GUIDELINES FOR IMPROVING INFORMATION LEADERSHIP OF RURAL PRIMARY SCHOOLS PRINCIPALS IN GUANGXI

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the Degree of Doctor of Philosophy Program in Educational Administration
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Thesis Title Guidelines for Improving Information Leadership of Rural Primary Schools Principals in Guangxi

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Thesis	**Guidelines for improving information leadership of rural primary schools principals in Guangxi**
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ABSTRACT

The objectives of this research were to study the current situation, to develop guidelines, and to evaluate suitability and feasibility of guidelines of improving information leadership of Rural Primary Schools Principals in Guangxi. The sample group of this research included 484 Teachers or Vice Principals/ Principals from 241 Primary Schools in Guangxi. Research instruments included: 1) questionnaire, 2) structured interview, and 3) evaluation form. The data were analyzed by percentage, average value, standard deviation, and content analysis.

The research results show that: The current situation of information leadership of rural primary schools principals in Guangxi in five aspects was at high level. Considering the results of this research aspects ranged from the highest to lowest mean were as follows: the highest mean was information literacy, followed by Information environment and resource construction ability, Information evaluate ability was the lowest mean. Guidelines for improving information leadership of rural primary schools principals in Guangxi included five aspects with a total 48 measures. There are: 1) Information literacy included 10 measures, 2) Information management ability 10 measures, 3) Information environment and resource construction ability included 8 measures, and 4) Information planning and design ability included 10 measures, 5) Information evaluate ability included 10 measures. The suitability and feasibility evaluation results of guidelines were at high level.

Keywords: Guidelines, Information Leadership, Rural Primary Schools Principals

ชื่อเรื่อง	**แนวทางการพัฒนาภาวะผู้นำด้านสารสนเทศของผู้อำนวยการโรงเรียนประถมศึกษาในชนบทมณฑลกวางสี**
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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์ เพื่อศึกษาสภาพปัจจุบัน พัฒนาแนวทาง และเพื่อประเมินความเหมาะสมและความเป็นไปได้ของแนวทางการพัฒนาภาวะผู้นำด้านสารสนเทศของผู้อำนวยการโรงเรียนประถมศึกษาในชนบทมณฑลกวางสี กลุ่มตัวอย่างในการวิจัย ได้แก่ คุณครู ผู้อำนวยการหรือรองผู้อำนวยการโรงเรียนประถมศึกษาในมณฑลกวางสี รวมทั้งสิ้น 484 คน เครื่องมือที่ใช้ในการวิจัย ได้แก่ 1) แบบสอบถาม 2) แบบสัมภาษณ์แบบมีโครงสร้าง และ 3) แบบประเมินผล สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ค่าร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และการวิเคราะห์เนื้อหา

ผลการวิจัยพบว่า สภาพปัจจุบันของภาวะผู้นำด้านสารสนเทศของผู้อำนวยการโรงเรียนประถมศึกษาในชนบทมณฑลกวางสี โดยภาพรวมอยู่ในระดับสูง จากผลการวิจัย พบว่าด้านการรู้เท่าทันสารสนเทศมีค่าเฉลี่ยสูงสุด รองลงมาคือด้านความสามารถในการสร้างสภาพแวดล้อมและทรัพยากรสารสนเทศ ส่วนด้านความสามารถในการประเมินสารสนเทศมีค่าเฉลี่ยต่ำสุด แนวทางการพัฒนาภาวะผู้นำด้านสารสนเทศของผู้อำนวยการโรงเรียนประถมศึกษาในชนบทมณฑลกวางสี ประกอบด้วย 5 ด้าน รวมทั้งสิ้น 47 มาตรการ ได้แก่ 1) ด้านการรู้เท่าทันสารสนเทศ ประกอบด้วย 10 มาตรการ 2) ด้านความสามารถในการจัดการสารสนเทศ ประกอบด้วย 10 มาตรการ 3) ด้านความสามารถในการสร้างสภาพแวดล้อมและทรัพยากรสารสนเทศ ประกอบด้วย 8 มาตรการ 4) ด้านความสามารถในการวางแผนและออกแบบสารสนเทศ ประกอบด้วย 10 มาตรการ และ 5) ด้านความสามารถในการประเมินสารสนเทศ ประกอบด้วย 10 มาตรการ ผลการประเมินความเหมาะสมและความเป็นไปได้ของแนวทาง อยู่ในระดับสูง

คำสำคัญ: แนวทาง ภาวะผู้นำด้านสารสนเทศ ผู้อำนวยการโรงเรียนประถมศึกษาในชนบท

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Chapter 1
Introduction

Rationale

The invention and rapid development of computers and modern network communication technology in the 1960s marked the entry of mankind into the information age. This change has profoundly affected all aspects of society, especially the field of education. With the concept of "information superhighway" put forward by the United States in the 1990s, the process of information in education has accelerated, and has gradually become an important part of global education policy. In the wave of information in education, the information leadership of school administrators has become a key factor in improving the quality of school education and promoting the modernisation of education. (Fluckiger, 1996)

The United States is a global leader in research on information technology leadership for elementary and secondary school pincipal and has the richest body of research. 2002 saw the publication of the National Educational Technology Standards for Administrators (NETS-A), which emphasises the need for pincipal to have a high level of information technology literacy as administrators in the digital age. pincipal in the information age should have the ability to integrate multiple knowledge skills and technological resources, ultimately leading to TPACK (Teaching and Learning Knowledge of Subjects Integrating Technology), which is the core goal of professional development in educational administration. These studies provide valuable experiences and lessons for educational management in countries around the world. (Knezek, 2002)

Similarly, the UK introduced the National Standards for Principal Excellence in 2015, which clearly states that pincipal' informational leadership can be enhanced by upgrading professional knowledge and skills, motivating teachers and students, planning school vision, and building great teams. These international experiences provide important references for enhancing pincipal' IT leadership. (Center, 2015)

With the historic opportunity of information technology in education, IT leadership for pincipal has gradually become a hot topic in the global education sector and education community.In 2016, the US Department of Education released the 2016 National Education Technology Plan, which redefined the role of technology in the future of education and learning. (Sciences, 2016)

The information technology revolution in the West has had a profound impact on all areas of Chinese society. Education information in China has gone through a process from scepticism to acceptance to application, and has shown the stage characteristics of focusing on infrastructure, introducing supporting equipment and strengthening application exploration. China introduced the Standards for information Leadership of Primary and Secondary School Principals in 2014, It is formulated to promote the development of information in primary and secondary schools and to enhance the leadership of pincipal in an information environment. The standard has the following seven key points: information awareness and concepts, information planning and implementation, IT application capabilities, information teaching and learning environment construction, information management and decision-making support, information literacy enhancement and continuous learning, and information security and ethics, which provide guiding directions for primary and secondary pincipal' These points provide a guiding direction for information leadership, which helps to promote the development and progress of schools in the age of information.(Department of Education of Guangxi Province, 2015)

In 2021, the beginning of the 14th Five-Year Plan, Guangxi plans to synchronise with the 2035 vision that "China's economic and scientific and technological strengths will be greatly upgraded". Primary schools in Guangxi must pay attention to the dynamics of different interests at the national and social levels from multiple perspectives and in a comprehensive and systematic way, so as to lead the cultivation of talents for sustainable development. Primary school principals should be led by modern education concepts, promote education informatisation and the construction of smart campuses, use information technology to enhance teaching and management, and drive the digital transformation of their schools.Principals should promote the improvement of the curriculum system in schools to ensure that students receive all-round training in moral, physical and artistic cultivation along with knowledge learning. pincipal should ensure that their schools make a difference in promoting equity in education, especially in promoting a balanced distribution of educational resources and ensuring that disadvantaged groups receive an equitable education. (Liang Juan, 2024)

In conclusion,two key points are emphasised in these domestic and international policies. The first is that education must keep abreast of the trend of information technology and fully integrate information technology into the field of education, so as to promote the modernisation of education. Secondly, the leadership role of pincipal in school development is emphasised. Although there has been an abundance of research on "information technology + education" globally, China's theoretical research on the integration of information technology and education started relatively late, and there is a paucity of relevant literature. In addition, the practical application of information technology leadership by pincipal in primary and secondary schools in China still has problems that are not in line with the requirements of the times. Especially in Guangxi, how to effectively improve the information leadership of primary school principals and promote the development of local education information is an urgent topic to be solved. This study aims to identify the problems and propose targeted improvement strategies by empirically analysing the current situation of information leadership of rural primary school principals in Guangxi. Through this study, we hope to provide new theoretical support and empirical analyses for improving the information leadership of primary school principals in Guangxi. This research not only provides strategic guidance for the development of local education information, but also provides practical references for achieving educational equity and improving educational quality.

Research Questions

1. What is the level of information leadership of rural primary schools principals in Guangxi?
2. What are the guidelines for improving information leadership of rural primary schools principals in Guangxi?
3. Are the guidelines for improving information leadership of rural primary schools principals in Guangxi suitable and feasible?

Objectives

1. To study the level of information leadership of rural primary schools principals in Guangxi.
2. To formulate the guidelines for improving information leadership of rural primary schools principals in Guangxi.
3. To evaluate the suitability and feasibility of improving guidelines for information leadership of rural primary schools principals in Guangxi.

Scope of the Research

Research Object

According to Krejcie and Morgan sampling table (1970), the research object is 484 Teachers and Vice Principals/ Principals from 617 rural primary schools in Guangxi. By using stratified random sampling and simple random sampling.

The Interviewee

The interviewee in this research is 14 principals from rural primary schools in Guangxi. The qualifications of interviewee are as follows: 1) at least 10 years of work experience in high-level administrator in rural primary schools, 2) received a senior title certificate, 3) graduated with undergraduate degree or above.

Expert Group

The experts for evaluating the suitability and feasibility of guidelines is 15 experts from rural primary schools in Guangxi. The qualifications of the experts are as follows: 1)at least 8 years of work experience in high-level administrator in rural primary schools, 2) received a senior title certificate, 3) graduated with master's degree or above.

The Variable

According to the analyzed of related theories and research, characteristics of information leadership of rural primary schools principals are as follows:

1. Information literacy
2. Information management ability
3. Information environment and resource construction ability
4. Information planning and design ability
5. Information evaluate ability

Advantages

1. On the basis of integrating previous relevant studies, and taking into account the current development status and trends of Guangxi, new theoretical insights are introduced to provide theoretical support for enriching the research on elementary school principals' leadership.

2. To use the results and conclusions of this research to provide a reference for education authorities to strengthen the information leadership of rural princpals in the region.

3. To use the guidelines as a reference to make further in-depth thinking and re-understanding of education information, so as to accelerate the process of information in rural primary schools in Guangxi; the proposed countermeasures can be used as a reference for regions with similar education information status.

Definition of Terms

Information leadership refers to Information leadership refers to the ability of leaders to promote decision-making, management and innovation in education or organisational development with information technology thinking and digital means. It is embodied in the keen insight, scientific application and effective integration of information technology, so as to enhance the operational efficiency and governance of the organisation. Information leadership not only emphasises the leader's leading role in the information environment, but also its ability to support scientific decision-making through data-driven and resource integration. In short, it is the core ability of leaders to guide their organisations to adapt and develop in the information and digital era.

Information literacy refers to an individual's ability to acquire, evaluate and effectively use information, and includes the following main aspects: 1. information Awareness: Understanding the existence and value of information, and recognising the nature and scope of information needs. 2. information Literacy: Knowledge of the use of various information sources and tools, and an understanding of the types of information and ways to access it. 3. information competence: to be able to retrieve, evaluate and integrate information efficiently, and to use information to solve problems and make decisions. 4. information ethics: understanding and adhering to ethical and legal norms for the use of information, and respecting intellectual property rights and information privacy. Together, these aspects constitute the basic competence of individuals to process and use information in the information age.

Information management ability refers to the core of a principals information leadership, referring to the ability to combine modern information technology with advanced management concepts. pincipal need to be able to use information technology to transform their schools' organisational methods, work processes and traditional management methods, so as to realise the re-integration of internal and external resources, improve the efficiency and effectiveness of their schools and modernise their management. Information management competencies cover not only the application of technology and the integration of resources, but also emphasise aspects of leadership, decision support and improved management effectiveness, and are an integral part of modern school management.

Information environment and resource construction ability refers to the internal and external information construction of schools in terms of information hardware facilities, software facilities, construction and maintenance of information teaching resources, construction of information culture and social support. The focus of the school's information environment construction is on internal information construction, which mainly includes the upgrading and maintenance of hardware facilities, the construction and use of teaching software facilities and teaching resources, the degree of integration between IT and classroom teaching, and the construction of an information culture. The construction of information environments focuses on the upgrading and maintenance of hardware and software facilities and the construction of an information culture to ensure the scientific and effective development of educational information.

Information planning and design ability refers to the ability to carry out forward-looking and rational planning and design for the development and construction of school information in order to realise the vision and goals of school information construction. It requires scientific assessment and judgement of the internal and external environments of school information development, rational use of funds for information construction, and the formulation of forward-looking development plans in line with the actual development of the school, including the formation of school information development goals, the identification of development measures, the design of school information development structures, and the deployment of information implementation. pincipal need to have the ability of forward-looking planning and design, as well as the ability of effective implementation and execution, in order to ensure the smooth implementation of the school's information development plan and achieve the expected goals.

Information evaluate ability refers to is an important management ability of the headmaster in the planning and implementation of the school information system. Through objective and continuous assessment of all aspects and timely adjustments, the headmaster is able to ensure the relevance, accuracy and effectiveness of the school's information construction, and to push the school's information construction in a healthy and correct direction. In conclusion, information assessment is not only an analysis of the school's current situation, but also a compass for future development. Through continuous evaluation and adjustment, the headmaster can ensure that every step of the school's IT construction is on the right track, and ultimately realise the healthy and sustainable development of the school's educational IT.

Rural primary schools in Guangxi refer to schools located in rural and township areas of the Guangxi Zhuang Autonomous Region. They are located in areas with a low level of economic development, where educational resources are relatively scarce and the infrastructure is not as well developed as that of urban schools, and where teaching equipment, library resources, and sports facilities may be rudimentary. In summary, rural primary schools in Guangxi generally refer to those schools located in rural and township areas of Guangxi, serving children of local rural families, with relatively backward economic conditions and a relative lack of educational resources. These schools usually need more government and social support to improve educational conditions and enhance teaching quality.

Rural Primary School Principal refers to the chief administrator and educational leader of a primary school located in rural areas. They are responsible for the overall management of school affairs, including administration, teaching, resource allocation, and quality improvement. In addition to promoting teachers' professional growth and students' holistic development, they play a vital role in improving school conditions and fostering collaboration with the local community. Given the distinct social, economic, and cultural contexts of rural areas, rural primary school principals often undertake more complex educational and social responsibilities compared to their urban counterparts.

Research Framework

According to the analysis of related theories and research, based on studies by Zhao Shuhan (2023), Li Yuanhua (2023), Zhang Yihua (2013), etc. First, information literacy, which serves as the foundation of information leadership and enables principals to better understand and apply information. Second, information management ability, which helps principals organize and utilize information resources efficiently. Third, information environment and resource construction ability, which can create a favorable information atmosphere for schools and enrich information resources. Fourth, information planning and design ability, which assists principals in formulating rational information development plans. Fifth, information evaluation ability, which enables principals to effectively assess the effectiveness of information use. These characteristics are crucial for enhancing the information leadership of rural primary schools principals. characteristics of information leadership of rural primary schools principals are as follows:

The Information Leadership

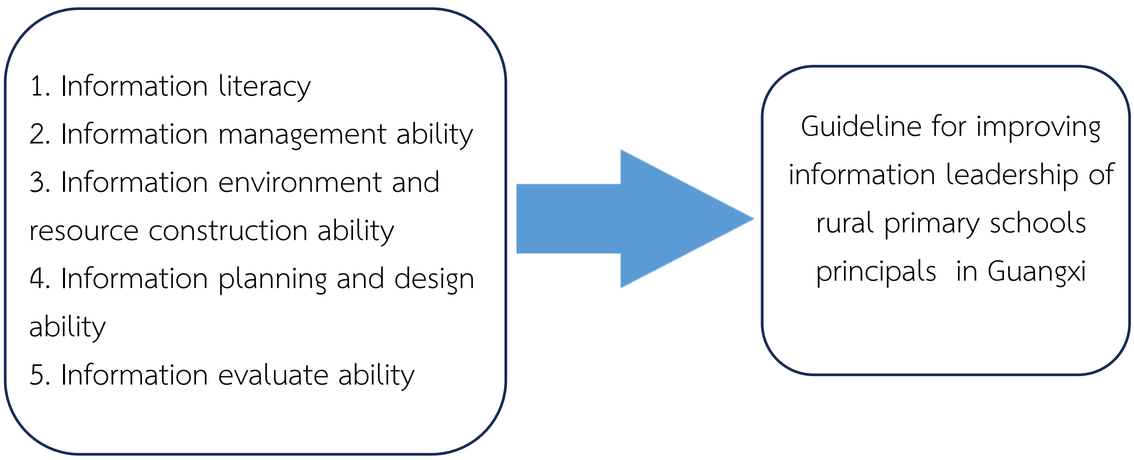

Figure 1.1 Research Framework

Chapter 2
Literature Review

The research in improving information leadership of rural primary schools principals in Guangxi, the researcher was analyzed documents, concepts, theories, and researches related to information leadership of rural primary schools principals. The details are as follows.

1. Concept of educational administration
2. Concept of information leadership
3. Context of rural primary school in GUANGXI
4. Related Research

The details are as follows.

Concept of Educational Administration

Educational Administration

Sun Miantao (1998, p.69-76) proposed that from the philosophical point of view of the analysis of the educational management is to better promote the reproduction of human beings to serve a kind of activity, this essence reflects the commonality of the phenomenon of educational management, this essential attribute applies to all social forms of educational management phenomenon, exists in all kinds of social forms of the phenomenon of educational management.

Xu Jinhai & Zhang Xinping (2013, p.23-41) proposed that the connotation of educational management from four perspectives: the first is to look at educational management from the viewpoint of management activities: educational management is a kind of management activities with ideological and service-oriented nature. Secondly, educational management is viewed from the nature of profession: educational management is an objective type of profession, which needs personal experience and professional training to promote its development. Thirdly, educational management is viewed from the viewpoint of educational system: educational system is a system of various norms and rules required for the operation of all levels and types of educational institutions and organisations in a country. Fourthly, educational management is viewed from the perspective of policies and regulations: it is the behaviour of administrators who lead and manage national educational activities through policies and regulations.

Yang Tianping (2004, p.3-5) proposed that the development of the discipline of educational management from the perspective of the history of education, pointing out that in the prehistory of mankind and the beginning of human history, education and educational management did not have a specific form, and then after a long evolution, it was not until the mid-twentieth century, in the process of the cross-fertilisation of pedagogical and managerial sciences, that the discipline of educational management was really formed. It was not until the middle of the 20th century that educational management was really formed through the cross-fertilisation of education and management.

Chen Xiaobing (1999, p.28-33) proposed that some people believe that educational management should be classified as a sub-discipline under the category of educational management, which is reflected in the "Research and Application of Discipline Classification" published in 1994, which very definitely establishes educational management as a sub-discipline under the category of educational management.

Zhao Shuxiao (2012, p.73) proposed that the evolution of the paradigm of educational administration is generally in the stages of well-adapted technology, technological diversification, technological failure, value conflict and clarification, and paradigm evaluation and reconstruction. The problems with the research paradigm of educational administration are reflected in its inability to predict and guide the practice of educational administration, the fact that people begin to question the value of the discipline of educational administration, and the emergence of new research paradigms.

Yang Minghong (2009, p.11-15) proposed that from the perspective of "human theory", he discusses the view of human nature in the research of educational management theory and comes up with the "basic problems of human beings", which reflects the scientific and applicable nature of this perspective, and proposes to use the "basic problems of human beings" as the basis for constructing educational management theory. Yang Minghong points out that from the perspective of "human theory", he discusses the view of human nature in the research of educational management theory and comes up with the "basic problem of human being", which reflects the scientificity and applicability of this perspective, and proposes to take the "basic problem of human being" as the basis for constructing the educational management theory.

Zhang Xinping & Chen Hongyan (2012, p.15-17) proposed that the methodological system of educational administration should be divided into three levels: the first level is the methodology, as it constitutes the theoretical foundation; the second level is the specific methodology, which includes the issues of how to research and how to practise; and the third level is the concrete techniques with specialization, technology and operation. The third level consists of specific techniques that are specialised, technical and operational.

Komai et al. (2007, p.946) proposed that an organization makes collective decisions neither through markets nor through contracts. Instead, rational agents voluntarily choose to follow the leader. In many cases, the incentive problem can be solved: the only non-degenerate equilibrium achieves primacy, despite the fact that every agent has an incentive to free-rider. The leader has no special talents, but has exclusive access to information.

Kogan, (2022, p.79) proposed that first published in 1986, Education Accountability is a critique of writing on accountability and evaluation with respect to education and its various stakeholders. The author applies frameworks drawn from the theory of knowledge, social psychology and social policy, demonstrating how different assumptions about the nature of schooling, curriculum control and development can give rise to various forms of political control, of which education accountability is a special and important case. This sharp book will be valuable reading for all advanced students of education, whether interested in curriculum or educational administration, as well as to students of political science, social policy and evaluation studies, teacher trainers, administrators and educational researchers.

LoBue (2023, p.125) proposed that he role of the school principal embedded in New York State education policy. Many public schools across the state fail to deliver equitable opportunities and outcomes for an increasingly diverse student population and improving school leadership offers the potential for substantial returns. Drawing on concepts of role identity, organisational coherence, and leadership for equity, I use an interpretive approach to examine how conflicting and ambiguous expectations for principal behaviour in New York’s Every Student Succeeds Act Plan, its Culturally Responsive-Sustaining Education Framework, and its approach to principal evaluations might endanger realisation of a principal’s moral commitment to educational and social justice. I conclude with recommendations for state policy and future research with the aim of supporting principals to navigate the complexity of their role and lead to organisational coherence around equity.

Pettersson (2021, p.192) proposed that research and practice digitalization processes are many times limited to implementation of digital technologies without pedagogical and organizational change. In this research it is argued for a broader perspective on the concept of digitalization, viewing it as a process involving change and transformation in different stages and several organizational levels. Based on cultural–historical activity theory and the concept of levels of learning, this research will elaborate on the concept of digitalization as well as how schools are dealing with digital and educational change. Two schools known for their large-scale digitalization processes are analyzed. In the analysis, it is indicated that the object of digitalization harbors an idea that influence how digitalization is planned for and enacted within the school organization. How schools conceptualized—what is theoretically and practically meant by digitalization—influence how they plan their budget, professional development, and organizational change. With this backdrop, it is a concluded need for explicit discussions and conceptual clarifications on what digitalization is and what it involves in different school contexts.

Kondakcı & Örücü (2024, p173) proposed that equitable educational provision is considered a key service to ensure the social inclusion of marginalized groups. However, the limited capacity of these groups and the failure of liberal democracies to provide quality education for all creates an educational gap. The impact of educational disparities goes beyond education and jeopardizes peaceful and just life in society.

Berkovich & Grinshtain (2023, p.551) proposed that on the present review, qualitative educational administration, management and leadership research community is characterized by a weak sense of identity when it comes to conducting applied research and conducting research in socially sensitive areas. research and a weak sense of identity in conducting research in socially sensitive areas. The overall picture remains valid even when taking into account the existence of specific qualitative research based on non-post-positivist paradigms and types of critical research. The overall picture remains valid even when taking into account the existence of specific qualitative research based on non-post-positivist paradigms and types of critical research. The evidence we reviewed is far from reflecting a high level of application of rigorous strategies and ethical steps.

Cohen & Kisker (2009, p.112) proposed that the type, number, and nature of duties of administrative positions have changed throughout the colonial, emerging nation, university transition, mass higher education, and contemporary eras of American higher education, Since the birth of the university, the fundamental questions of higher education administration have been controversial. What to teach? Who will learn? Who pays for it? Each question affects the others. Each issue is tied to the history of the school. Curriculum, faculty selection and review, student enrollment and progress, and institutional funding are all long-standing issues.

Seagren et al. (1993, p.68) proposed that continuing to train and develop their administrators should be important, however, Seagren, Creswell, and Wheeler (1993) note that contrary to this assumption, most colleges and universities do not value the ongoing training of their professionals, arguing that the training of administrators today is "haphazard, if not non-existent, geared solely toward understanding administrative procedures and contexts, only to understand administrative procedures, and situational rather than holistic or systemic, all based on their ability to conduct research, not on their ability to conduct research, not on their ability to manage, teach, or administer matters.

Pasque & Nicholson (2023, p.157) proposed that their book also provides an important historical perspective on the experiences of women in higher education and the evolution of student affairs programs that serve women. While most of us working in higher education may be unaware of the unique histories that have shaped particular corners of our campus lives, this book offers a glimpse into how the women's movement and social change have altered the trajectory of campus programs designed for women and women's leadership in student affairs. This is not the kind of i historical context one typically encounters in higher education history or women's studies courses. This fascinating history will help readers reflect on the nature of the profession and their place in the history of women in higher education."

In conclusion, education administration refers to the organisation, leadership and management of education and schools by the state or local government. It is a kind of activity in which education administrators use certain principles and methods to rationally allocate educational resources, guide and organise educational personnel to complete educational tasks and achieve educational goals under specific conditions.Educational administration refers to a science that studies educational management and its laws, which has the general attributes of science and at the same time has the disciplinary nature of several sciences, including scientific, humanistic and social, cross-cutting, integrative and applied, and therefore defines educational administration as a uniquely bi-disciplinary, cross-cutting and synergetic integrative science, whose fundamental attribute is its integrative nature. Its fundamental attribute is comprehensiveness.

Concept of Information Leadership

Definition of Information Leadership

The Central Government of the People's Republic of China (2010) proposed that the Outline of the National Medium- and Long-Term Education Reform and Development Plan (2010-2020), which made overall deployment of education information.

China's Ministry of Education (2012) proposed that in order to further promote its implementation, in 2011 China's Ministry of Education issued the Ten-Year Development Plan for Education information (2011-2020), which explicitly proposes to "enhance the leadership of education information. Establishing a regular training system for managers of educational administrations, professional organisations and schools, carrying out training for managers in educational technology and leadership in educational information, improving planning, management and implementation abilities in information, gradually establishing work norms and evaluation standards, and including managers' leadership in information in the assessment."

Li Shaha (2013, p.27) proposed that in order to effectively do a good job of education information to penetrate into the school, to improve the headmaster's information leadership and to lead the school to conform to the changes in the development of the information age. However, the construction of education information leadership in China is relatively weak, which is unable to adapt to the rapid development of education information and restricts the further enhancement of the application level of education information.

Xiao Yumin (2007, p.29-34) proposed that the ability of the headmaster as the school's technology leader to lead all members of the school in formulating the school's IT development plan, creating an IT-enabled teaching and learning environment, and establishing and enforcing certain standards and accountability for the use of technology to successfully promote the effective use of technology in all aspects of the school.

Sun Zhenxiang (2010, p.4) proposed that the IT leadership of domestic primary and secondary school pincipal consists of power and personal influence. Power includes planning and construction of school IT system, building school IT human resources, applying and leading school IT teaching, summarising and evaluating school IT experience, and creating an information culture in the school. Personal influence includes awareness of information technology, transmission of information technology vision, information technology application ability, interpersonal communication ability in the information technology environment, and sense of social responsibility in information technology. As he is more specific, this research summarises his personal influence as information literacy.

WangLu (2010, p.10-14) proposed that in modern schools, pincipal use a variety of information technology tools and resources to collect, organise, process and process information to support their decision-making and to motivate and influence all teachers and staff, promoting the sustainable development of the school and its ability to innovate and transcend.

In conclusion, information leadership refers to that informational leadership is a combination of a leader's outwardly demonstrated competence and internal qualities, which include political literacy, cultural literacy, and moral values. Therefore, this research concludes that Organisational leaders should have the ability to formulate and realise the organisation's vision for information technology development, and they should be able to lead all staff in the information technology process to achieve information technology goals. They should act as the organisation's technology leader, formulate the organisation's information technology development plan, create a supportive and learning environment for IT, and formulate and implement standards and accountability mechanisms for the use of technology; and they should make use of a wide range of IT The person in charge should use all kinds of IT tools and resources to collect, organize and process information, so as to support its decision-making process, and to motivate and influence all the staff, these aspects together constitute the core content of information technology leadership, emphasizing the organisers in the process of information technology in the planning, leadership, technology application and decision-making support in a variety of aspects of the ability and responsibility.

Importance of Information Leadership

Zhang Jingtao & Du Yuan(2009, p.114) proposed that the headmaster of a primary or secondary school specifies goals for the use of information technology (IT) in school education, and through persuasion, guidance, support, and motivation, influences teachers and other administrators in the school to accept these goals as their own, and ultimately to work together to achieve the effective use of IT in school education and the success of each and every student. The process of achieving the effective use of IT in school education and the success of each student, which takes place primarily in the school but also in the external environment of the school organisation.

Liu Meifeng (2009, p.6-8) proposed that the headmaster recognises the necessity, importance and urgency of the effective use of IT in the school, and is able to get the whole school to agree on this goal through a series of planning, policies, strategies and daily related behaviours, and to work together to achieve the ultimate goal of information in the school.

Bailey (1996, p.23-28) proposed that a small percentage of executives view technology leadership from their own perspective. They admit that they know little about technology leadership. The quest for technology leadership and technology integration seems to be a long rather than a short journey. We are accumulating a wealth of information that describes the roles and functions of superintendents, pincipal, and technology collaborators in integrating technology into schooling.

Selwyn (2016, p.132-138) proposed that digital technology is now an integral part of education. The last forty years have seen exponential growth in computer processing power and significant developments in technologies such as the internet and mobile phones. Smartphones, tablets and other computerised devices have become common means of communicating with people, consuming media, engaging with core institutions of society and many aspects of everyday life. These technologies alone have transformed the generation and dissemination of knowledge and, by extension, the way in which learning and understanding take place. In all these respects, many important elements of education are now deeply digitised.

Van Wart et al. (2019, p.83-88) proposed that the ongoing digital revolution is far-reaching and has been researched in many areas of government-public interaction (e-participation) and administrative structures (e-administration). However, there has been little research on how the digital revolution is transforming leader-follower interactions through information and communication technologies (ICTs), and theory building in organisational studies and public administration is largely non-existent.

Collinson & Tourish (2015, p.583) proposed that traditional approaches to teaching leadership rely too heavily on a transformational model that emphasises the role of charismatic individuals (usually white males) in setting compelling visions and expects all organisational participants to share these visions. This approach pays insufficient attention to the dynamics of power, the influence of the environment, and the importance of dissent and resistance from followers.

Afshari et al. (2009, p.239) proposed that as the demand for schools to become more effective and efficient learning communities continues to grow, principals must prepare students for extensive and skillful participation in leadership.

Educational leaders must recognize their important role in the implementation and use of technology. They should become proficient in the use of technology and then assume leadership roles in administrative, instructional, and learning functions.

In conclusion, the importance of leadership in educational information was highlighted in 2011 when the Ministry of Education issued the Ten-Year Development Plan for Educational information (2011-2020). This plan explicitly proposed enhancing educational information leadership and emphasised the establishment of a system for regular training of administrators from educational administrations, professional bodies, and schools. It included training managers in educational technology competence and information leadership, gradually establishing work norms and evaluation standards, and incorporating information leadership into assessments.However, the construction of educational information leadership in China has been relatively weak, unable to keep pace with the rapid development of educational information, thereby restricting the further improvement of educational information application. To address this challenge, academic seminars such as the "Summit Forum on Education information Leadership" and the "Summit Forum on Principals' information Leadership and Digital Campus Development" have been held nationwide to promote the importance and development of information leadership.

Characteristic of Information Leadership

ZhangYihua (2013, p.16) proposed that the information leadership of pincipal into five components: vision, planning and management, member development and training, technology and infrastructure support, evaluation and research, and interpersonal and communication skills.

Anderson & Dexter (2000, p.53) proposed that information leadership should be viewed as a characteristic of the school: it is distributed across a team of people who collectively provide technology expertise and decision-making authority and are responsible for setting direction, developing talent, and making the organization work for educators.

Tan (2010, p.25) proposed that information leadership is a strong predictor of the level of technology use in a school; cultural and structural characteristics of a school may influence the level of computer use in the classroom; transformational leadership and the ICT competence of the headmaster.

Zhao Leilei (2018, p.68) proposed that the information technology leadership of pincipal is essentially a product of the two-dimensional fusion of technical competence and leadership competence, which mainly involves four aspects: information technology competence, information technology planning competence, information technology management competence and information technology evaluation competence.

Xie Zhongxin & Zhang Jiping (2009, p.74) proposed that Principals' information leadership is manifested in four aspects: pincipal' information awareness and information technology competence, information technology decision-making and planning competence, information technology organisation and management competence, and information technology evaluation and development competence.

Sun Zhenxiang (2010, p.5-9), proposed that the information leadership of domestic primary and secondary school pincipal consists of power and personal influence. Power includes planning and construction of school IT system, building school IT human resources, applying and leading school IT teaching, summarising and evaluating school IT experience, and creating an information culture in the school. Personal influence includes awareness of information technology, transmission of information technology vision, information technology application ability, interpersonal communication ability in the information technology environment, and sense of social responsibility in information technology. As he is more specific, this research summarises his personal influence as information literacy.

SunZhenxiang (2010, p.7) proposed that the information leadership of domestic primary and secondary school principals consists of power and personal influence. Power includes planning and building school IT system, building school IT human resources, applying and leading school IT teaching, summarising and evaluating school IT experience, and creating school information culture. Personal influence includes information technology awareness, transmission of information technology vision, information technology application ability, interpersonal communication ability in information technology environment, and sense of social responsibility in information technology. As it is more specific, this research summarises his personal influence as information literacy.

Hua Fang & Yang Xianhong (2010, p.8-13) proposed that principals' information leadership mainly consists of six components: basic information literacy, information system planning, information application guidance, information management and evaluation, information communication and coordination, and information planning and construction.

Wang Shuhua (2022, p.59-66) proposed that studied the factors influencing pincipal' informational leadership, analysing the dimensions of informational literacy, informational vision planning, informational construction and management, and informational evaluation promotion.

Table 2.1 The results of the synthesis of information leadership characteristics

Researcher / Characteristics of information leadership	Zhao Shuhan(2023)	Li Yuanhua (2023)	Zhang Yihua (2013)	Xie Zhongxin (2008)	Sun Zhenxiang (2017)	Hua Fang (2010)	Anderson&Dexter (2000)	Afshari et al.,(2009) (2021)	Zhao Leilei (2018)	Wang Shuhua (2022)	Total
Information literacy	✓	✓	✓		✓	✓	✓	✓	✓		8
Information knowledge and technology ability	✓		✓				✓	✓			4
Information management ability	✓	✓	✓		✓	✓	✓		✓	✓	8
Information communication and coordination ability	✓		✓		✓			✓		✓	5
Information ethics literacy and professional ethics literacy		✓	✓			✓					3
Information environment and resource construction ability	✓	✓		✓		✓		✓	✓	✓	7
Information organization and implementation ability				✓	✓						2
Information planning and design ability	✓	✓		✓	✓		✓		✓		6
information evaluate ability	✓	✓	✓	✓	✓			✓		✓	7
Information interpersonal and Communication Skills								✓		✓	2
Information development and training of members	✓		✓			✓					3
Informatization Application Guidance Capability							✓		✓		2

According to table 2.1, the researchers analyzed and synthesized documents, concepts, theories, and researches related to information leadership of primary schools principals , which consisted of Zhao Shuhan (2023); Li Yuanhua (2023); Zhang Yihua (2013); Xie Zhongxin (2008); Sun Zhenxiang (2017); Hua Fang (2010); Anderson&Dexter (2000);Afshari et al.,(2009); Zhao Leilei (2018); Wang Shuhua (2022); The researcher used the criteria to consider the corresponding characteristics. To use as a framework for research in this research. By selecting characteristics with a frequency of 6 or more. Which can be synthesized in 5 characteristics as follws: 1) Information literacy, 2) Information management ability, 3) Information environment and resource construction ability, 4) Information planning and design ability, and 5) information evaluate ability.

Theories of Information Leadership

Information Literacy

Badke (2010, p.48-55) proposed that information literacy was first defined in 1974 by Paul Zurkowski, President of the American Society for the Information Industry (ASII), as "the skill of people to use a wide range of information tools and primary sources of information in order to get questions answered." After decades of development, the connotation of information literacy has been continuously developed and enriched, and some scholars have defined it as "Information literacy is the ability to effectively retrieve, evaluate and use information (covering a wide range of information sources), as well as to actively identify and critically assimilate information, and to turn useful information into part of one's own thoughts. It mainly includes information awareness, information knowledge, information competence, information ethics and morality.

