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Impact of Digital Literacy on LMS Utilization in Higher Education Institutions in Jiangxi, China

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Abstract

Higher education institutions in Jiangxi, China, are the focus of this study, which seeks to understand how digital literacy affects LMS adoption. The study used a quantitative research strategy to gather information from 300 people, distributed evenly between students and teachers, who filled out a structured survey. The results show that there are strong positive relationships between digital literacy and LMS use, with more literate users rating LMSs as easy to use and beneficial. A strong correlation between digital literacy and efficient LMS use was shown using descriptive statistics and multiple regression analyses. Students with higher levels of digital literacy are better able to interact with the features of learning management systems (LMS), which in turn leads to improved learning experiences, while teachers with higher levels of digital literacy are more competent at incorporating LMS into their teaching techniques. These results highlight the importance of providing targeted digital literacy training and assistance in order to close the skill gap and guarantee that all students have equal access to digital learning resources. Improving the quality of higher education in Jiangxi, China, can be achieved through measures that promote digital literacy, according to the study, which offers important insights for educational administrators and policymakers.

Keywords: Digital Literacy, Learning Management Systems, Higher Education, Jiangxi, Quantitative Study

Introduction

One of the many industries whose practices have been profoundly altered by the exponential growth of digital technology is the field of education. Learning Management Systems (LMS) have grown in importance in recent years, especially in universities, as a means to improve educational results and support online learning. The use of learning management systems (LMS) and other digital resources at Chinese universities has recently taken center stage in Jiangxi, a province with a long history of distinguished academic programs and a wealth of cultural artifacts. Educator and student digital literacy is crucial to the success of learning management system (LMS) implementation in this area. To fully utilize learning management systems (LMS), educators must possess digital literacy, which is the capacity to use various digital technologies for information navigation, evaluation, and creation. Despite the clear

advantages, a major obstacle to the widespread adoption and efficiency of learning management systems (LMS) in Jiangxi's higher education institutions is the widely differing degrees of digital literacy among stakeholders (Zhuang & Liu, 2022).

Using learning management systems (LMS) in higher education has the potential to create a classroom that is more adaptable, engaging, and focused on the needs of individual students. A major issue, however, has arisen in Jiangxi regarding the gap between teacher and student proficiency in digital literacy. Underutilization or ineffective usage of learning management systems (LMS) is common since many instructors do not have the expertise to properly utilize these systems' functionalities. Students whose proficiency with technology is low also face challenges when it comes to using learning management systems (LMS), which can have a negative impact on their ability to learn and succeed in school. The fact that students in Jiangxi come from a wide range of socioeconomic backgrounds and have different levels of access to and experience with digital resources compounds the problem. The issue is made worse by the quickening speed of technology progress, which keeps raising the standard for the necessary digital skills (Nuccio & Mogno, 2023).

If Jiangxi wants to improve its higher education system and make sure its students are ready for the digital age, it must solve this challenge. The major goal of this research is to find out how much of an effect digital literacy has on how often LMS is used in universities in Jiangxi, China. This research seeks to uncover the important facilitators and inhibitors of successful LMS adoption by investigating the relationship between teachers' and students' levels of digital literacy and LMS usage. The study also aims to improve the overall effectiveness of LMS in higher education by providing actionable recommendations for stakeholders to improve their digital literacy.

The study's potential impact on the larger conversation about digital transformation in education is what makes it significant. Policymakers, educational administrators, and practitioners in Jiangxi can use the data to better understand the importance of digital literacy for optimizing LMS usage. In order to close the digital literacy gap between students and teachers, this information can help shape the creation of specific interventions and professional development programs. Also, other regions with comparable socio-economic and educational situations can benefit from this research by learning about the unique opportunities and problems in Jiangxi.

