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SKILLS, ATTITUDE AND CHALLEGES TOWARDS THE APPLICATION OF LMS LEARNING MANAGEMENT SYSTEM AT THE JIANGXI PROVINCE IN CHINA: A CASE STUDY

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Abstract: *In recent years, the adoption of Learning Management Systems (LMS) has been a pivotal development in the field of education, offering a digital platform that facilitates teaching and learning. This case study specifically focuses on Jiangxi Province in China, aiming to understand the dynamics of LMS implementation within this region. Jiangxi Province, with its diverse educational landscape, presents a unique context for investigating the skills, attitudes, and challenges surrounding the application of LMS. The study investigates the skills required for educators and students to effectively harness the potential of LMS, considering technological proficiency, content development, and interactive engagement. It also explores the evolving attitudes of both educators and students towards digital learning platforms, shedding light on the adaptation process and the changing paradigms in education. Furthermore, this research delves into the challenges faced in the implementation of LMS in Jiangxi Province. These challenges may encompass issues such as infrastructure limitations, pedagogical adjustments, and the digital divide. Understanding these challenges is critical to devising effective strategies for the successful integration of LMS in the province's educational system. By shedding light on the skills, attitudes, and challenges, this study provides valuable insights for educators, policymakers, and stakeholders in Jiangxi Province and offers a broader perspective on LMS adoption in the global educational context.*

Keywords: *Learning Management System (LMS), Education Technology, Skill Development, Attitudinal Shift, Educational Challenges*

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Introduction

The importance of the education sector in China has a profound impact on its citizens and the nation's development. Over time, China has witnessed significant changes in its education policies, with a strong emphasis on integrating Information and Communication Technology (ICT) into basic education. This policy shift, spanning from 1988 to 2021, aimed to foster innovation in teaching, drive educational reform, and modernize the education system. The primary objective was to enhance students' educational outcomes and contribute to the country's economic growth (Madani, 2019). China's commitment to integrating ICT is evident in the widespread availability of multimedia classrooms in about 95.2% of schools and the utilization of digital teaching resources in 70% of schools.

The success of this rapid ICT adaptation in the education system can be attributed to the capability of Chinese teachers in effectively utilizing ICT tools to enhance classroom teaching (Jadhav et al., 2022). Additionally, the COVID-19 pandemic has accelerated the demand for remote learning, further promoting the integration of intelligent education hardware into China's education landscape. This shift has also led to the development of innovative technology solutions, such as independent learning platforms, by Chinese education technology giants.

Jiangxi Province, along with neighboring provinces like HuBei, HuNan, and GuangDong, stands as a major educational hub in China, with a diverse range of educational institutions catering to all age groups, from children to adults, and individuals with various backgrounds, including disabilities. These institutions heavily rely on digital learning resources, providing students with flexible access to educational materials through digital libraries (Yan et al., 2021). This research aims to explore both the advantages and challenges faced by teachers and educators in Jiangxi Province when integrating ICT into the educational process. It delves into the broader landscape of ICT in education, emphasizing its significance and potential to improve teaching quality and enhance the learning experience for students. ICT is recognized as a tool that can facilitate effective communication between teachers and students, transforming the traditional teaching and learning processes (Al Rawashdeh et al., 2021).

The incorporation of ICT in education is seen as a preparation for the information age, equipping students with the skills required in modern workplaces. However, the integration of ICT into teaching methods presents challenges (Paudel, 2021). Educators in China, like their counterparts in other countries, encounter various obstacles when implementing ICT-driven changes. These challenges can be categorized into extrinsic and intrinsic barriers. Extrinsic barriers involve external factors like the lack of support, time, and training, while intrinsic barriers pertain to the attitude and resistance of educators and administrators.

In China, some educators who possess a basic level of ICT knowledge may lack confidence in implementing it in their teaching, fearing that students may surpass their technological proficiency. Additionally, schools are responsible for providing training to teachers lacking the necessary ICT skills, but not all institutions have prioritized such training. Furthermore, this study delves into the field of electrical skills in vocational education, emphasizing the role of ICT in enhancing learning, skills development, efficiency, and problem-solving. ICT provides learners with access to simulation software, allowing them to virtually design, test, and troubleshoot electrical circuits and systems (Mayoof et al., 2021). This technology is instrumental in developing cognitive, psychomotor, and affective skills necessary for success in the electrical field.