Li Shasha (2013, p.86-92) proposed that information literacy is mainly embodied in the basic knowledge and practical ability related to acquiring, analysing, processing and using information. It includes four aspects: information awareness, information knowledge, information competence, and information ethics. pincipal should master basic computer operation skills, network knowledge and application, and keep abreast of national education information policies and the latest developments in the field of education technology. The information literacy of pincipal affects the depth of educational reform and modernisation of education.

Xiao Yumin (2007, p.7-9) proposed that the ability of the headmaster as the school's technology leader to lead all members of the school in formulating the school's IT development plan, creating an IT-enabled teaching and learning environment, and establishing and enforcing certain standards and accountability for the use of technology to successfully promote the effective use of technology in all aspects of the school.

Sun Zhenxiang (2010, p.4-8) proposed that the ability and wisdom of the headmaster or school administrator to plan and build a vision for the development of information in the process of promoting educational information in the school and to influence and lead all teachers, students and staff to work together to realise this vision.

WangLu (2010, p.10-17) proposed that in modern schools, pincipal use a variety of information technology tools and resources to collect, organise, process and process information to support their decision-making and to motivate and influence all teachers and staff, promoting the sustainable development of the school and its ability to innovate and transcend.

ZhangJingtao & DuYuan (2009, p.112) proposed that the headmaster of a primary or secondary school specifies goals for the use of information technology (IT) in school education, and through persuasion, guidance, support, and motivation, influences teachers and other administrators in the school to accept these goals as their own, and ultimately to work together to achieve the effective use of IT in school education and the success of each and every student. The process of achieving the effective use of IT in school education and the success of each student, which takes place primarily in the school but also in the external environment of the school organisation.

In conclusion, information literacy refers to an individual's ability to acquire, evaluate and effectively use information, and includes the following main aspects: 1. Information Awareness: Understanding the existence and value of information, and recognising the nature and scope of information needs. 2. Information Literacy: Knowledge of the use of various information sources and tools, and an understanding of the types of information and ways to access it. 3. information competence: to be able to retrieve, evaluate and integrate information efficiently, and to use information to solve problems and make decisions. 4. information ethics: understanding and adhering to ethical and legal norms for the use of information, and respecting intellectual property rights and information privacy. Together, these aspects constitute the basic competence of individuals to process and use information in the information age.

Information Management Ability

Li Shasha (2013, p.87-91) proposed that Informatization management ability refers to the principals ability to integrate modern information technology with advanced management concepts, transform the school's organisational methods, work processes and traditional management methods by informatization means, reintegrate the school's internal and external resources, improve the school's efficiency and effectiveness, and modernise the school's management. pincipal in the information age should have the ability to manage information technology, update their management concepts, take the promotion of comprehensive human development as the starting point, be good at integrating all kinds of resources to ensure the best use of things, improve the institutional setup, make clear the performance responsibilities, and improve the organisational system to regulate the operation of the school.

Wang Qi (2019, p.152) proposed that informational management competence is at the centre of pincipal' informational leadership. In the information management stage, principals often try to apply information technology to the development of school organisations. At present, in the operation of primary and secondary schools in China, there exists a common phenomenon, that is, management is emphasised over technology, which has led to the fact that pincipal have accumulated rich experience in management, and their information management ability has also been greatly trained and improved, however, while the information control of material and financial resources can be carried out by relying on computers and the Internet, in terms of human resources, especially the teaching activities of teachers, which are subjective and uncontrolled, principals want to use information technology in the development of school organisation. However, in terms of human resources, especially teachers' teaching activities are subjective and uncontrollable, and it is difficult for school principals to quantify them through information technology. Compared with the traditional school development, the development of information technology in schools also calls for the change and transformation of the work of school pincipal.

Li Yuanhua (2023, p.23-33) proposed that information management refers to the management of school education information, which is the management of human, financial and material resources of the school under the planning of school information, so as to make school information really work; the content should include the enhancement of teachers' information application ability, the integration of information technology with education and teaching, and the information of school management, etc. Principals need to plan the development of all aspects of the school for effective management and leadership. pincipal need to plan all aspects of school development and provide effective management and leadership. pincipal should play a leading role in every important aspect of school development. However, pincipal should not do everything themselves. They need to divide authority and responsibility effectively, and develop and utilise the leadership of leaders in all areas. Huang Ronghuai argues that innovative frontline teachers play an important role in communicating, disseminating and spreading the use of innovations in school organisations, thus enabling the diffusion of a large number of pedagogical innovations.

Gao (2020, p.13) proposed that the development of educational information management in colleges and universities has produced some changes. Under the new situation, how to promote the development of the cause of college education information management is a problem that needs to be thought about by the relevant people. Based on the development of college education information management in big data, new ideas for constructing an information management teaching mode are proposed, including strengthening the construction of the information standard system for education management, promoting the effective integration of the education management system, and improving the quality of education managers. Overall information literacy promotes the construction ofinformation of education management and the establishment of a new teaching model based oninformation construction.

Golovina et al. (2020, p.247-253) proposed that the managerial aspect is demonstrated by the fact that modern information technology is an integral part of the key decision-making systems of business entities, states and integration associations. Decisions on the use of specific information technologies to gain competitive advantage pose a challenge for management to change the internal environment of the organisation. Decisions on the implementation of these tasks lead to transformations that make economic entities, countries or integration associations leaders, or deteriorate their position if the wrong way of development is chosen. Modern information technology allows for transparency in management decisions thanks to the introduction of electronic document management. The use of information technology makes it possible to analyse large amounts of data, which can be used for managerial purposes without major errors that could be caused by human factors.

Xie Zhongxin (2008, p.75-77) proposed that the application of information technology in school management mainly refers to the use of computer data management and information processing functions to support school management functions, help school management departments to understand and grasp the status of the school's work, monitor, control and evaluate the school's educational management process, and provide school leaders with important information that helps to make scientific decisions, thus reducing the labour intensity of school managers and improving the effectiveness and efficiency of educational management. Reducing the labour intensity of school managers and improving the effectiveness and efficiency of education management.

In conclusion, information management capability refers to the core of a principals information leadership, referring to the ability to combine modern information technology with advanced management concepts. pincipal need to be able to use information technology to transform their schools' organisational methods, work processes and traditional management methods, so as to realise the re-integration of internal and external resources, improve the efficiency and effectiveness of their schools and modernise their management. Information management competencies cover not only the application of technology and the integration of resources, but also emphasise aspects of leadership, decision support and improved management effectiveness, and are an integral part of modern school management.

Information Environment and Resource Construction Ability

Qi Xiaohui (2022, p.25-34) proposed that the construction of school information includes the construction of information physical environment and the construction of information cultural environment. The construction of informatised physical environment includes the configuration and use of modern equipment and the introduction of modern educational resources; the construction of informatised cultural environment mainly involves the construction of digital campus, the building of digital team and the construction of system. The campusinformation project requires the school to use collective leadership to coordinate and mobilise all members to act together.

Li Yuanhua (2023, p.29-37) proposed that information environment construction refers to the internal and external information construction of schools in terms of information hardware facilities, software facilities, the construction and maintenance of information teaching resources, the construction of information culture as well as the support from the society. The focus of school information environment construction is the internal information construction of the school, mainly the upgrading and maintenance of hardware facilities on the basis of "three passes and two platforms", the promotion of the construction and use of teaching software facilities and teaching resources, especially the degree of integration between the application of IT and classroom teaching, and the degree of the construction of information culture.

Xie Zhongxin & Zhang Jiping (2009b, p.76) proposed that educational information is a large investment in financial, human and material resources, and school pincipal should be aware of the need to pay attention to the effectiveness of the investment in the application of educational information, as well as the need to consider and comprehensively evaluate the various elements of the education information system and its overall effectiveness. The principals ability to evaluate education information includes the ability to use various methods to evaluate the effectiveness of IT application by school teachers and administrators, including evaluation of the school's IT-curriculum integration, management information, IT-supported teachers' professional development, IT-supported students' development, and evaluation of the school's information hardware facilities, digital teaching resources, the educational technology competence of the school's teaching and administrative staff, and the school's information system's effectiveness. The evaluation includes the evaluation of the school's information technology hardware facilities, digital teaching resources, the educational technology capability of school staff, and the school's information technology management system and operation mechanism.

Li Shasha (2013, p.19-27) proposed that the ultimate goal of school information is to form a unique school-based information culture, and pincipal should have the ability to lead the construction of an information culture environment, to create an orderly, harmonious, resource-sharing information culture, and to establish a scientific and effective information-related system. The principals ability to build an information culture is the driving force for the sustainable development of school information, and can put the school on the path of inner development. In the process of building an information technology culture environment, principals should pay attention to the gradual improvement of various rules and regulations, and actively guide teachers and students in a healthy application mentality, so as to create conditions conducive to the application and development of information technology for teachers and students. The cultural atmosphere of information technology in schools mainly refers to the atmosphere that can promote the wide application of information technology in various fields of the school, and the school should take all kinds of measures to mobilise the motivation of teachers and students to learn and effectively apply information technology. Schools should adopt various methods and measures to mobilise teachers and students to learn and effectively apply information technology.

Song Chenfei (2016, p.27-42) proposed that there is a close relationship between the construction of school information and the level of the principals information leadership, and the construction of school information is driven by the principals information leadership. pincipal who have sufficient IT knowledge and skills, and who are able to operate and apply them to their own work, are very helpful in improving their own IT leadership.

In conclusion, information environment and resource construction ability refers to the internal and external information construction of schools in terms of information hardware facilities, software facilities, construction and maintenance of information teaching resources, construction of information culture and social support. The focus of the school's information environment construction is on internal information construction, which mainly includes the upgrading and maintenance of hardware facilities, the construction and use of teaching software facilities and teaching resources, the degree of integration between IT and classroom teaching, and the construction of an information culture. The construction of information environments focuses on the upgrading and maintenance of hardware and software facilities and the construction of an information culture to ensure the scientific and effective development of educational information.

Information Planning and Design Ability

Li Shasha (2013, p.20-27) proposed that the ability to implement information technology refers to the principals ability to implement specific action plans based on the school's vision and goals for information technology development, and to act according to the process of information technology system planning in a planned, organised, and effective manner. Promoting the development of information in schools requires not only systematic and scientific information system planning, but also implementation and execution in accordance with the contents of the plan, that is, putting the school's information development plan into practice. Otherwise, the phenomenon of "hanging in the air" will occur, that is, there is a discrepancy between the value and ideal of the school's IT development plan and the actual operation of the school. Therefore, pincipal should have good IT implementation skills. In the practice of IT development in schools, they should always consider whether the contents of the plan have been completed on time, how well they have been completed, and whether the actual actions are in line with the objectives of the plan, and so on, so as to promote the effective implementation of IT planning.

Qi Xiaohui (2022, p.15-21) proposed that information planning ability refers to the principals foreseeable and reasonable planning and design of the school's information development and construction in order to achieve the school's information construction vision and goals. A forward-looking development plan that meets the school's actual development and construction of information should be based on the scientific assessment and judgement of the internal and external environments of the school's information development and the rational use of the school's information construction funds. It can effectively lead the school to achieve its information development goals.

Li Yuanhua (2023, p.29-37) proposed that school information planning is the process of forming school information development goals, determining development measures, designing school information development structure and deploying information implementation based on the school's central development needs and guided by the school's strategic development goals. It requires a comprehensive understanding and analysis of the current situation inside and outside the school, including the community, family, school, teachers and students, on the basis of a systematic deployment and step-by-step implementation of school information technology. information planning must be based on a comprehensive understanding of the school's information system in terms of software, hardware construction environment, application technology, information security, information management and services, etc., in order to comprehensively and systematically plan the process of school information construction. School information planning should pay attention to both short-term and long-term benefits, and play a supporting role for the development of school information. To examine the principals IT planning ability, it is necessary to examine the degree of participation of the headmaster and teachers in the planning, the distribution of IT management, the proportion of IT planning in the school development plan, and the promotion of the principals IT vision.

Xie Zhongxin &Zhang Jiping (2009b, p.77-79) proposed that school information planning is the basis for the promotion of school information, and pincipal should think about and grasp school information planning in general. pincipal should first learn to analyse the current situation of educational information in their schools, and put forward the general idea and main contents of school information development planning according to the overall development plan of the school, taking into account the characteristics and conditions of the school. The school's educational information planning should include four major aspects: the allocation of school hardware and software resources, the construction of information human resources, the construction of information management mechanisms, and the promotion of the specific application of information technology, with special emphasis on the effective application of information technology in all aspects of the school's planning.

Wang Shuhua (2022a, p.35-39) proposed that school vision planning is crucial to school development. Generally speaking, school development planning is a set of strategies that systematically analyses the school's environment (natural and social) and the actual needs of the existing work with the joint efforts of teachers and students, establishes the school's developmental goals and directions, and formulates corresponding action plans, so as to facilitate the school to explore its own potential, and then to improve the quality of teaching and learning and the effectiveness of the school's operation. School IT vision planning is included in the overall vision planning of the school and is an important part of the overall vision planning. Correspondingly, school information vision planning is based on the basic premise of promoting the development of school information. The headmaster leads the teachers and students to analyse the current situation of school information construction in depth, assess the future development trend of basic education information scientifically and, according to the national strategic decision and the spirit of the relevant documents, make recommendations for the school's information infrastructure construction, information resource construction and allocation, information construction funding and information management mechanism. Input andinformation management mechanism, etc. are planned in a comprehensive and systematic way.

In conclusion, information planning and design ability refers to the ability to carry out forward-looking and rational planning and design for the development and construction of school information in order to realise the vision and goals of school information construction. It requires scientific assessment and judgement of the internal and external environments of school information development, rational use of funds for information construction, and the formulation of forward-looking development plans in line with the actual development of the school, including the formation of school information development goals, the identification of development measures, the design of school information development structures, and the deployment of information implementation. pincipal need to have the ability of forward-looking planning and design, as well as the ability of effective implementation and execution, in order to ensure the smooth implementation of the school's information development plan and achieve the expected goals.

Information Evaluate Ability.

Li Shasha (2013, p.19-33) proposed that information evaluation ability mainly refers to the principals ability to make objective and continuous evaluation, accurate analysis and diagnosis, and timely adjustments to the school's information environment construction, information resource construction and utilisation, information teaching and learning, information management, and the effectiveness of the information construction, etc. during the implementation of the school information planning and management practice. pincipal should establish a sound evaluation and diagnostic mechanism for the implementation of the plan, identify problems in the implementation process in time, and actively take effective measures to make necessary adjustments. In this way, they can constantly review and reflect on the school's information work, identify problems and deficiencies, and greatly promote the relevance, accuracy and effectiveness of their actions, so as to ensure that the school develops healthily and in the right direction.

Wang Qi (2019, p.13-31) proposed that information evaluation competence is in a guaranteed position in the principals information leadership. In the analysis of the correlation between the dimensions of principals leadership, we know that the information evaluation ability has a direct positive effect on the integration, management and innovation ability of information, so in order to make the whole process of information leadership work smoothly again, it is necessary to have thein formation evaluation ability, to think and reflect on the various phases of the school's information construction and the personal information leadership process, so as to provide sufficient guarantee for the improvement of the level and the realisation of the principals information leadership.

Li Yuanhua (2023, p.30-44) proposed that school information assessment refers to the school's evaluation of its own educational information development level and existing problems. The purpose is to promote the development of school information, to assess the effectiveness and efficiency of school information management, to provide a basis for the school's next decision-making, and to promote the development level of school information. The evaluation of IT in schools should include the assessment of students' learning level, the assessment of teachers' IT application capability, and the assessment of the effectiveness of IT application in classroom teaching. In addition, teachers' satisfaction with the school's IT support services also reflects the level of the school's IT support.

Qi Xiaohui (2022, p.21-28) proposed that analysed the correlation between the dimensions of pincipal' leadership, and found that there is a positive correlation between the dimensions of pincipal' information leadership. Therefore, pincipal are required to have the ability of personal information assessment, to correctly assess and reflect the progress and implementation of campus information planning, and to correctly assess and reflect each stage of the personal information leadership process, so as to ensure the successful completion of campus information construction work.

Wang Shuhua (2022a, p.36-49) proposed that evaluation and promotion of school pincipal' information is an important part of maintaining and promoting school information. Specifically, in the process of promoting school information, pincipal should make objective, accurate and continuous evaluations and objective analyses of the implementation of school information vision and planning, teachers' ability to apply IT in teaching, the degree of integration of school IT with education and teaching, students' learning literacy, students' ability to learn based on IT, the construction of the IT environment, the construction and use of school IT software and hardware resources, the construction of the IT staff, and the use of special funds for information construction. In order to make effective adjustments, objective, accurate and continuous evaluations and objective analyses and diagnoses are made of the use of special funds for information technology construction.

In conclusion, information evaluate ability refers to is an important management ability of the headmaster in the planning and implementation of the school information system. Through objective and continuous assessment of all aspects and timely adjustments, the headmaster is able to ensure the relevance, accuracy and effectiveness of the school's information construction, and to push the school's information construction in a healthy and correct direction. In conclusion, information assessment is not only an analysis of the school's current situation, but also a compass for future development. Through continuous evaluation and adjustment, the headmaster can ensure that every step of the school's IT construction is on the right track, and ultimately realise the healthy and sustainable development of the school's educational IT.

Context of Rural Primary Schools in Guangxi

Primary school is the initial stage of basic education, usually covering grades one to six for children aged 6 to 12. It aims to develop students' foundational knowledge, basic skills, and good learning habits through subjects such as language, mathematics, science, humanities, arts, and physical education, with an emphasis on holistic development and personalized learning. At the same time, primary schools focus on students' safety and well-being, providing a caring environment for growth.

Rural areas refer to regions outside cities, characterized by low population density and agriculture-based activities. Rural primary schools are educational institutions located in these areas, mainly providing compulsory education for local children. Compared with urban schools, they often have fewer students, limited resources, weaker infrastructure, and higher teacher turnover, which may affect teaching quality. However, in recent years, with increased government support and the application of information technology, the conditions and quality of rural primary education have been gradually improving.

In Guangxi, out of 1,175 primary schools, 617 are located in rural areas. These schools, serving mainly local children, are typically characterized by small enrollment, limited resources, and underdeveloped infrastructure. As a multi-ethnic region, Guangxi integrates ethnic unity education into its curriculum, with some schools adopting bilingual instruction (e.g., Zhuang–Chinese). While the government has taken measures to improve rural education—such as upgrading facilities, enhancing teacher supply, and promoting distance learning—educational disparities remain in remote and economically disadvantaged areas.

Rural primary schools in Guangxi exhibit several distinctive features. First, the geographical setting is challenging, with mountainous terrain, dispersed villages, and inconvenient transportation, making school access difficult for some children. Second, educational resources remain limited, characterized by inadequate facilities, insufficient qualified teachers, and outdated equipment, though government investment has gradually improved conditions. Third, urbanization has led to declining student enrollment and the emergence of "left-behind children, " posing new challenges for school management and teaching. Finally, as an ethnically diverse region—particularly with a large Zhuang population—many schools adopt bilingual instruction (Chinese–Zhuang) to support both language learning and cultural preservation.

The Guangxi Autonomous Region, in collaboration with the central government, has introduced a series of policies to support rural primary schools, such as the "Targeted Educational Poverty Alleviation Program, " the "Rural Teacher Support Plan, " and the "Weak Rural School Improvement Project. " These initiatives aim to improve school conditions and enhance educational quality. Guangxi actively implements the national policy of balanced compulsory education by increasing investment in rural and impoverished areas, upgrading infrastructure, and raising teacher welfare. Financial support programs, including free textbooks, nutritional meal plans, and boarding subsidies, ensure that children from low-income families complete their education. In minority-concentrated areas, bilingual education is promoted to foster both cultural preservation and national unity. Additionally, teacher training, housing subsidies, and promotion incentives are provided to attract and retain rural teachers, while educational informatization and distance learning are expanded to narrow the urban-rural gap. Together, these measures shape the distinctiveness of Guangxi’s primary education, aligning national strategies with local contexts and cultural diversity.

In conclusion, Rural primary schools in Guangxi refer to institutions located in rural and township areas, serving children from local farming families, most of whom face economic hardship. These schools are typically characterized by limited resources, underdeveloped infrastructure, inadequate teaching facilities, and shortages of qualified teachers, who often work under challenging conditions. Consequently, rural primary schools in Guangxi require greater government and social support to improve educational conditions and enhance teaching quality.

Related Research

Berkovich & Grinshtain (2023b, p.552) proposed that they combed through qualitative educational administration, management, and leadership research articles published from 1999-2018 and identified 321 relevant empirical qualitative articles through a focused search process. The results suggest that administrative, management, and leadership research frequently reports the use of certain rigour strategies, while the use of ethical steps is significantly underreported. In addition, they found that the number of strategies and steps reported remained stable over a twenty-year period, so it is unclear whether norms of rigour and ethical domains in the field have evolved over time.Two practical directions must be emphasized for strengthening the reporting and applying rigor and ethics in qualitative research in the feld of educational administration, management, and leadership. First, graduate student courses should place greater emphasis on understanding the principles of rigor and ethics and on implementing them in the research process.

Kondakcı & Örücü (2024, p174) proposed that equitable education is recognised as a key service to ensure that these groups can be integrated into society. However, the limited capacity of these groups and the failure of liberal democracies to provide quality education for all have led to an education gap. This disparity not only affects education itself, but also threatens the peaceful and just life of societies. Schools face enormous challenges in the face of growing and diverse marginalised groups, and it is the responsibility of teachers and pincipal to create conditions for disadvantaged groups. Access to an equal share of high-quality public resources depends on the policy design of education policymakers. However, since the 1980s, governments have failed to develop and implement policies that ensure access to quality education Social justice has emerged as a core concept and field of practice, deploying social justice leadership in schools to address social and economic disparities.

Pramahsari & Triatna (2021, p.48-63) proposed that the essence of leadership lies in communication as the existing research findings help to improve the performance of individuals in organisations. The purpose of this research was to test how much influence headmaster communication has on the performance of primary school teachers. The researcher used quantitative methods to test the veracity of the proposed hypothesis. The researcher obtained the data by distributing questionnaires to 45 teachers in the district of Pwakata. The data was then analysed using regression technique to obtain a large statistical impact. The findings of the research indicated that communication of the headmaster has a significant impact on the performance of the teachers.Communication between school personnel must always be developed, both by the principal and by teachers and other personnel. Communication flows within the organization include vertical communication and horizontal communication. A vertical communication is the sending and receiving of messages between the levels of a hierarchy that is down and up.

Chika & Wale (2020, p.28-33) proposed that their research investigated the impact of information and communication technology on the administration of secondary schools in Abia State. The purpose of the research was to determine the impact of ICT on pupil administration, personnel management, financial management and supervision of teaching and learning in secondary schools in Abia State. The research adopted a descriptive survey research design. The population of the research comprised all secondary school teachers and school administrators in Abia

State. The findings of the research revealed that the application of ICT can improve administrative services in secondary schools. The research recommended that government should provide adequate computers and ICT tools in schools especially for administration and teaching.Based on the findings of the research , it was concluded that the application of ICT can improve administrative services in secondary schools. In this information age, all spheres of society have been greatly influenced by technological trends and the dissemination of information can be done in an instant. Therefore, the research utilises the emerging information and communication technologies that can greatly improve the efficiency and accuracy of various administrative activities in schools.

Jutras et al., (2020, p.192)proposed that research is of a rural teaching headmaster of a small school. The case explores the intensity of Ms Hayes' job as her school has been affected by a reduction in pupil numbers, staffing levels and administrative time. The headmaster is overwhelmed by a myriad of responsibilities, and she feels that she is neither a competent teacher nor a competent leader. As her workload continued to increase, she was tired of providing high-quality learning and extracurricular opportunities for her students. The Teaching and Learning Initiative examines the uniqueness of the role of the rural teaching headmaster and possible solutions that can help leaders manage the intensity of work to fulfil the responsibilities of this dual role.Depending on the policies that apply to the local province and/or school district, students are asked to consider how to respond to the required policies while mediating potential local harm. Policies that students may choose to examine include time allocation, staffing allocations in small schools, delegation of authority to instructional leaders, administrative and teacher transfer policies, and school closure policies. Teacher transfer policies and school closure policies.

Somantri & Iskandar (2021, p.51) proposed that continuing development is increasingly recognised as an essential element of learning, teaching and education worldwide. However, the concept of Continuing Professional Development (CPD) lacks clarity in terms of definition and objectives. This research pays particular attention to the role of the headmaster in school development and teacher learning; discusses and outlines the principals role in teacher development; the ways in which the principals work is impacted, the extension and development of teachers, and the outcomes in the school setting. This research reviews a large body of literature and empirical research over the past three decades and concludes that continuing professional development is not simply a form of teacher training, but a more holistic form of lifelong learning. CPD is an ongoing responsibility of pincipal and teachers as educators, rather than a stand-alone programme or activity. Teachers are responsible for their own development and must seek guidance from their pincipal, but cannot rely solely on them.

Harper and Neubauer (2021, p.18-26) proposed that the realities of Coronary Virus Disease 2019 (COVID-19) require educators to rapidly adopt new approaches to teaching, counselling, and mentoring. They recommend centring trauma-informed education and academic management approaches during the COVID-19 pandemic using guidance from the US Substance Abuse and Mental Health Services Administration (SAMHSA) on trauma-informed care approaches. Four key organisational assumptions of SAMHSA underpinned their Model for Trauma-Informed Education and Administration (M-TIEA), including 1. recognising trauma and its wide-ranging effects 2. recognising the basic signs and symptoms of trauma. 3. responses that fully integrate knowledge into programmes, policies and practices. 4. positive processes for resisting re-traumatisation. Teaching and learning are directly related to Ideology, mission, practice and policy are directly related.

Teaching and learning are directly related to the ideologies, missions, practices, and policies developed by instructional administrators and university leaders. This model calls for a renewed and vigilant attention to how our health promotion and general public health education programmes are designed to how our health promotion and general public health education programmes are centred on trauma trauma and work to provide safe environments for teaching and learning to avoid re-traumatisation.Safe environments for teaching and learning.

Vander Vyver et al. (2021, p.149) proposed that in the context of some of the dominant understandings of teacher leadership that have emerged from literature spanning several decades, including a comprehensive literature review. The origins of the International research of Teacher Leadership (ISTL) are then outlined and the process of assembling a large international research team, formulating the research questions and designing the research programme is explained. This is followed by an overview of the articles in the special issue presenting the findings of the first two phases of the International research of Teacher Leadership, as well as a report on teacher leadership in southeastern Mexico. The editorial concludes with a reminder that the concept of teacher leadership may be used inappropriately in different contexts.

Varela & Fedynich (2020, p.29-43) proposed that the purpose of this research research was to understand the impact of the COVID-19 pandemic on K-12 school leadership in the South Texas area. School closures have required many school districts to transition to online learning, which is a fast and furious move for many schools, students, teachers, and parents that needs to be done proficiently and quickly in order to avoid the loss of instructional time. The findings of the research have multiple levels of significance. Findings suggest that during the COVID-19 pandemic, school leaders were generally confident in their readiness to best serve students, staff, and parents, but also felt that the experience was compounded by a lack of resources and the prevalence of student inequities.Given these inequalities and how they complicate educators' ability to overcome and deliver education in virtual learning environments, the findings of this research suggest that policymakers need to be more thoughtful and consciously focused on closing the gap. School leaders recognise the consequences of continued school closures and are determined to educate by any means necessary.

Jameson (2013, p.901) proposed that this paper begins by discussing the relative lack of research on e-leadership of educational technology in education and then provides an overview of selected literature in this area. It builds on some of this earlier literature and proposes an updated framework of principles for effective 'e-leadership' in educational technology, with particular reference to higher education, based on selected insights gained from the e-leadership literature and the author's 30 years of professional practice, scholarship and research experience in educational technology and educational leadership. The paper proposes a new fifth 'era' in the development of educational technology research, arguing that as the field of educational technology matures, there is a need for a more critical, selective and strategic approach to e-leadership in the adoption and use of educational technology through research, development and training.

Gençer & Samur (2016, p.230) proposed that researchers conducted a research on the relationship between educational leaders' leadership styles and their level of computer use and success in integrating information and communication technologies. The aim was to reveal whether leadership style could be a predictor of competent technology leadership. The research concluded that leadership style was not a predictor of the level of technical leadership competence. This research contributes to the literature that discusses the impact of cultural differences in different countries on desirable leadership styles that may affect the level of technical leadership competence. Furthermore, the research concludes that leadership style characteristics cannot be used as a method of transforming education and schools.The results of the research indicated that transformational leadership style and transactional leadership style and transactional leadership styles have similar moderate correlations with the level of technical leadership competence. The results showed that the level of technical leadership competence did not predict an individual's leadership style because the moderate correlation between the level of technical leadership competence and the leadership styles did not predict an individual's leadership style. The correlations between the level of technical leadership competence and the two leadership style values were close.

Xie Zhongxin and Zhang Jiping (2009b, p.3-9) proposed that identified several key issues in the promotion of IT in school education: The effectiveness of educational IT application in schools is closely tied to the IT leadership of pincipal. The development of pincipal' IT leadership and curriculum leadership has become a crucial aspect of their professional growth. Therefore, evaluating and improving pincipal' IT leadership has become increasingly important. The paper discusses evaluation indicators for assessing pincipal' IT leadership.School education information is a systematic project, and the headmaster's information leadership involves all elements of the school education information system project.This re points out from the perspective of education information system that the principal's information leadership should focus on the school information system.From the perspective of education information system, this research points out that the headmaster's information leadership should pay attention to the four applications and three basic factors of school information.This research points out from the perspective of education information system that the principal's information leadership should focus on the four applications and three basic factors of school information.This research points out from the perspective of education information system that principals' information leadership should focus on four applications and three basic factors.The headmaster's IT leadership should be evaluated in four aspects: information awareness and basic IT skills, IT planning skills, IT organisation and management skills, and IT evaluation skills. In order to carry out the evaluation of pincipal' information leadership, it is necessary to further develop the evaluation indexes and evaluation methods for principals' information leadership.In order to carry out the evaluation of principals' information leadership, it is necessary to further develop the evaluation indexes and evaluation standards of principals' information leadership and to choose reasonable evaluation methods.

Sun Zhenxiang (2010, p.6-18) proposed that education information is an important guideline for national education development which requires pincipal to have information leadership. principals information leadership refers to the ability and wisdom of the principal to plan and build a vision for the development of information in the process of promoting school information, as well as to influence and lead teachers and students to realise this vision together. It consists of five aspects: planning and construction of school information system, human resources construction, teaching and management, experience and summary, and campus culture construction, which requires pincipal to have certain information literacy. Improvement of pincipal' information leadership Paragraph: To carry out research on pincipal' information leadership and pincipal' information leadership evaluation Reform of the existing training methods for pincipal.

Zhao Leilei (2018, p.69-77)proposed that transformation of leadership styles: the research explored the shift from traditional "headmaster leadership" to "headmaster informational leadership", which marked a new stage in the professional development of pincipal: pincipal' informational leadership positively affected their relational performance, strategic performance and task performance, with the greatest impact on relational performance: relational performance directly improved strategic and task performance: recommendations: a focus on Technical reflection, regulations, and environmental assessment. Improve relationship performance as a primary objective. The essence of information in education lies in the "information of people", which implies the growth and development of individuals in the information environment, especially the enhancement of educators' competence. In this context, the information leadership of pincipal becomes a key factor. The headmaster's information leadership not only affects his/her personal professional development, but also directly relates to the improvement of the overall school performance. Therefore, it is of great theoretical and practical significance to research and build pincipal' informational leadership. The process of building pincipal' informational leadership involves several aspects, including strategic planning, relationship management, and task achievement. In terms of strategic planning, pincipal need to have the ability to formulate and implement information strategies to ensure that the school's information process is aligned with educational goals. In relationship management, the headmaster needs to coordinate the interests of all parties in the leadership process to create a favourable IT environment. In terms of task achievement, pincipal need to ensure that the tasks of information are effectively accomplished and that the quality of education is improved.

Wang Shuhua (2022a, p.36-43) proposed that by systematically sorting out the research background, current research status and related research theories of pincipal' informational leadership, the research clarifies the post duties of primary and secondary school pincipal under the condition of information technology and the structure of pincipal' informational leadership, and the results of the research are as follows: constructing a structural model of pincipal' informational leadership by using Deming's Circle (PDCA) method, developing a measurement questionnaire. The research results are as follows: using the Deming Circle (PDCA) method to construct a structural model of principals' informational leadership, developing a measurement questionnaire, constructing an evaluation index system, and deriving a formula for calculating pincipal' informational leadership and each sub-dimension.Based on the successful construction of a structural model of pincipal' informational leadership and the development of a measurement tool for pincipal' informational leadership, this research systematically clarifies the influence mechanisms of personality traits and leadership styles on pincipal' informational leadership, and finally provides strategies for pincipal to implement self-improvement of informational leadership based on the findings of the research. In the current academic community, the connotation and structure of the information leadership of primary and secondary school pincipal have been relatively clear, and the research is conducted from the perspective of influencing factors, which effectively expands the research field and research boundaries of the information leadership of pincipal.The research further deepens the research mechanism of the influencing factors of pincipal' information leadership on the premise of effectively expanding the research field and research boundaries of principals' information leadership. The research is important for promoting the theoretical research on the information leadership of primary and secondary school pincipal and boosting the level of information leadership of primary and secondary school pincipal through enhancing their information leadership.The research has certain theoretical significance and reference value for promoting the theoretical research on information leadership of primary and secondary school principals and helping them to improve their ability to run schools through enhancing information leadership.

HuaFang & YangXianhong (2010, p.9-17) proposed that headmaster information leadership has become the key to promote the development of information in primary and secondary education. Based on analysing the structural components of pincipal' information leadership, this research adopts the historical literature method and the hierarchical analysis method, and initially designs and constructs a set of performance index system for evaluating the information leadership of pincipal in primary and secondary schools. Definition of Principal information Leadership: Principal information leadership refers to the principals ability to promote the development of educational information in the school, which includes the following aspects: - Formulating the school information development plan. - Creating an information technology teaching and learning environment. - Creating an information technology teaching and learning environment. Establishing standards and accountability for information technology use. - Guiding teachers, students and parents to jointly set goals for the development of information technology in school education. This competency aims to promote the effective application of IT in all aspects of school teaching, management, teachers' professional development and students' development.

Li Shasha (2013, p.21-29) proposed that in recent years, China's education information has developed rapidly, made remarkable achievements and entered a new stage of innovative development. However, the construction of China's information leadership is relatively backward, unable to adapt to the rapid development of education information, thus restricting the further improvement of the level of information application and hindering the process of education information. Therefore, this research defines headmaster informational leadership, constructs a structural model of headmaster informational leadership to adapt to the new stage of the innovative development of educational information in China, designs a scale to measure headmaster informational leadership, and conducts a survey on primary and secondary school pincipal in Wuchang District of Wuhan City, in order to learn about the current status of their informational leadership and to put forward the strategies to effectively improve the principals informational leadership. The significance of the research is to optimise the existing structural dimensions of pincipal' information leadership, to construct a structural model of pincipal' information leadership adapted to the new stage of China's education information innovation and development, and to design a scale that can effectively measure pincipal' information leadership.

Qi Xiaohui (2022, p.22-36) proposed that with the development of Internet technology in the new era, the use of information to better promote the development of education has become the best way to change the pattern of education development and achieve quality and balanced development of education. The headmaster of rural primary and secondary schools, as the leader and soul of all teachers and students, his leadership in information construction determines the development of education information in rural primary and secondary schools. As the gap between urban and rural education widens, rural primary and secondary school pincipal have obvious deficiencies in information literacy and leadership. Therefore, an in-depth research of rural primary and secondary school pincipal' information leadership is of practical significance in the context of education information 2.0. The results of the research found that primary and secondary school pincipal have certain information communication ability and construction ability, as well as certain information literacy, but there is an obvious lack of information management ability, information planning ability and information evaluation ability, and basically no information innovation ability.

