels of formal education often possess a deeper understanding of pedagogical theories and the potential benefits of technology-enhanced instruction (Mumtaz, 2000). They may be more inclined to explore and integrate advanced technological solutions into their teaching practices (Bingimlas, 2009). In contrast, educators with lower levels of formal education may require additional support and training to effectively incorporate technology into their teaching methods. Research suggests that higher educational qualifications correlate positively with technology integration and pedagogical innovation (Ertmer, 1999). Operational experience, encompassing years spent in teaching and administrative roles, plays a nuanced role in shaping educators' perspectives on technology integration. More experienced educators may possess a wealth of pedagogical knowledge and classroom management skills but could be less familiar with the latest technology trends (Helsper & Eynon, 2010). They might lean toward traditional teaching methods and be resistant to significant technological changes (Qiao, 2018). In contrast, educators with less operational experience may be more open to experimenting with new technology-driven approaches (Prensky, 2001). Tailored professional development programs can bridge the gap between experienced and novice educators in technology adoption (Ertmer, 1999).

In summary, personal factors such as age, education level, and operational experience significantly influence the adoption and utilization of technology and information in educational contexts. Recognizing these differences is crucial for educators and educational institutions striving to create inclusive and effective technology-enhanced learning environments. Tailoring professional development programs and support mechanisms

to address the unique needs of educators across diverse age groups, educational backgrounds, and levels of operational experience can facilitate more successful technology integration and enhance the overall quality of education in the digital age. Further research in this area is essential to continue uncovering insights that can inform educational practice and policy.

9. Originality and body of knowledge

In the study titled 'The Impact of Personal Factors, Such as Age, Education Level, and Operational Experience on the Technology and Information Used in a Rural Secondary School for Managing Educational Information in the Context of Internet Plus,' the study gained valuable insights into the influence of personal factors on the use of technology and information in rural secondary schools. The specific details from the analysis are as follows:

Demographic Overview: The general demographic analysis revealed that a majority of the respondents in our study were female, aged over 40 years, held a bachelor's degree, and had work experience of under 5 years. Moreover, respondents expressed the highest level of satisfaction with the technology and information used in their educational context. Furthermore, respondents provided positive ratings for various aspects, including infrastructure, learning, curriculum, human resource development, and management.

Hypothesis Testing Results: The results of hypothesis testing shed light on the significant impact of personal factors, such as age and education level, on the overall assessment of technology and information used. Our analysis revealed statistically significant differences at the 0.05 significance level. Specifically, these differences were observed concerning the curriculum, indicating that variations in personal factors can influence perceptions and evaluations in this specific educational context.

10. Research Recommendations

1. Suggestions for applying the research results

1. In utilizing information technology for the benefit of education management, teachers must possess the knowledge and skills to select, design, and develop technology and media suitable for teaching and learning activities, thereby promoting student learning.

2. For educational information technology learning, teachers need to recognize the importance of staying informed about technological innovations and understanding how they can be appropriately applied to teaching, learning management, and fostering innovation. They should have the ability to choose learning content based on their interests and design and create high-quality technology media.

3. Recognizing that teachers may not have uniform knowledge of information technology fundamentals, an orientation is necessary. This orientation should introduce learning methods, the use of learning and communication tools, and basics of computer usage before embarking on self-learning.

4. The development of teacher competency in educational information technology should be acknowledged and supported by schools and relevant agencies. This support should encompass providing dedicated time

and space, necessary learning materials and equipment, budgetary allocations, and various consulting services, clearly and consistently.

2. Suggestions for further research

1. The next research should examine additional factors, such as the drawbacks of Internet education, impacting teacher performance. This investigation aims to provide insights into the varied dimensions of teacher performance.

2. Future research could explore alternative contexts, such as the correlation between education and the environment. This exploration will contribute to understanding the evolution of an educational model across diverse contexts.

3. Subsequent studies should investigate other factors, like the influence of a country's developmental level on education. This initiative seeks to generate new knowledge or expand existing understandings to encompass a broader array of topics.

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