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Problem Statement

Teachers and students in China's Jiangxi Province lack the expertise to make the most of learning management systems (LMS). Educators' inability to design dynamic and participatory online courses is hampered by their lack of familiarity with the LMS systems' capabilities and functions (Sumalinog, 2022). Learners also have trouble accessing the LMS's navigation and resources, leading to lower levels of interest and involvement. The lack of trained personnel is a major obstacle to LMS's widespread use in Jiangxi Province, China.

Research Objectives

The primary objectives of the study are as follows:

1. To critically investigate about the importance of LMS systems in the field of electrical automation in vocational skill education in Jiangxi Province China.
2. To identify different barriers teachers face while implementing LMS in the respective of electrical automation vocational skills.
3. To evaluate skills related to technical processes that are used for the betterment of the LMS and ICT implication in the electrical automation vocational skill
4. To evaluate the knowledge of teachers affected the implementation of LMS in the education system of Jiangxi.
5. To analyze the relevant solutions of the posed challenges in the LMS implementation.

Significance Of Study

The study is conducted to fill the identified gap in the existing body of knowledge (Assaad & El-Adaway, 2020). This study would help to understand the significance of using LMS in the education sector to facilitate the distance learning system. The target audience of the research is teachers and students in Jiangxi province of China, they can acknowledge the necessity of incorporating the LMS learning system in online education and strategies to gain benefits from the system. the primary quantitative research helps to obtain accurate and authentic information that enables the researcher to demonstrate the skills required in the LMS learning system as well as barriers to the educators to establish this system, On the other hand, the case study would reveal the real-world scenario regarding the LMS learning tool used for educational purpose in China.

Literature Review

Learning Management System (LMS) refers to a software application, which is used for the documentation, administration, reporting, automation, tracking and specifically the delivery of educational courses. In other words, training programs and development programs along with materials for learning are also delivered through the LMS. The concept of LMS has directly emerged from e-learning. With the help of LMS, one can handle all aspects of the learning process by managing online learning. In addition, the creation of a stimulated communication channel between the teachers and the students can also be ensured. LMS works managing all types of content such as courses, videos and educational materials or documents, in which students also get the allowance of accessing all course content from various devices (Laparra et al., 2023). The significance of LMS gets more enhanced when a teacher uses the software application for managing rubrics, course syllabi or even student discussion boards. The teacher can also provide the key features in terms of progress tracking, reporting, assessments and assignments. In this context, it can be addressed that LMS is one of the most significant tools of information and communication technology (ICT) which can help in improving the efficiency of leading activities in higher educational sectors. In terms of transforming education

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through digital format and virtual learning environments, LMS acts as one of the most significant tools of ICT.

ICT is impacting the pedagogical process and educational outcomes for the next stage of policy and implementation, however, measuring the usage patterns in teaching and learning through digital access is challenging in every part of the world. It makes the process of development of curriculum and learning resources much easier, which further supports increasing opportunities for learners to gain a better understanding and knowledge related to a particular subject area. It has been identified that incorporation of the strategy of internet connectivity with the help of LMS is highly essential to ensure the successful education of all students regardless of their age and class (Maphalala & Adigun, 2021).

An active transformation of education is also essential to incorporate different innovative strategies and policies to encourage digital inclusion and enable the educational management system to broadband adoption as well (Aruleba & Jere, 2022). In this context, the first fully-featured Learning Management System has been called EKKO. it was developed and released by NKI Distance Education Network in Norway in 1991. The evolving paradigms of education, which are having massive shifts caused by the LMS practices in the global economy and culture, have started changing from informal learning educational systems to emerging at their best in formal educational systems. the interaction between teacher and learner is also being transformed and expanded by technology-enabled interactions and capabilities.