Li Jinkai (2020, p.17-28) proposed that since the founding of China seventy years ago, our country has made world-renowned breakthroughs and developments in politics, military, science and technology, economy, and medical care, etc. At the same time, we should realise the importance of education in the development of the country and the nation. Education is the most important undertaking in the development process of a country and a nation, and General Secretary Xi Jinping has repeatedly emphasised that in order for a country to develop, it is necessary to attach importance to education. "Education is the basis for a hundred-year plan". In order to realise the "100-year plan", it is necessary to develop education, and the development of education should start from the education management in the first place. Although China's education management has made great progress since the founding of the country, but there are also some problems. This research analyses the achievements, characteristics and problems in the development of educational management in China since the founding of the People's Republic of China seventy years ago, and puts forward countermeasures and suggestions to improve its theoretical and practical level, promote the research and development of China's educational management, advance the development of China's educational management, and then promote the development of China's entire educational cause.

Song Chenfei (2016, p.28-41) proposed that in the 1990s, along with the construction of the information highway, the concept of information technology in education came into being. In the era of information technology, the development of information technology in education has become an irreversible trend. Educational information has also gradually penetrated into all aspects of education, especially through policies such as the Ten-Year Development Plan for Educational information (2011-2020) and the Standards for information Leadership of Primary and Secondary

School Principals (Trial), which clearly set out the goal of improving educational information leadership. The research concludes that the gender, age and years of service of pincipal have little effect on information leadership, the educational qualification of pincipal has a significant difference on information leadership, and the region, type and level of school, the construction of information facilities, the actual application of equipment and the construction of "three passes and two platforms" have a significant effect on the information leadership of pincipal. The region, type and level of the school, the construction of school information facilities, the actual application of equipment and the construction of the "three passes and two platforms" have a significant effect on the principal's information leadership.

Wang Qi (2019, p.14-27) proposed that with the advancement of education information, the information leadership of primary and secondary school pincipal has become a hot topic in global education research. Governments at home and abroad have also introduced relevant policies to incorporate information leadership into the blueprint for future education development. This research explores the information leadership of primary and secondary school pincipal in five dimensions by analysing the Education information 2.0 Action Plan and combining it with a questionnaire survey of 135 primary and secondary school pincipal in the southern part of Henan Province. The conclusion is to comprehensively improve pincipal' technological cognitive ability by enhancing technological literacy; to enhance information technology integration ability by building an information security mechanism to ensure the effective application of information technology; to strengthen information technology management ability by optimising the internal system to improve the school's internal management system; and to develop information technology evaluation ability by setting up assessment criteria and developing technology assessment standards. Utilise the information technology innovation ability and innovate with the development needs of the new era.

Li Yuanhua (2023, p.31-42) proposed that in this research, rural junior high school pincipal' information leadership is defined as the ability to plan a development vision, influence and lead the management team, teachers and students to carry out information and achieve the school development goals in a sustainable way in the process of promoting school information. The research found that rural junior high school pincipal in W County performed poorly in information literacy, information technology planning ability, information technology environment building ability, information technology management ability, and information technology evaluation ability. There is a need to enhance and improve the pincipal' knowledge and application of information technology, ability to formulate information technology development strategies and plans, ability to create and maintain information technology teaching and management environments, ability to manage information technology resources and projects, and ability to assess the effectiveness of information technology and improvement strategies.

Kang Dongdong (2017, p.33-48) proposed that over the past decade or so, the field of educational management research in China has achieved remarkable results, but also faces some challenges and trends. In recent years, the overall trend of China's educational management research results has been gradually weakening, and the partnership between researchers is loose and the level of cooperation is low. The conclusions drawn from the research are: to make it clear that the main theme of educational management should be grasped by educators or researchers with a deep pedagogical background to ensure the core value of educational management research; to accelerate the innovation of the institutional mechanism of educational management research and to guide researchers to strengthen their co-operation in order to improve the quality of research results; to broaden and deepen the scope of the research , to strengthen the attention to the management of primary and secondary education, and to push forward the system of educational management To expand and deepen the scope of research, strengthen the focus on primary and secondary education management, promote the deepening and refinement of the research, and promote the horizontal expansion and vertical deepening of the research. We should pay attention to the research frontiers and, against the backdrop of the weakening trend of the overall research, concentrate our efforts on researching those frontier areas with potentials, so as to enhance the research direction and quality.

In conclusion, these studies have identified several critical issues in the fields of educational administration, management, and leadership, and have provided recommendations for improvement. The key points include: 1) Rigour and Ethics in Research: While research reporting practices have remained stable over the past two decades, the evolution of rigour and ethics remains unclear. The studies recommend a greater emphasis on understanding and implementing rigorous and ethical practices in research. 2) The Challenge of Social Justice Leadership: Poor policy design and implementation since the 1980s have led to widening gaps in education quality, contributing to broader societal problems. Social justice leadership plays a crucial role in addressing these gaps but continues to face significant policy challenges. 3) The Importance of Headmaster Communication: Research demonstrates that effective communication by pincipal significantly improves teacher performance. Maintaining strong vertical and horizontal communication within schools is essential for success. 4) The Role of Information and Communication Technology (ICT): ICT has shown great potential for enhancing school management, particularly in administrative functions. It is recommended that governments provide schools with adequate ICT resources to improve administrative efficiency and accuracy. 5) Challenges for Rural Teaching pincipal: Rural teaching pincipal face the dual challenge of teaching and leadership in the context of declining student numbers and staffing levels. Policy support, such as time allocation and staffing adjustments, is recommended to help them manage these challenges effectively. 6) Continuing Professional Development (CPD) for Teachers: CPD should be viewed as an ongoing process rather than a one-off training. pincipal play a key role in facilitating teachers' professional development, but teachers must also take responsibility for their own growth. Together, these studies emphasize the importance of rigorous research methods, effective communication, social justice, the use of technology, and continuous professional development in educational management and leadership to enhance the quality and effectiveness of education.

Chapter 3
Research Methodology

This research focuses on improving information leadership of rural primary schools principals in Guangxi. To research the current situation of information leadership, formulate and evaluate the guidelines for improving information leadership rural primary schools principals in Guangxi. The researcher has the following procedures.

1. The Population / Sample Group
2. Research Instruments
3. Data Collection
4. Data Analysis

Phase 1: To research the level of improving information leadership of rural primary schools principals in Guangxi.

The Population / Sample Group

Research Object

According to Krejcie and Morgan sampling table (1970), the research object is 484 Teachers or Vice Principals/ Principals from 617 rural primary schools in Guangxi. By using stratified random sampling and simple random sampling. xi. By using stratified random sampling and simple random sampling.

Research Instruments

Questionnaire

The instrument to collect the data for objective one, to research the current situation of improving information leadership of rural primary schools principals in Guangxi was a questionnaire. The questionnaire was designed based on information leadership in five aspects: 1) information literacy, 2) information management ability, 3) information environment and resource construction ability, 4) information planning and design ability, and 5) information evaluate ability. The qualifications of respondents are as follows: 1) principals or vice principals, 2) Ordinary teachers with a bachelor’s degree or above and more than three years of teaching experience. The questionnaire was divided into two parts.

Part 1: Survey about personal information of respondents, classified by gender and educational background.

Part 2: Survey the current situation of information leadership of rural primary schools principals in Guangxi. The criteria for data interpretation based on a five-point Likert's scale, as follows:

5 refers to the level of information leadership of rural primary schools principals at the highest level

4 refers to the level of information leadership of rural primary schools principals at a high level

3 refers to the level of information leadership of rural primary schools principals at a medium level

2 refers to the level of information leadership of rural primary schools principals at a low level

1 refers to the level of information leadership of rural primary schools principals at the lowest level

The data interpretation for average value is based on Rensis Likert (1932). The data interpretation is as follows:

4.50 – 5.00 refers to the highest level

3.50 – 4.49 refers to high level

2.50 – 3.49 refers to medium level

1.50 – 2.49 refers to low level

1.00 – 1.49 refers to the lowest level

Constructing a Questionnaire Process

The construction process of the questionnaire is as follows:

Step 1: Reviewing and analyzing documents, concepts, theories, and research related to information leadership of rural primary schools principals.

Step 2: Construct the questionnaire about the current situation of information leadership of rural primary schools principals. Then the researcher sent the questionnaire outline of questionnaire to the thesis advisors to review and revise the contents according to the suggestions.

Step 3: The index of objective congruence (IOC) of the questionnaire was examined by five experts. The objective consistency index (IOC) will be 0.80-1.00.

Step 4: Revise the questionnaire based on the experts' suggestions.

Step 5: The questionnaires were distributed to 37 rural primary schools principals in Guangxi for try-out. The reliability of the questionnaire was derived from Conbach's Alpha Coefficient (Conbach's Alpha Coefficient) with a reliability of 0.953.

Step 6: The questionnaire was applied to 242 rural primary schools principals in Guangxi.

Data Collection

The data collection for objective 1: to research the current situation of information leadership of rural primary schools principals in Guangxi, as following procedured:

Step 1: The researcher requested requirement letter form the graduate school, Bansomdejchaopraya Rajabhat University for requiring to collect the data from 205 administrators in private university in Guangxi.

Step 2: The researcher distributed the questionnaire to 242 rural primary schools principals in Guangxi.

Data Analysis

The data analysis in this research, the researcher analyze the data by package program, as follows:

Step 1: The personal information of the respondents was analyzed by frequency and percentage, classified by gender and education background.

Step 2: The current situation of information leadership of rural primary schools principals in Guangxi in five following aspects: 1) information literacy, 2) information management ability, 3) information environment and resource construction ability, 4) information planning and design ability, and 5) information evaluate ability. was analyzed by Mean and standard deviation.

Phase 2: To formulate guidelines for improving information leadership of rural primary schools principals in Guangxi.

Key Informants

The Interviewees

The interviewee in this research is 14 high-level rural primary schools principals in Guangxi. The qualifications of interviewee are as follows: 1) at least 10 years of work experience in high-level administrator in rural primary schools, 2) received a senior title certificate, 3) graduated with master's degree or above.

Research Instruments

Structured Interview

The instrument to collect the data for objective two is to formulate the guidelines for improving the information leadership of rural primary schools principals in Guangxi. The structured interview was designed based on the current situation of information leadership of rural primary schools principals in Guangxi and information leadership in five following aspects: 1) information literacy, 2) information management ability, 3) information environment and resource construction ability,

4) information planning and design ability, and 5) information evaluate ability. The structured interview is divided into two parts:

Part 1: the personal information of interviewees, classified by interviewee, interviewer, education background, work experience, interview time, and interview date.

Part 2: the questions about suggestions for improving the current situation of information leadership based on five aspects: 1) information literacy, 2) information management ability, 3) information environment and resource construction ability, 4) information planning and design ability, and 5) information evaluate ability, for rural primary schools principals in Guangxi.

Constructing a Structured Interview Process

The construction process of the structured interview is as follows:

Step 1: Reviewing and analyzing documents, concepts, theories, and research related to information leadership of rural primary schools principals.

Step 2: Construct the structured interview about suggestions for improving the current situation of information leadership based on five aspects: 1) information literacy, 2) information management ability, 3) information environment and resource construction ability, 4) information planning and design ability, and 5) information evaluate ability. Then send the outline of the structured interview to the thesis advisors to review and revise the contents according to the suggestions.

Data Collection

The data collection for objective 2: to formulate the guidelines of information leadership of rural primary schools principals in Guangxi, as follows:

Step 1: The researcher requested a requirement letter from the graduate school, Bansomdejchaopraya Rajabhat University requiring to interview high-level administrators from 14 principals from rural primary schools in Guangxi.

Step 2: The researcher interviews the high-level administrator one by one through an online platform or face-to-face depending on the interviewee’s convenience.

Data Analysis

The structured interview about guidelines for improving information leadership of rural primary schools principals in Guangxi was analyzed by content analysis.

Phase 3: To evaluate the suitability and feasibility of guidelines for improving information leadership of rural primary schools principals in Guangxi.

Key Informants

Expert Group

The experts for evaluating the suitability and feasibility of guidelines is 15 experts from rural primary schools principals in Guangxi. The qualifications of the experts are as follows: 1) at least 8 years of work experience in high-level administrator in rural primary schools, 2) received a senior title certificate, 3) graduated with master's degree or above.

Research Instruments

Evaluation Form

The instrument to collect the data for objective three, to evaluate the guidelines for improving information leadership of rural primary schools principals in Guangxi. The evaluation form designed based on guidelines for information leadership of rural primary schools principals in Guangxi infive aspects: 1) information literacy, 2) information management ability, 3) information environment and resource construction ability, 4) information planning and design ability, and 5) information evaluate ability. The evaluation form provide into two parts:

Part 1: the personal information of interviewees, classified by work position, work experience, educational background, and academic title.

Part 2: The evaluation form about the guidelines for information leadership of rural primary schools principals in Guangxi. The criteria for data interpretation based on a five-point Likert’s scale, as follows:

5 refers to the suitability and feasibility of the guidelines at the highest level

4 refers to the suitability and feasibility of the guidelines at a high level

3 refers to the suitability and feasibility of the guidelines at a medium level

2 refers to the suitability and feasibility of the guidelines at a low level

1 refers to the suitability and feasibility of the guidelines at the lowest level

The data interpretation for average value is based on Rensis Likert (1932). The data interpretation is as follows:

4.50 – 5.00 refers to the highest level

3.50 – 4.49 refers to high level

2.50 – 3.49 refers to medium level

1.50 – 2.49 refers to low level

1.00 – 1.49 refers to the lowest level

Constructing an Evaluation form Process

The construction process of the evaluation form is as follows:

Step 1: Construct the evaluation form about development guidelines for information leadership of rural primary schools principals in Guangxi.

Step 2: The evaluation form was applied to 10 experts from rural primary schools principals in Guangxi.

Data Collection

The data collection for objective 3: to evaluate the guidelines for improving information leadership of rural primary schools principals in Guangxi, as following procedure:

Step 1: The researcher requested a requirement letter from the graduate school, Bansomdejchaopraya Rajabhat University for requiring to invite the expert to evaluate the guidelines.

Step 2: The researcher distributed the evaluation form to high-level rural primary schools principals. A total of 10 evaluation forms.

Data Analysis

The data analysis in this research, the researcher analyzes the data by package program, as follows: The evaluation of the adaptability and feasibility of guidelines for improving information leadership of rural primary schools principals in Guangxi is analyzed by Mean and standard deviation.

Chapter 4
Data Analysis Results

This research was to study Guideline for improving Information Leadership of Rural Primary Schools Principals in Guangxi. The data analysis result can be presented as follows:

1. Symbol and abbreviations
2. Presentation of data analysis
3. Results of data analysis

The details are as follows.

Symbol and Abbreviations

N refers to population
$\overline{X}$ refers to Mean
S.D. refers to Standard deviation

Presentation of Data Analysis

Part 1: The analysis results of the personal information of the respondents, classified by gender and education background and work unit and age and title and years of experience. The researcher presented the data by frequency and percentage.

Part 2: The analysis results of the current situation of information leadership of principals in Guangxi.The researcher presented the data by Mean and standard deviation.

Part 3: The analysis results of interview data about the guidelines for Improving Information Leadership of Principals in Guangxi.

Part 4: The analysis results of the evaluation of the suitability and feasibility of guidelines for improving information leadership of Principals in Guangxi. Presented the data in the form of average value and standard deviation.

Results of Data Analysis

The researcher analyzed the data in four parts as follows:

Part 1: The analysis results of the personal information of the respondents, classified by gender and education background and work unit and age and title and years of experience. The researcher presented the data by frequency and percentage.

Table 4.1 Personal information of the survey respondents

(N= 484)

Personal Information		Frequency	Percentage
Gender	Male	223	46.07
	Female	261	53.93
	Total	**484**	**100**
Educational background	Vocational /Technical	212	43.80
	Bachelor's degree	246	50.83
	Master's degree	24	4.96
	Doctor's degree	2	0.41
	Total	**484**	**100**
Age	Under 30 years old	63	13.01
	30 -39years old	136	28.10
	40-49years old	154	31.82
	≥50years old	131	27.07
	Total	**484**	**100**
Position	Principal	116	23.97
	Vice Principal	126	26.03
	Teacher	242	50
	Total	**484**	**100**
Professional title	Third-Grade Teacher (Entry-Level)	54	11.15
	Second-Grade Teacher (Junior-Level)	136	28.10
	First-Grade Teacher (Mid-Level)	180	37.19
	Senior Teacher (Associate Senior-Level)	89	18.39
	Principal Senior Teacher (Senior-Level)	25	5.17
	Total	**484**	**100**
years of experience	0-5 years	52	10.74
	6-10 years	92	19.01
	11-15 years	85	17.56
	16-20 years	92	19.01
	Over 20 years	163	33.68
	Total	**484**	**100**

According to Table 4.1, showed that the majority respondents were 261 females, accounting for 53.93%, and 223 males, accounting for 46.07%. The education background of respondents was mainly Bachelor's degree for 246 people, accounting for 50.83%, followed by Vocational /Technical, and Doctor's degree was the lowest level for 2 people, accounting for 0.41%. The age of respondents was mainly 40-49 years old for 154 people, accounting for 31.82%, followed by 30-39 years old, and under 30 years old was the lowest level for 63 people, accounting for 13.01%. The position of respondents was mainly Teacher for 242 people, accounting for 50%, followed by Vice Principal, and Principal was the lowest level for 116 people, accounting for 23.97%.The professional title of respondents was mainly First-Grade Teacher (Mid-Level) for 180 people, accounting for 37.19%, followed by Second-Grade Teacher (Junior-Level) , and Principal Senior Teacher (Senior-Level) was the lowest level for 25 people, accounting for 5.17%. The years of experience of respondents was mainly Over 20 years for 163 people, accounting for 33.68%, followed by 16-20 years and 6-10 years, and 0-5 years was the lowest level for 52 people, accounting for 10.74%.

Part 2: The analysis results of the current situation of information leadership of principals in Guangxi. The researcher presented the data by Mean and standard deviation.

Table 4.2 Mean and standard deviation of the situation of information leadership of principals in five aspects

(N = 484)

	information leadership of principals	$\bar{X}$	S.D.	Level	Order
1	Information literacy	3.88	0.93	high	1
2	Information management ability	3.67	0.94	high	3
3	Information environment and resource construction ability	3.74	0.90	high	2
4	Information planning and design ability	3.66	1.06	high	4
5	Information evaluate ability	3.63	1.12	high	5
	Total	**3.71**	**0.65**	**high**	

According to table 4.2, found that the current situation of information leadership of principals in five aspects was at a high level ($\overline{X}$ = 3.71). Considering the results of this research aspects ranged from the highest to the lowest mean were as follows: the highest mean was information literacy ($\overline{X}$ = 3.88), followed by Information environment and resource construction ability ($\overline{X}$ = 3.74), Information evaluate ability was the lowest mean ($\overline{X}$ = 3.63).

Table 4.3 Mean and standard deviation of the situation of information leadership of principals in Information literacy

(N = 484)

	Information literacy	$\overline{X}$	S.D.	Level	Order
1	The principal can accurately identify key information needed for school management and instructional improvement.	3.93	1.17	high	4
2	The principal is proficient in using various information sources (such as government websites, academic research, and education forums) to obtain the latest education policies and teaching methods.	3.85	1.26	high	8
3	The principal can effectively utilize the internet, databases, and educational resource platforms to acquire high-quality information to support school management decisions.	3.74	1.17	high	10
4	The principal can assess the credibility of different information sources and select the most valuable information for school development.	3.91	1.18	high	5
5	The principal can systematically organize and manage collected information for quick retrieval and use when needed.	4.01	1.07	high	2

Table 4.3 (Continue)

	Information literacy	$\bar{X}$	S.D.	Level	Order
6	When using information for decision-making, the principal verifies its accuracy, timeliness, and scientific validity to avoid the influence of misleading information.	3.87	1.22	high	6
7	The principal can apply acquired information to optimize school management and improve the quality of education and teaching.	3.88	1.21	high	7
8	The principal can integrate information analysis results to develop management strategies and teaching reform plans that align with the school's development needs.	4.13	0.87	high	1
9	The principal can effectively communicate important educational information to teachers, parents, and community members, facilitating their understanding and application.	3.94	1.25	high	3
10	The principal is proficient in using information technology (such as office software, data analysis tools, and online teaching platforms) to enhance school management and teaching efficiency.	3.75	1.17	high	9
11	The principal regularly learns and applies emerging educational technologies to improve teaching methods and enhance the school's level of digitalization.	3.65	1.19	high	11
	Total	**3.88**	**0.93**	**high**	

According to table 4.3, found that the current situation of information leadership of principals in information literacy was at a high level ($\overline{X}$ = 3.88). Considering the results of this research aspects ranged from the highest to the lowest mean were as follows: the highest mean was The principal can integrate information analysis results to develop management strategies and teaching reform plans that align with the school's development needs. ($\overline{X}$ = 4.13), followed by The principal can systematically organize and manage collected information for quick retrieval and use when needed. ($\overline{X}$ = 4.01), The principal regularly learns and applies emerging educational technologies to improve teaching methods and enhance the school's level of digitalization. ($\overline{X}$ = 3.65).

Table 4.4 Mean and standard deviation of the situation of information leadership of principals in Information Management Ability

(N = 484)

	Information Management Ability	$\overline{X}$	S.D.	Level	Order
1	The principal is able to effectively use information technology to optimize the school's organizational structure.	3.31	1.28	high	13
2	The principal improves the school's workflows using information technology, enhancing management efficiency.	3.54	1.31	high	11
3	The principal is able to innovate traditional management practices in the school by utilizing modern information management methods.	3.34	1.28	high	12
4	The principal effectively integrates internal and external resources to support school management and development.	3.80	1.27	high	3
5	The principal uses information technology to support decision-making, improving the scientific basis and timeliness of decisions.	3.77	1.28	high	4

Table 4.4 (Continue)

	Information Management Ability	$\overline{X}$	S.D.	Level	Order
6	The principal utilizes informatization to enhance school management efficiency and ensure rational resource allocation.	3.75	1.32	high	6
7	The principal effectively uses information technology to provide support in school management and improve operational efficiency.	3.70	1.33	high	7
8	The principal leads the school in using information technology to promote management modernization.	3.57	1.26	high	9
9	The principal actively seeks new applications of information technology to strengthen school management capabilities.	3.91	1.08	high	2
10	The principal considers the unique needs and development strategies of the school when applying information technology.	3.55	1.29	high	10
11	The principal uses information technology to help teachers and staff improve their work efficiency and quality.	3.70	1.36	high	7
12	The principal enhances internal communication and collaboration within the school through information technology.	4.00	1.02	high	1
13	The principal uses information management ability to improve the school's overall decision-support system and drive sustainable development.	3.76	1.30	high	5
	Total	**3.67**	**0.94**	**high**	

According to table 4.4, found that the current situation of information leadership of principals in information Management Ability was at a high level ($\overline{X}$ = 3.67). Considering the results of this research aspects ranged from the highest to the lowest mean were as follows: the highest mean was The principal enhances internal communication and collaboration within the school through information technology ($\overline{X}$ = 4.00), followed by The principal actively seeks new applications of information technology to strengthen school management capabilities ($\overline{X}$ = 3.91), The principal is able to effectively use information technology to optimize the school's organizational structure ($\overline{X}$ = 3.31).

Table 4.5 Mean and standard deviation of the situation of information leadership of principals in information environment and resource construction ability

(N = 484)

	Information environment and resource construction ability	$\overline{X}$	S.D.	Level	Order
1	The principal actively supervises and manages the upgrading and maintenance of information hardware in the school.	4.05	0.96	high	2
2	The principal ensures the effective development and utilization of educational software and resources.	3.87	1.21	high	4
3	The principal integrates information technology with classroom teaching to enhance educational quality.	3.64	1.21	high	7
4	The principal promotes the creation and development of an information culture within the school.	3.80	1.27	high	6
5	The principal encourages teachers and staff to adopt information technology in their teaching practices.	4.06	1.01	high	1
6	The principal regularly assesses the effectiveness of the school's information technology infrastructure.	3.57	1.27	high	10

Table 4.5 (Continue)

	Information environment and resource construction ability	$\overline{X}$	S.D.	Level	Order
7	The principal ensures that information resources are accessible and beneficial for both teachers and students.	3.47	1.29	high	11
8	The principal encourages collaboration with external organizations to improve the school's information resources.	3.62	1.25	high	8
9	The principal advocates for the development of digital literacy and technology skills among school staff.	3.92	1.25	high	3
10	The principal works to align the school's information environment with modern educational needs and innovations.	3.59	1.24	high	9
11	The principal monitors the social support and participation of the community in the school's information environment development.	3.41	1.27	high	12
12	The principal fosters a culture of innovation and adaptability towards technology among teachers and students.	3.85	1.24	high	5
	Total	**3.74**	**0.90**	**high**	

According to table 4.5, found that the current situation of information leadership of principals in Information environment and resource construction ability was at a high level ($\overline{X}$ = 3.74). Considering the results of this research aspects ranged from the highest to the lowest mean were as follows: the highest mean was The principal actively supervises and manages the upgrading and maintenance of information hardware in the school($\overline{X}$ = 4.06), followed by The principal encourages teachers and staff to adopt information technology in their teaching practices($\overline{X}$ = 4.05), The principal monitors the social support and participation of the community in the school's information environment development. ($\overline{X}$ = 3.41).

Table 4.6 Mean and standard deviation of the situation of information leadership of principals in information planning and design ability

(N = 484)

	Information planning and design ability	$\overline{X}$	S.D.	Level	Order
1	The principal is able to plan and design the school information system from a long-term strategic perspective.	3.42	1.33	high	11
2	The principal is able to create clear and realistic information management goals that align with the school's overall development objectives.	3.59	1.31	high	9
3	The principal is able to comprehensively assess the internal and external environments affecting the development of school information.	3.61	1.30	high	8
4	The principal is able to make informed decisions regarding the allocation of school information resources.	3.80	1.26	high	2
5	The principal is able to develop an information development plan that is tailored to the school's unique context.	3.79	1.25	high	3
6	The principal is able to identify key strategies and measures needed for the school's information development.	3.76	1.29	high	5
7	The principal is able to design effective information system infrastructure to support the development of school information.	3.81	1.29	high	1
8	The principal is able to integrate information technology with school development goals to improve school management efficiency.	3.78	1.30	high	4

Table 4.6 (Continue)

Information planning and design ability		$\overline{X}$	S.D.	Level	Order
9	The principal is able to ensure the successful deployment and execution of the school's information development plan.	3.74	1.33	high	7
10	The principal is able to accurately predict future trends during the information planning and design process.	3.46	1.30	high	10
11	The principal is able to effectively manage risks and challenges in school information construction.	3.38	1.33	high	12
12	The principal is able to collaborate with faculty and staff to promote the development of the school's information systems.	3.75	1.31	high	6
Total		**3.66**	**1.06**	**high**	

According to table 4.6, found that the current situation of information leadership of principals in information planning and design ability was at a high level ($\overline{X}$ = 3.66). Considering the results of this research aspects ranged from the highest to the lowest mean were as follows: the highest mean was The principal is able to design effective information system infrastructure to support the development of school information($\overline{X}$ = 3.81), followed by The principal is able to make informed decisions regarding the allocation of school information resources($\overline{X}$ = 3.80), The principal is able to effectively manage risks and challenges in school information construction ($\overline{X}$ = 3.38).

Table 4.7 Mean and standard deviation of the situation of information leadership of principals in information evaluate ability

(N = 484)

	Information evaluate ability	$\overline{X}$	S.D.	Level	Order
1	The principal regularly evaluates the various components of the school's information system to ensure its effectiveness.	3.72	1.28	high	1
2	The principal can make timely adjustments to the planning and implementation of the school's information system based on evaluation results.	3.69	1.29	high	3
3	The principal ensures the accuracy of the school's information technology development through continuous evaluation.	3.66	1.30	high	6
4	The principal ensures that the school's information work always progresses in the correct direction.	3.67	1.39	high	4
5	The principal uses evaluations of the current status of the school's information system to determine appropriate improvement measures.	3.71	1.33	high	2
6	The principal ensures that the development of the information system aligns with the school's long-term goals by comparing evaluation results with those goals.	3.65	1.32	high	9
7	The principal identifies and addresses potential risks and issues during the information evaluation process.	3.28	1.32	high	13
8	The principal ensures the efficient use of resources based on evaluations of the school's information system's effectiveness.	3.66	1.30	high	6

Table 4.7 (Continue)

	Information evaluate ability	$\overline{X}$	S.D.	Level	Order
9	The principal uses evaluation results to inform decision-making for the future development of the school's information system.	3.66	1.33	high	6
10	The principal evaluates the sustainability of the school's information technology and ensures its healthy development.	3.65	1.34	high	9
11	The principal identifies deficiencies in the school's information system through evaluation and proposes feasible improvement measures.	3.67	1.39	high	4
12	The principal strengthens quality control of the school's information system through evaluation.	3.65	1.35	high	9
13	The principal adjusts the direction of information technology development in response to evaluation data to meet the school's actual needs.	3.45	1.12	high	12
	Total	**3.63**	**1.12**	**high**	

According to table 4.7, found that the current situation of information leadership of principals in information evaluate ability was at a high level ($\overline{X}$ = 3.63). Considering the results of this research aspects ranged from the highest to the lowest mean were as follows: the highest mean was The principal regularly evaluates the various components of the school's information system to ensure its effectiveness ($\overline{X}$ = 3.72), followed by The principal uses evaluations of the current status of the school's information system to determine appropriate improvement measures ($\overline{X}$ = 3.71), The principal identifies and addresses potential risks and issues during the information evaluation process ($\overline{X}$ = 3.28).

Part 3: The analysis results of interview data about guidelines for improving Information Leadership of Principals in Guangxi.

Table 4.8 Personal information of the interviewee

Interviewee	Personal information	Interview Date	Interview time
Interviewee 1	Education: Bachelor's degree Position: Vice Principal Work experience: 15 years	March 21st , 2025	10:00 am GMT +8 25minutes
Interviewee 2	Education: Doctor's degree Position: Principal Work experience: 13 years	March 21st , 2025	11:30 am GMT +8 31 minutes
Interviewee 3	Education: Vocational /Technical Position: Vice Principal Work experience: 10 years	March 21st , 2025	14:30pm GMT +8 36 minutes
Interviewee 4	Education: Bachelor's degree Position:Principal Work experience: 14 years	March 21st , 2025	16:30pm GMT +8 32 minutes
Interviewee 5	Education: Master's degree Position:Principal Work experience: 17 years	March 22nd , 2025	9:00 am GMT +8 27minutes
Interviewee 6	Education: Bachelor's degree Position:Principal Work experience: 13 years	March 22nd , 2025	10:30 am GMT +8 29minutes
Interviewee 7	Education: Vocational /Technical Position:Vice Principal Work experience: 19 years	March 22nd , 2025	12:00 am GMT +8 29minutes
Interviewee 8	Education: Bachelor's degree Position: Principal Work experience: 13 years	March 22nd , 2025	14:30 pm GMT +8 32 minutes

Table 4.8 (Continue)

Interviewee	Personal information	Interview Date	Interview time
Interviewee 9	Education: Bachelor's degree Position: Vice Principal Work experience: 18 years	March 22^{nd}, 2025	16:00pm GMT +8 36 minutes
Interviewee 10	Education: Master's degree Position:Principal Work experience: 14 years	March 22^{nd}, 2025	17:30pm GMT +8 33 minutes
Interviewee 11	Education: Bachelor's degree Position:Vice Principal Work experience: 16 years	March 23^{rd} , 2025	9:00 am GMT +8 28minutes
Interviewee 12	Education: Master's degree Position:Vice Principal Work experience: 10 years	March 23^{rd} , 2025	10:30 am GMT +8 30minutes
Interviewee 13	Education: Master's degree Position:Principal Work experience: 13 years	March 23^{rd} , 2025	12:00 am GMT +8 32minutes
Interviewee 14	Education: Bachelor's degree Position:Vice Principal Work experience: 16 years	March 23^{rd} , 2025	15:00pm GMT +8 27minutes

The research team conducted 14 one-on-one interviews via WeChat. The following are photos of the interviewed schools and the interviewees.


郑州市动物园
ZHENGZHOU ZOO


EXPERIENTIAL LEARNING
LEARN FROM LIFE


广西大学


小学语文“三学六步”阅读教学模式
推广应用活动（迴龙小学）2025.5.13-5.14


2025年右江区“阅读悦美·书香右江”
图书馆服务宣传周系列文化服务活动
主办单位：右江区文化体育和旅游局
承办单位：右江区图书馆
协办单位：右江区文物管理所
百色市第二幼儿园

Interview Results

1. In your opinion, how to improve the ability of The principal regularly learns and applies emerging educational technologies to improve teaching methods and enhance the school's level of digitalization, and how about your suggestion in improve teaching methods and enhance the school's level of digitalization?

The guilelines for Information literacy following results are obtained.

1) Strengthening regular training programs for principals on emerging educational technologies, integrating hands-on workshops and case studies to bridge theory with practice.

2) Enhancing collaboration with local tech companies and universities to establish joint research projects, enabling schools to pilot innovative digital tools and receive expert guidance.

3) To further incentivize digital adoption, introduce performance-based rewards for principals who successfully integrate technology into teaching, linked to professional advancement.

4) Strengthening school IT infrastructure by allocating dedicated funds for hardware, software, and maintenance, ensuring equitable access across rural campuses.

5) Enhancing policy communication through multilingual parent-teacher workshops, showcasing how digital tools benefit student learning to build community support.

6) To further empower teachers as digital mentors, establish peer-led training cohorts where experienced staff assist principals in mastering new technologies step-by-step.

7) Strengthening the role of regional education hubs to curate regionalized digital resource libraries, addressing unique challenges faced by rural schools.

8) Enhancing data-driven decision-making by providing principals with analytics dashboards to monitor tech adoption impact, enabling targeted improvement strategies.

9) To further foster innovation, organize annual "Tech Integration Idea Competitions" for principals, rewarding creative solutions with implementation grants.

10) Strengthening policy flexibility to allow schools to experiment with phased digital transitions, offering grace periods for adaptation while maintaining accountability.

2. In your opinion, how to improve the ability of The principal is able to effectively use information technology to optimize the school's organizational structure, and how about your suggestion in optimize the school's organizational structure?

The guilelines for Information Management Ability following results are obtained.

1) Strengthening the establishment of a teacher-collaboration network using IT tools (e.g., online forums, shared calendars) to align departmental goals and reduce administrative overlap.

2) Enhancing the adoption of standardized digital workflows (e.g., automated reporting systems) to streamline repetitive tasks and free up time for strategic planning.

3) To further integrate parent participation, create a digital platform where parents can submit feedback on organizational reforms and track implementation progress.

4) Strengthening cross-functional roles for principals, such as assigning them oversight of both academic and IT departments to ensure tech-driven decisions align with school priorities.

5) Enhancing data-driven decision-making by implementing AI-powered tools to analyze student performance trends and adjust organizational structures proactively.

6) To further establish a "digital mentorship" program pairing principals with urban school leaders experienced in tech-based organizational restructuring.

7) Strengthening the use of cloud-based resource libraries to centralize lesson plans, policies, and training materials, reducing redundancy across classrooms.

8)Enhancing teacher accountability through IT-based performance dashboards that track adoption rates of digital tools and collaborative projects.

9) To further pilot "flexible organizational models," allowing principals to experiment with hybrid roles (e.g., combining IT manager and curriculum developer) to adapt to rural needs.

10) Strengthening periodic audits of IT infrastructure to identify gaps in organizational efficiency, prioritizing upgrades that directly support decision-making processes.

3. In your opinion, how to improve the ability of The principal monitors the social support and participation of the community in the school's information environment development, and how about your suggestion in the community in the school's information environment development?

The guilelines for Information environment and resource construction ability following results are obtained.

1) Strengthening community engagement through regular digital forums and town halls to transparently share progress on school information environment development, fostering trust and collaboration.

2) Enhancing parent-teacher partnerships by establishing a digital volunteer program where community members assist in maintaining IT infrastructure and training teachers.

3) To further integrate local culture into digital initiatives, collaborate with community elders to co-design culturally relevant e-learning content (e.g., traditional language courses).

4)Strengthening policy advocacy by organizing workshops for local government officials to highlight the role of community support in bridging rural-urban digital divides.

5) Enhancing resource sharing networks between schools and nearby villages, leveraging IT tools to pool funds and equipment for joint information environment projects.

6) To further empower young leaders, train high school students to act as "digital ambassadors" and send messages to their peers and families.

7) Strengthening feedback mechanisms by implementing QR code-based surveys in rural markets and community centers to gauge community needs for information services.

8) Enhancing public-private partnerships by collaborating with local businesses to sponsor digital literacy programs for parents and community members.

4. In your opinion, how to improve the ability of The principal is able to effectively manage risks and challenges in school information construction, and how about your suggestion in the community in the risks and challenges in school information construction?

The guilelines for Information planning and design ability following results are obtained.

1) Strengthening cybersecurity protocols by implementing basic firewalls and regular password updates, especially for rural schools with limited IT staff.