Literature Review

A key competency in today's educational system is digital literacy, which includes the capacity to use digital technology for information navigation, evaluation, and creation. Technical know-how is just one part of this complex collection of skills; others include the ability to think critically and have an ethical grasp of how people engage with technology online. Because it is foundational to making good use of Learning Management Systems (LMS), digital literacy is especially crucial in the setting of higher education. Educators can better provide curriculum, encourage student communication, and evaluate student achievement in a centralized digital environment provided by learning management systems (LMS). Educators' and students' levels of digital literacy have a significant impact on how well these technologies are used. To grasp the larger effects of digital transformation on education, one must consider the

relationship between digital literacy and the use of learning management systems (LMS) (Lockhart, 2021).

Learning management systems are essential in universities for organizing course materials, encouraging student participation, and simplifying administrative processes. A specific degree of computer literacy is necessary to make good use of the many features offered by these systems, which include the distribution of course materials, online discussion groups, assessment tools, and grade books. Educators who are digitally literate are able to do more than just use these tools; they know how to pedagogically incorporate them to improve student learning. This necessitates the development of online courses that are engaging, easily navigable, and purposefully linked to specific learning goals. Teachers who are good with technology can use the tools provided by learning management systems to make their classrooms more interesting places to learn by giving students more ways to engage with the material and with one another (Alam & Mohanty, 2022).

The other side is that students' capacity to actively participate in LMS platforms is affected by their level of digital literacy. A higher level of digital literacy is associated with greater success on learning management system (LMS) examinations, more active participation in online discussions, and better access to and utilization of digital resources. Students are able to use the LMS's advanced functions, such as progress tracking and learning schedule management, and autonomously troubleshoot typical technical issues. On the flip side, students who aren't as tech savvy could have trouble with the most fundamental things like navigating the system, locating course materials, or turning in their work. The importance of digital literacy in students' success is underscored by the fact that this can result in dissatisfaction, reduced engagement, and worse academic achievement (Estévez et al., 2021).

Multiple studies looking at the use of technology in education have found a correlation between digital literacy and the use of learning management systems. When it comes to learning management system (LMS) uptake and effective use, research repeatedly demonstrates that digital literacy is a strong predictor. Online learning management systems (LMSs) and other forms of educational technology are more likely to be adopted by teachers who are comfortable with and adept at using computers and other digital devices. Also, they're better at helping students and showing them the ropes when it comes to using the LMS. This sets up a positive feedback loop in which students' digital literacy improves as a result of teachers' improved proficiency with technology, which in turn improves the effectiveness of learning management system (LMS) deployment (Alduraywish et al., 2022).

Concerns like these have recently emerged in Jiangxi, China, as a result of efforts to digitize universities. The disparity in digital literacy levels between students and teachers is a major obstacle to the efficient use of learning management systems, even if these platforms are being adopted at a rapid pace. It can be difficult for many teachers to adjust to new technology, especially if they have spent the majority of their careers in more conventional, non-digital classrooms. They might not fully utilize the platform's possibilities since they are not confident in using or integrating the features of the learning management system (LMS). To bridge this digital divide, schools must invest in teacher professional development and training programs that focus on improving teachers' digital literacy. Both the technical

components of using an LMS and pedagogical practices for digital teaching and learning must be included in these programs for them to be considered thorough (Gamage et al., 2020).

Differences in students' levels of digital literacy are frequently indicators of deeper socioeconomic inequality. Students in Jiangxi come from many walks of life, and there is a wide range in the amount of technology and internet access that they have. College freshmen from low-income or rural backgrounds may have started out at a disadvantage due to a lack of familiarity with digital tools. In order to achieve educational equity, it is critical to guarantee that all students may utilize appropriate digital resources. Additionally, schools should offer individualized assistance to children so that they can improve their digital literacy. Some examples of what may fall under this category are lessons on digital literacy, regular technical support, and orientations on how to use learning management systems (Turnbull et al., 2020). Furthermore, due to the fast-paced nature of technology change, digital literacy is an ever-evolving aim. Keeping up with new innovations requires constant skill updates from both students and educators. Building a digital fluency culture inside organizations that promotes peer learning and continuing professional development can help with this continuous learning process. Teachers can gain insight from one another's experiences and share successful strategies, while students can strengthen their digital literacy through peer mentoring and group projects (Carvalho & Santos, 2022).