The rapid evolution of Information Communication and Technology (ICT) in the integration of educational technology receives special attention because of the increasing complexities. There is no doubt that the implementation of wireless digital and mobile technology enables both teachers and students to have unrestrained access to quality information, irrespective of time and context. The first Learning Management System was developed in 1924 as a teaching machine (Şahin & Yurdugül, 2022). Later, the LMS resembled a typewriter with a single window in which the administration of questions can be conducted. In that single window of LMS has been used to show a certain question whereas the other one was used to fill in the answer based on the questions. In order to effectively integrate the use of ICT in educational programs, the key players should be established in the teachers, and a lot of things depend on the attitudes of every individual participating in the ICT program.

On the other hand, the Learning Management System has been actively used by teachers, administrators and students in relation to providing better learning environments for teaching. ICT integration in pedagogy is highly motivating the students and also enables them to be creative in their presentations with multimedia and virtual modes tools (Ali, 2019). The teaching staff in schools and colleges are being supported and inspired to incorporate technology into their educational practices, as it is stated that technology has the potential to unlock the future of educational systems.

Effective transformation in the field of education summit can be recognized as an opportunity for all countries around the world to make commitments in the process of providing higher quality digital learning experiences for all. One of the major benefits of the incorporation of ICT in the field of education is to develop a healthy connection and communication between every school. As LMS incorporation is associated with the process of development of infrastructure, investment, innovation, inclusiveness and complements, it can enhance communication between each of the educational institutions of Jiangxi In China. Students are

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given educational benefits by preparing them to participate in the digital age by covering the gaps of knowledge about LMS by collecting information from students, teachers, and principals (Alam & Mohanty, 2022). In order to understand the use of LMS in today's education society, the evolving educational paradigms need to focus entirely on how students and teachers are doing with ICT. It can be also added that LMS has allowed teachers in keeping track of students' progress in relation to course completion.

LMS acts as a backbone for many educational institutes, especially those which offer online courses while ensuring maximum implementation of technology. LMS solutions have been designed in a way that they can be used in academic sectors while giving schools valuable tools, which allow students to access course materials from anywhere as a convenience for students (Liu et al., 2020). In this context, it can be addressed that eLearning has grown in prominence at various levels of educational sectors. However, the LMS has become more convenient while playing a central role in the digital instruction efforts of educational institutions. Educational institutions have the option of relying on LMS tools in relation to constructing content management. In addition, it can also result in diversified learning activities in the educational sector while giving the students more control over the upgraded learning process.

The application of the technology in the learning management can systematically engage the information and manage the cognitive development of the students (Alzahrani & Seth, 2021). It is noted that electrical automation can induce connectivism in the learning approaches based on theoretical application. Therefore, vocational educational processes can be enhanced through these methods. It can be additionally denoted that strategical processes like the application of advanced technology are mainly used to generate ideas and manage the efficiency of student cognition. The tools for performance analysis and the management of the participation are mainly guided through technology in the recent times. Such processes are mainly addressed through the application of a learning management system eminently. Therefore, in order to master the electrical automation and manage the practical development of knowledge the use of the advanced LMS is mainly addressed for the development of cognitive ideas and building a concrete context.

The learning and the management methods can ensure the development and can lead to the development of utility-based skill-building processes and learning can ensure the development as well. The application of the applied scientific development and managing the development through concentrating on the practical skill approaches have significant operational training and development methods (AlHamad et al., 2022). Therefore, the application of effective strategies and the development which are responsible for the sake of vocational development can be adopted in the Jiangxi province of China. Effective change in the Learning Management structure through the application of the System Usability scale can also be adopted by the organizations to provide the utmost education.

Therefore, the technological skills and the building of advanced learning methods to control the dynamic development of the companies can also be adopted from the side of the companies (Bag et al., 2021). The application of AR (Augmented Reality) and VR (Virtual Reality) is mainly used from the side of companies in order to provide educational excellence and maintain the efficiency that is needed to support student knowledge. Therefore, effective strategies and dominance to retain the development are mainly followed through the methods as well. As a result, the electric utility skill building can be exercised from the side of the companies in order

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to generate efficiency and handle the strategies that can ensure the development of educational institutes.

There are two types of Learning Management Systems such as proprietary LMS and Open-source LMS. A proprietary LMS is a form of closed-source platform, which is sold and maintained by the vendors (Njeru et al.). This type of LMS is limited to integration and customization in which the stability and security factors rest on the vendors. However, open-source LMS is made in a way that it can be maintained and customized by several users as it does not require a licensing fee. As per the specific needs, the users can personalize with new functionalities along with plugins.