2) Enhancing community oversight committees to monitor school IT budget allocation and infrastructure maintenance, ensuring transparency and accountability.

3) To further develop offline contingency plans for areas with unreliable internet, using USB drives or SD cards to store critical educational resources.

4) Strengthening teacher training on equipment troubleshooting (e.g., projector repairs, network connectivity checks) to reduce reliance on external tech support.

5) Enhancing partnerships with local businesses to donate outdated but functional hardware (e.g., laptops, printers) for school use.

6) To further integrate rural-specific risk management, such as establishing a "digital emergency fund" for unexpected infrastructure repairs.

7) Strengthening parent-child digital safety workshops, focusing on preventing cyberbullying and protecting personal data during online activities.

8) Enhancing collaboration with local government for periodic IT audits, prioritizing schools with high vulnerability to natural disasters (e.g., flood-prone regions).

9) To further leverage community volunteers to maintain school networks, training villagers in basic IT maintenance tasks (e.g., cable management).

10) Strengthening data encryption for student records stored on local servers, especially in schools without cloud storage access.

5. In your opinion, how to improve the ability of The principal identifies and addresses potential risks and issues during the information evaluation process, and how about your suggestion in information evaluation process?

The guilelines for Information evaluate ability following results are obtained.

1) Strengthening teacher training programs on basic data analysis tools (e.g., spreadsheets, simple dashboards) to enhance their ability to interpret information evaluation results.

2) Enhancing community involvement by inviting local elders to review digital resource suitability for cultural sensitivity and rural relevance.

3) To further simplify evaluation processes, develop paper-based checklists for schools without reliable internet to track infrastructure status manually.

4) Strengthening cross-school collaboration, organizing periodic visits between rural schools to share risk identification strategies (e.g., equipment theft prevention).

5) Enhancing student feedback mechanisms, using classroom surveys or suggestion boxes to identify user experience issues with digital tools.

6) To further integrate traditional knowledge into evaluation criteria, collaborating with community members to assess the practicality of IT solutions in rural contexts.

7) Strengthening periodic equipment inventories using QR codes or simple barcoding systems to prevent asset loss or misuse.

8) Enhancing partnerships with local IT vendors for discounted maintenance services, prioritizing schools with high-risk IT infrastructure.

9) To further establish a "digital mentorship" program pairing urban teachers with rural principals to remotely support evaluation processes.

10) Strengthening crisis response protocols, such as creating offline emergency contact lists for IT suppliers and community volunteers.

Table 4.9 guidelines for improving information leadership of principals in Guangxi.

Guidelines		How to
Information literacy	1	Strengthening regular training programs for principals on emerging educational technologies, integrating hands-on workshops and case studies to bridge theory with practice.
	2	Enhancing collaboration with local tech companies and universities to establish joint research projects, enabling schools to pilot innovative digital tools and receive expert guidance.
	3	To further incentivize digital adoption, introduce performance-based rewards for principals who successfully integrate technology into teaching, linked to professional advancement.
	4	Strengthening school IT infrastructure by allocating dedicated funds for hardware, software, and maintenance, ensuring equitable access across rural campuses.
	5	Enhancing policy communication through multilingual parent-teacher workshops, showcasing how digital tools benefit student learning to build community support.
	6	To further empower teachers as digital mentors, establish peer-led training cohorts where experienced staff assist principals in mastering new technologies step-by-step.
	7	Strengthening the role of regional education hubs to curate regionalized digital resource libraries, addressing unique challenges faced by rural schools.
	8	Enhancing data-driven decision-making by providing principals with analytics dashboards to monitor tech adoption impact, enabling targeted improvement strategies.

Table 4.9 (Continue)

Guidelines		How to
	9	To further foster innovation, organize annual "Tech Integration Idea Competitions" for principals, rewarding creative solutions with implementation grants.
	10	Strengthening policy flexibility to allow schools to experiment with phased digital transitions, offering grace periods for adaptation while maintaining accountability.
Information Management Ability	1	Strengthening the establishment of a teacher-collaboration network using IT tools (e.g., online forums, shared calendars) to align departmental goals and reduce administrative overlap.
	2	Enhancing the adoption of standardized digital workflows (e.g., automated reporting systems) to streamline repetitive tasks and free up time for strategic planning.
	3	To further integrate parent participation, create a digital platform where parents can submit feedback on organizational reforms and track implementation progress.
	4	Strengthening cross-functional roles for principals, such as assigning them oversight of both academic and IT departments to ensure tech-driven decisions align with school priorities.
	5	Enhancing data-driven decision-making by implementing AI-powered tools to analyze student performance trends and adjust organizational structures proactively.
	6	To further establish a "digital mentorship" program pairing principals with urban school leaders experienced in tech-based organizational restructuring.

Table 4.9 (Continue)

Guidelines		How to
	7	Strengthening the use of cloud-based resource libraries to centralize lesson plans, policies, and training materials, reducing redundancy across classrooms.
	8	Enhancing teacher accountability through IT-based performance dashboards that track adoption rates of digital tools and collaborative projects.
	9	To further pilot "flexible organizational models," allowing principals to experiment with hybrid roles (e.g., combining IT manager and curriculum developer) to adapt to rural needs.
	10	Strengthening periodic audits of IT infrastructure to identify gaps in organizational efficiency, prioritizing upgrades that directly support decision-making processes.
Information environment and resource construction ability	1	Strengthening community engagement through regular digital forums and town halls to transparently share progress on school information environment development, fostering trust and collaboration.
	2	Enhancing parent-teacher partnerships by establishing a digital volunteer program where community members assist in maintaining IT infrastructure and training teachers.
	3	To further integrate local culture into digital initiatives, collaborate with community elders to co-design culturally relevant e-learning content (e.g., traditional language courses).
	4	Strengthening policy advocacy by organizing workshops for local government officials to highlight the role of community support in bridging rural-urban digital divides.

Table 4.9 (Continue)

Guidelines		How to
	5	Enhancing resource sharing networks between schools and nearby villages, leveraging IT tools to pool funds and equipment for joint information environment projects.
	6	To further empower young leaders, train high school students to act as "digital ambassadors" and send messages to their peers and families.
	7	Strengthening feedback mechanisms by implementing QR code-based surveys in rural markets and community centers to gauge community needs for information services.
	8	Enhancing public-private partnerships by collaborating with local businesses to sponsor digital literacy programs for parents and community members.
Information planning and design ability	1	Strengthening cybersecurity protocols by implementing basic firewalls and regular password updates, especially for rural schools with limited IT staff.
	2	Enhancing community oversight committees to monitor school IT budget allocation and infrastructure maintenance, ensuring transparency and accountability.
	3	To further develop offline contingency plans for areas with unreliable internet, using USB drives or SD cards to store critical educational resources.
	4	Strengthening teacher training on equipment troubleshooting (e.g., projector repairs, network connectivity checks) to reduce reliance on external tech support.
	5	Enhancing partnerships with local businesses to donate outdated but functional hardware (e.g., laptops, printers) for school use.

Table 4.9 (Continue)

Guidelines		How to
	6	To further integrate rural-specific risk management, such as establishing a "digital emergency fund" for unexpected infrastructure repairs.
	7	Strengthening parent-child digital safety workshops, focusing on preventing cyberbullying and protecting personal data during online activities.
	8	Enhancing collaboration with local government for periodic IT audits, prioritizing schools with high vulnerability to natural disasters (e.g., flood-prone regions).
	9	To further leverage community volunteers to maintain school networks, training villagers in basic IT maintenance tasks (e.g., cable management).
	10	Strengthening data encryption for student records stored on local servers, especially in schools without cloud storage access.
Information evaluate ability	1	Strengthening teacher training programs on basic data analysis tools (e.g., spreadsheets, simple dashboards) to enhance their ability to interpret information evaluation results.
	2	Enhancing community involvement by inviting local elders to review digital resource suitability for cultural sensitivity and rural relevance.
	3	To further simplify evaluation processes, develop paper-based checklists for schools without reliable internet to track infrastructure status manually.
	4	Strengthening cross-school collaboration, organizing periodic visits between rural schools to share risk identification strategies (e.g., equipment theft prevention).

Table 4.9 (Continue)

Guidelines		How to
	5	Enhancing student feedback mechanisms, using classroom surveys or suggestion boxes to identify user experience issues with digital tools.
	6	To further integrate traditional knowledge into evaluation criteria, collaborating with community members to assess the practicality of IT solutions in rural contexts.
	7	Strengthening periodic equipment inventories using QR codes or simple barcoding systems to prevent asset loss or misuse.
	8	Enhancing partnerships with local IT vendors for discounted maintenance services, prioritizing schools with high-risk IT infrastructure.
	9	To further establish a "digital mentorship" program pairing urban teachers with rural principals to remotely support evaluation processes.
	10	Strengthening crisis response protocols, such as creating offline emergency contact lists for IT suppliers and community volunteers.

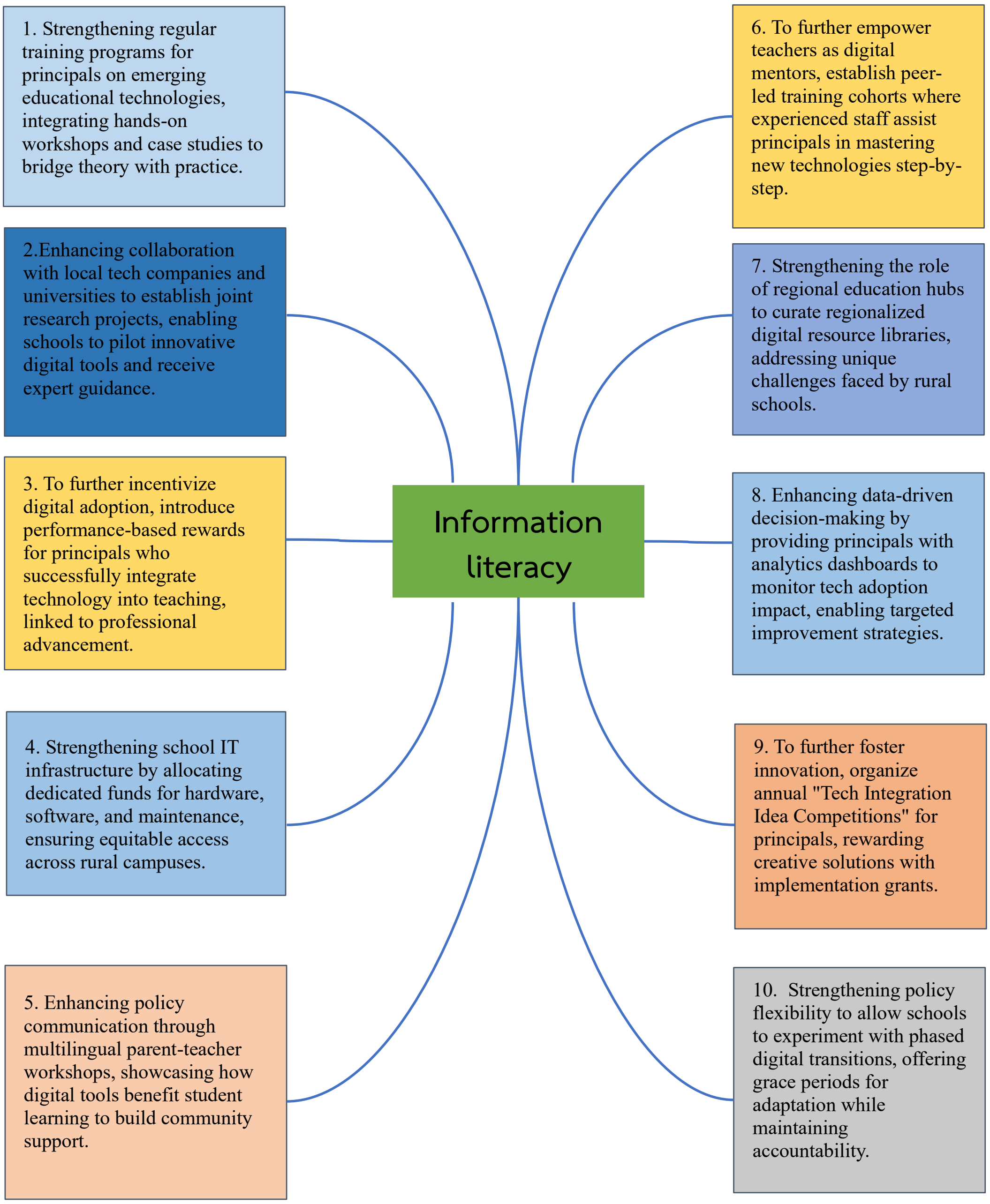

Figure 4.1 Guilelines for Information literacy

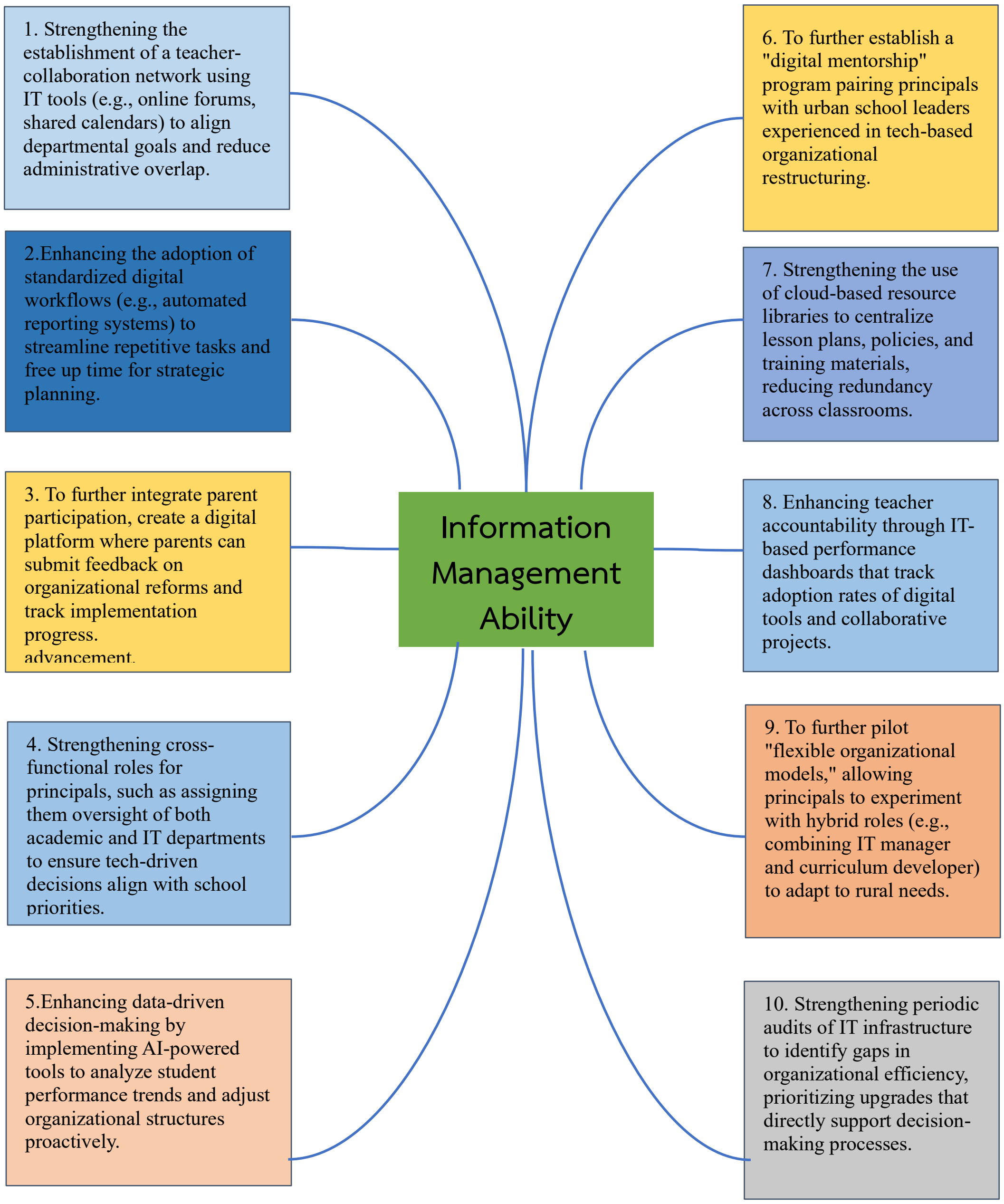

Figure 4.2 Guilelines for Information Management Ability

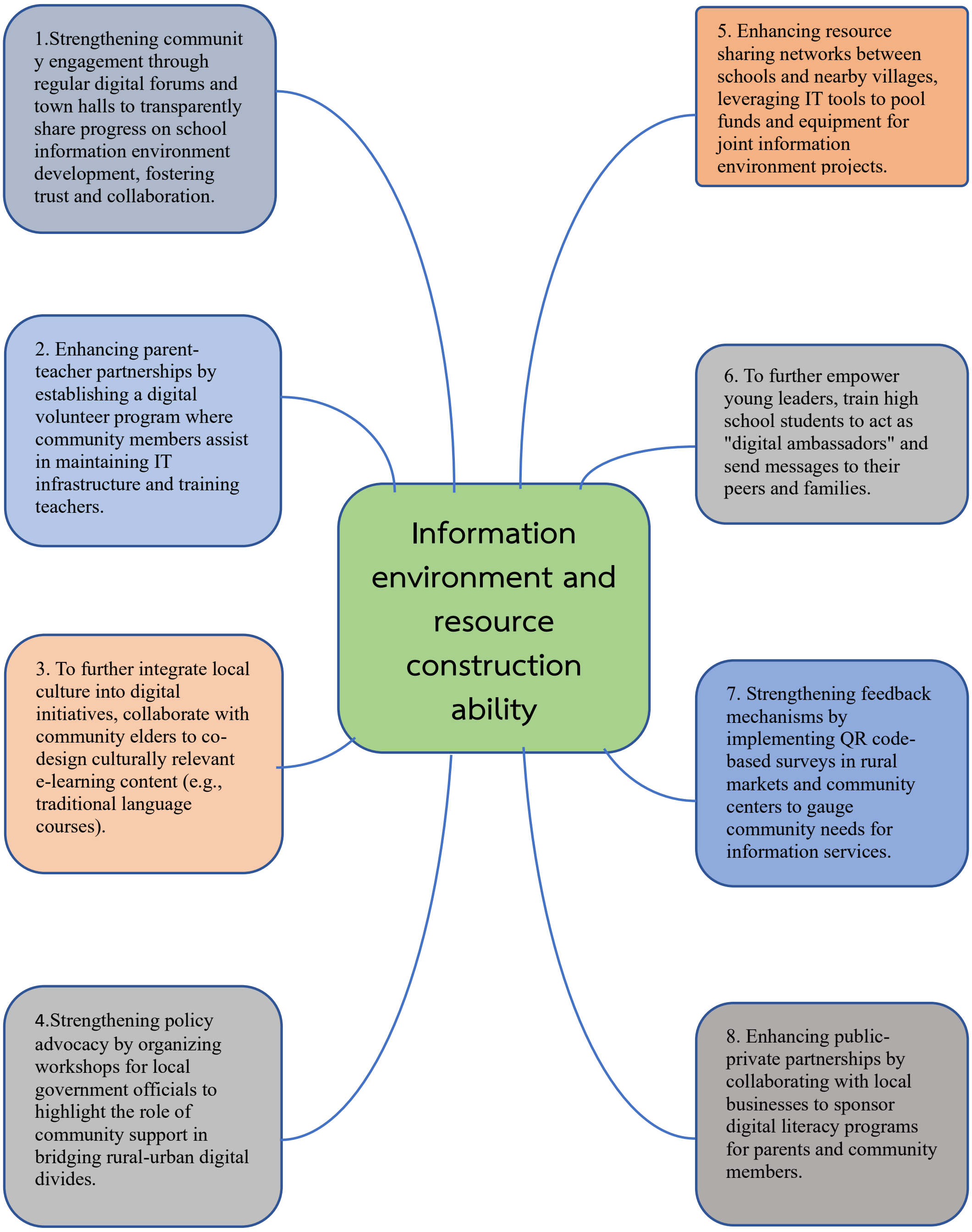

Figure 4.3 Guilelines for Information environment and resource construction ability

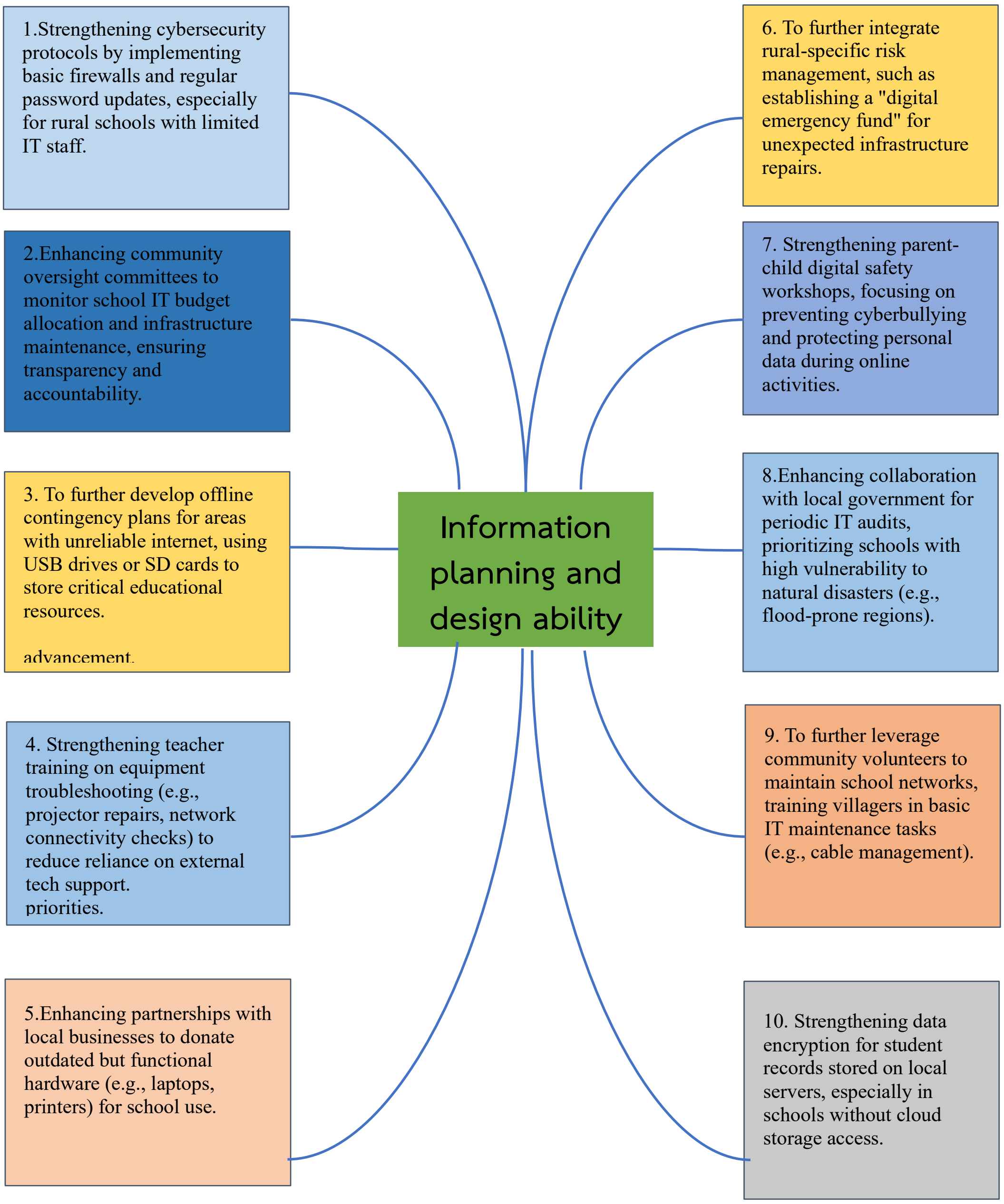

Figure 4.4 Guilelines for Information planning and design ability

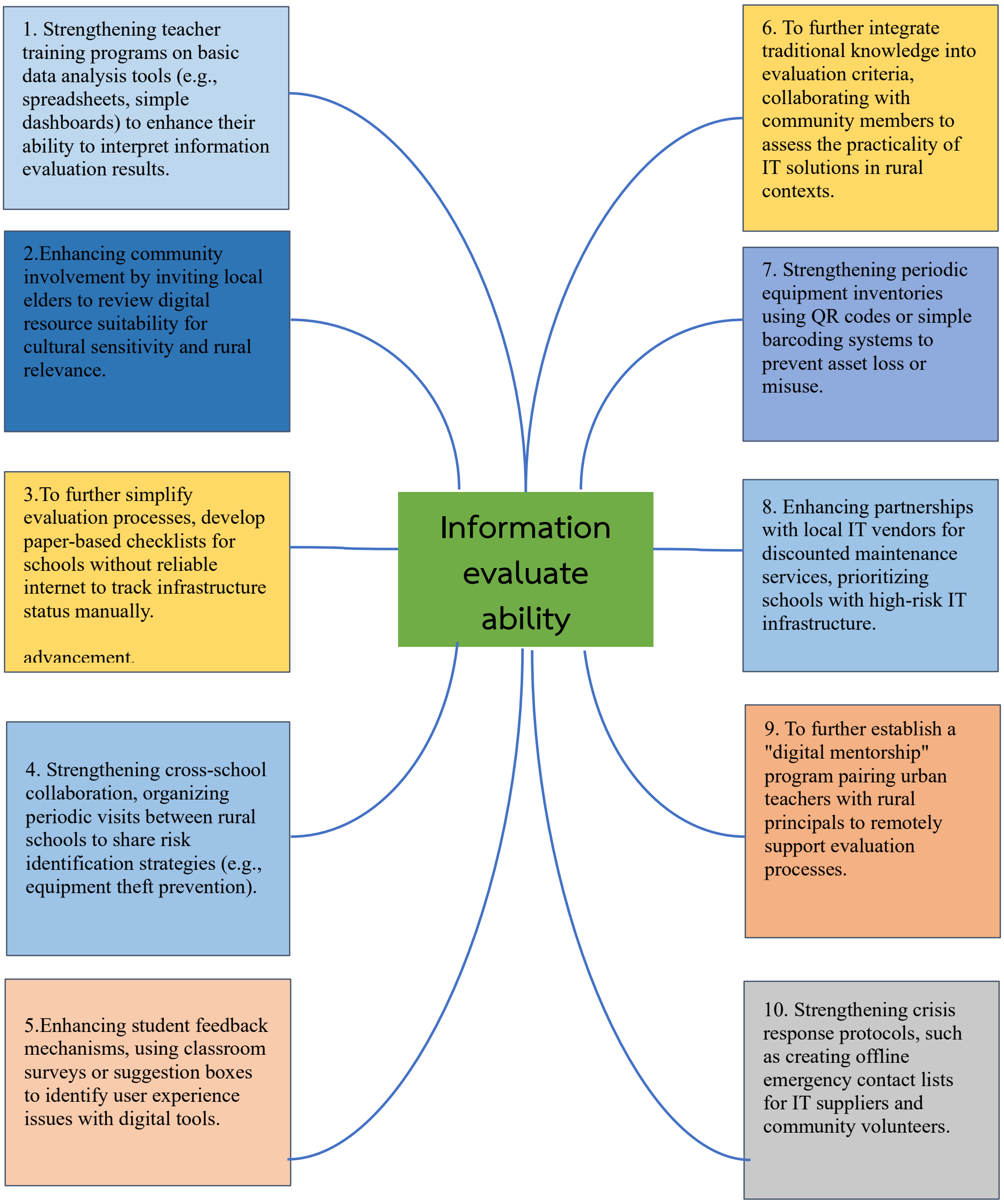

Figure 4.5 Guilelines for Information evaluate ability

Guilelines

Information literacy

1.Strengthening regular training programs for principals on emerging educational technologies, integrating hands-on workshops and case studies to bridge theory with practice.

2.Enhancing collaboration with local tech companies and universities to establish joint research projects, enabling schools to pilot innovative digital tools and receive expert guidance.

3.To further incentivize digital adoption, introduce performance-based rewards for principals who successfully integrate technology into teaching, linked to professional advancement.

4.Strengthening school IT infrastructure by allocating dedicated funds for hardware, software, and maintenance, ensuring equitable access across rural campuses.

5.Enhancing policy communication through multilingual parent-teacher workshops, showcasing how digital tools benefit student learning to build community support.

6.To further empower teachers as digital mentors, establish peer-led training cohorts where experienced staff assist principals in mastering new technologies step-by-step.

7.Strengthening the role of regional education hubs to curate regionalized digital resource libraries, addressing unique challenges faced by rural schools.

8.Enhancing data-driven decision-making by providing principals with analytics dashboards to monitor tech adoption impact, enabling targeted improvement strategies.

9.To further foster innovation, organize annual "Tech Integration Idea Competitions" for principals, rewarding creative solutions with implementation grants.

10.Strengthening policy flexibility to allow schools to experiment with phased digital transitions, offering grace periods for adaptation while maintaining accountability.

Information Management Ability

1.Strengthening the establishment of a teacher-collaboration network using IT tools (e.g., online forums, shared calendars) to align departmental goals and reduce administrative overlap.

2.Enhancing the adoption of standardized digital workflows (e.g., automated reporting systems) to streamline repetitive tasks and free up time for strategic planning.

3.To further integrate parent participation, create a digital platform where parents can submit feedback on organizational reforms and track implementation progress.

4.Strengthening cross-functional roles for principals, such as assigning them oversight of both academic and IT departments to ensure tech-driven decisions align with school priorities.

5.Enhancing data-driven decision-making by implementing AI-powered tools to analyze student performance trends and adjust organizational structures proactively.

6.To further establish a "digital mentorship" program pairing principals with urban school leaders experienced in tech-based organizational restructuring.

7.Strengthening the use of cloud-based resource libraries to centralize lesson plans, policies, and training materials, reducing redundancy across classrooms.

8.Enhancing teacher accountability through IT-based performance dashboards that track adoption rates of digital tools and collaborative projects.

9.To further pilot "flexible organizational models," allowing principals to experiment with hybrid roles (e.g., combining IT manager and curriculum developer) to adapt to rural needs.

10.Strengthening periodic audits of IT infrastructure to identify gaps in organizational efficiency, prioritizing upgrades that directly support decision-making processes.

Information environment and resource construction ability

1.Strengthening community engagement through regular digital forums and town halls to transparently share progress on school information environment development, fostering trust and collaboration.

2.Enhancing parent-teacher partnerships by establishing a digital volunteer program where community members assist in maintaining IT infrastructure and training teachers.

3.To further integrate local culture into digital initiatives, collaborate with community elders to co-design culturally relevant e-learning content (e.g., traditional language courses).

4.Strengthening policy advocacy by organizing workshops for local government officials to highlight the role of community support in bridging rural-urban digital divides.

5.Enhancing resource sharing networks between schools and nearby villages, leveraging IT tools to pool funds and equipment for joint information environment projects.

6.To further empower young leaders, train high school students to act as "digital ambassadors" and send messages to their peers and families.

7.Strengthening feedback mechanisms by implementing QR code-based surveys in rural markets and community centers to gauge community needs for information services.

8.Enhancing public-private partnerships by collaborating with local businesses to sponsor digital literacy programs for parents and community members.

Information planning and design ability

1.Strengthening cybersecurity protocols by implementing basic firewalls and regular password updates, especially for rural schools with limited IT staff.

2.Enhancing community oversight committees to monitor school IT budget allocation and infrastructure maintenance, ensuring transparency and accountability.

3.To further develop offline contingency plans for areas with unreliable internet, using USB drives or SD cards to store critical educational resources.

4.Strengthening teacher training on equipment troubleshooting (e.g., projector repairs, network connectivity checks) to reduce reliance on external tech support.

5.Enhancing partnerships with local businesses to donate outdated but functional hardware (e.g., laptops, printers) for school use.

6.To further integrate rural-specific risk management, such as establishing a "digital emergency fund" for unexpected infrastructure repairs.

7.Strengthening parent-child digital safety workshops, focusing on preventing cyberbullying and protecting personal data during online activities.

8.Enhancing collaboration with local government for periodic IT audits, prioritizing schools with high vulnerability to natural disasters (e.g., flood-prone regions).

9.To further leverage community volunteers to maintain school networks, training villagers in basic IT maintenance tasks (e.g., cable management).

10.Strengthening data encryption for student records stored on local servers, especially in schools without cloud storage access.

Information evaluate ability

1.Strengthening teacher training programs on basic data analysis tools (e.g., spreadsheets, simple dashboards) to enhance their ability to interpret information evaluation results.

2.Enhancing community involvement by inviting local elders to review digital resource suitability for cultural sensitivity and rural relevance.

3.To further simplify evaluation processes, develop paper-based checklists for schools without reliable internet to track infrastructure status manually.

4.Strengthening cross-school collaboration, organizing periodic visits between rural schools to share risk identification strategies (e.g., equipment theft prevention).

5.Enhancing student feedback mechanisms, using classroom surveys or suggestion boxes to identify user experience issues with digital tools.

6.To further integrate traditional knowledge into evaluation criteria, collaborating with community members to assess the practicality of IT solutions in rural contexts.

7.Strengthening periodic equipment inventories using QR codes or simple barcoding systems to prevent asset loss or misuse.

8.Enhancing partnerships with local IT vendors for discounted maintenance services, prioritizing schools with high-risk IT infrastructure.

9.To further establish a "digital mentorship" program pairing urban teachers with rural principals to remotely support evaluation processes.

10.Strengthening crisis response protocols, such as creating offline emergency contact lists for IT suppliers and community volunteers.

Figure 4.6 Guilelines for Information evaluate abilityimproving information leadership of principals

Part 4: The analysis results of the evaluation of the suitability and feasibility of the guidelines for improving information leadership of principals in Guangxi. The researcher presented the data by Mean and standard deviation.

This part aims to evaluate the suitability and feasibility of the guidelines for improving information leadership of principals. To this end, 15 experts from 15 primary schools in Guangxi were invited to conduct an evaluation. They took the form of a 5-levelrating scale, namely, the highest, high, average, low, and lowest. Respondents could only choose from one level. The calculation results are shown in the following table:

Table 4.10 Mean and standard deviation of the suitability and feasibility of information leadership of principals .

(N= 15)

Guidelines for information leadership of principals .		Suitability			Feasibility		
		$\bar{X}$	S.D.	Level	$\bar{X}$	S.D.	Level
1	Information literacy	3.89	0.46	High	3.91	0.48	High
2	Information management ability	3.91	0.47	High	3.90	0.48	High
3	Information environment and resource construction ability	4.02	0.41	High	4.06	0.43	High
4	Information planning and design ability	3.97	0.44	High	3.92	0.40	High
5	Information evaluate ability	3.90	0.39	High	3.89	0.47	High
Total		**3.94**	**0.32**	**High**	**3.94**	**0.31**	**High**

According to table 4.10, the data show that the overall expert evaluation of the suitability and feasibility of the guideline is at the high level ($\bar{X}$ = 3.94, $\bar{X}$ = 3.94), indicating the high suitability and feasibility of the guideline.

The suitability of guidelines for improving information leadership of principals , the levels from the highest to lowest mean were as follow: the highest mean was Information environment and resource construction ability ($\bar{X}$ = 4.02), followed by Information planning and design ability ($\bar{X}$ = 3.97), and Information literacy was the lowest mean ($\bar{X}$ = 3.89).

The feasibility of guidelines for improving information leadership of principals, the levels from the highest to lowest mean were as follow: the highest mean was Information environment and resource construction ability ($\bar{X}$ = 4.06), followed by Information planning and design ability ($\bar{X}$ = 3.92), and Information evaluate ability was the lowest mean ($\bar{X}$ = 3.89).

Table 4.11 Mean and standard deviation of the suitability and feasibility of guidelines for Information literacy in ten aspects.