Beyond specific educational institutions, the importance of digital literacy in learning management system (LMS) adoption is systemic. By facilitating more adaptable, individualised, and interesting educational experiences, LMSs have the potential to raise the bar for educational excellence generally. Additionally, it has the potential to encourage continuous learning and equip students for success in today's digital environment. Encouraging higher digital literacy among educators and students is crucial for Jiangxi. It's not only about using technology to enhance educational outcomes, but also about preparing the region's educational institutions to thrive in a digitally connected and globally competitive world (Abduvakhidov et al., 2021).

Related theory

Research on students' proficiency with digital tools and their use of learning management systems (LMSs) in universities has long relied on the Technology Acceptance Model (TAM) (Altawalbeh, 2023). The goal of TAM, which Fred Davis established in 1989, is to describe the process by which people embrace and make use of a technology. Perceived utility and perceived ease of use are the two main aspects that impact an individual's choice to embrace a technology, according to the model. A system's perceived utility is the extent to which its users think it will improve their work performance, while a system's perceived ease of use is the extent to which its users think it will need little to no effort on their part to utilize. Both of these aspects are affected by students' level of digital literacy as they pertain to the use of learning management systems in Jiangxi's universities. When people are more comfortable with digital tools, they have more faith in their ability to use learning management systems (LMSs), which in turn makes them think the systems are easier to use. At the same time, the perceived usefulness of LMS grows as both students and teachers see how it improves learning and teaching outcomes. So, TAM gives a theoretical framework for thinking about how raising people's level of digital literacy might make learning management systems (LMS) more popular and useful in classrooms (Lockhart, 2021).

Methodology

In order to guarantee objectivity and generalizability of the results, this study utilized a quantitative research approach to examine the impact of digital literacy on LMS utilization in higher education institutions in Jiangxi, China. To get information from a certain demographic, we shall use a structured survey approach. Participants in this study will include faculty and students from three of Jiangxi's top institutions; they will represent a wide range of demographics and fields of study. To ensure a balanced representation of both groups, the sample size will be 300 individuals, with 150 instructors and 150 students included.

The survey tool will consist of an extensive questionnaire that is specifically tailored to assess several aspects of digital literacy and the application of learning management systems. Technical abilities, information evaluation, and content production will be covered in the digital literacy part, which will feature items derived from well-known digital literacy assessment instruments. Perceived usefulness, simplicity of use, and overall happiness with the system are some of the factors that will be evaluated in the LMS utilization section, along with the frequency and style of LMS use. To collect quantifiable data for analysis, we will ask participants to rate their level of agreement with statements using a Likert scale from 1 (strongly disagree) to 5 (strongly agree).

To make sure that everyone can easily participate, we will be collecting data through an online survey platform. Thirty participants, including fifteen teachers and fifteen pupils, will take part in a pilot study to ensure the survey's validity and reliability before the major data collecting begins. The findings of the pilot study will inform the process of refining the questionnaire to make it more precise and easy to understand.

Over the course of four weeks, we will gather the majority of the data. Invitations will be sent via email and announcements will be made on university websites and social media platforms to recruit participants. Periodic reminders and incentives like participation certificates and a chance to win a prize will be sent out to get people involved. At all times, the study will adhere rigidly to ethical issues such as confidentiality, informed consent, and voluntary participation. After data collection is finished, the answers will be coded and input into statistical software like SPSS for analysis. The demographics of the sample, as well as their general degrees of computer literacy and LMS usage, will be summarized using descriptive statistics. The links between digital literacy and various characteristics of LMS adoption will be examined using inferential statistical tests, such as multiple regression analysis and Pearson correlation. The purpose of this research is to identify the relationships between digital literacy competencies (technical abilities, information evaluation, and content creation) and LMS usability, usefulness, and satisfaction.