The common features of LMS are related to course creation and management, course calendars, online assessment, attendance management and others. In this context, teachers or instructors can utilize LMS for creating and managing structured learning content while setting user permission for controlling the access of students. The teachers can also set the important and upcoming course activities on the course calendar. Teachers can utilize LMS for creating and customizing multiple choice questions, essays, arrangement scales and others while also uploading and grading the tests in-person assessments. In relation to tracking student attendance or even creating discussion topics regarding completing specific assessments, attendance management and discussion boards are used by LMS. In terms of enhancing teacher communication, teachers can send messages to the students within LMS. Students can also utilize LMS by creating and managing their own user profiles. As a result, it can help in building social relationships with the teachers (Scull et al., 2020).

Theoretical Framework

Teachers in China are able to get beyond the many obstacles they encounter while adopting ICT technologies into their classes by applying various theories. They will be capable of effectively using the technological methods in their educational setting if they have a thorough understanding of these notions. It helps in justifying the research and can be considered one of the crucial steps of a research paper (Lakens, 2022). As the framework is a fair opportunity for the researcher to effectively present their ideas, therefore, it is important to be familiar with theories and models that will be evaluated and compared using the framework.

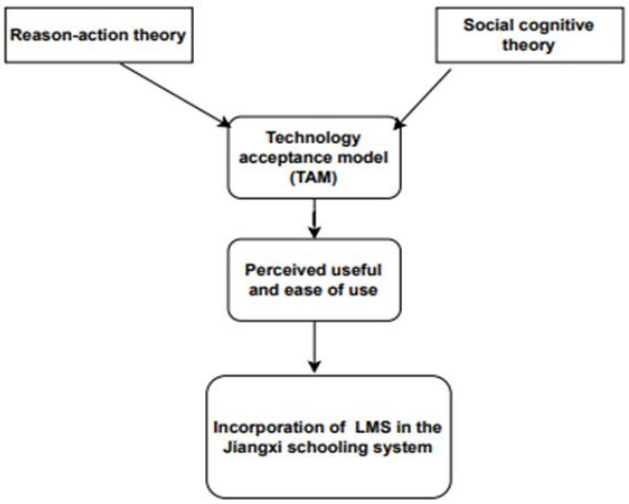

Figure 1: Theoretical framework
(Source: Created by author)

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Three basic theories can be used to overcome the obstacles that Chinese teachers experience when integrating ICT into their teaching techniques. First off, the instructors will be able to lower their resistance and accept their lack of abilities, which is preventing them from learning more about the various technologies accessible in the field of education. This is accomplished through the implementation of the ***technology acceptance model (TAM)***. The ***theory of reason and action*** will also enable educators to learn from their mistakes and try out better-improvised techniques that will enable them to successfully employ ICT in their teaching methods in the classroom setting. Last but not least, by using ***social cognitive theory***, it will be possible to assess how Chinese instructors see the issue and develop pertinent solutions that will enable them to resolve it and make use of technology in the process. As a result, it can be acknowledged that by putting the three theories into practice, educators will be able to overcome the difficulties they face and incorporate technology into their varied teaching strategies.