(N = 15)

Guidelines for improving information leadership of principals	Suitability			Feasibility		
	$\bar{X}$	S.D.	Level	$\bar{X}$	S.D.	Level
Information literacy						
1 Strengthening regular training programs for principals on emerging educational technologies, integrating hands-on workshops and case studies to bridge theory with practice.	3.60	1.30	high	3.73	1.39	high
2 Enhancing collaboration with local tech companies and universities to establish joint research projects, enabling schools to pilot innovative digital tools and receive expert guidance.	4.07	0.46	high	4.33	0.62	high
3 To further incentivize digital adoption, introduce performance-based rewards for principals who successfully integrate technology into teaching, linked to professional advancement.	3.60	1.55	high	3.60	1.30	high
4 Strengthening school IT infrastructure by allocating dedicated funds for hardware, software, and maintenance, ensuring equitable access across rural campuses.	4.07	1.22	high	4.20	0.94	high

Table 4.11 (Continue)

Guidelines for improving information leadership of principals		Suitability			Feasibility		
		$\bar{X}$	S.D.	Level	$\bar{X}$	S.D.	Level
5	Enhancing policy communication through multilingual parent-teacher workshops, showcasing how digital tools benefit student learning to build community support.	3.80	0.94	high	3.73	1.22	high
6	To further empower teachers as digital mentors, establish peer-led training cohorts where experienced staff assist principals in mastering new technologies step-by-step.	3.87	1.13	high	3.87	0.99	high
7	Strengthening the role of regional education hubs to curate regionalized digital resource libraries, addressing unique challenges faced by rural schools.	3.73	1.58	high	3.93	0.96	high
8	Enhancing data-driven decision-making by providing principals with analytics dashboards to monitor tech adoption impact, enabling targeted improvement strategies.	3.87	0.99	high	3.87	0.99	high

Table 4.11 (Continue)

Guidelines for improving information leadership of principals		Suitability			Feasibility		
		$\bar{X}$	S.D.	Level	$\bar{X}$	S.D.	Level
9	To further foster innovation, organize annual "Tech Integration Idea Competitions" for principals, rewarding creative solutions with implementation grants.	4.20	1.01	high	4.13	0.74	high
10	Strengthening policy flexibility to allow schools to experiment with phased digital transitions, offering grace periods for adaptation while maintaining accountability.	4.21	0.94	high	3.67	1.45	high
Total		**3.89**	**0.46**	**high**	**3.91**	**0.48**	**high**

According to table 4.11, the data show that the overall expert evaluation of the suitability and feasibility of the guideline for Information literacy is at the high level ($\bar{X}$ = 3.89, $\bar{X}$ = 3.91),indicating the high suitability and feasibility of the guideline.

The suitability of guidelines for Information literacy, the levels from the highest to lowest mean were as follow: the highest mean was "10.Strengthening policy flexibility to allow schools to experiment with phased digital transitions, offering grace periods for adaptation while maintaining accountability. " ($\bar{X}$ = 4.21), followed by "9.To further foster innovation, organize annual "Tech Integration Idea Competitions" for principals, rewarding creative solutions with implementation grants. " ($\bar{X}$ = 4.20), and "1.Strengthening regular training programs for principals on emerging educational technologies, integrating hands-on workshops and case studies to bridge theory with practice. " "3. To further incentivize digital adoption, introduce performance-based rewards for principals who successfully integrate technology into teaching, linked to professional advancement. " was the lowest mean ($\bar{X}$ = 3.60).

The feasibility of guidelines for Information literacy, the levels from the highest to lowest mean were as follow: the highest mean was "2.Enhancing collaboration with local tech companies and universities to establish joint research projects, enabling schools to pilot innovative digital tools and receive expert guidance. " ($\overline{X}$ = 4.33), followed by "4.Strengthening school IT infrastructure by allocating dedicated funds for hardware, software, and maintenance, ensuring equitable access across rural campuses. " ($\overline{X}$ = 4.20), and "3.To further incentivize digital adoption, introduce performance-based rewards for principals who successfully integrate technology into teaching, linked to professional advancement. " was the lowest mean ($\overline{X}$ = 3.60).

Table 4.12 Mean and standard deviation of the suitability and feasibility of guidelines for Information literacy in ten aspects.

(N = 15)

Guidelines for improving information leadership of principals	Suitability			Feasibility		
	$\overline{X}$	S.D.	Level	$\overline{X}$	S.D.	Level
Information Management Ability						
1 Strengthening the establishment of a teacher-collaboration network using IT tools (e.g., online forums, shared calendars) to align departmental goals and reduce administrative overlap.	3.60	1.50	high	3.93	0.96	high
2 Enhancing the adoption of standardized digital workflows (e.g., automated reporting systems) to streamline repetitive tasks and free up time for strategic planning.	4.00	1.00	high	3.60	1.45	high
3 To further integrate parent participation, create a digital platform where parents can submit feedback on organizational reforms and track implementation progress.	3.80	0.86	high	3.73	1.33	high

Table 4.12 (Continue)

Guidelines for improving information leadership of principals	Suitability			Feasibility		
	$\overline{X}$	S.D.	Level	$\overline{X}$	S.D.	Level
4 Strengthening cross-functional roles for principals, such as assigning them oversight of both academic and IT departments to ensure tech-driven decisions align with school priorities.	4.13	1.19	high	3.93	1.10	high
5 Enhancing data-driven decision-making by implementing AI-powered tools to analyze student performance trends and adjust organizational structures proactively.	3.93	1.28	high	4.13	0.74	high
6 To further establish a "digital mentorship" program pairing principals with urban school leaders experienced in tech-based organizational restructuring.	4.20	0.77	high	4.40	0.51	high
7 Strengthening the use of cloud-based resource libraries to centralize lesson plans, policies, and training materials, reducing redundancy across classrooms.	4.07	0.80	high	3.80	1.01	high
8 Enhancing teacher accountability through IT-based performance dashboards that track adoption rates of digital tools and collaborative projects.	4.13	0.83	high	3.67	1.54	high

Table 4.12 (Continue)

	Guidelines for improving information leadership of principals	Suitability			Feasibility		
		$\overline{X}$	S.D.	Level	$\overline{X}$	S.D.	Level
9	To further pilot "flexible organizational models," allowing principals to experiment with hybrid roles (e.g., combining IT manager and curriculum developer) to adapt to rural needs.	3.60	1.35	high	3.87	1.06	high
10	Strengthening periodic audits of IT infrastructure to identify gaps in organizational efficiency, prioritizing upgrades that directly support decision-making processes.	3.67	1.23	high	3.93	0.96	high
	Total	**3.91**	**0.47**	**high**	**3.90**	**0.48**	**high**

According to table 4.12, the data show that the overall expert evaluation of the suitability and feasibility of the guideline for Information Management Ability is at the high level ($\overline{X}$ = 3.91, $\overline{X}$ = 3.90),indicating the high suitability and feasibility of the guideline.

The suitability of guidelines for Information Management Ability, the levels from the highest to lowest mean were as follow: the highest mean was "6.To further establish a "digital mentorship" program pairing principals with urban school leaders experienced in tech-based organizational restructuring. " ($\overline{X}$ = 4.20), followed by "4.Strengthening cross-functional roles for principals, such as assigning them oversight of both academic and IT departments to ensure tech-driven decisions align with school priorities. " and "8.Enhancing teacher accountability through IT-based performance dashboards that track adoption rates of digital tools and collaborative projects. " ($\overline{X}$ = 4.13), and "1.Strengthening the establishment of a teacher-collaboration network using IT tools (e.g., online forums, shared calendars) to align departmental goals and reduce administrative overlap. " was the lowest mean ($\overline{X}$ = 3.60).

The feasibility of guidelines for Information Management Ability, the levels from the highest to lowest mean were as follow: the highest mean was "6.To further establish a "digital mentorship" program pairing principals with urban school leaders experienced in tech-based organizational restructuring. " ($\overline{X}$ = 4.40), followed by "5.Enhancing data-driven decision-making by implementing AI-powered tools to analyze student performance trends and adjust organizational structures proactively. " ($\overline{X}$ = 4.13), and "2.TEnhancing the adoption of standardized digital workflows (e.g., automated reporting systems) to streamline repetitive tasks and free up time for strategic planning. ($\overline{X}$ = 3.60).

Table 4.13 Mean and standard deviation of the suitability and feasibility of guidelines for Information environment and resource construction ability in eight aspects.

(N= 15)

Guidelines for improving information leadership of principals	Suitability			Feasibility		
	$\overline{X}$	S.D.	Level	$\overline{X}$	S.D.	Level
Information environment and resource construction ability						
1 Strengthening community engagement through regular digital forums and town halls to transparently share progress on school information environment development, fostering trust and collaboration.	3.93	0.70	high	4.53	1.25	high
2 Enhancing parent-teacher partnerships by establishing a digital volunteer program where community members assist in maintaining IT infrastructure and training teachers.	4.00	0.38	high	4.33	0.62	high
3 To further integrate local culture into digital initiatives, collaborate with community elders to co-design culturally relevant e-learning content (e.g., traditional language courses	3.87	0.99	high	3.80	1.42	high

Table 4.13 (Continue)

Guidelines for improving information leadership of principals	Suitability			Feasibility		
	$\bar{X}$	S.D.	Level	$\bar{X}$	S.D.	Level
Information environment and resource construction ability						
4 Strengthening policy advocacy by organizing workshops for local government officials to highlight the role of community support in bridging rural-urban digital divides.	3.93	0.88	high	3.72	1.33	high
5 Enhancing resource sharing networks between schools and nearby villages, leveraging IT tools to pool funds and equipment for joint information environment projects.	3.87	0.99	high	4.20	0.94	high
6 To further empower young leaders, train high school students to act as "digital ambassadors" and send messages to their peers and families.	4.40	0.51	high	3.73	1.22	high
7 Strengthening feedback mechanisms by implementing QR code-based surveys in rural markets and community centers to gauge community needs for information services.	3.93	1.10	high	3.73	1.39	high
8 Enhancing public-private partnerships by collaborating with local businesses to sponsor digital literacy programs for parents and community members.	4.20	0.77	high	4.40	0.51	high
Total	**4.02**	**0.41**	**high**	**4.06**	**0.43**	**high**

According to table 4.13, the data show that the overall expert evaluation of the suitability and feasibility of the guideline for Information environment and resource construction ability is at the high level ($\overline{X}$ = 4.02, $\overline{X}$ = 4.06), indicating the high suitability and feasibility of the guideline.

The suitability of guidelines for Information environment and resource construction ability, the levels from the highest to lowest mean were as follow: the highest mean was "6.To further empower young leaders, train high school students to act as "digital ambassadors" and send messages to their peers and families." ($\overline{X}$ = 4.40), followed by "8.Enhancing public-private partnerships by collaborating with local businesses to sponsor digital literacy programs for parents and community members. "and "8.Enhancing teacher accountability through IT-based performance dashboards that track adoption rates of digital tools and collaborative projects." ($\overline{X}$ = 4.20), and "3.To further integrate local culture into digital initiatives, collaborate with community elders to co-design culturally relevant e-learning content (e.g., traditional language courses" and " 5.Enhancing resource sharing networks between schools and nearby villages, leveraging IT tools to pool funds and equipment for joint information environment projects. " was the lowest mean ($\overline{X}$ = 3.87).

The feasibility of guidelines for Information environment and resource construction ability, the levels from the highest to lowest mean were as follow: the highest mean was "1.Strengthening community engagement through regular digital forums and town halls to transparently share progress on school information environment development, fostering trust and collaboration. " ($\overline{X}$ = 4.53), followed by "8.Enhancing public-private partnerships by collaborating with local businesses to sponsor digital literacy programs for parents and community members. " ($\overline{X}$ = 4.40), and "4.Strengthening policy advocacy by organizing workshops for local government officials to highlight the role of community support in bridging rural-urban digital divides. ($\overline{X}$ = 3.72).

Table 4.14 Mean and standard deviation of the suitability and feasibility of guidelines for Information planning and design ability in ten aspects.

(N= 15)

Guidelines for improving information leadership of principals	Suitability			Feasibility		
	$\overline{X}$	S.D.	Level	$\overline{X}$	S.D.	Level
Information planning and design ability						
1 Strengthening cybersecurity protocols by implementing basic firewalls and regular password updates, especially for rural schools with limited IT staff.	3.87	0.64	high	3.73	0.88	high
2 Enhancing community oversight committees to monitor school IT budget allocation and infrastructure maintenance, ensuring transparency and accountability.	3.87	1.25	high	3.60	1.64	high
3 To further develop offline contingency plans for areas with unreliable internet, using USB drives or SD cards to store critical educational resources.	4.13	0.92	high	3.93	0.70	high
4 Strengthening teacher training on equipment troubleshooting (e.g., projector repairs, network connectivity checks) to reduce reliance on external tech support.	3.67	1.45	high	3.73	1.22	high
5 Enhancing partnerships with local businesses to donate outdated but functional hardware (e.g., laptops, printers) for school use.	3.73	1.33	high	3.93	0.88	high

Table 4.14 (Continue)

Guidelines for improving information leadership of principals	Suitability			Feasibility		
	$\overline{X}$	S.D.	Level	$\overline{X}$	S.D.	Level
Information planning and design ability						
6 To further integrate rural-specific risk management, such as establishing a "digital emergency fund" for unexpected infrastructure repairs.	4.00	0.53	high	4.07	0.96	high
7 Strengthening parent-child digital safety workshops, focusing on preventing cyberbullying and protecting personal data during online activities.	3.93	1.28	high	4.07	0.70	high
8 Enhancing collaboration with local government for periodic IT audits, prioritizing schools with high vulnerability to natural disasters (e.g., flood-prone regions).	4.13	1.06	high	4.20	0.56	high
9 To further leverage community volunteers to maintain school networks, training villagers in basic IT maintenance tasks (e.g., cable management).	4.27	0.59	high	3.93	0.88	high
10 Strengthening data encryption for student records stored on local servers, especially in schools without cloud storage access.	4.07	0.70	high	4.00	0.93	high
Total	**3.97**	**0.44**	**high**	**3.92**	**0.40**	**high**

According to table 4.14, the data show that the overall expert evaluation of the suitability and feasibility of the guideline for Information planning and design ability is at the high level ($\overline{X}$ = 3.97, $\overline{X}$ = 3.92), indicating the high suitability and feasibility of the guideline.

The suitability of guidelines for Information planning and design ability, the levels from the highest to lowest mean were as follow: the highest mean was "9.To further leverage community volunteers to maintain school networks, training villagers in basic IT maintenance tasks (e.g., cable management). " ($\overline{X}$ = 4.27), followed by "3.To further develop offline contingency plans for areas with unreliable internet, using USB drives or SD cards to store critical educational resources. " and "8.Enhancing collaboration with local government for periodic IT audits, prioritizing schools with high vulnerability to natural disasters (e.g., flood-prone regions). " ($\overline{X}$ = 4.13), and "4.Strengthening teacher training on equipment troubleshooting (e.g., projector repairs, network connectivity checks) to reduce reliance on external tech support. " ($\overline{X}$ = 3.67).

The feasibility of guidelines for Information planning and design ability, the levels from the highest to lowest mean were as follow: the highest mean was "8.Enhancing collaboration with local government for periodic IT audits, prioritizing schools with high vulnerability to natural disasters (e.g., flood-prone regions)." ($\overline{X}$ = 4.20), followed by "6.To further integrate rural-specific risk management, such as establishing a "digital emergency fund" for unexpected infrastructure repairs. "and"7.Strengthening parent-child digital safety workshops, focusing on preventing cyberbullying and protecting personal data during online activities. " ($\overline{X}$ = 4.07), and "2.Enhancing community oversight committees to monitor school IT budget allocation and infrastructure maintenance, ensuring transparency and accountability. " ($\overline{X}$ = 3.60).

Table 4.15 Mean and standard deviation of the suitability and feasibility of guidelines for in Information evaluate ability in ten aspects.

(N = 15)

Guidelines for improving information leadership of principals	Suitability			Feasibility		
	$\bar{X}$	S.D.	Level	$\bar{X}$	S.D.	Level
Information evaluate ability						
1 Strengthening teacher training programs on basic data analysis tools (e.g., spreadsheets, simple dashboards) to enhance their ability to interpret information evaluation results.	4.27	0.46	high	3.87	0.52	high
2 Enhancing community involvement by inviting local elders to review digital resource suitability for cultural sensitivity and rural relevance.	4.20	0.41	high	3.87	1.13	high
3 To further simplify evaluation processes, develop paper-based checklists for schools without reliable internet to track infrastructure status manually.	3.67	1.18	high	3.80	1.08	high
4 Strengthening cross-school collaboration, organizing periodic visits between rural schools to share risk identification strategies (e.g., equipment theft prevention).	3.60	1.59	high	4.07	1.03	high
5 Enhancing student feedback mechanisms, using classroom surveys or suggestion boxes to identify user experience issues with digital tools.	4.13	0.52	high	3.87	1.25	high

Table 4.15 (Continue)

Guidelines for improving information leadership of principals	Suitability			Feasibility		
	$\overline{X}$	S.D.	Level	$\overline{X}$	S.D.	Level
Information evaluate ability						
6 To further integrate traditional knowledge into evaluation criteria, collaborating with community members to assess the practicality of IT solutions in rural contexts.	3.87	0.92	high	3.80	0.86	high
7 Strengthening periodic equipment inventories using QR codes or simple barcoding systems to prevent asset loss or misuse.	4.00	0.65	high	3.67	1.05	high
8 Enhancing partnerships with local IT vendors for discounted maintenance services, prioritizing schools with high-risk IT infrastructure.	3.60	1.59	high	4.20	0.68	high
9 To further establish a "digital mentorship" program pairing urban teachers with rural principals to remotely support evaluation processes.	3.93	0.70	high	4.00	1.31	high
10 Strengthening crisis response protocols, such as creating offline emergency contact lists for IT suppliers and community volunteers.	3.73	0.70	high	3.73	1.10	high
Total	**3.90**	**0.39**	**high**	**3.89**	**0.47**	**high**

According to table 4.15, the data show that the overall expert evaluation of the suitability and feasibility of the guideline for Information evaluate ability is at the high level ($\overline{X}$ = 3.90, $\overline{X}$ = 3.89), indicating the high suitability and feasibility of the guideline.

The suitability of guidelines for Information evaluate ability, the levels from the highest to lowest mean were as follow: the highest mean was "1.Strengthening teacher training programs on basic data analysis tools (e.g., spreadsheets, simple dashboards) to enhance their ability to interpret information evaluation results." ($\overline{X}$ = 4.27), followed by "2.Enhancing community involvement by inviting local elders to review digital resource suitability for cultural sensitivity and rural relevance." ($\overline{X}$ = 4.20), and "4.Strengthening cross-school collaboration, organizing periodic visits between rural schools to share risk identification strategies (e.g., equipment theft prevention). " and "8.Enhancing partnerships with local IT vendors for discounted maintenance services, prioritizing schools with high-risk IT infrastructure. " was the lowest mean ($\overline{X}$ = 3.60).

The feasibility of guidelines for Information evaluate ability, the levels from the highest to lowest mean were as follow: the highest mean was "8.Enhancing partnerships with local IT vendors for discounted maintenance services, prioritizing schools with high-risk IT infrastructure. " ($\overline{X}$ = 4.20), followed by "4.Strengthening cross-school collaboration, organizing periodic visits between rural schools to share risk identification strategies (e.g., equipment theft prevention). " ($\overline{X}$ = 4.07), and "7. Strengthening periodic equipment inventories using QR codes or simple barcoding systems to prevent asset loss or misuse. " Was the lowest mean ($\overline{X}$ = 3.67).

Chapter 5
Conclusion Discussion and Recommendations

The aims of the present study include 1) To study the level of information leadership of rural primary schools principals in Guangxi. 2) To formulate the guidelines for improving information leadership of rural primary schools principals in Guangxi. 3) To evaluate the suitability and feasibility of improving guidelines for information leadership of rural primary schools principals in Guangxi, were including 5 following aspects: 1) Information literacy, 2) Information management ability, 3) Information environment and resource construction ability, and 4) Information planning and design ability, 5) Information evaluate ability. The sample group in this research were Principals (Vice Principal) or Teachers in of Rural Primary Schools Principals in Guangxi. The Interview group was Principals or Vice Principals. The research instruments were documents analysis, questionnaire, and structured interview. The statistic to analyze the data were percentage, average value, and standard deviation. The conclusion, discussion and recommendations of this research are as follows:

The details are as follows.

Conclusion

The research in the guidelines for improving Information Leadership of Rural Primary Schools Principals in Guangxi. The researcher summarizes the conclusion into 3 parts, details as follows:

Part 1: the current situation of information leadership of rural primary schools principals in Guangxi.

Part 2: the guilelines for information leadership of rural primary schools principals in Guangxi.

Part 3: the suitability and feasibility of the guidelines for information leadership of rural primary schools principals in Guangxi.

Part 1: the current situation of the current situation of information leadership of rural primary schools principals in Guangxi.

The current situation of information leadership of rural primary schools principals in Guangxi in five aspects was at a high level. Considering the results of this research aspects ranged from the highest to the lowest mean were as follows: the highest mean was information literacy, followed by Information environment and resource construction ability, Information evaluate ability was the lowest mean.

Information literacy was at a high level. Considering the results of this research aspects ranged from the highest to the lowest mean were as follows: the highest mean was The principal can integrate information analysis results to develop management strategies and teaching reform plans that align with the school's development needs. followed by The principal can systematically organize and manage collected information for quick retrieval and use when needed. The principal regularly learns and applies emerging educational technologies to improve teaching methods and enhance the school's level of digitalization.

Information management ability was at a high level. Considering the results of this research aspects ranged from the highest to the lowest mean were as follows: the highest mean was The principal enhances internal communication and collaboration within the school through information technology, followed by The principal actively seeks new applications of information technology to strengthen school management capabilities The principal is able to effectively use information technology to optimize the school’s organizational structure.

Information environment and resource construction ability was at a high level. Considering the results of this research aspects ranged from the highest to the lowest mean were as follows: the highest mean was The principal actively supervises and manages the upgrading and maintenance of information hardware in the school, followed by The principal encourages teachers and staff to adopt information technology in their teaching practices, The principal monitors the social support and participation of the community in the school’s information environment development.

Information planning and design ability was at a high level. Considering the results of this research aspects ranged from the highest to the lowest mean were as follows: the highest mean was The principal is able to design effective information system infrastructure to support the development of school information, followed by The principal is able to make informed decisions regarding the allocation of school information resources, The principal is able to effectively manage risks and challenges in school information construction.

Information evaluate ability was at a high level. Considering the results of this research aspects ranged from the highest to the lowest mean were as follows: the highest mean was The principal regularly evaluates the various components of the school’s information system to ensure its effectiveness, followed by The principal uses evaluations of the current status of the school's information system to determine appropriate improvement measure, The principal identifies and addresses potential risks and issues during the information evaluation process.

Part 2: the guilelines for information leadership of rural primary schools principals in Guangxi.

The guidelines for information leadership in five aspects, which contain 48measures. There are 10 measures for information literacy, 10 measures for information management ability, 8 measures for information environment and resource construction ability, 10 measures for information planning and design ability, and 8 measures for information evaluate ability.

Information literacy consisted of 10 measures: 1) Strengthening regular training programs for principals on emerging educational technologies, integrating hands-on workshops and case studies to bridge theory with practice. 2) Enhancing collaboration with local tech companies and universities to establish joint research projects, enabling schools to pilot innovative digital tools and receive expert guidance. 3)To further incentivize digital adoption, introduce performance-based rewards for principals who successfully integrate technology into teaching, linked to professional advancement. 4) Strengthening school IT infrastructure by allocating dedicated funds for hardware, software, and maintenance, ensuring equitable access across rural campuses. 5) Enhancing policy communication through multilingual parent-teacher workshops, showcasing how digital tools benefit student learning to build community support. 6) To further empower teachers as digital mentors, establish peer-led training cohorts where experienced staff assist principals in mastering new technologies step-by-step. 7) Strengthening the role of regional education hubs to curate regionalized digital resource libraries, addressing unique challenges faced by rural schools. 8) Enhancing data-driven decision-making by providing principals with analytics dashboards to monitor tech adoption impact, enabling targeted improvement strategies. 9) To further foster innovation, organize annual "Tech Integration Idea Competitions" for principals, rewarding creative solutions with implementation grants. 10) Strengthening policy flexibility to allow schools to experiment with phased digital transitions, offering grace periods for adaptation while maintaining accountability.

Information management tability consisted of 10 measures: 1) Strengthening the establishment of a teacher-collaboration network using IT tools (e.g., online forums, shared calendars) to align departmental goals and reduce administrative overlap. 2) Enhancing the adoption of standardized digital workflows (e.g., automated reporting systems) to streamline repetitive tasks and free up time for strategic planning. 3) To further integrate parent participation, create a digital platform where parents can submit feedback on organizational reforms and track implementation progress. 4) Strengthening cross-functional roles for principals, such as assigning them oversight of both academic and IT departments to ensure tech-driven decisions align with school priorities. 5) Enhancing data-driven decision-making by implementing AI-powered tools to analyze student performance trends and adjust organizational structures proactively. 6) To further establish a "digital mentorship" program pairing principals with urban school leaders experienced in tech-based organizational restructuring. 7) Strengthening the use of cloud-based resource libraries to centralize lesson plans, policies, and training materials, reducing redundancy across classrooms. 8) Enhancing teacher accountability through IT-based performance dashboards that track adoption rates of digital tools and collaborative projects. 9) To further pilot "flexible organizational models," allowing principals to experiment with hybrid roles (e.g., combining IT manager and curriculum developer) to adapt to rural needs. 10) Strengthening periodic audits of IT infrastructure to identify gaps in organizational efficiency, prioritizing upgrades that directly support decision-making processes.

Information environment and resource construction ability consisted of 8 measures: 1) Strengthening community engagement through regular digital forums and town halls to transparently share progress on school information environment development, fostering trust and collaboration. 2) Enhancing parent-teacher partnerships by establishing a digital volunteer program where community members assist in maintaining IT infrastructure and training teachers. 3) To further integrate local culture into digital initiatives, collaborate with community elders to co-design culturally relevant e-learning content (e.g., traditional language courses). 4) Strengthening policy advocacy by organizing workshops for local government officials to highlight the role of community support in bridging rural-urban digital divides. 5) Enhancing resource sharing networks between schools and nearby villages, leveraging IT tools to pool funds and equipment for joint information environment projects. 6) To further empower young leaders, train high school students to act as "digital ambassadors" and send messages to their peers and families. 7) Strengthening feedback mechanisms by implementing QR code-based surveys in rural markets and community centers to gauge community needs for information services. 8) Enhancing public-private partnerships by collaborating with local businesses to sponsor digital literacy programs for parents and community members.

Information planning and design ability consisted of 10 measures: 1) Strengthening cybersecurity protocols by implementing basic firewalls and regular password updates, especially for rural schools with limited IT staff. 2) Enhancing community oversight committees to monitor school IT budget allocation and infrastructure maintenance, ensuring transparency and accountability. 3) To further develop offline contingency plans for areas with unreliable internet, using USB drives or SD cards to store critical educational resources. 4) Strengthening teacher training on equipment troubleshooting (e.g., projector repairs, network connectivity checks) to reduce reliance on external tech support. 5) Enhancing partnerships with local businesses to donate outdated but functional hardware (e.g., laptops, printers) for school use. 6) To further integrate rural-specific risk management, such as establishing a "digital emergency fund" for unexpected infrastructure repairs. 7) Strengthening parent-child digital safety workshops, focusing on preventing cyberbullying and protecting personal data during online activities. 8) Enhancing collaboration with local government for periodic IT audits, prioritizing schools with high vulnerability to natural disasters (e.g., flood-prone regions). 9) To further leverage community volunteers to maintain school networks, training villagers in basic IT maintenance tasks (e.g., cable management). 10) Strengthening data encryption for student records stored on local servers, especially in schools without cloud storage access.

Information evaluate ability consisted of 10 measures: 1) Strengthening teacher training programs on basic data analysis tools (e.g., spreadsheets, simple dashboards) to enhance their ability to interpret information evaluation results. 2) Enhancing community involvement by inviting local elders to review digital resource suitability for cultural sensitivity and rural relevance. 3) To further simplify evaluation processes, develop paper-based checklists for schools without reliable internet to track infrastructure status manually.4) Strengthening cross-school collaboration, organizing periodic visits between rural schools to share risk identification strategies (e.g., equipment theft prevention). 5) Enhancing student feedback mechanisms, using classroom surveys or suggestion boxes to identify user experience issues with digital tools. 6) To further integrate traditional knowledge into evaluation criteria, collaborating with community members to assess the practicality of IT solutions in rural contexts. 7) Strengthening periodic equipment inventories using QR codes or simple barcoding systems to prevent asset loss or misuse. 8) Enhancing partnerships with local IT vendors for discounted maintenance services, prioritizing schools with high-risk IT infrastructure. 9) To further establish a "digital mentorship" program pairing urban teachers with rural principals to remotely support evaluation processes. 10) Strengthening crisis response protocols, such as creating offline emergency contact lists for IT suppliers and community volunteers.

Part 3: the suitability and feasibility of the guidelines for information leadership of rural primary schools principals in Guangxi.

The suitability and feasibility of guidelines for information leadership in five aspects were at high level with the values between 3.50 – 4.49, which means the guidelines for sinformation leadership are suitability and feasibility.

The suitability and feasibility of Information literacy was high level, indicating the high suitability and feasibility of the guideline.

The suitability and feasibility of Information management ability was highlevel, indicating the high suitability and feasibility of the guideline.

The suitability and feasibility of Information environment and resource construction ability was high level, indicating the high suitability and feasibility of the guideline.

The suitability and feasibility of Information planning and design ability was high level, indicating the high suitability and feasibility of the guideline.

The suitability and feasibility of Information evaluate ability was high level, indicating the high suitability and feasibility of the guideline.

Discussion

The research in the guidelines for information leadership of rural primary schools principals in Guangxi. The researcher summarizes the discussion into 3 parts, details as follows:

Part 1: The current situation of sinformation leadership of rural primary schools principals in Guangxi.

Part 2: The guilelines for information leadership of rural primary schools principals in Guangxi.

Part 3: The suitability and feasibility of the guidelines for information leadership of rural primary schools principals in Guangxi.

Part 1: The current situation of the current situation of information leadership of rural primary schools principals in Guangxi.

The curruent of **information leadership** in five aspetcts was at high level. Including Information literacy, Information management ability, Information environment and resource construction ability, Information planning and design ability, Information evaluate ability. The results of this research aspects ranged from the highest to lowest level were as follow: the highest mean was Information environment and resource construction ability, followed by Information planning and design ability, and Information literacy was the lowest mean. This is because Low information literacy may be due to the fact that it includes soft skills such as teacher training and data ethics, which require continuous learning and updating, while principals are limited by administrative pressure and the speed of technology iteration, which may lead to the tendency to "emphasize construction rather than application" in practice. In addition, the assessment of information literacy involves personal cognitive dimensions, and there may be self-assessment conservatism. Related to Anqi concept (Cao Anqi, 2016, p.17-19) Teachers generally reported a "lack of systematic digital training", which corroborates the lack of practice in the literacy dimensions of knowledge updating and ethical guidance of pincipal, and is consistent with the lowest score on the questionnaire for information literacy. Weaknesses in the application of technology in the dimension of "Educational Leadership" (e.g., insufficient development of digital tools for after-school services), lack of awareness of data ethics in the dimension of "Value Leadership" (risks of information handling in the context of home-school collaboration), and the focus of pincipal' promotion strategies on "theoretical knowledge" without mentioning information skills training reflect structural shortcomings in information literacy (Liu Huan, 2022, p.29-32).

Information literacy was at high level. This is because This may be due to the promotion of education informatisation policies (e.g., the demand for technology in the "Double Reduction" policy),the improvement of regionalised training systems (e.g., the regularisation of the National Information Literacy Enhancement Project for Teachers and Students),the popularisation of technological tools (e.g., the widespread use of AI-assisted management systems),as well as pincipal' own attention to information ethics (e.g.prevention of data leakage and academic fraud).

Related to Elken concept (Elken, 2023, p87-91) in setting teaching goals, it is necessary to follow new ideas and optimise the way of teaching leadership; to improve personal qualities and show the charm of teaching; and to enhance the comprehensive ability and strengthen the teaching leadership. In guiding the organisation of teaching, it is necessary to respect the demands of teachers and students, improve the ability to reflect on and change the system, accumulate experience in teaching leadership, actively promote the work of teaching guidance, enrich the way of teaching guidance and introduce a mechanism for the participation of teachers and staff. Information literacy needs to be systematically improved in terms of awareness, application and ethics, emphasising the need for the deep integration of technology and education." Information literacy is a survival skill for the digital age," and programming education and hands-on projects can eliminate technological fears and inspire initiative (Chen Sizhu, 2024, p.57-60).Tiered teaching promotes information literacy and differentiated curriculum design to meet different competency needs (Chen Yu & Ma Jieshu, 2021, p.12-16).Information literacy is the fundamental ability to acquire, evaluate and use information, which directly affects the quality of decision-making (Chen Yuhuan, 2019, p.12-14).Information literacy education needs to start from basic education, and early exposure to technology lays the foundation for lifelong learning ability (Chen Xinxin & Zhang Shuang, 2023, p.149-154).

Information management ability was at high level. This is because the higher information management capacity of primary school principals may be attributed to the standardised processes promoted by the education informatisation policy, such as the popularisation of data-sharing platforms, the regular full-staff training mechanism, such as training in information ethics and system operation, the application of intelligent tools, such as the ERP system to simplify the management of affairs, as well as the strengthening of pincipal' co-ordination capacity in cross-departmental collaboration.Related to Jichunmei et concept (Ji Chunmei et al., 2024, p.79-86)Headmaster leadership had a significant positive positive effect on rural teachers' affective commitment; organisational identity partially mediated the relationship between headmaster leadership and rural teachers' affective commitment; and perceptions of organisational support positively moderated the relationship between headmaster leadership and rural teachers' organisational identity and further moderated the mediating effect of organisational identity on the relationship between headmaster leadership and rural teachers' affective commitment. Information technology in government affairs improves management effectiveness through data sharing and process re-engineering, and the evolvability of the technical architecture ensures continuous optimization (DuXiaojie, 2021, p121-126) Business collaboration and data sharing mechanisms break through information silos and promote management transparency and scientific decision-making (Hu Tianzhu, 2022, p.64-83).Information management requires a blend of technological tools and institutional innovation, and a tiered training system can bridge the competency gap (Jiang Yajuan et al., 2024, p.32-37). Information technology in government affairs improves management effectiveness through data sharing and process re-engineering, and the evolvability of the technical architecture ensures continuous optimization (Du Xiaojie, 2021, p.121-126). Digital technology reduces information distortion by automatically collecting real data, making management decisions more accurate and efficient (Gao Yan, 2015, p.83-88).

Information environment and resource construction ability was at high level. This is because Thanks to policy drivers, such as the Digital Strategy for Education initiative to strengthen hardware investment, regional synergies, such as urban-rural digital education communities to promote resource sharing, technology diffusion, such as classroom-to-class communication and full coverage of smart classrooms, as well as pincipal' ability to coordinate resource integration, such as cross-sectoral collaboration and the optimisation of data governance mechanisms. Related to Anselmus Dami et al concept (Anselmus Dami et al., 2022, p41-44) the leadership of the headmaster is the ability to think and design school development, the ability to organise and deploy all kinds of resources, and the ability to identify, diagnose and solve problems, pincipal need to systematically promote digital transformation through top-level design, embed technology applications into curriculum construction and campus management, and reconstruct the education ecosystem with information leadership. Information management capacity is reflected in the digital construction of curriculum resources, and pincipal need to optimise the mechanism of resource integration and sharing in a data-driven manner to support the needs of personalised teaching and learning (Ju Wei, 2021, p.62-64). pincipal' digital leadership needs to integrate technology with teaching and learning processes, shift from "information empowerment" to "digital creativity", and promote scientific management decisions and visualisation of assessment(Kang Zhongqiu, 2018,p28-29).Information technology leadership is the core responsibility of pincipal, who need to realise the deep synergy between technology and education through planning, implementation and evaluation, and bridge the resource gap between urban and rural areas (Li Yinghui, 2024, p.42-47). Information management needs to be rooted in serviceability, with flat organisational structures to enhance execution efficiency, and pincipal focusing on strategic integration rather than transactional intervention (Liu Chao, 2018, p.52-56).