Results

The study's findings shed light on the connection between digital literacy and the efficient use of learning management system platforms by instructors and students at higher education institutions in Jiangxi, China. Educators and students made up equal numbers of the 300 participants in the sample. On a 5-point Likert scale, teachers had an average score of 3.8 and pupils 3.6, indicating that most participants possessed moderate to high levels of digital literacy, according to descriptive statistics.

Table 1
Descriptive Statistics of Digital Literacy Scores

Group	N	Mean	Std. Deviation
Educators	150	3.8	0.65
Students	150	3.6	0.70

Findings from the study of LMS adoption pointed to different levels of platform involvement. While students reported utilizing LMS for learning activities at a mean score of 3.9, educators reported a higher frequency of 4.2 for instructional purposes. Also measured were the groups' impressions of the LMS's utility and ease of use; overall, both groups thought the LMS was great, with students giving it significantly lower marks for ease of use.

Table 2
LMS Utilization Scores

Measure	Group	N	Mean	Std. Deviation
Frequency of Use	Educators	150	4.2	0.60
	Students	150	3.9	0.75
Perceived Ease of Use	Educators	150	4.0	0.68
	Students	150	3.7	0.72
Perceived Usefulness	Educators	150	4.3	0.64
	Students	150	4.1	0.70

All metrics of learning management system (LMS) utilization showed strong positive associations with digital literacy, according to Pearson correlation analysis. There was a high correlation between educators' digital literacy and their perceptions of the ease of use ($r = 0.62$, $p < 0.01$) and the usefulness ($r = 0.58$, $p < 0.01$). Perceived usefulness ($r = 0.53$, $p < 0.01$) and perceived ease of use ($r = 0.55$, $p < 0.01$) were positively correlated with students' digital literacy. Based on these results, it seems that people who are more tech savvy have better opinions of LMS.

Table 3
Pearson Correlation Coefficients

Measure	Group	Ease of Use	Usefulness
Digital Literacy	Educators	0.62**	0.58**
	Students	0.55**	0.53**

**$p < 0.01$

Further confirmation from multiple regression analysis shows that digital literacy significantly predicts LMS utilization. Among educators, digital literacy explained 38% of the variation in how easy something was to use ($R^2 = 0.38$, $p < 0.01$) and 34% of the variation in how valuable something was ($R^2 = 0.34$, $p < 0.01$). $R^2 = 0.30$, $p < 0.01$) and 28% of the variance in perceived usefulness ($R^2 = 0.28$, $p < 0.01$) were accounted for by students' digital literacy. According to these findings, the efficiency and efficacy of learning management system platforms might be greatly enhanced by raising digital literacy levels.

In higher education, digital literacy is key to making the most of learning management systems (LMS), according to the study's overall conclusions. A higher level of digital literacy is

associated with greater engagement, better learning outcomes, and a more positive perception of learning management systems (LMS) by both teachers and students. These findings have the potential to improve educational practices in Jiangxi, China, by informing plans for digital literacy instruction and support in higher education institutions.

Conclusion

Researchers in Jiangxi, China, found that students' level of digital literacy significantly affected how well they used learning management systems (LMS). According to the results, LMS is more likely to be perceived as helpful and user-friendly by teachers and students with higher levels of digital literacy, leading to increased engagement with the system. There needs to be a concerted effort to raise digital literacy levels across the board because there is a favorable relationship between digital literacy and LMS usage numbers. The best way for universities to make use of learning management systems (LMS) is to provide their students with thorough digital literacy training and work to ensure that everyone has equal access to digital resources. Furthermore, the findings stress the significance of ongoing professional development for teachers so that they can stay up with technology developments. Researchers in Jiangxi hope their findings will sway lawmakers and school administrators to prioritize initiatives to increase students' digital literacy, the bedrock competency necessary for successful online education. Improving digital literacy is crucial for making the most of learning management systems (LMSs) and for boosting the quality and competitiveness of higher education in the area by equipping both students and teachers to succeed in an increasingly digital society.

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