Conceptual Framework

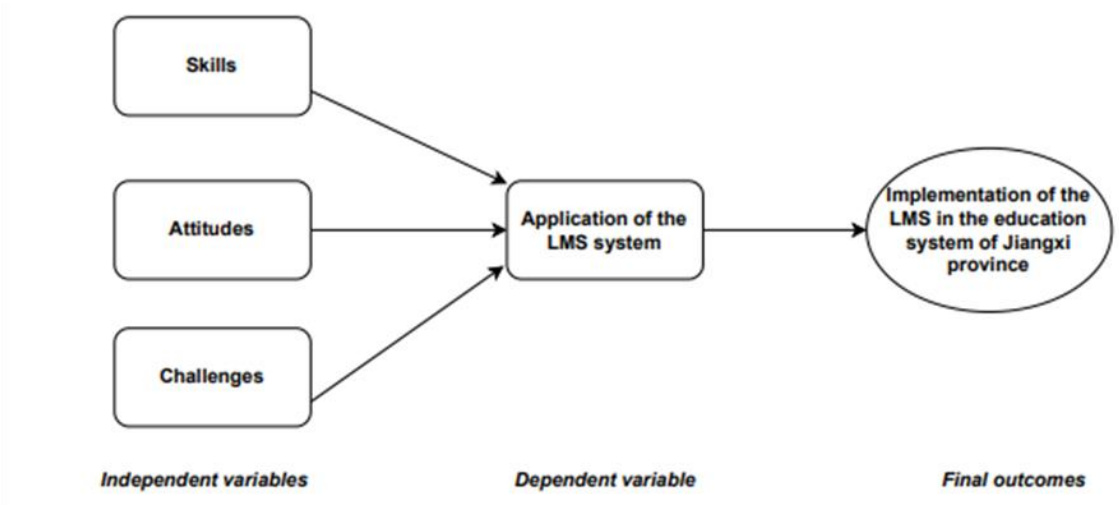

Figure 2: Conceptual Framework
(Source: As created by Author)

Methodology

The research has contained two hypotheses that helped to guide the research in the right direction (Swedberg, 2020). In this research, "Positivism research philosophy" has been used as the positivism research approach is generally used to where only those things are considered that can be seen, observed or proved. In this research, research has been done by deriving the data from the survey where responses of the 200 participants have been considered. A sample size of 200 participants ensures statistical robustness, diverse perspectives, and practical feasibility for the research on LMS integration in China's education sector. Therefore, a positivist research design is suitable to use in this research.

An explanatory research design has been used in this research that helped to describe the overall information in a formative and descriptive way. Along with that, a deductive research approach has been used in this research that helped to conduct the research by analysing every statistical data given in the research. Generally, the deductive approach is considered the logical approach where research progress is made from general ideas to specific conclusions (Park et al., 2020). Hence, the usage of this research design is suitable to use for the conduction of this research.

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In this research primary and secondary, data collection methods have been used for collecting relevant data that could help to measure the impact of LMS on the educational industry in China. The mixed method is considered the hybrid research technique which consists of the features of both quantitative methods and qualitative methods. The purpose of using this research method is to combine quantitative and qualitative research methods for analysis in one study. In this research, data has been collected through a survey where participants might answer different questions which also could be in numerical form. Along with that SPSS software has been used to perform the statistical analysis to derive the outcome of the research (Donyaei et al., 2023). Moreover, thematic analysis has also been performed to reach the final conclusion of the research.

Data analysis has been performed as “Quantitative analysis” and “thematic analysis” as the data gathered through mixed methods could be quantitative and qualitative. For performing the data analysis, SPSS tools have been used that helped to perform the statistical calculations to find the numerical outcome in the research that remained quite helpful to measure the key skills, attitude and challenges in integration of LMS in the education sector and in classrooms in China.

Results

This investigation into the use of LMSs in schools in Jiangxi Province, China, is anticipating a wide range of results. One primary goal of this study is to demonstrate how LMS may be used to improve teaching and learning, especially in the area of electrical automation in vocational education. This research has the potential to show how LMS can help raise standards in the classroom by making education more convenient, engaging, and effective for teachers and students alike. Barriers to incorporating LMS into classroom practise are anticipated to be revealed by this study. This could be due to a lack of training and assistance, a lack of confidence in the students' technological abilities, or both. Additionally, difficulties connected to infrastructure limits and the digital divide may be highlighted as hindrances to efficient LMS integration.

Teachers' technical expertise and knowledge in regards to LMS and ICT deployment may be assessed in the study. Results may show that teachers with more technical expertise have an easier time making the most of LMS, while those with less experience may have trouble realising the system's full potential. The findings may indicate that both teachers and students need to modify their perspectives on using digital resources for education. The more widespread the use of LMS becomes, the more likely it is that educators and students alike will come to see its value and adjust their perspectives accordingly. The research is meant to yield practical answers to the problems encountered by LMS deployments. Possible responses include educator-centric training initiatives, infrastructural improvements, and plans to close the digital achievement gap.

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Volume: 9 Issues: 63 [June, 2024] pp. 758 - 767
Journal of Islamic, Social, Economics and Development (JISED)
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