Information planning and design ability was at high level. This is because Thanks to policy-driven systematic training, such as the Ministry of Education's Informatisation 2.0 project, which strengthens strategic thinking, regional education synergy mechanisms, the building of platforms for integrating urban and rural resources, the popularisation of technological tools, such as the application of auxiliary planning tools, such as BIM, GIS, etc., as well as the coordination skills of school pincipal demonstrated in top-level design, such as the balancing of short-term needs with a long-term vision.Related to (Liang Haonan & Zhou Qin Concept (Liang Haonan & Zhou Qin, 2021, p.35-46) To establish a localised assessment framework and theoretical model of headmaster leadership to enhance the credibility of the study; to reveal the mechanisms and principles of headmaster leadership in real situations to bridge the ecological validity of the study; to conform to the development trend of the professionalisation of education and school management to enhance the practicality of the study; and to pay attention to the new media, to focus on the epochal nature of the study,the headmaster's top-level planning needs to be learner-centred, co-ordinating the digitisation of curriculum resources and the optimisation of teaching and learning processes, and realising the co-construction of dynamic resources through collaborative teaching and research. Flat management structure to enhance the efficiency of planning, the headmaster needs to "four beams and eight pillars" organisational model to integrate people, things and materials, to break the implementation of the blockage point bachelor's degree (Qiao Lin, 2020, p.51-55).The concept of "big platform, medium system, small application" emphasises the need for planning to be layered, avoiding functional redundancy and improving operability through modular design (QiuXinmei, 2018, p.39-42).The project-based learning model promotes interdisciplinary planning and integration, and pincipal need to lead the deep synergy between technology and curriculum to form replicable school-based programmes (Wang Qiongqiong, 2020, p.48-54). Planning needs to be in line with the law, and pincipal should be based on the pattern of "Seeing Heaven and Earth", combining scientific management methods with the vision of education, and achieving a balance between strategy and practicality (Wang Xin, 2019, p.62-65).

Information evaluate ability was at high level. This is because Primary school principals have a high capacity for information assessment, thanks mainly to policy-driven standardized assessment frameworks, such as the requirements of the Overall Programme for Deepening Education Evaluation Reform in the New Era, technology-enabled dynamic monitoring, such as AI behavioural analysis and the Smart Campus data platform, and diagnostic improvement mechanisms such as the "assessment-improvement" mechanism. Re-assessment" model, and the accumulation of pincipal' practices in data-driven decision-making, such as optimising teaching strategies based on students' comprehensive quality assessment. Related to Luo Tongbi & Fei MingweiConcept (Luo Tongbi & Fei Mingwei, 2019, p1-2) As the legal representative and the highest decision-maker of the school, the headmaster's management philosophy and style of operation determine the uniqueness of the school's campus culture. This paper combines the thinking and practice of the construction of campus culture of Chongqing Beibei Vocational Education Centre to discuss how the school in the construction of campus culture, in-depth excavation of Mr. Liang Shuming's educational ideas, play the leadership of the headmaster, carry out the concept of culture, behavioural culture, curriculum culture, environmental culture construction, Mathematical assessment needs to be integrated into the "diagnosis-reform" closed loop, and pincipal should optimise the teaching and learning process through real-time data feedback, so as to make the leap from empirical decision-making to scientific governance. Information Technology Cracks Assessment Challenges, Principals Need to Use Multimodal Data to Build Student Development Portraits and Promote Personalised Assessment and Instructional Interventions (Wu Jieyi, 2023, p.66-69). Knowledge mapping and competency mapping technologies support whole-factor dynamic analyses, and pincipal should lead the design of data-driven assessment systems (Wang, 2019, p.76-79). Improvement of assessment capacity relies on the "tool-scenario-data" trinity, and pincipal need to strengthen teachers' data literacy to ensure assessment validity (Jun fang, 2021, p.44-49). Systematic evaluation needs to cover the three dimensions of application, effectiveness and experience, and pincipal should establish a regular "self-assessment-feedback" mechanism to continuously optimise decision-making (Zhao Shuxian, 2025, p.27-31).

Part 2: The guilelines for improving information leadership of rural primary schools principals in Guangxi

The guidelines for information leadership in five aspects, which contain 48measures. There are 10 measures for information literacy, 10 measures for information management ability,8 measures for information environment and resource construction ability, 10 measures for information planning and design ability, and 8 measures for information evaluate ability.

Information literacy consisted of 10 measures: 1) Strengthening regular training programs for principals on emerging educational technologies, integrating hands-on workshops and case studies to bridge theory with practice. 2) Enhancing collaboration with local tech companies and universities to establish joint research projects, enabling schools to pilot innovative digital tools and receive expert guidance. 3) To further incentivize digital adoption, introduce performance-based rewards for principals who successfully integrate technology into teaching, linked to professional advancement. 4) Strengthening school IT infrastructure by allocating dedicated funds for hardware, software, and maintenance, ensuring equitable access across rural campuses. 5) Enhancing policy communication through multilingual parent-teacher workshops, showcasing how digital tools benefit student learning to build community support. 6) To further empower teachers as digital mentors, establish peer-led training cohorts where experienced staff assist principals in mastering new technologies step-by-step. 7) Strengthening the role of regional education hubs to curate regionalized digital resource libraries, addressing unique challenges faced by rural schools. 8) Enhancing data-driven decision-making by providing principals with analytics dashboards to monitor tech adoption impact, enabling targeted improvement strategies. 9) To further foster innovation, organize annual "Tech Integration Idea Competitions" for principals, rewarding creative solutions with implementation grants. 10) Strengthening policy flexibility to allow schools to experiment with phased digital transitions, offering grace periods for adaptation while maintaining accountability.

This is because rural primary school principals face challenges in applying educational technologies, integrating resources, analyzing data, and engaging with communities, yet they also show strong willingness and potential for growth. As a result, the guidelines emphasize both the enhancement of principals' individual capacities—through training, practice, and incentive mechanisms—and the improvement of external support systems, such as infrastructure investment, policy flexibility, and community collaboration. In this way, the results reflect the combined influence of individual competence, school conditions, and policy environment in advancing digitalization in rural education.

There guidelines were summarized based on the respondents' recommendations, this is consistent with the results of some studies. Principals need to lead the design of the digital training system, embed technology application into curriculum development and teacher training, and achieve cognitive upgrading through the 'tiered training + case study' model (Chabalala & Naidoo, 2021, p.29-36). Constructing a 'data portrait - dynamic feedback - strategy iteration' closed loop, pincipal should accurately locate bottlenecks in technology application through multi-modal data analysis and drive optimisation of teaching and learning processes, Suggesting that pincipal of inclusive schools need to improve their personal technical leadership, interpersonal leadership, educational leadership, symbolic leadership and cultural leadershi (Luo Yueling & Li Huan, 2023, p.10-15). Headmaster Leadership as a Powerful Driver of School Change and Development," Build 'digital pedestals' in a hierarchical manner, integrate regional resource platforms and school-enterprise co-operation projects, and reduce the risk of technology application through the 'pilot-propagation' model." (Ma Li & Liu Lijin, 2021, p.8-12). Wisdom education empowers rural pincipal to develop high-quality leadership, which is the prerequisite and key engine for boosting rural revitalisation and the in-depth implementation of the strategy of developing the country through science and education, accelerating the realisation of the dream of a strong education nation, and is also the essential requirement of Chinese modernisation for rural education, reconstruct teachers' technology application capabilities with 'project-based learning', and pincipal need to promote interdisciplinary integration projects (e.g., programming + science) to enhance digital literacy in authentic problem solving (Xiao Ying, 2024, p.65-72). Leading the development of IT teaching and learning in schools and improving one's own IT teaching and learning leadership have also become the most urgent tasks to improve the quality of school operation and promote the development of students, optimising campus digital spaces (e.g. maker workshops, virtual labs), pincipal should lead the design of hardware upgrades and operation and maintenance mechanisms to ensure regular use of technology tools (Yang Xin, 2016, p.112-120). As the manager and leader of the school, the headmaster plays a vital role in the development of the school,he basic education stage needs to be embedded in AI ethics and tool use courses, and pincipal should promote school-enterprise cooperation to develop customised teaching systems (e.g., smart assessment tools) to form a full chain of technological awareness(Yang Lanping, 2024, p.86-95).Primary school principals, as the first person in charge of the school, have an important mission and responsibility, which is a great test of their educational leadership, establish a 'government-enterprise-school' tripartite collaboration mechanism to guarantee digital equity in rural schools through special funding and policy exemptions (e.g., green channels for equipment procurement) (Meng Jia, 2023, p.43-48).

Information management ability consisted of 10 measures:1) Strengthening the establishment of a teacher-collaboration network using IT tools (e.g., online forums, shared calendars) to align departmental goals and reduce administrative overlap. 2) Enhancing the adoption of standardized digital workflows (e.g., automated reporting systems) to streamline repetitive tasks and free up time for strategic planning. 3) To further integrate parent participation, create a digital platform where parents can submit feedback on organizational reforms and track implementation progress. 4) Strengthening cross-functional roles for principals, such as assigning them oversight of both academic and IT departments to ensure tech-driven decisions align with school priorities. 5) Enhancing data-driven decision-making by implementing AI-powered tools to analyze student performance trends and adjust organizational structures proactively. 6) To further establish a "digital mentorship" program pairing principals with urban school leaders experienced in tech-based organizational restructuring. 7) Strengthening the use of cloud-based resource libraries to centralize lesson plans, policies, and training materials, reducing redundancy across classrooms. 8) Enhancing teacher accountability through IT-based performance dashboards that track adoption rates of digital tools and collaborative projects. 9) To further pilot "flexible organizational models," allowing principals to experiment with hybrid roles (e.g., combining IT manager and curriculum developer) to adapt to rural needs. 10) Strengthening periodic audits of IT infrastructure to identify gaps in organizational efficiency, prioritizing upgrades that directly support decision-making processes.

This is because rural primary school principals often face difficulties in coordinating resources, managing information flow, and making timely, data-driven decisions, largely due to limited infrastructure and fragmented organizational practices. At the same time, they demonstrated a strong demand for practical digital tools and collaborative mechanisms that could reduce administrative burdens and improve efficiency. Therefore, the proposed measures highlight both the optimization of internal processes—such as standardized workflows, digital platforms, and cloud-based resource sharing—and the expansion of external support, including mentorship programs and infrastructure audits. These findings reflect the necessity of integrating technological tools with leadership practices to enhance principals' information management ability and promote sustainable school development.

There guidelines were summarized based on the respondents' recommendations, this is consistent with the results of some studies. It is advocated that AIGC technology should be integrated into data literacy education to optimise the whole process of data collection, analysis and visualisation through AI tools.For example, using AI to analyse student performance trends and generate dynamic reports can provide pincipal with an accurate basis for decision-making, while building a cloud-based resource library to achieve intelligent management of lesson plans and policy documents (Kuaoyu et al., 2023, p.221-226). Emphasis is placed on the need for information management to rely on "cross-disciplinary thematic" design, and the integration of home-school-social resources through technological tools. For example, the creation of a digital platform for parents to participate in organisational reform feedback can enhance transparency and community collaboration, in line with the Digital China strategy's goal of making public services more accessible 3 (Hai Ying & Wen Quan, 2022, p.37-45). Promote "layered technology application" to lower the technology barrier through gamified programming and project-based learning. pincipal can pair up with urban schools through the Digital Mentorship Programme, and draw on mixed-role management models (e.g. IT manager-cum-curriculum developer) to flexibly adapt to the needs of rural schools510(Hui Fang, 2024, p.54-59). Data-driven optimisation of management processes is advocated, with real-time tracking of tool usage and project effectiveness through performance dashboards. For example, standardised digital workflows (e.g. automated reporting systems) can reduce administrative redundancies while strengthening teacher accountability mechanisms. Calls for the embedding of AI ethics and tool use curricula at the basic education level, the development of customised management systems (e.g. smart auditing tools) through school-enterprise partnerships, the regular assessment of infrastructure efficiency, and the prioritisation of support for decision-making-related upgrades (Xin Ping, 2023, p.9-12). Emphasise the need for pincipal to take the lead in 'top-level design', coordinating the use of technology and strategic goals through cross-functional roles (e.g., managing both academic and IT departments).For example, online forums and shared calendars can enhance faculty collaborative networks and align departmental goals (Li Ping et al., 2024, p.9-14). The concept of building a "digital pedestal" to integrate regional resource platforms and standardised processes. For example, a cloud-based lesson plan repository can centralise resource management and reduce redundancy, and a flexible organisation model can adjust the job structure in line with the actual needs of rural areas (Jie, 2022, p.92-96) .It is recommended that an intelligent evaluation model be established to dynamically assess management effectiveness through multi-dimensional data (e.g., tool usage rate, effectiveness of collaborative projects).For example, a performance dashboard can quantify teachers' digital practices, which can be combined with regular audits to form a closed-loop improvement mechanism (Hong Juan, 2018, p.67-72).

Information environment and resource construction ability consisted of 8measures: 1) Strengthening community engagement through regular digital forums and town halls to transparently share progress on school information environment development, fostering trust and collaboration. 2) Enhancing parent-teacher partnerships by establishing a digital volunteer program where community members assist in maintaining IT infrastructure and training teachers.3)To further integrate local culture into digital initiatives, collaborate with community elders to co-design culturally relevant e-learning content (e.g., traditional language courses). 4) Strengthening policy advocacy by organizing workshops for local government officials to highlight the role of community support in bridging rural-urban digital divides. 5) Enhancing resource sharing networks between schools and nearby villages, leveraging IT tools to pool funds and equipment for joint information environment projects. 6) To further empower young leaders, train high school students to act as "digital ambassadors" and send messages to their peers and families. 7) Strengthening feedback mechanisms by implementing QR code-based surveys in rural markets and community centers to gauge community needs for information services. 8) Enhancing public-private partnerships by collaborating with local businesses to sponsor digital literacy programs for parents and community members.

This is because the development of the information environment in rural schools cannot rely solely on principals or teachers, but requires strong collaboration with parents, communities, local governments, and even private enterprises. Rural schools often face limited resources, cultural diversity, and a lack of technical expertise, yet they are embedded in communities with rich cultural assets and social networks. Therefore, the proposed measures emphasize community engagement, cultural integration, cross-sector cooperation, and innovative feedback mechanisms to ensure that information environment construction is not only sustainable but also inclusive and culturally relevant. These findings highlight that building a supportive ecosystem is essential for bridging the rural-urban digital divide and enhancing resource sharing.

There guidelines were summarized based on the respondents' recommendations, this is consistent with the results of some studies. Schools should share the progress of informatisation with the community through transparent communication mechanisms to promote home-school-community synergy. He believes that community participation enhances trust, especially in rural areas, and that parents need to be made to understand the significance of informatisation for educational equity through public meetings and activities to form a synergy of co-construction (Chabalala & Naidoo, 2021, p.1-10). In analysing the PPP model of education informatisation, he emphasised that the involvement of community members in equipment maintenance and teacher training can reduce school operating costs while enhancing a sense of community belonging. He suggested transforming parents into "technology partners" through volunteer programmes, such as organising parents to learn basic equipment management and forming mutual support networks (Warisno & Hidayah, 2022, p.603-616). Information literacy education needs to be integrated with local culture. He believes that inviting community elders to participate in curriculum design (e.g. digitisation of traditional languages) can not only preserve cultural heritage, but also enhance students' sense of identity with local culture, thus achieving the integration of technology and humanity (Xiao Yumin, 2007, p.7-8). It was suggested that the strategic value of information technology in education should be conveyed to government officials through policy briefings, with particular attention to the distribution of resources between urban and rural areas.He pointed out that local governments need to incorporate education informatisation into their development plans and reduce regional disparities through financial support and policy inclination (Yang Lanping, 2024, p.13-24). Integrating resources through regionalised education informatisation platforms can avoid duplication of construction. For example, joint procurement of equipment and sharing of high-quality courses by multiple schools, and the use of cloud computing technology to realise cross-school collaboration and reduce the cost of a single school (Somantri & Iskandar, 2021, p.336-343).Platforms such as the Youth Information Literacy Competition can train students to become "digital leaders". He believes that high school students, with their technological sensitivity and communication skills, can promote the spread of digital skills in the community through peer education and family guidance (Tonich, 2021, p.47-75). Informatisation assessment needs to be based on actual needs. He suggested that schools should use digital tools (e.g. QR code questionnaires) to quickly collect community feedback and dynamically adjust the direction of resource building to ensure the effectiveness of the programme (Wang Qiongqiong, 2020, p.38-42). Public-private partnership is the key to the sustainable development of education informatisation. Enterprises can provide financial and technical support, while schools design training programmes, such as basic skills for parents on smartphone use and cyber security, to enhance the overall digital literacy of the community(Guo Lijuan, 2024,p66-69).

Information planning and design ability consisted of 10 measures: 1) Strengthening cybersecurity protocols by implementing basic firewalls and regular password updates, especially for rural schools with limited IT staff. 2) Enhancing community oversight committees to monitor school IT budget allocation and infrastructure maintenance, ensuring transparency and accountability. 3) To further develop offline contingency plans for areas with unreliable internet, using USB drives or SD cards to store critical educational resources. 4) Strengthening teacher training on equipment troubleshooting (e.g., projector repairs, network connectivity checks) to reduce reliance on external tech support. 5) Enhancing partnerships with local businesses to donate outdated but functional hardware (e.g., laptops, printers) for school use. 6) To further integrate rural-specific risk management, such as establishing a "digital emergency fund" for unexpected infrastructure repairs. 7) Strengthening parent-child digital safety workshops, focusing on preventing cyberbullying and protecting personal data during online activities. 8) Enhancing collaboration with local government for periodic IT audits, prioritizing schools with high vulnerability to natural disasters (e.g., flood-prone regions). 9) To further leverage community volunteers to maintain school networks, training villagers in basic IT maintenance tasks (e.g., cable management). 10) Strengthening data encryption for student records stored on local servers, especially in schools without cloud storage access.

This is because rural schools often face fragile digital infrastructures, limited professional IT staff, and heightened risks from both cyber threats and environmental factors such as natural disasters. At the same time, they rely heavily on community support and external partnerships to compensate for resource shortages. Therefore, the proposed measures emphasize practical planning strategies such as cybersecurity protocols, offline contingency plans, and risk management funds, while also promoting collaborative mechanisms like community oversight, business donations, and government audits. These findings reflect that strengthening information planning and design ability requires balancing technical safeguards with localized, community-driven solutions to ensure both security and sustainability in rural education.

There guidelines were summarized based on the respondents' recommendations, this is consistent with the results of some studies. Rural schools should establish a basic network security framework, regularly update passwords and deploy firewalls. pincipal need to promote the development of security norms by IT staff in collaboration with teachers, and to reduce the risk of cyber-attacks by reinforcing security awareness among all staff through training (De Jong et al., 2022, p.44-49).pincipal should bring in community oversight committees to review budgets and ensure that funds are invested in infrastructure maintenance. Transparent procurement processes and maintenance records, regular publication of audit reports, and accountability mechanisms to drive efficient resource allocation (Ghavifekr & Wong, 2022,p121-127). Areas with unstable networks need to build 'dual-track' educational resource reserves: online platforms and offline storage in parallel. pincipal should organise teachers to back up core curriculum resources to USB and other devices to ensure teaching continuity (Yi Di, 2020, p.35-42). pincipal need to incorporate equipment maintenance skills into the teacher training system, and improve teachers' ability to independently solve common problems such as projectors and network connections through simulated fault drills and the preparation of operation manuals, so as to reduce operation and maintenance costs (Ying, 2024, p.35-38) . pincipal should take the initiative to connect with CSR programmes to receive tested second-hand hardware equipment. Establish an equipment registration and maintenance system, and organise students to participate in simple maintenance practices to develop technical literacy (Yu, 2023, p.46-54).Set up a special fund to cope with sudden infrastructure failures. The headmaster may join hands with the Parents' Committee and Alumni Association to raise funds. Develop a graded response plan to ensure quick repairs in case of natural disasters or equipment damage (YaoHui, 2025, p.59-60). pincipal need to organise 'home-school linkage' digital safety education to help parents identify the risk of cyberbullying, guide their children to use social media safely and protect personal data through case studies and scenarios (Yao Hui, 2025, p.49-58). pincipal should take the initiative to apply to the government auditing department to assess the effectiveness of IT investment in schools, prioritise access to funding for technological improvements in weak schools such as flood prevention districts, and optimise resource allocation based on audit results (Pramahsari & Triatna, 2021, p.58-65).

Information evaluate ability consisted of 10measures: 1) Strengthening teacher training programs on basic data analysis tools (e.g., spreadsheets, simple dashboards) to enhance their ability to interpret information evaluation results. 2) Enhancing community involvement by inviting local elders to review digital resource suitability for cultural sensitivity and rural relevance. 3) To further simplify evaluation processes, develop paper-based checklists for schools without reliable internet to track infrastructure status manually. 4) Strengthening cross-school collaboration, organizing periodic visits between rural schools to share risk identification strategies (e.g., equipment theft prevention). 5) Enhancing student feedback mechanisms, using classroom surveys or suggestion boxes to identify user experience issues with digital tools. 6) To further integrate traditional knowledge into evaluation criteria, collaborating with community members to assess the practicality of IT solutions in rural contexts. 7) Strengthening periodic equipment inventories using QR codes or simple barcoding systems to prevent asset loss or misuse. 8) Enhancing partnerships with local IT vendors for discounted maintenance services, prioritizing schools with high-risk IT infrastructure. 9) To further establish a "digital mentorship" program pairing urban teachers with rural principals to remotely support evaluation processes. 10) Strengthening crisis response protocols, such as creating offline emergency contact lists for IT suppliers and community volunteers.

This is because rural schools face significant challenges in conducting systematic information evaluation due to limited digital infrastructure, insufficient professional training, and the need to balance cultural relevance with technological adoption. At the same time, these schools rely heavily on community participation, student feedback, and external partnerships to ensure that evaluation processes remain practical and inclusive. Therefore, the proposed measures emphasize both capacity building—such as teacher training in basic data analysis, simplified paper-based checklists, and QR code inventories—and collaborative mechanisms, including community involvement, cross-school exchanges, and digital mentorship programs. These findings indicate that strengthening information evaluation ability requires combining low-cost, context-sensitive tools with multi-stakeholder cooperation to ensure accuracy, accountability, and cultural adaptability in rural education.

There guidelines were summarized based on the respondents' recommendations, this is consistent with the results of some studies. pincipal should systematically conduct data analysis skills training for teachers, from basic Excel to visual dashboard application, combined with hands-on exercises on teaching cases, to enhance teachers' ability to interpret assessment data such as students' performance and efficiency of resource usage (Hardiansyah & Zainuddin, 2022, p.48-54). pincipal are required to set up a community consultant mechanism and invite local elders to assess the cultural appropriateness of digital resources. Feedback is collected through regular talks to ensure that edtech solutions are in line with rural customs and avoid cultural conflicts (Larry, 2020, p.77-84). For schools without internet access, pincipal can design standardised paper-based assessment checklists covering dimensions such as equipment status and maintenance needs. Regular manual inspections are recorded and a dynamic infrastructure assessment profile is formed through regular aggregation (Palah et al., 2022, p.204-215). pincipal should promote the establishment of regional school alliances to exchange coping strategies such as equipment theft prevention and network risks through mutual assessment visits. Form a shared risk list and pre-planning template to improve overall risk identification(Haiyan et al., 2024, p.100-111). pincipal need to build multiple student feedback channels (e.g. classroom questionnaires, suggestion boxes) to regularly collect experiences of using digital tools. Improve assessment indicators based on students' perspectives to enhance the appropriateness of technology application (Zhang Jia et al., 2021, p.39-50). pincipal should work with community experts to incorporate traditional farming knowledge and local culture into the assessment dimensions, to test whether IT solutions promote local knowledge transmission, and to avoid the introduction of technology being detached from the actual needs of rural areas (Chen Sizhu, 2024, p.48-59). pincipal can introduce a QR code or barcode label management system to generate a unique identification for each piece of equipment. Regular scanning inventory, combined with simple software to track the flow of assets, reduces the risk of equipment loss in rural schools (Hong juan, 2018, p.69-76). pincipal need to sign priority service agreements with local vendors to provide discounted maintenance for schools with high-risk IT infrastructure. Establish equipment failure response time metrics to be included in the vendor evaluation system (Wang, 2019, p.116-126).

Part 3: The suitability and feasibility of the guidelines for information leadership of rural primary schools principals in Guangxi.

The suitability and feasibility of guidelines for information leadership in five aspects were at high level with the values between 3.50 – 4.49, which means the guidelines for sinformation leadership are suitability and feasibility.

The suitability and feasibility of the guidelines for Information literacy were high level, indicating the high suitability and feasibility of the guideline. This is because of the guidelines were summarized from the current surveys and interviews and analyzed using the mean and standard deviation, which showed the high level of suitability and feasibility. Of these, the highest scores for the suitability of the guidelines for information literacy are " 10. Strengthening policy flexibility to allow schools to experiment with phased digital transitions, offering grace periods for adaptation while maintaining accountability. " and the highest scores for the feasibility of the guidelines for mental health education are " 2. Enhancing collaboration with local tech companies and universities to establish joint research projects, enabling schools to pilot innovative digital tools and receive expert guidance. "

This is because in-depth surveys and interviews on current educational practices accurately capture the real needs and pain points of pincipal, teachers and communities in information literacy enhancement, respond to resource disparities in the digital transition of rural schools, and allow for a phased implementation that takes into account accountability and adaptability, while the school-enterprise co-operation approach of the trial tool provides actionable resources and technical support through industry-academia-research linkages, lowering the threshold for innovative applications. The approach to school-enterprise co-operation trial tools provides actionable resources and technical support through industry-university-research linkages, lowering the threshold for innovative applications. In the future, it is necessary to further refine the phased implementation path (e.g., transition standards for rural schools) and establish long-term incentive mechanisms for school-enterprise cooperation (e.g., tax incentives) to consolidate and enhance effectiveness. Focus on balancing macro-policy and micro-practice: policy flexibility provides institutional safeguards, while school-enterprise cooperation provides technical pathways, both of which together constitute a combination of "top-down" and "bottom-up" promotion mechanisms.T his systematic design allows the guidelines to be integrated into the education management system while stimulating the initiative of schools at the grass-roots level.

Related to Qin Bo et al. suggests that (Qin Bo et al., 2024, p.1-8) It is proposed that information literacy needs to integrate technology application and ethical safety, and it is stressed that the shortcomings of teachers' abilities should be monitored dynamically through a tiered evaluation system and that precise training programmes should be formulated based on data feedback. An "information literacy development index" model has been established, incorporating indicators such as the use of technological tools and the degree of innovation in curriculum integration into the assessment, providing a scientific basis for the performance incentive mechanism. At the same time, we advocate sharing high-quality training courses through regional resource banks to solve the problem of insufficient teachers in rural schools. Constructing a "four-dimensional framework for AI literacy education", including technical knowledge, application skills, ethical norms and innovation ability. It supports the necessity of school-enterprise cooperation, and believes that the AI tools provided by enterprises (such as intelligent assessment systems) can help pincipal quickly master cutting-edge technologies; it also stresses that competitions are an effective way to stimulate innovation, such as cultivating students' critical thinking through programming challenges (Cao Anqi, 2016, p.27-39). It puts forward the "five training systems" (classroom training, research training, competition training, conference training, and practical training), advocating the enhancement of information processing ability through diversified practices. Its "research and training" mechanism is highly compatible with peer-led training groups. For example, pincipal are organised to participate in cross-school teaching and research, and to master the application scenarios of technological tools through case studies (Awaah et al., 2021, p.212-225).The value of parent-teacher workshops has been verified through the "three-tier cooperative learning" model (classroom support, community collaboration and social practice) to enhance information literacy. At the same time, the phased implementation of the "cloud space building" strategy (e.g., pilot first and then roll out) has reduced the resistance to technological transformation (Bush, 2020, p.59-64).

The suitability and feasibility of the guidelines for information management ability was high level, indicating the high suitability and feasibility of the guideline. This is because of the guidelines were summarized from the current surveys and interviews and analyzed using the mean and standard deviation, which showed the highest level of suitability and feasibility. Of these, the highest scores for the suitability of the guidelines for information management ability are "6) To further establish a "digital mentorship" program pairing principals with urban school leaders experienced in tech-based organizational restructuring. " and the highest scores for the feasibility of the guidelines for information management ability are" 6. To further establish a "digital mentorship" program pairing principals with urban school leaders experienced in tech-based organizational restructuring. "

Because in reality, The Digital Mentorship Programme scored the highest because of its relevance to the real needs of pincipal' information leadership and the matching of resources.In terms of appropriateness, the programme addresses the shortcomings of "technology-based organisational restructuring" in pincipal' information management skills, and through pairing up with urban school leaders, the programme directly fills in the gaps in pincipal' digital management experience, and creates a synergy effect with their information planning and design skills, so as to accurately match theoretical frameworks with practical experience. The feasibility of the model is due to the high utilisation of resources, without the need to reconstruct the infrastructure, and can be operated with the help of the existing urban education resources network.In addition, the programme's "twinning" approach reduces the complexity of implementation and enables pincipal to quickly embed a mature digital management system, avoiding the high costs and long cycle risks associated with self-discovery.The high scores reflect that the guide can efficiently activate pincipal' information assessment capacity (calibrating their own practice with external experience) and meet the constraints of the information environment and resource development (integrating quality resources at low cost), thus striking an optimal balance between appropriateness and feasibility.

Related to Jie (Jie, 2022, p.214-217) argued that information management capacity enhancement requires strengthening the transparency of budget allocation and monitoring mechanisms. It is recommended that community committees be introduced to review IT expenditures to ensure that funds are used efficiently for infrastructure maintenance. At the same time, a "digital emergency fund" should be set up to cope with unexpected repairs and avoid resource disruption. The core of school information management is data security. It is recommended that encryption technology be implemented for locally stored student records, and that teachers be regularly trained in data protection awareness. At the same time, parent-child workshops should popularise online safety knowledge to prevent cyberbullying (Liu Chao, 2018, p.19-28).To address the problem of technological weakness in rural schools, it is recommended that teacher troubleshooting training be strengthened to reduce reliance on external support. At the same time, promote school-enterprise cooperation to donate durable hardware to form a low-cost resource supplementation programme to ensure teaching continuity (Sahlin, 2025, p.380-397). Information management capacity needs to be combined with risk assessment and government collaboration. It is recommended that regular IT audits be conducted and that priority be given to supporting schools in disaster-prone areas. At the same time, offline contingency plans should be developed to ensure educational continuity in the event of network instability(Larry, 2020,p99-107).

The suitability and feasibility of the guidelines for information environment and resource construction ability was high level, indicating the high suitability and feasibility of the guideline. This is because of the guidelines were summarized from the current surveys and interviews and analyzed using the mean and standard deviation, which showed the highest level of suitability and feasibility. Of these, the highest scores for the suitability of the guidelines for information environment and resource construction ability are "6. To further empower young leaders, train high school students to act as "digital ambassadors" and send messages to their peers and families. " and the highest scores for the feasibility of the guidelines for information environment and resource construction ability are" 1. Strengthening community engagement through regular digital forums and town halls to transparently share progress on school information environment development, fostering trust and collaboration. "

This is because it is designed to empower pincipal' information leadership and make efficient use of resources. In terms of appropriateness, the "Digital Ambassadors" programme builds a bridge for information dissemination through high school students, which is in line with the need for "diversified participation" in the construction of information environment and resources. The information literacy of young leaders and the natural advantages of social networks make information dissemination more pervasive, activate the flow of information resources inside and outside the school at low cost, and cultivate the information leadership of the next generation to form a sustainable development ecology. In terms of feasibility, the mechanism of "regular digital forums and town halls" is centred on transparent communication and integrates community opinions through a structured platform, which not only meets the feedback channels required for information assessment capacity, but also builds an information environment with the help of community resources. Their regularity reduces implementation complexity, and the town hall model is highly replicable, requiring no additional technical infrastructure and directly leveraging existing administrative frameworks, ensuring that pincipal are able to efficiently contribute to the optimisation of the information environment despite resource constraints.Both are "lightweight" strategies to achieve multi-dimensional improvement in information leadership, with appropriateness derived from matching needs and feasibility based on compatibility of resources, which makes them stand out in the evaluation.

Related to Elken (Elken, 2023, p.29-37) proposed that Rural schools should prioritise the construction of a basic network security system to protect educational resources through firewalls and regular password updates, while the use of offline storage devices (e.g. USB, SD cards) is recommended to save core curriculum materials and ensure teaching continuity in the event of network disruption. Schools need to establish a transparent IT budget monitoring mechanism and introduce community committees to participate in audits to ensure the rational allocation of resources. In addition, when cooperating with enterprises to obtain donated equipment, screening criteria should be established to avoid hardware safety hazards affecting teaching and learning (Hai Yan et al., 2024, p.100-111). For disaster-prone areas, schools should set up a special 'digital emergency fund' for the rapid repair of network facilities, and train teachers in basic troubleshooting skills (e.g. projection equipment maintenance) to reduce technological dependence and improve their ability to respond on their own (Harper & Neubauer, 2021, p.14-24). Encryption of student record data is at the core of resource building. Under the condition of no cloud storage, local servers need to adopt high-strength encryption algorithms, and parent-child internet safety seminars should be organised on a regular basis to strengthen teachers', students' and parents' awareness of personal data protection (Jiang Yajuan et al., 2024, p.32-37).

The suitability and feasibility of the guidelines for information planning and design ability was high level, indicating the high adaptability and feasibility of the guideline. This is because of the guidelines were summarized from the current surveys and interviews and analyzed using the mean and standard deviation, which showed the highest level of adaptability and feasibility. Of these, the highest scores for the suitability of the guidelines for information planning and design ability are" 9. To further leverage community volunteers to maintain school networks, training villagers in basic IT maintenance tasks (e.g., cable management). " and the highest scores for the feasibility of the guidelines for information planning and design ability are" 8. Enhancing collaboration with local government for periodic IT audits, prioritizing schools with high vulnerability to natural disasters (e.g., flood-prone regions). "

This is because The programme is based on its accurate matching of real needs and efficient integration of resources. The programme "Community Volunteers Participate in Network Maintenance", which scored the highest in adaptability, solves the IT operation and maintenance problems of rural schools by activating local human resources and transforming IT maintenance into a trainable grassroots skill, which not only reduces professional dependence but also facilitates community participation, and is in line with the localised needs of information environment and resource construction. The programme on government cooperation in prioritising the audit of disaster areas, which scored the highest in terms of feasibility, achieves risk management through the linkage of administrative resources, regular audits to ensure forward-looking technical planning, and strategic decision-making by tilting resources towards disaster areas; it has a clear path of operation, with clear responsibility for the main parties involved, and is easy to implement within the existing administrative framework, while at the same time reinforcing the empirical basis of the capacity for information assessment. Both are based on the strategy of "low cost and high synergy", seamlessly linking external resources to internal needs, and thus stand out in the assessment of applicability and feasibility.

Related to KangZhongqiu (Kang Zhongqiu, 2018, p.49-57) argued thatRural school information planning needs to prioritise network security infrastructure, and it is recommended that risks are reduced through simple firewall deployment and regular password updates. Teacher training should focus on troubleshooting common problems to reduce technology dependency, and work with the community to establish an emergency repair network to ensure resources are continuously available. School information planning needs to enhance budget transparency. It is recommended that a third-party monitoring mechanism (e.g., a community committee) be introduced to audit IT expenditures to ensure that funds are used for infrastructure maintenance. At the same time, a "digital emergency fund" should be set up to cope with unexpected maintenance needs and to avoid resource breakdowns (Liang Haonan & Zhou Qin, 2021, p.35-46). In areas with unstable networks, an "offline education system" should be built, using USB/SD cards to store resources, and promoting school-enterprise co-operation to donate durable hardware (e.g., second-hand laptops) to form a low-cost technological solution to ensure the continuity of teaching and learning (Li Yuanhua, 2023, p.66-69). School information planning needs to strengthen the design of data security, especially in areas without cloud services, and local encryption should be used to protect student records. At the same time, parent-child digital safety workshops should be incorporated into the curriculum to develop awareness of cyber risk prevention among teachers and students (Ning Yao & Shi Yantao, 2017, p.184-188).

The suitability and feasibility of the guidelines for information evaluate ability was high level, indicating the high adaptability and feasibility of the guideline. This is because of the guidelines were summarized from the current surveys and interviews and analyzed using the mean and standard deviation, which showed the highest level of adaptability and feasibility. Of these, the highest scores for the suitability of the guidelines for information evaluate ability are"1. Strengthening teacher training programs on basic data analysis tools (e.g., spreadsheets, simple dashboards) to enhance their ability to interpret information evaluation results. " and the highest scores for the feasibility of the guidelines for information evaluate ability are“8.Enhancing partnerships with local IT vendors for discounted maintenance services, prioritizing schools with high-risk IT infrastructure. "

This is because first, "Strengthening teachers' training in basic data analysis tools" scores high because it focuses on improving teachers' basic ability to interpret information evaluation results, which is in line with the demand for practical and easy-to-use data analysis tools in the primary school education scenario, and directly contributes to the implementation of pincipal' information leadership. Secondly, the feasibility of "cooperating with suppliers to provide preferential maintenance services" is outstanding because it addresses the problem of maintaining the IT infrastructure of high-risk schools through the integration of external resources, which not only reduces the economic pressure, but also ensures the sustainability of technical support, and provides a realistic path for pincipal' information planning and design. Both guides are highly rated for their practicality and adaptability to the actual needs of primary schools, as well as their practicality and resource suitability.

Related to Pasque & Nicholson (Pasque & Nicholson, 2023, p.152-167) proposed that in the era of information overload, it is necessary to cultivate "media literacy".It is emphasised that users should take the initiative to identify the authority of information sources, be wary of the "information cocoon" of algorithmic recommendations, and verify the authenticity of content through horizontal comparisons of multiple channels, so as to avoid being caught up in one-sided perceptions. This directly supports the core strategy of "multi-channel cross-verification" in the guide. The theory of "Reflective Judgment" is proposed, which advocates that information assessment needs to go through the process of questioning, analysing and reasoning, and stresses that individuals should go beyond the surface information to ask about the source of evidence and the logical chain, so as to avoid blindly following the authority. This provides the philosophical basis for the "critical thinking training" in the guide (Plaatjies, 2019, p.136-160). Emphasising the importance of digital tools and interdisciplinary thinking, learners need to master "information retrieval skills" and "data visualisation and analysis", and at the same time identify cognitive biases (e.g. confirmation bias) in conjunction with psychology, so as to systematically improve their ability to sift and interpret information. This echoes the recommendation of "tool application and cognitive modification" in the guideline (Qi Xiaohui, 2022, p.73-79).The CRAAP test (i.e., assessing the timeliness, relevance, authority, accuracy and purpose of information) is proposed, pointing out that the rigorous methods used in academic research can be transferred to daily information assessment, for example, by tracing the citation chain of the literature and checking the qualifications of the authors in order to judge the credibility of the information. This provides a practical framework for the "structured verification method" in the guidelines (Van der Vyver et al., 2021, p.127-162).

Recommendations

Implications

The research results showed that the recommendations about guidelines for Information leadership of rural primary schools principals in Guangxi are as follows:

1. In terms of information literacy, the survey results showed that: the lowest scores were “The principal regularly learns and applies emerging educational technologies to improve teaching methods and enhance the school's level of digitalization. " "The principal can effectively utilize the internet, databases, and educational resource platforms to acquire high-quality information to support school management decisions. " "The principal is proficient in using information technology (such as office software, data analysis tools, and online teaching platforms) to enhance school management and teaching efficiency. " Rural primary schools principals should be special training for school pincipal should be organised on a regular basis, and guidance from educational technology experts should be introduced; an in-school technical support team should be established to provide hands-on counselling; a platform for high-quality educational resources should be set up to simplify the process of accessing information; and an incentive mechanism for digital management should be established to promote practical application.

2. In terms of information Management Ability, the survey results showed that: the lowest scores were "The principal is able to effectively use information technology to optimize the school’s organizational structure. " "The principal is able to innovate traditional management practices in the school by utilizing modern information management methods. " "The principal improves the school’s workflows using information technology, enhancing management efficiency. "Rural primary schools principals should be Carry out training on information technology management topics, introduce professional teams to optimise the organisational structure; build an integrated management platform to promote the digitalisation of processes; combine with performance appraisal to stimulate innovative applications and improve management efficiency.

3. In terms of information environment and resource construction ability, the survey results showed that: the lowest scores were “The principal monitors the social support and participation of the community in the school’s information environment development." "The principal ensures that information resources are accessible and beneficial for both teachers and students." "The principal regularly assesses the effectiveness of the school's information technology infrastructure". Rural primary schools principals should be establish a mechanism for co-operation with the community and communicate needs and progress on a regular basis, optimise the management of information resource rights, screen quality content and train skills in its use, formulate a regular assessment plan for the infrastructure and update and maintain the equipment in a timely manner.

4. In terms of information planning and design ability, the survey results showed that: the lowest scores were "The principal is able to effectively manage risks and challenges in school information construction." "The principal is able to plan and design the school information system from a long-term strategic perspective." "The principal is able to create clear and realistic information management goals that align with the school’s overall development objectives." Rural primary schools principals should be strengthening IT training for school pincipal to enhance risk control and strategic planning capabilities; introducing professional teams to assist in formulating plans that are in line with development objectives; and establishing risk assessment mechanisms and contingency plans to ensure that the objectives are feasible.

5. In terms of information evaluate ability, the survey results showed that: the lowest scores were "The principal identifies and addresses potential risks and issues during the information evaluation process." "The principal adjusts the direction of information technology development in response to evaluation data to meet the school’s actual needs." "The principal evaluates the sustainability of the school’s information technology and ensures its healthy development." Rural primary schools principals should be establish a risk assessment mechanism and regularly train school pincipal to identify risks; introduce data-driven decision-making, linking assessment results to direction adjustments; and develop sustainability indicators to ensure resource allocation and technology iteration.

Future Researches

Information leadership of rural primary schools principals encompasses many aspects that will continue and be studied in depth in the future, such as Strategies for improving IT application skills, teachers' information literacy development and home-school information communication.

The following areas of research could be considered as a next step: Firstly, focusing on the rural education informatisation scenario, exploring the practical path of pincipal in the areas of digital resources integration, smart campus construction, teachers' information literacy training, etc.; Secondly, carrying out research on regional characteristics, combining with the current situation of informatisation in rural primary schools in Guangxi, constructing the Ethnic Area-County-Inter-school" three-level linkage of the headmaster leadership development model; third, it can expand the scope of application of the information leadership enhancement guide for rural primary school principals, providing reference for more rural primary schools.

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Appendix

Appendix A
List of Specialists and Letters of Specialists Invitation for IOC Verification

List of Specialists and Letters of Specialists Invitation for IOC Verification

Terial number	Name (Title)	The sample group
1	Associate Senior Teacher (Senior Professional Title) Mrs Li. Guanqing	Yuchai Primary School
2	Principal and Senior Teacher Mrs. FuXiaoxia	Provence Primary School, Nanning
3	Principal and Senior Teacher Mr.Ling Yunzhi	Qinzhou No.2 Primary School
4	Principal and Senior Teacher Mrs.Wu Limei	Wuzhou No.1 Primary School
5	Principal and Senior Teacher Mr.Ma Xiaoqin	Yushui Town Central Primary School

Appendix B
Official Letter

Ref.No. MHESI 0643.14/ ๖๐๙

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

17 March 2025

RE: Invitation to validate research instrument

Dear Associate Senior Teacher (Senior Professional Title) Mrs Li. Guanqing, Yuchai Primary School

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational Administration of Bansomdejchaopraya Rajabhat University. She is undertaking research entitle "Guideline for Improving Information Leadership of Rural Primary Schools Principals in Guangxi"

The thesis adversity committee has considered that you are an expert in this topic. Your recommendations would be useful for further improvement of this research instrument.

With your expertise, we would like to ask your permission to validate the attached research instrument. Would like to avail ourselves of this opportunity to express our sincere thanks and appreciation for your help.

Sincerely,

Assistant Professor Dr.Thanaput Chancharoen
(Vice Dean of Graduate School for Dean of Graduate School)

Bansomdejchaopraya Rajabhat University
Tel.+662-473-7000
www.bsru.ac.th
E-mail: grad@bsru.ac.th

Ref.No. MHESI 0643.14/ 810

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

17 March 2025

RE: Invitation to validate research instrument

Dear Principal and Senior Teacher Mrs. FuXiaoxia ,Provence Primary School, Nanning

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational Administration of Bansomdejchaopraya Rajabhat University. She is undertaking research entitle "Guideline for Improving Information Leadership of Rural Primary Schools Principals in Guangxi"

The thesis adversity committee has considered that you are an expert in this topic. Your recommendations would be useful for further improvement of this research instrument.

With your expertise, we would like to ask your permission to validate the attached research instrument. Would like to avail ourselves of this opportunity to express our sincere thanks and appreciation for your help.

Sincerely,

Assistant Professor Dr.Thanaput Chancharoen
(Vice Dean of Graduate School for Dean of Graduate School)

Bansomdejchaopraya Rajabhat University
Tel.+662-473-7000
www.bsru.ac.th
E-mail: grad@bsru.ac.th

Ref.No. MHESI 0643.14/ 811

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

17 March 2025

RE: Invitation to validate research instrument

Dear Principal and Senior Teacher Mr.Ling Yunzhi , Qinzhou No.2 Primary School

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Education: Administration of Bansomdejchaopraya Rajabhat University. She is undertaking research entit "Guideline for Improving Information Leadership of Rural Primary Schools Principals in Guangxi"

The thesis adversity committee has considered that you are an expert in this topic. You recommendations would be useful for further improvement of this research instrument.

With your expertise, we would like to ask your permission to validate the attache research instrument. Would like to avail ourselves of this opportunity to express our sincere thanks an appreciation for your help.

Sincerely,

Assistant Professor Dr.Thanaput Chancharoen
(Vice Dean of Graduate School for Dean of Graduate School)

Bansomdejchaopraya Rajabhat University
Tel.+662-473-7000

:f.No. MHESI 0643.14/ 812

Bansomdejchaopraya Rajabhat Universit
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

17 March 2025

E: Invitation to validate research instrument

:ar Principal and Senior Teacher Mrs.Wu Limei, Wuzhou No.1 Primary School

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational lministration of Bansomdejchaopraya Rajabhat University. She is undertaking research entitle 'uideline for Improving Information Leadership of Rural Primary Schools Principals in Guangxi"

The thesis adversity committee has considered that you are an expert in this topic. Yc :ommendations would be useful for further improvement of this research instrument.

With your expertise, we would like to ask your permission to validate the attach :earch instrument. Would like to avail ourselves of this opportunity to express our sincere thanks a preciation for your help.

Sincerely,

Assistant Professor Dr.Thanaput Chancharoen
(Vice Dean of Graduate School for Dean of Graduate School)

nsomdejchaopraya Rajabhat University
l.662 473 7000

Ref.No. MHESI 0643.14/ ๙๑๓

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

๑๗ March 2025

RE: Invitation to validate research instrument

Dear Principal and Senior Teacher Mr.Ma Xiaoqin,Yushui Town Central Primary School

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational Administration of Bansomdejchaopraya Rajabhat University. She is undertaking research entitle "Guideline for Improving Information Leadership of Rural Primary Schools Principals in Guangxi"

The thesis adversity committee has considered that you are an expert in this topic. Your recommendations would be useful for further improvement of this research instrument.

With your expertise, we would like to ask your permission to validate the attached research instrument. Would like to avail ourselves of this opportunity to express our sincere thanks and appreciation for your help.

Sincerely,

Assistant Professor Dr.Thanaput Chancharoen
(Vice Dean of Graduate School for Dean of Graduate School)

Bansomdejchaopraya Rajabhat University
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Ref.No. MHESI 0643.14/ ๘๓๐

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

17 March 2025

RE: Request for Data Collection

Dear Sir or Madam

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational Administration of Bansomdejchaopraya Rajabhat University. she is undertaking research entitle

"Guideline for Improving Information Leadership of Rural Primary Schools Principals in Guangxi"

The thesis adversity committee has considered that you are an expert in this topic. Your recommendations would be useful for further improvement of this research. List of universities and colleges according to the attached document.

With your expertise, we would like to request to collect the data to be used in the research. Would like to avail ourselves of this opportunity to express our sincere thanks and appreciation for your help.

Sincerely,

Assistant Professor Dr.Thanaput Chancharoen
(Vice Dean of Graduate School for Dean of Graduate School)

Bansomdejchaopraya Rajabhat University
Tel.+662-473-7000

No	University and College
1.	Hengzhou Town Central Primary School
2.	anlian Town Central Primary School
3.	Shibu Town Central Primary School
4.	Anji Town Central Primary School
5.	Baisha Town Central Primary School (Wuming District)
6.	Pingle Town Central Primary School (Wuming District)
7.	Datang Town Central Primary School
8.	Nahong Town Central Primary School
9.	Wuliting Town Central Primary School
10.	Siling Town Central Primary School
11.	Xinxu Town Central Primary School
12.	Wudang Town Central Primary School
13.	Shanglin Town Central Primary School
14.	Chang'an Town Central Primary School
15.	Chengnan Town Central Primary School
16.	Zhongdu Town Central Primary School
17.	Tiantang Town Central Primary School
18.	Shibu Town Central Primary School
19.	Yangshuo Town Central Primary School
20.	Longsheng Town Central Primary School
21.	Da'an Town Central Primary School
22.	Lingui Town Central Primary School
23.	Daxu Town Central Primary School
24.	Pingle Town Central Primary School (Pingle County)
25.	Guanyang Town Central Primary School
26.	Tongmu Town Central Primary School
27.	Ziyuan Town Central Primary School
28.	Baisha Town Central Primary School (Ziyuan County)
29.	Daqiao Town Central Primary School
30.	Gongcheng Town Central Primary School
31.	Fuchuan Town Central Primary School
32.	Guiyang Town Central Primary School
33.	Dong'an Town Central Primary School
34.	Yongfu Town Central Primary School
35.	Bailong Town Central Primary School
36.	Lingchuan Town Central Primary School
37.	Yangshan Town Central Primary School
38.	Liubei Town Central Primary School
39.	Changtang Town Central Primary School
40.	Liunan Town Central Primary School
41.	Sanjiang Town Central Primary School
42.	Datang Town Central Primary School (Yufeng District)

No	University and College
43.	Pingshan Town Central Primary School
44.	Liucheng Town Central Primary School
45.	Dapu Town Central Primary School
46.	Rongshui Town Central Primary School
47.	Sanjiang Town Central Primary School (Rongshui)
48.	Rong'an Town Central Primary School
49.	Jiangkou Town Central Primary School
50.	Liuzhou Town Central Primary School
51.	Yanghe Town Central Primary School
52.	Donghuan Road Central Primary School
53.	Nanhuan Road Central Primary School
54.	Yonghe Town Central Primary School
55.	Shaping Town Central Primary School
56.	Baiyang Town Central Primary School
57.	Shicheng Town Central Primary School
58.	Nanyang Town Central Primary School
59.	Xianyang Town Central Primary School
60.	Fengshan Town Central Primary School
61.	Shuyang Town Central Primary School
62.	Luocheng Town Central Primary School
63.	Dongxing Town Central Primary School
64.	Chishui Town Central Primary School
65.	Guanyang Town Central Primary School (Laibin)
66.	Lingshan Town Central Primary School
67.	Baisha Town Central Primary School (Laibin)
68.	Pingnan Town Central Primary School
69.	Henglu Town Central Primary School
70.	Fucheng Town Central Primary School
71.	Sanjiang Town Central Primary School (Guigang)
72.	Guiping Town Central Primary School
73.	Sihui Town Central Primary School
74.	Lingshan Town Central Primary School (Guigang)
75.	Gangkou Town Central Primary School
76.	Xiangping Town Central Primary School
77.	Lianhua Town Central Primary School
78.	Nandan Town Central Primary School
79.	Tianyang Town Central Primary School
80.	Pubei Town Central Primary School
81.	Dapo Town Central Primary School
82.	Ningming Town Central Primary School
83.	Fuchuan Town Central Primary School (Chongzuo)
84.	Daxin Town Central Primary School

No	University and College
85.	Pingxiang Town Central Primary School
86.	Jiangzhou Town Central Primary School
87.	Fusui Town Central Primary School
88.	Tiandeng Town Central Primary School
89.	Bama Town Central Primary School
90.	Xinyang Town Central Primary School
91.	Changzhou Town Central Primary School
92.	Fengshan Town Central Primary School (Chongzuo)
93.	Huanjiang Town Central Primary School
94.	Baise Town Central Primary School
95.	Youjiang District Chengnan Primary School
96.	Youjiang District Chengbei Primary School
97.	Baise No.1 Primary School
98.	Baise No.2 Primary School
99.	Tianyang District Central Primary School
100.	Debao County Central Primary School
101.	Jingxi City No.1 Primary School
102.	Leye County Central Primary School
103.	Lingyun County Central Primary School
104.	Xilin County Experimental Primary School
105.	Longlin County Central Primary School
106.	Tianlin County Central Primary School
107.	Napo County Central Primary School
108.	Jincheng Town Primary School
109.	Lingyun Township Primary School
110.	Xilin Town Central Primary School
111.	Pingguo Township Central Primary School
112.	Haicheng District Central Primary School
113.	Yinhai District Central Primary School
114.	Hepu County Central Primary School
115.	Beihai No.2 Primary School
116.	Beihai Experimental Primary School
117.	Nanhai District Central Primary School
118.	Gongnong District Central Primary School
119.	Beihai City Jiujiang Town Primary School
120.	Beihai City Zhongshan Road Primary School
121.	Hepu County Dongxing Town Primary School
122.	Hepu County Haikou Town Primary School
123.	Beihai Haicheng District Tangping Primary School
124.	Beihai Yinhai District Jinshan Primary School
125.	Beihai Hepu County Xianglu Town Primary School
126.	Beihai Nanhai District Yulan Town Primary School

No	University and College
127.	Beihai Gushan Town Central Primary School
128.	Qinzhou No.1 Primary School
129.	Qinzhou Experimental Primary School
130.	Qinbei District Central Primary School
131.	Qinxi District Central Primary School
132.	Qinzhou West Town Primary School
133.	Qinzhou Beixin Primary School
134.	Qinzhou Pingnan District Central Primary School
135.	Qinzhou Lingshan County Experimental Primary School
136.	Qinzhou Yuling Town Primary School
137.	Qinzhou Hengnan Town Primary School
138.	Qinzhou Qinnan District Central Primary School
139.	Qinzhou Yangjiang Township Primary School
140.	Qinzhou Sanjiang Township Primary School
141.	Qinzhou Pubei County Central Primary School
142.	Qinzhou Lianhua Town Primary School
143.	Qinzhou Luchuan Township Primary School
144.	Fangcheng District Central Primary School
145.	Dongxing City Central Primary School
146.	Fangchenggang No.1 Primary School
147.	Fangchenggang No.2 Primary School
148.	Fangchenggang Experimental Primary School
149.	Shangsi County Central Primary School
150.	Hepu County Central Primary School
151.	Beibu Gulf District Central Primary School
152.	Fangcheng District Yuwan Town Primary School
153.	Fangcheng District Zhongxin Town Primary School
154.	Fangcheng District Zhongshan Road Primary School
155.	Fangcheng District Qiaonan Town Primary School
156.	Fangchenggang Dongxing Town Primary School
157.	Fangcheng District Jiaocheng Town Primary School
158.	Fangcheng District Hengxian Town Primary School
159.	Fangchenggang Xiangyun County Central Primary School
160.	Fangchenggang Beihai City Zhaoyang Town Primary School
161.	Fangchenggang Nanping Township Primary School
162.	Hechi No.2 Primary School
163.	Hechi Experimental Primary School
164.	Bama County Central Primary School
165.	Yizhou District Central Primary School
166.	Huanjiang County Central Primary School
167.	Longlin County Central Primary School
168.	Donglan County Central Primary School

No	University and College
169.	Nandan County Central Primary School
170.	Luocheng County Central Primary School
171.	Fengshan County Central Primary School
172.	Ziyuan County Central Primary School
173.	Jinchengjiang District Central Primary School
174.	Xialiang Town Primary School
175.	Heping Town Primary School
176.	Dongxing Town Primary School
177.	Dule Town Primary School
178.	Yulin No.1 Primary School
179.	Yulin No.2 Primary School
180.	Yulin Experimental Primary School
181.	Beiliu City Central Primary School
182.	Fumian District Central Primary School
183.	Wuming County Central Primary School
184.	Luchuan County Central Primary School
185.	Rongxian County Central Primary School
186.	Guiping City Central Primary School
187.	Yulin Xingbin District Central Primary School
188.	Yulin Tianyang District Central Primary School
189.	Yulin Jiaojiang Town Primary School
190.	Yulin Pingnan County Central Primary School
191.	Yulin Linyang Town Primary School
192.	Yulin Longmen Town Primary School
193.	Yulin Dapu Town Primary School
194.	Yulin Wuyi Town Primary School
195.	Wuzhou No.2 Primary School
196.	Wuzhou Experimental Primary School
197.	Cangwu County Central Primary School
198.	Teng County Central Primary School
199.	Xinan District Central Primary School
200.	Longnan County Central Primary School
201.	Xinyi County Central Primary School
202.	Wuzhou City Sanjiang District Primary School
203.	Duqiao Town Primary School
204.	Nanjing Town Primary School
205.	Qiaoxian Town Primary School
206.	Longgui Town Primary School
207.	Yongding Town Primary School
208.	Qingliu Town Primary School
209.	Qingshan Town Primary School
210.	Huangling Town Primary School

No	University and College
211.	Guiping No.1 Primary School
212.	Guiping No.2 Primary School
213.	Guiping Experimental Primary School
214.	Guiping Central Primary School
215.	Xiatang Town Primary School
216.	Zhuangyuan Town Primary School
217.	Yuntai Town Primary School
218.	Gaoyao Town Primary School
219.	Guiping Nanfeng Town Primary School
220.	Xindi Town Primary School
221.	Lianjiang Town Primary School
222.	Shanwei Town Primary School
223.	Beiyan Town Primary School
224.	Longtan Town Primary School
225.	Baimiao Town Primary School
226.	Zhanjiang Town Primary School
227.	Xiancheng Town Primary School
228.	Santang Town Central Primary School
229.	Yongzhou Town Central Primary School
230.	Xijie Town Central Primary School
231.	Lipu Town Central Primary School
232.	Luzhai Town Central Primary School
233.	Xin'an Town Central Primary School
234.	Yulin Town Central Primary School
235.	Longzhou Town Central Primary School
236.	Pingguo City Central Primary School
237.	Beihai Lingshan County Town Primary School
238.	Qinzhou Dongxing Town Primary School
239.	Tianlin County Central Primary School
240.	Bobai County Central Primary School
241.	Wanrong Town Primary School
242.	Longxu Town Primary School

Sincerely,

Assistant Professor Dr.Thanaput Chancharoen
(Vice Dean of Graduate School for Dean of Graduate School)

Ref.No. MHESI 0643.14/ 814

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

17 March 2025

RE: Request for Interview

Dear Sir or Madam

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational Administration of Bansomdejchaopraya Rajabhat University. She is undertaking research entitle "Guideline for Improving Information Leadership of Rural Primary Schools Principals in Guangxi"

The thesis adversity committee has considered that you are an expert in this topic. Your recommendations would be useful for further improvement of this research. List of experts according to the attached document.

With your expertise, we would like to request to collect the data to be used in the research. Would like to avail ourselves of this opportunity to express our sincere thanks and appreciation for your help.

Sincerely,

Assistant Professor Dr.Thanaput Chancharoen
(Vice Dean of Graduate School for Dean of Graduate School)

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No	Experts
1.	Santang Town Central Primary School
2.	Yongzhou Town Central Primary School
3.	Xijie Town Central Primary School
4.	Lipu Town Central Primary School
5.	Luzhai Town Central Primary School
6.	Xin'an Town Central Primary School
7.	Yulin Town Central Primary School
8.	Longzhou Town Central Primary School
9.	Pingguo City Central Primary School
10.	Beihai Lingshan County Town Primary School
11.	Qinzhou Dongxing Town Primary School
12.	Tianlin County Central Primary School
13.	Bobai County Central Primary School
14.	Wanrong Town Primary School

Sincerely,

Assistant Professor Dr.Thanaput Chancharoen

(Vice Dean of Graduate School for Dean of Graduate School)

Ref.No. MHESI 0643.14/815

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

17 March 2025

RE: Invitation to evaluate the guideline

Dear Principal and Senior Teacher Mr.Luo Junyang,Zhulin Town Central Primary School

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational Administration of Bansomdejchaopraya Rajabhat University. She is undertaking research entitle "Guidelines for Improving Professional Development Support System for Young Teachers of Private Higher Education in Guangxi"

The thesis adversity committee has considered that you are an expert in this topic. Your recommendations would be useful for further improvement of this research.

With your expertise, we would like to ask your permission to evaluate the attached guideline. Would like to avail ourselves of this opportunity to express our sincere thanks and appreciation for your help.

Sincerely,

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(Vice Dean of Graduate School for Dean of Graduate School)

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Ref.No. MHESI 0643.14/816

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1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

17 March 2025

RE: Invitation to evaluate the guideline

Dear Principal and Senior Teacher Mr.Tang Junhui,Tiancheng Town Central Primary School

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational Administration of Bansomdejchaopraya Rajabhat University. She is undertaking research entitle "Guidelines for Improving Professional Development Support System for Young Teachers of Private Higher Education in Guangxi"

The thesis adversity committee has considered that you are an expert in this topic. Your recommendations would be useful for further improvement of this research.

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Sincerely,

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Ref.No. MHESI 0643.14/ 818

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

17 March 2025

RE: Invitation to evaluate the guideline

Dear Principal and Senior Teacher Mr.Huang Baoyan,Beihai No.1 Primary School

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational Administration of Bansomdejchaopraya Rajabhat University. She is undertaking research entitle "Guidelines for Improving Professional Development Support System for Young Teachers of Private Higher Education in Guangxi"

The thesis adversity committee has considered that you are an expert in this topic. Your recommendations would be useful for further improvement of this research.

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Ref.No. MHESI 0643.14/815

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1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

17 March 2025

RE: Invitation to evaluate the guideline

Dear Principal and Senior Teacher Mr.Luo Junyang,Zhulin Town Central Primary School

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational Administration of Bansomdejchaopraya Rajabhat University. She is undertaking research entitle "Guidelines for Improving Professional Development Support System for Young Teachers of Private Higher Education in Guangxi"

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Ref.No. MHESI 0643.14/819

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

17 March 2025

RE: Invitation to evaluate the guideline

Dear Principal and Senior Teacher Mrs.Zhang Xiaobai,Hechi No.1 Primary School

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational Administration of Bansomdejchaopraya Rajabhat University. She is undertaking research entitle "Guidelines for Improving Professional Development Support System for Young Teachers of Private Higher Education in Guangxi"

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Ref.No. MHESI 0643.14/ 826

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

17 March 2025

RE: Invitation to evaluate the guideline

Dear Principal and Senior Teacher Mr.Li Dongning,Chenshan Primary School

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational Administration of Bansomdejchaopraya Rajabhat University. She is undertaking research entitle "Guidelines for Improving Professional Development Support System for Young Teachers of Private Higher Education in Guangxi"

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Ref.No. MHESI 0643.14/821

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

17 March 2025

RE: Invitation to evaluate the guideline

Dear Principal and Senior Teacher Mr.Zhong Shilan,The Third Experimental Primary School

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational Administration of Bansomdejchaopraya Rajabhat University. She is undertaking research entitle "Guidelines for Improving Professional Development Support System for Young Teachers of Private Higher Education in Guangxi"

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Ref.No. MHESI 0643.14/ 822

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Thonburi Bangkok 10600

17 March 2025

RE: Invitation to evaluate the guideline

Dear Principal and Senior Teacher Mrs.Qiu Jinni,Tansan Primary School

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational Administration of Bansomdejchaopraya Rajabhat University. She is undertaking research entitle "Guidelines for Improving Professional Development Support System for Young Teachers of Private Higher Education in Guangxi"

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1061 Itsaraparb Hirunrujee
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17 March 2025

RE: Invitation to evaluate the guideline

Dear Principal and Senior Teacher Mrs.Xu Huiwei, Binhu Road Primary School

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational Administration of Bansomdejchaopraya Rajabhat University. She is undertaking research entitle "Guidelines for Improving Professional Development Support System for Young Teachers of Private Higher Education in Guangxi"

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17 March 2025

RE: Invitation to evaluate the guideline

Dear Principal and Senior Teacher Mr.Du Yi,Xiuxiang Primary School

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational Administration of Bansomdejchaopraya Rajabhat University. She is undertaking research entitle "Guidelines for Improving Professional Development Support System for Young Teachers of Private Higher Education in Guangxi"

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Ref.No. MHESI 0643.14/ 825

Bansomdejchaopraya Rajabhat University
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17 March 2025

RE: Invitation to evaluate the guideline

Dear Professor Dr.Jiang Shihui,Guangxi Normal University

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational Administration of Bansomdejchaopraya Rajabhat University. She is undertaking research entitle "Guidelines for Improving Professional Development Support System for Young Teachers of Private Higher Education in Guangxi"

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Ref.No. MHESI 0643.14/826

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1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

17 March 2025

RE: Invitation to evaluate the guideline

Dear Professor Dr. Qin Changsheng,Guangxi University for Nationalities

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational Administration of Bansomdejchaopraya Rajabhat University. She is undertaking research entitle "Guidelines for Improving Professional Development Support System for Young Teachers of Private Higher Education in Guangxi"

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Ref.No. MHESI 0643.14/ 827

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17 March 2025

RE: Invitation to evaluate the guideline

Dear Professor Dr. Huang Jiaoli,Guangxi University

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational Administration of Bansomdejchaopraya Rajabhat University. She is undertaking research entitle "Guidelines for Improving Professional Development Support System for Young Teachers of Private Higher Education in Guangxi"

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Sincerely,

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Ref.No. MHESI 0643.14/ 828

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

17 March 2025

RE: Invitation to evaluate the guideline

Dear Professor Dr. Ma Yuqin,South China Normal University

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational Administration of Bansomdejchaopraya Rajabhat University. She is undertaking research entitle "Guidelines for Improving Professional Development Support System for Young Teachers of Private Higher Education in Guangxi"

The thesis adversity committee has considered that you are an expert in this topic. Your recommendations would be useful for further improvement of this research.

With your expertise, we would like to ask your permission to evaluate the attached guideline. Would like to avail ourselves of this opportunity to express our sincere thanks and appreciation for your help.

Sincerely,

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(Vice Dean of Graduate School for Dean of Graduate School)

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Ref.No. MHESI 0643.14/ ๘๒๙

Bansomdejchaopraya Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

17 March 2025

RE: Invitation to evaluate the guideline

Dear Professor Dr. Fang Wenqing, Yulin Normal University

Mrs.Zhai Shujuan is a graduate student in Doctor of Philosophy Program in Educational Administration of Bansomdejchaopraya Rajabhat University. She is undertaking research entitle "Guidelines for Improving Professional Development Support System for Young Teachers of Private Higher Education in Guangxi"

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Appendix C
Research Instrument

1. Survey Questionnaire

Survey questionnaire on Guideline for Improving Information Leadership of Rural Primary Schools Principals in Guangxi

Cher professeur:

In order to understand the current situation of information leadership of rural primary schools principals in Guangxi and put forward development guidelines conducive. Thank you for taking the time out of your busy schedule to fill out this questionnaire. The authenticity and completeness of the questionnaire data are crucial to the results of this study. In addition to the basic information section, this questionnaire uses a 5-level rating system:1 point represents 'very inconsistent',2 points represent "not meet",3 points represent "average", 4 points represent "meet", 5 points represent "exceed". Please choose based on your actual work situation. The survey is anonymous and the options have no right or wrong answers. The data collected in this survey is only for academic research purposes and will not disclose any of your personal information.

Thank you very much for your support!

Wishing you good health, smooth work, an auspicious Year of the Snake, and everything goes well!

Part 1: Personal Basic Information

1.school:

______________________________ (Please fill in)

2.Gender

◎Male

◎female

3.Age

◎30 years old or below

◎30 to 39

◎40 to 49

◎≥50

4. Education
◎Vocational / Technical
◎Bachelor’s degree
◎Master’s degree
◎Doctot’s degree

5. Position
◎Principal
◎Vice Principal
◎Teacher

6. professional title
◎Third-Grade Teacher (Entry-Level)
◎Second-Grade Teacher (Junior-Level)
◎First-Grade Teacher (Mid-Level)
◎Senior Teacher (Associate Senior-Level)
◎Principal Senior Teacher (Senior-Level)

7. Experience
◎0-5 years
◎6-10 years
◎11-15 years
◎16-20 years
◎Over 20 years

Part 2: Questionnaire

No	**Information Leadership of Rural Primary Schools Principals in Guangxi**	5	4	3	2	1
	Information literacy					
1	The principal can accurately identify key information needed for school management and instructional improvement.					
2	The principal is proficient in using various information sources (such as government websites, academic research, and education forums) to obtain the latest education policies and teaching methods.					
3	The principal can effectively utilize the internet, databases, and educational resource platforms to acquire high-quality information to support school management decisions.					
4	The principal can assess the credibility of different information sources and select the most valuable information for school development.					
5	The principal can systematically organize and manage collected information for quick retrieval and use when needed.					
6	When using information for decision-making, the principal verifies its accuracy, timeliness, and scientific validity to avoid the influence of misleading information.					
7	The principal can apply acquired information to optimize school management and improve the quality of education and teaching.					
8	The principal can integrate information analysis results to develop management strategies and teaching reform plans that align with the school's development needs.					

No	Information Leadership of Rural Primary Schools Principals in Guangxi	5	4	3	2	1
9	The principal can effectively communicate important educational information to teachers, parents, and community members, facilitating their understanding and application.					
10	The principal is proficient in using information technology (such as office software, data analysis tools, and online teaching platforms) to enhance school management and teaching efficiency.					
11	The principal regularly learns and applies emerging educational technologies to improve teaching methods and enhance the school's level of digitalization.					
	Information Management Ability					
1	The principal is able to effectively use information technology to optimize the school’s organizational structure.					
2	The principal improves the school’s workflows using information technology, enhancing management efficiency.					
3	The principal is able to innovate traditional management practices in the school by utilizing modern information management methods.					
4	The principal effectively integrates internal and external resources to support school management and development.					
5	The principal uses information technology to support decision-making, improving the scientific basis and timeliness of decisions.					
6	The principal utilizes informatization to enhance school management efficiency and ensure rational resource allocation.					

No	Information Leadership of Rural Primary Schools Principals in Guangxi	5	4	3	2	1
7	The principal effectively uses information technology to provide support in school management and improve operational efficiency.					
8	The principal leads the school in using information technology to promote management modernization.					
9	The principal actively seeks new applications of information technology to strengthen school management capabilities.					
10	The principal considers the unique needs and development strategies of the school when applying information technology.					
11	The principal uses information technology to help teachers and staff improve their work efficiency and quality.					
12	The principal enhances internal communication and collaboration within the school through information technology.					
13	The principal uses information management ability to improve the school's overall decision-support system and drive sustainable development.					
	Information environment and resource construction ability					
1	The principal actively supervises and manages the upgrading and maintenance of information hardware in the school.					
2	The principal ensures the effective development and utilization of educational software and resources.					
3	The principal integrates information technology with classroom teaching to enhance educational quality.					
4	The principal promotes the creation and development of an information culture within the school.					
5	The principal encourages teachers and staff to adopt information technology in their teaching practices.					

No	Information Leadership of Rural Primary Schools Principals in Guangxi	5	4	3	2	1
6	The principal regularly assesses the effectiveness of the school's information technology infrastructure.					
7	The principal ensures that information resources are accessible and beneficial for both teachers and students.					
8	The principal encourages collaboration with external organizations to improve the school’s information resources.					
9	The principal advocates for the development of digital literacy and technology skills among school staff.					
10	The principal works to align the school’s information environment with modern educational needs and innovations.					
11	The principal monitors the social support and participation of the community in the school’s information environment development.					
12	The principal fosters a culture of innovation and adaptability towards technology among teachers and students.					
	Information planning and design ability					
1	The principal is able to plan and design the school information system from a long-term strategic perspective.					
2	The principal is able to create clear and realistic information management goals that align with the school’s overall development objectives.					
3	The principal is able to comprehensively assess the internal and external environments affecting the development of school information.					
4	The principal is able to make informed decisions regarding the allocation of school information resources.					

No	Information Leadership of Rural Primary Schools Principals in Guangxi	5	4	3	2	1
5	The principal is able to develop an information development plan that is tailored to the school's unique context.					
6	The principal is able to identify key strategies and measures needed for the school's information development.					
7	The principal is able to design effective information system infrastructure to support the development of school information.					
8	The principal is able to integrate information technology with school development goals to improve school management efficiency.					
9	The principal is able to ensure the successful deployment and execution of the school's information development plan.					
10	The principal is able to accurately predict future trends during the information planning and design process.					
11	The principal is able to effectively manage risks and challenges in school information construction.					
12	The principal is able to collaborate with faculty and staff to promote the development of the school's information systems.					
	Information evaluate ability					
1	The principal regularly evaluates the various components of the school's information system to ensure its effectiveness.					
2	The principal can make timely adjustments to the planning and implementation of the school's information system based on evaluation results.					
3	The principal ensures the accuracy of the school's information technology development through continuous evaluation.					

No	Information Leadership of Rural Primary Schools Principals in Guangxi	5	4	3	2	1
4	The principal ensures that the school's information work always progresses in the correct direction.					
5	The principal uses evaluations of the current status of the school's information system to determine appropriate improvement measures.					
6	The principal ensures that the development of the information system aligns with the school's long-term goals by comparing evaluation results with those goals.					
7	The principal identifies and addresses potential risks and issues during the information evaluation process.					
8	The principal ensures the efficient use of resources based on evaluations of the school's information system's effectiveness.					
9	The principal uses evaluation results to inform decision-making for the future development of the school's information system.					
10	The principal evaluates the sustainability of the school's information technology and ensures its healthy development.					
11	The principal identifies deficiencies in the school's information system through evaluation and proposes feasible improvement measures.					
12	The principal strengthens quality control of the school's information system through evaluation.					
13	The principal adjusts the direction of information technology development in response to evaluation data to meet the school's actual needs.					

2. Interview Outline

Interview outline of Guideline for improving Information Leadership of Rural Primary Schools Principals in Guangxi

Instructions:

The interviewees in this study are 14 principal or vice principal of rural primary schools in Guangxi, who were 1) more than 10 years of working experience in primary schools; 2) Rich experience in primary school administration; 3) First-Grade Teacher (Mid-Level) or above.

Part1: Respondent status (personal information)

1.Name(interviewee):

2.Position:

3.School:

4.Date of Interview:

5.Length of interview:

Part2: Interview outline

Content	Question
Information literacy	1. In your opinion, how to improve the ability of The principal regularly learns and applies emerging educational technologies to improve teaching methods and enhance the school's level of digitalization, and how about your suggestion in improve teaching methods and enhance the school's level of digitalization?
Information Management Ability	2. In your opinion, how to improve the ability of the principal is able to effectively use information technology to optimize the school's organizational structure, and how about your suggestion in optimize the school's organizational structure?

Content	Question
Information environment and resource construction ability	3. In your opinion, how to improve the ability of The principal monitors the social support and participation of the community in the school's information environment development,and how about your suggestion in the community in the school's information environment development?
Information planning and design ability	4. In your opinion, how to improve the ability of The principal is able to effectively manage risks and challenges in school information construction, and how about your suggestion in the community in the risks and challenges in school information construction?
Information evaluate ability	In your opinion, how to improve the ability of The principal identifies and addresses potential risks and issues during the information evaluation process, and how about your suggestion in information evaluation process?

1. In your opinion, how to improve the ability of The principal regularly learns and applies emerging educational technologies to improve teaching methods and enhance the school's level of digitalization, and how about your suggestion in improve teaching methods and enhance the school's level of digitalization?

Interviewee 1

The establishment of a regional headmaster training community is key. It is recommended that the education sector organise monthly thematic workshops focusing on hands-on exercises in emerging technologies. At the same time, an urban-rural support mechanism should be set up, so that high-quality urban schools can pair up with rural schools to share digital curriculum resources. We also need to improve the incentive mechanism and incorporate the use of technology into performance appraisals.

Interviewee 2

A two-line integration training model should be constructed: online, the county education cloud platform should be built to bring together a microcurriculum resource base; offline, immersive follow-up training should be carried out.The focus is on training seed teachers, who will radiate throughout the school by passing on their skills.It is recommended that special funding be set up to guarantee the iteration of equipment.

Interviewee 3

It is necessary to solve the problem of the unwillingness to use the technology.It is recommended that the use of technology be linked to teaching competitions and the evaluation of professional titles, and that a "digital teaching champion" award be set up.Establish a school-based resource development system and encourage teachers to make localised digital lesson plans for collective lesson planning.

Interviewee 4

It is crucial to focus on digital leadership development for school pincipal.Exclusive training programmes for school pincipal should be developed, covering technology decision-making and resource integration.It is recommended that a third-party assessment agency be introduced to regularly diagnose the shortcomings of digital construction in schools and provide customised improvement programmes.

Interviewee 5

Building a "home-school-society" collaborative mechanism: using corporate donations to build smart classrooms, organising digital literacy training for parents, and joining forces with colleges and universities to carry out summer digital tutoring.Focusing on the construction of STEM laboratories, and enhancing teachers' and students' technological application skills through project-based learning.

Interviewee 6

It is recommended that a “three-stage empowerment” plan be implemented: literacy training at the basic level, cross-school observation at the advanced level, and support for research at the innovative level. Establish a county equipment-sharing platform to address the shortage of high-end equipment in rural schools. Regular educational technology fairs should be organized to facilitate the flow of experience.

Interviewee 7

A "demand-orientated" training mechanism should be established to collect the real needs of teachers through questionnaires.Emphasis should be placed on the development of age-appropriate training programmes to help senior teachers cross the technological divide.It is recommended that county-level technical support teams be set up to provide 24-hour online question-and-answer services.

Interviewee 8

Building a "teaching-technology-management" integration model: combining technology training with subject teaching and research in depth, and developing subject-specific toolkits.A digital teaching supervision system has been established, with school-level leaders regularly listening to and evaluating classes.It is proposed that virtual teaching and research rooms be built to promote cross-regional collaborative lesson planning.

Interviewee 9

The need for a two-pronged approach of policy protection and technical support.Calls have been made to include investment in education informatisation in local government assessment indicators and to set up special subsidies for rural schools.Co-operate with enterprises to develop lightweight applications and adapt to low-bandwidth environments.Establish a certification mechanism for digital education resources in the county to avoid the proliferation of resources.

Interviewee 10

Focusing on the "last mile" problem.It is proposed to train a complex technical backbone that is both pedagogically and technologically proficient.The establishment of a "problem bank" system to collect daily teaching pain points and organise targeted research.Develop a school-based digital evaluation system to drive teaching improvement with data.

Interviewee 11

To build a "experience-practice-reflection" learning loop: first organise VR immersive experience to stimulate interest, then carry out practical training for example grinding, and finally deepen the knowledge through action research reports.It is recommended to establish a county-level technology application case library and set up star ratings to promote the dissemination of high-quality cases.

Interviewee 12

Digital ethics education needs to be emphasised.An information security education module should be added to technology training to develop a critical awareness of the use of technology among teachers and students.It is recommended that a digital footprint management system be developed to help pincipal scientifically assess the effectiveness of technology use.Establish a negative list system for technology use to prevent risks.

Interviewee 13

Implementation of scenario-based learning strategies: development of typical application scenarios by subject, type of lesson and academic level.Examples include VR teaching of ancient poems in languages and visualisation toolkits for mathematics.Establish county technology application demonstration bases and organise on-site lecture demonstrations.It is recommended that technology application be combined with after-school services to expand practice space.

Interviewee14

Construction of a double-helix development model: simultaneous promotion of technological training and pedagogical reform.Developing a technology integration observation scale for classroom diagnosis.Suggest the establishment of a technology leadership training camp for pincipal to enhance decision-making skills through situational simulation.Establish a fault-tolerance mechanism for technology application to encourage innovative practices.

2. In your opinion, how to improve the ability of The principal is able to effectively use information technology to optimize the school's organizational structure,and how about your suggestion in optimize the school's organizational structure?

Interviewee1

It is recommended to build a school-level data management platform, integrating modules such as teaching affairs and logistics, and presenting management blind spots with visual charts.For example, the frequency of teacher collaboration can be analysed through attendance data to optimise the division of teaching and research groups.The establishment of digital files to track the effectiveness of decision-making, and the gradual shift from empirical management to data-driven management.

Interviewee2

Focusing on the digitisation of processes, processes such as meeting approval and material requisitioning were migrated to the OA system.Through the process time-consuming analysis to optimise the node setting, such as changing the traditional three-level approval to "intelligent pre-approval + manual review" mode, so that the organisational structure from the pyramid-type to the mesh synergistic transformation.

Interviewee3

Using WeChat to build a cross-departmental collaboration space to break down the information barriers between the Academic Affairs Office and the Moral Education Office.Setting up "project-based" virtual groups, such as online teaching and research commando teams, and dynamically adjusting the membership structure according to technical skills.Evaluate organisational effectiveness through back-end collaboration heat maps.

Interviewee4

Develop a decision support system for pincipal that embeds a diagnostic model of organisational structure.For example, input data such as teacher age and information technology equipment to automatically generate recommendations for departmental reorganisation.Create a digital sandbox to simulate different management scenarios to help foresee the operational status after organisational restructuring.

Interviewee5

Implement mobile management mode and develop customised version of the Nail application.Setting up intelligent duty roster to automatically match personnel's speciality, and meeting room reservation system to show space utilisation in real time.Capture campus dynamic data with IoT devices to promote the change of organisational structure from fixed establishment to flexible configuration.

Interviewee6

Constructing a digital portrait system for teachers, integrating teaching data, training records and other information to intelligently recommend job fitness.For example, identify veteran teachers with technical expertise to serve as information technology supervisors, and transform the traditional sectional hierarchy into a matrix structure based on competency mapping.

Interviewee7

Establishment of a virtual middle management echelon and training of reserve cadres through online leadership programmes.Implementing cross-campus co-working through videoconferencing, gradually upgrading the single-campus management structure to a multi-campus collaborative network.Developing an intelligent class scheduling system to automatically coordinate teacher resources.

Interviewee8

Blockchain technology has been introduced to establish a trustworthy collaboration mechanism, and the work of various departments has been traced and uploaded onto the chain.For example, the procurement records of the General Affairs Office are automatically verified against the equipment usage data of the Academic Affairs Office to promote cross-departmental trust.Smart contracts automatically trigger specific workflows, reducing the number of layers of approvals.

Interviewee9

Create a digital twin school management system with 3D modelling to present physical space and organisational relationships.Real-time monitoring of the efficiency of the use of functional areas and dynamic adjustment of departmental layouts.For example, when a high idle rate of laboratories is detected, it is automatically suggested to be converted into an interdisciplinary innovation centre.

Interviewee10

Develop an organisational health monitoring app with 20 management effectiveness indicators (e.g. decision-making response speed).Trigger an alert when a department's indicators are abnormal and automatically push a library of improvement cases.Set up a digital suggestion box to collect optimisation suggestions and generate monthly reports on organisational structure tuning.

Interviewee11

Build an agile organisational structure and implement dynamic job descriptions using cloud documents.Create temporary digital attack teams that are automatically disbanded when the task is completed.Automatically assign cross-departmental collaboration tasks through enterprise WeChat robots, and replace traditional appraisal methods with OKR systems.

Interviewee12

Establish a digital campus nerve centre to collect data from 200+ management nodes through IoT.For example, the duty arrangement is dynamically adjusted according to the data on the flow of people in the canteen, and the logistics inspection routes are optimised using the data on electricity consumption in the classrooms.Promote organisational structure from function-oriented to data flow-oriented.

Interviewee13

Develop an intelligent meeting management system that automatically analyses meeting records from previous years and identifies inefficient sessions.Use NLP technology to extract to-do items and intelligently assign responsible departments.Establish a resolution implementation tracking module to transform traditional hierarchical supervision into data closed-loop management.

Interviewee14

Constructing a 'digital leverage' adjustment mechanism that automatically initiates resource deployment when the management system detects departmental loads exceeding thresholds.For example, the staffing of the Academic Affairs Office is automatically enhanced during the teaching assessment period, and logistical support is automatically tilted at the end of the term.Organisational resilience is achieved through dynamic balancing.

3. In your opinion, how to improve the ability of The principal monitors the social support and participation of the community in the school's information environment development,and how about your suggestion in the community in the school's information environment development?

Interviewee1

To improve supervision, pincipal need to attend more training and learn about information technology.For social support, enterprises can be invited to donate equipment, while volunteers can be organised to come into schools to guide teachers and students in their use.

Interviewee2

The key to improving supervisory capacity is in practice, and pincipal should be personally involved in information technology projects.In terms of social participation, it is recommended to co-operate with colleges and universities to allow internships for educational technology students to help informatise schools.

Interviewee3

pincipal should learn to use big data to monitor the quality of teaching and learning.In terms of social participation, cooperation with neighbouring enterprises can be made to carry out information technology science activities to enhance the interest of teachers and students.

Interviewee4

It is up to the team to improve supervision and organise teachers to learn together.Social participation suggests bringing in public interest organisations to provide free IT training courses for schools.

Interviewee5

pincipal need to pay attention to new technology trends and adjust their supervision strategies in a timely manner.In terms of social participation, they can co-operate with the community and make use of community resources to carry out IT education.

Interviewee6

Supervisory capacity enhancement requires the use of specialised tools such as teaching assessment software.Social participation suggests encouraging alumni donations for the purchase of information technology equipment.

Interviewee7

pincipal need to share their experiences with other schools to learn about supervision methods.For social participation, they can work with local media to publicise the achievements of school informatisation and attract more support.

Interviewee8

Enhancing supervisory capacity starts with the details and focuses on the use of information technology by students and faculty.Social participation suggests inviting parents to participate in discussions on school informatisation to form a home-school synergy.

Interviewee9

pincipal are required to regularly self-evaluate the effectiveness of their supervision and make continuous improvements.In terms of social participation, information technology innovation projects can be carried out in co-operation with technology companies.

Interviewee10

Supervisory improvement needs to be individualised with the school's realities.Social participation suggests the use of online platforms and remote information technology training.

Interviewee11

pincipal need to develop an informational mindset and plan and supervise their work in a holistic manner.In terms of social participation, co-operation with cultural organisations can be made to enrich the school's informatised educational resources.

Interviewee12

Enhancing supervisory capacity should focus on feedback on results and timely adjustment of programmes.Social participation suggests cooperation with social organisations to carry out information technology themed competitions.

Interviewee13

pincipal need to focus on the needs of teachers and students as a guide to supervision.In terms of social participation, quality information technology programmes can be introduced in collaboration with educational institutions.

Interviewee14

Supervisory capacity improvement depends on continuous learning and attention to policy developments.Social participation suggests co-operation with enterprises and the construction of information technology internship bases.

4. In your opinion, how to improve the ability of The principal is able to effectively manage risks and challenges in school information construction,and how about your suggestion in the community in the risks and challenges in school information construction?

Interviewee1

In terms of capacity enhancement: Principals should strengthen their training in information technology management and learn about risk assessment methods.Suggestion: The community should provide technical support to help schools establish an information technology security system to prevent cyber attacks.

Interviewee2

Enhancement of competence: Principals need to organise regular teacher seminars on IT issues to enhance the team's ability to cope.Suggestion: Enterprises can donate equipment with training to help schools solve technical problems.

Interviewee3

In terms of capacity enhancement: Principals should pay attention to new technological trends and lay out their plans in advance to avoid falling behind.Suggestion: The government should increase investment in information technology in rural schools to reduce the risk of underfunding.

Interviewee4

In terms of capacity enhancement: Principals should establish an early warning mechanism for information technology risks to identify problems in a timely manner.Suggestion: Social organisations can carry out informatisation safety education activities to enhance the preventive awareness of teachers and students.

Interviewee5

Enhancing capacity: Principals need to develop interdisciplinary management skills and integrate resources to meet challenges.Suggestion: Universities can work with schools to provide professional guidance and solve technical challenges.

Interviewee6

In terms of capacity enhancement: Principals should focus on the maintenance and management of information technology equipment to reduce the risk of failure.Suggestion: Enterprises should provide long-term after-sales support to ensure stable equipment operation.

Interviewee7

Capacity enhancement: Principals should strengthen communication with parents and work together to meet the challenges of information technology. Suggestion: The community can organise informatisation seminars to enhance parental participation.

Interviewee8

Enhancement of competence: Principals need to learn to use big data analysis to accurately manage information technology construction.Suggestion: The government should establish an informatisation support mechanism to help schools solve technical bottlenecks.

Interviewee9

Enhancement of competence: Principals should be concerned about the security of teacher and student information and enhance privacy protection. Suggestion: The community should provide information security training to enhance the preventive capacity of teachers and students.

Interviewee10

Enhancement of competence: Principals need to develop IT project management skills to ensure the smooth progress of the project. Suggestion: Enterprises can co-operate with schools to carry out pilot projects and accumulate experience.

Interviewee11

Enhancing capacity: Principals should focus on the sustainability of information technology construction to avoid wasting resources. Suggestion: The government and society should provide sustained financial and technical support to ensure that projects are implemented.

Interviewee12

pincipal should regularly evaluate the effectiveness of information technology construction and adjust their strategies in a timely manner. Suggestion: Social organisations can provide third-party assessment services to help schools identify problems.

Interviewee13

pincipal need to strengthen exchanges with neighbouring schools to learn from the best practices.Suggestion: The Government should set up an information exchange platform to promote resource sharing.

Interviewee14

pincipal should focus on the information literacy of teachers and students to improve their overall coping skills.Suggestion: The community should provide diversified training resources to enhance the informatisation level of teachers and students.

5. In your opinion, how to improve the ability of The principal identifies and addresses potential risks and issues during the information evaluation process, and how about your suggestion in information evaluation process?

Interviewee1

Headteachers should attend regular information assessment training to learn about risk identification methods. At the same time, an in-school information assessment team should be established to conduct regular self-inspections to identify potential problems and deal with them in a timely manner.

Interviewee2

To enhance the information assessment capacity of school pincipal, it is necessary to strengthen exchanges with universities and education experts and introduce advanced assessment concepts. It is recommended that more case analyses be carried out to draw lessons from practical problems.

Interviewee3

pincipal should focus on daily maintenance records of information technology equipment to identify potential risks through data accumulation. At the same time, professional technicians are invited to check the equipment on a regular basis to remove hidden dangers in advance.

Interviewee4

It is recommended that pincipal pay more attention to the policies and regulations on information technology construction to ensure that school information assessment is in line with the norms. At the same time, a risk warning mechanism should be set up to respond to anomalies in a timely manner.

Interviewee5

pincipal need to develop interdisciplinary assessment skills to identify risks from multiple perspectives, including teaching and learning and management.It is recommended that teachers be organised to participate in information assessment together to improve team response skills.

Interviewee6

pincipal should use information technology tools, such as data analysis software, to accurately identify risks.At the same time, regular teacher training should be organised to raise teachers' awareness of information assessment.

Interviewee7

pincipal are advised to conduct regular self-evaluation and mutual evaluation of information technology development to identify problems from different perspectives.At the same time, a feedback mechanism for problems should be established to solve potential problems in a timely manner.

Interviewee8

pincipal need to pay attention to information security and conduct regular safety drills to improve their ability to deal with risks.At the same time, information security experts are invited to train teachers and students to enhance their awareness of prevention.

Interviewee9

pincipal should focus on the preliminary research of information technology projects to fully assess the feasibility.It is recommended to co-operate with neighbouring schools to share assessment experience and avoid duplication of problems.

Interviewee10

It is recommended that pincipal create information assessment files to document the process and results of each assessment.Through comparative analyses, potential problems can be identified and dealt with in a timely manner.

Interviewee11

pincipal need to develop a keen sense of observation and pay attention to feedback from teachers and students in the use of information technology.At the same time, parents are regularly invited to participate in information assessment to identify problems from various aspects.

Interviewee12

It is recommended that the Principal organises regular workshops on IT development, inviting a wide range of parties to identify risks.At the same time, an emergency response plan is established to ensure that problems are resolved in a timely manner.

Interviewee13

pincipal should focus on sustainability assessment of information technology development to avoid wastage of resources.It is recommended to co-operate with enterprises to obtain technical support and improve assessment capacity.

Interviewee14

pincipal need to cultivate forward thinking in information technology construction, layout in advance and avoid risks.At the same time, they should make use of online platforms to learn from advanced experiences and improve the level of assessment.

3. Assessment Checklist

Assessment checklist of Guideline for improving Information Leadership of Rural Primary Schools Principals in Guangxi

Dear Respondents:

Greetings! We would like to ask you to evaluate the applicability of the Guidelines for improving Information Leadership of Rural Primary Schools Principals in Guangxi, and sincerely invite you to participate in this survey, thank you for your support!

This questionnaire utilizes a 5-level scoring.The numbers 5,4,3,2 and 1 correspond to highest, high, average, low, and lowest.

Assessment checklist	Suitability					Feasibolity				
Guidelines	5	4	3	2	1	5	4	3	2	1
1. Information literacy										
1) Strengthening regular training programs for principals on emerging educational technologies, integrating hands-on workshops and case studies to bridge theory with practice.										
2) Enhancing collaboration with local tech companies and universities to establish joint research projects, enabling schools to pilot innovative digital tools and receive expert guidance.										
3) To further incentivize digital adoption, introduce performance-based rewards for principals who successfully integrate technology into teaching, linked to professional advancement.										
4) Strengthening school IT infrastructure by allocating dedicated funds for hardware, software, and maintenance, ensuring equitable access across rural campuses.										

Assessment checklist	Suitability					Feasibolity				
Guidelines	5	4	3	2	1	5	4	3	2	1
5) Enhancing policy communication through multilingual parent-teacher workshops, showcasing how digital tools benefit student learning to build community support.										
6) To further empower teachers as digital mentors, establish peer-led training cohorts where experienced staff assist principals in mastering new technologies step-by-step.										
7) Strengthening the role of regional education hubs to curate regionalized digital resource libraries, addressing unique challenges faced by rural schools.										
8) Enhancing data-driven decision-making by providing principals with analytics dashboards to monitor tech adoption impact, enabling targeted improvement strategies.										
9) To further foster innovation, organize annual "Tech Integration Idea Competitions" for principals, rewarding creative solutions with implementation grants.										
10) Strengthening policy flexibility to allow schools to experiment with phased digital transitions, offering grace periods for adaptation while maintaining accountability.										
2. Information Management Ability										
1) Strengthening the establishment of a teacher-collaboration network using IT tools (e.g., online forums, shared calendars) to align departmental goals and reduce administrative overlap.										

Assessment checklist	Suitability					Feasibolity				
Guidelines	5	4	3	2	1	5	4	3	2	1
2) Enhancing the adoption of standardized digital workflows (e.g., automated reporting systems) to streamline repetitive tasks and free up time for strategic planning.										
3) To further integrate parent participation, create a digital platform where parents can submit feedback on organizational reforms and track implementation progress.										
4) Strengthening cross-functional roles for principals, such as assigning them oversight of both academic and IT departments to ensure tech-driven decisions align with school priorities.										
5) Enhancing data-driven decision-making by implementing AI-powered tools to analyze student performance trends and adjust organizational structures proactively.										
6) To further establish a "digital mentorship" program pairing principals with urban school leaders experienced in tech-based organizational restructuring.										
7) Strengthening the use of cloud-based resource libraries to centralize lesson plans, policies, and training materials, reducing redundancy across classrooms.										
8) Enhancing teacher accountability through IT-based performance dashboards that track adoption rates of digital tools and collaborative projects.										
9) To further pilot "flexible organizational models," allowing principals to experiment with hybrid roles (e.g., combining										

Assessment checklist	Suitability					Feasibolity				
Guidelines	5	4	3	2	1	5	4	3	2	1
IT manager and curriculum developer) to adapt to rural needs.										
10) Strengthening periodic audits of IT infrastructure to identify gaps in organizational efficiency, prioritizing upgrades that directly support decision-making processes.										
3. Information environment and resource construction ability										
1) Strengthening community engagement through regular digital forums and town halls to transparently share progress on school information environment development, fostering trust and collaboration.										
2) Enhancing parent-teacher partnerships by establishing a digital volunteer program where community members assist in maintaining IT infrastructure and training teachers.										
3) To further integrate local culture into digital initiatives, collaborate with community elders to co-design culturally relevant e-learning content (e.g., traditional language courses).										
4) Strengthening policy advocacy by organizing workshops for local government officials to highlight the role of community support in bridging rural-urban digital divides.										
5) Enhancing resource sharing networks between schools and nearby villages, leveraging IT tools to pool funds and equipment for joint information environment projects.										

Assessment checklist	Suitability					Feasibolity				
Guidelines	5	4	3	2	1	5	4	3	2	1
6) To further empower young leaders, train high school students to act as "digital ambassadors" and send messages to their peers and families.										
7) Strengthening feedback mechanisms by implementing QR code-based surveys in rural markets and community centers to gauge community needs for information services.										
8) Enhancing public-private partnerships by collaborating with local businesses to sponsor digital literacy programs for parents and community members.										
4. Information planning and design ability										
1) Strengthening cybersecurity protocols by implementing basic firewalls and regular password updates, especially for rural schools with limited IT staff.										
2) Enhancing community oversight committees to monitor school IT budget allocation and infrastructure maintenance, ensuring transparency and accountability.										
3) To further develop offline contingency plans for areas with unreliable internet, using USB drives or SD cards to store critical educational resources.										
4) Strengthening teacher training on equipment troubleshooting (e.g., projector repairs, network connectivity checks) to reduce reliance on external tech support.										

Assessment checklist	Suitability					Feasibolity				
Guidelines	5	4	3	2	1	5	4	3	2	1
5) Enhancing partnerships with local businesses to donate outdated but functional hardware (e.g., laptops, printers) for school use.										
6) To further integrate rural-specific risk management, such as establishing a "digital emergency fund" for unexpected infrastructure repairs.										
7) Strengthening parent-child digital safety workshops, focusing on preventing cyberbullying and protecting personal data during online activities.										
8) Enhancing collaboration with local government for periodic IT audits, prioritizing schools with high vulnerability to natural disasters (e.g., flood-prone regions).										
9) To further leverage community volunteers to maintain school networks, training villagers in basic IT maintenance tasks (e.g., cable management).										
10) Strengthening data encryption for student records stored on local servers, especially in schools without cloud storage access.										
5. Information evaluate ability										
1) Strengthening teacher training programs on basic data analysis tools (e.g., spreadsheets, simple dashboards) to enhance their ability to interpret information evaluation results.										
2) Enhancing community involvement by inviting local elders to review digital resource suitability for cultural sensitivity and rural relevance.										

Assessment checklist	Suitability					Feasibolity				
Guidelines	5	4	3	2	1	5	4	3	2	1
3) To further simplify evaluation processes, develop paper-based checklists for schools without reliable internet to track infrastructure status manually.										
4) Strengthening cross-school collaboration, organizing periodic visits between rural schools to share risk identification strategies (e.g., equipment theft prevention).										
5) Enhancing student feedback mechanisms, using classroom surveys or suggestion boxes to identify user experience issues with digital tools.										
6) To further integrate traditional knowledge into evaluation criteria, collaborating with community members to assess the practicality of IT solutions in rural contexts.										
7) Strengthening periodic equipment inventories using QR codes or simple barcoding systems to prevent asset loss or misuse.										
8) Enhancing partnerships with local IT vendors for discounted maintenance services, prioritizing schools with high-risk IT infrastructure.										
9) To further establish a "digital mentorship" program pairing urban teachers with rural principals to remotely support evaluation processes.										
10) Strengthening crisis response protocols, such as creating offline emergency contact lists for IT suppliers and community volunteers.										

Appendix D
The Results of the Quality Analysis of Research Instruments

Guileines for improving Information Leadership of Rural Primary Schools Principals in Guangxi

NO	Information Leadership of Rural Primary Schools Principals in Guangxi	Experts					IOC	Validity
		5	4	3	2	1		
Information literacy								
1	The principal can accurately identify key information needed for school management and instructional improvement.	1	1	1	1	1	1.00	valid
2	The principal is proficient in using various information sources (such as government websites, academic research, and education forums) to obtain the latest education policies and teaching methods.	0	1	1	1	1	0.80	valid
3	The principal can effectively utilize the internet, databases, and educational resource platforms to acquire high-quality information to support school management decisions.	1	1	1	1	1	1.00	valid
4	The principal can assess the credibility of different information sources and select the most valuable information for school development.	1	1	1	1	1	1.00	valid
5	The principal can systematically organize and manage collected information for quick retrieval and use when needed.	1	1	1	1	1	1.00	valid
6	When using information for decision-making, the principal verifies its accuracy, timeliness, and scientific validity to avoid the influence of misleading information.	1	0	1	1	1	0.8	valid
Information literacy								
7	The principal can apply acquired information to optimize school management and improve the quality of education and teaching.	1	1	1	1	1	1.00	valid

NO	Information Leadership of Rural Primary Schools Principals in Guangxi	Experts					IOC	Validity
		5	4	3	2	1		
8	The principal can integrate information analysis results to develop management strategies and teaching reform plans that align with the school's development needs.	1	1	1	1	1	1.00	valid
9	The principal can effectively communicate important educational information to teachers, parents, and community members, facilitating their understanding and application.	1	1	1	1	1	1.00	valid
10	The principal is proficient in using information technology (such as office software, data analysis tools, and online teaching platforms) to enhance school management and teaching efficiency.	1	1	1	1	1	1.00	valid
11	The principal regularly learns and applies emerging educational technologies to improve teaching methods and enhance the school's level of digitalization.	1	1	1	1	0	0.80	valid
Information Management Ability								
1	The principal is able to effectively use information technology to optimize the school’s organizational structure.	1	1	1	1	1	1.00	valid
2	The principal improves the school’s workflows using information technology, enhancing management efficiency.	1	1	1	1	1	1.00	valid
3	The principal is able to innovate traditional management practices in the school by utilizing modern information management methods.	1	1	1	1	1	1.00	valid
4	The principal effectively integrates internal and external resources to support school management and development.	1	1	1	1	1	1.00	valid

NO	Information Leadership of Rural Primary Schools Principals in Guangxi	Experts					IOC	Validity
		5	4	3	2	1		
5	The principal uses information technology to support decision-making, improving the scientific basis and timeliness of decisions.	1	1	1	1	1	1.00	valid
6	The principal utilizes informatization to enhance school management efficiency and ensure rational resource allocation.	1	1	1	1	0	0.80	valid
7	The principal effectively uses information technology to provide support in school management and improve operational efficiency.	1	1	1	1	0	**0.80**	valid
8	The principal leads the school in using information technology to promote management modernization.	1	1	1	1	1	1.00	valid
9	The principal actively seeks new applications of information technology to strengthen school management capabilities.	1	1	1	1	1	1.00	valid
10	The principal considers the unique needs and development strategies of the school when applying information technology.	1	1	1	1	1	1.00	valid
11	The principal uses information technology to help teachers and staff improve their work efficiency and quality.	1	1	1	1	1	1.00	valid
12	The principal enhances internal communication and collaboration within the school through information technology.	1	1	1	1	1	1.00	valid
13	The principal uses information management ability to improve the school's overall decision-support system and drive sustainable development.	1	1	1	1	0	0.80	valid

NO	Information Leadership of Rural Primary Schools Principals in Guangxi	Experts					IOC	Validity
		5	4	3	2	1		
Information environment and resource construction ability								
1	The principal actively supervises and manages the upgrading and maintenance of information hardware in the school.	1	1	1	1	1	1.00	valid
2	The principal ensures the effective development and utilization of educational software and resources.	1	1	1	1	1	1.00	valid
3	The principal integrates information technology with classroom teaching to enhance educational quality.	1	1	1	1	1	1.00	valid
4	The principal promotes the creation and development of an information culture within the school.	1	1	1	1	1	1.00	valid
5	The principal encourages teachers and staff to adopt information technology in their teaching practices.	1	1	1	1	1	1.00	valid
6	The principal regularly assesses the effectiveness of the school's information technology infrastructure.	1	1	1	1	0	0.80	valid
7	The principal ensures that information resources are accessible and beneficial for both teachers and students.	1	1	1	1	1	1.00	valid
8	The principal encourages collaboration with external organizations to improve the school's information resources.	1	0	1	1	1	0.80	valid
9	The principal advocates for the development of digital literacy and technology skills among school staff.	1	1	1	1	0	0.80	valid
10	The principal works to align the school's information environment with modern educational needs and innovations.	1	1	1	1	1	1.00	valid

NO	Information Leadership of Rural Primary Schools Principals in Guangxi	Experts					IOC	Validity
		5	4	3	2	1		
11	The principal monitors the social support and participation of the community in the school's information environment development.	1	1	1	1	1	1.00	valid
12	The principal fosters a culture of innovation and adaptability towards technology among teachers and students.	1	1	1	1	1	1.00	valid
Information planning and design ability								
1	The principal is able to plan and design the school information system from a long-term strategic perspective.	1	1	1	1	0	0.80	valid
2	The principal is able to create clear and realistic information management goals that align with the school's overall development objectives.	1	1	1	1	1	1.00	valid
3	The principal is able to comprehensively assess the internal and external environments affecting the development of school information.	1	1	1	1	1	1.00	valid
4	The principal is able to make informed decisions regarding the allocation of school information resources.	1	1	1	1	1	1.00	valid
5	The principal is able to develop an information development plan that is tailored to the school's unique context.	1	0	1	1	1	0.80	valid
6	The principal is able to identify key strategies and measures needed for the school's information development.	1	1	1	1	0	0.80	valid
7	The principal is able to design effective information system infrastructure to support the development of school information.	1	1	1	1	1	1.00	valid

NO	Information Leadership of Rural Primary Schools Principals in Guangxi	Experts					IOC	Validity
		5	4	3	2	1		
8	The principal is able to integrate information technology with school development goals to improve school management efficiency.	1	1	1	1	1	1.00	valid
9	The principal is able to ensure the successful deployment and execution of the school's information development plan.	1	1	1	1	1	1.00	valid
10	The principal is able to accurately predict future trends during the information planning and design process.	1	1	1	1	1	1.00	valid
11	The principal is able to effectively manage risks and challenges in school information construction.	1	1	1	1	1	1.00	valid
12	The principal is able to collaborate with faculty and staff to promote the development of the school's information systems.	1	1	1	1	1	1.00	valid
Information evaluate ability								
1	The principal regularly evaluates the various components of the school's information system to ensure its effectiveness.	1	1	1	1	1	1.00	valid
2	The principal can make timely adjustments to the planning and implementation of the school's information system based on evaluation results.	1	1	1	1	1	1.00	valid
3	The principal ensures the accuracy of the school's information technology development through continuous evaluation.	1	1	1	1	0	0.80	valid
4	The principal ensures that the school's information work always progresses in the correct direction.	1	1	1	1	1	1.00	valid
5	The principal uses evaluations of the current status of the school's information system to determine appropriate improvement measures.	1	1	1	1	0	0.80	valid

NO	Information Leadership of Rural Primary Schools Principals in Guangxi	Experts					IOC	Validity
		5	4	3	2	1		
6	The principal ensures that the development of the information system aligns with the school's long-term goals by comparing evaluation results with those goals.	1	1	1	1	1	1.00	valid
7	The principal identifies and addresses potential risks and issues during the information evaluation process.	1	1	1	1	1	1.00	valid
8	The principal ensures the efficient use of resources based on evaluations of the school's information system's effectiveness.	1	1	1	1	1	1.00	valid
9	The principal uses evaluation results to inform decision-making for the future development of the school's information system.	1	1	0	1	1	0.8	valid
10	The principal evaluates the sustainability of the school's information technology and ensures its healthy development.	1	1	1	1	1	1.00	valid
11	The principal identifies deficiencies in the school's information system through evaluation and proposes feasible improvement measures.	1	1	1	1	1	1.00	valid
12	The principal strengthens quality control of the school's information system through evaluation.	1	1	1	1	1	1.00	valid
13	The principal adjusts the direction of information technology development in response to evaluation data to meet the school's actual needs.	1	1	1	1	1	1.00	valid

Reliability Analysis

Simplified Format of Cronbach's Reliability Analysis		
Number of Items	**Sample Size**	**Cronbach' Alpha Coefficient**
61	**37**	0.953

From the table above, it can be seen that the reliability coefficient value is 0.953, which is greater than 0.9, indicating that the quality of the research datareliabil ity is high. Regarding the " a " coefficient with deleted items," the reliabilitycoefficient does not significantly increase when any item is deleted. Therefore, itindicates that t he items sould not be deleted. Regarding the "CITC value," the CITC values for all analyzed items are above 0.5, indicating that there is a good correlation between the analyzed items, which also indicates a good reliability level. In summary, the reliability coefficient value of the research data is higher than 0.9, which comprehensively indicates high data reliability quality and can be used for further analysis.

Appendix E
Certificate of English

BSRU BANSOMDEJCHAOPRAYA
RAJABHAT UNIVERSITY

This is to certify that

Ms. Zhai Shujuan

Achieved BSRU English Proficiency Test (BSRU-TEP) level

C2

Given on 25th January 2021

(Assistant Professor Dr Kulsirin Aphiratvoradej)

Director

Appendix F

The Document for Accept Research

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LETTER OF ACCEPTANCE

Dear Author's:

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It is a great pleasure to inform that, after the peer review, your article titled " **Guidelines for Improving Information Leadership of Rural Primary Schools Principals in Guangxi**" has been accepted to publish in the journal of Utilitas Mathematica.

Comments from the Editorial Board:
Article plagiarism is below 10%.
Article perfectly fits in the scope.
Article is well written.
No more corrections are needed.

Hence, the article is accepted to be published in the upcoming Regular issue 2025. **Utilitas Mathematica** is a scientific journal. For any enquires/complaints, please email to editor@utilitasmathematica.com.
Note: The Journal index in the Scopus Database Category Quartile, Scopus Q4.

Olivia Wilson

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