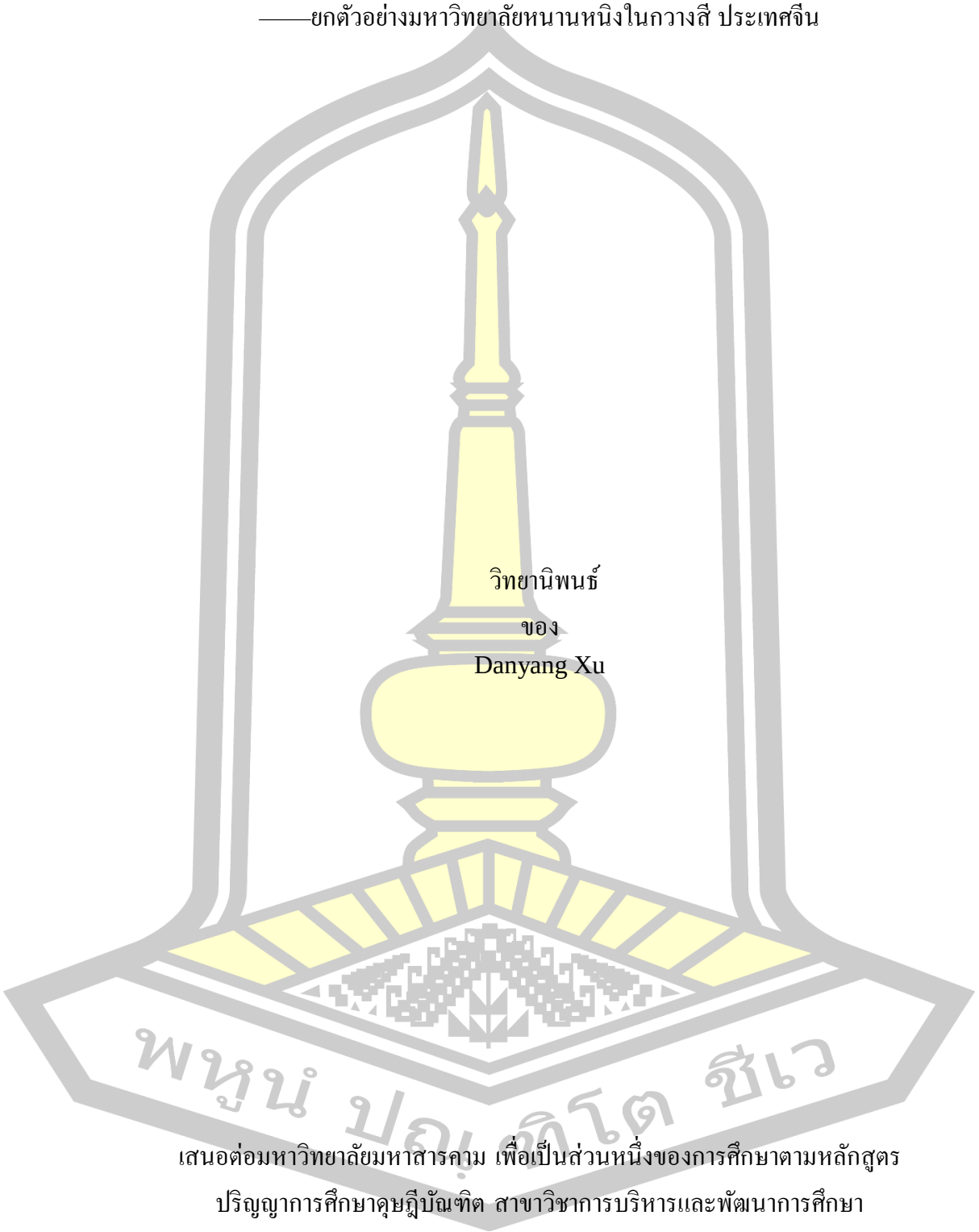
Program to Enhance Technology Leadership of Teacher in Public Art Education Management Take Nanning, Guangxi

Danyang Xu

A Thesis Submitted in Partial Fulfillment of Requirements for
degree of Doctor of Education in Educational Administration and Development
March 2024

โครงการพัฒนาผู้นำด้านเทคนิคการจัดการศึกษาศิลปะสาธารณะ
——ยกตัวอย่างมหาวิทยาลัยหนานหนิงในกวางสี ประเทศจีน



วิทยานิพนธ์

ของ

Danyang Xu

เสนอต่อมหาวิทยาลัยมหาสารคาม เพื่อเป็นส่วนหนึ่งของการศึกษาตามหลักสูตร

ปริญญาการศึกษาดุษฎีบัณฑิต สาขาวิชาการบริหารและพัฒนาการศึกษา

มีนาคม 2567

Program to Enhance Technology Leadership of Teacher in Public Art Education Management Take Nanning, Guangxi

Danyang Xu

A Thesis Submitted in Partial Fulfillment of Requirements

for Doctor of Education (Educational Administration and Development)

March 2024

The examining committee has unanimously approved this Thesis, submitted by Ms. Danyang Xu , as a partial fulfillment of the requirements for the Doctor of Education Educational Administration and Development at Mahasarakham University

Examining Committee

.....Chairman
(Prof. Kanokorn Somprach , Ed.D.)

.....Advisor
(Assoc. Prof. Suwat Junsuwan , Ed.D.)

.....Committee
(Assoc. Prof. Tharinthorn Namwan , Ed.D.)

.....Committee
(Asst. Prof. Karn Ruangmontri , Ph.D.)

.....Committee
(Surachet Noirid , Ed.D.)

Mahasarakham University has granted approval to accept this Thesis as a partial fulfillment of the requirements for the Doctor of Education Educational Administration and Development

.....
(Assoc. Prof. Chowwalit Chookhampaeng , Ed.D.)
Dean of The Faculty of Education

.....
(Assoc. Prof. Krit Chaimoon , Ph.D.)
Dean of Graduate School

TITLE Program to Enhance Technology Leadership of Teacher in Public Art Education Management Take Nanning, Guangxi

AUTHOR Danyang Xu

ADVISORS Associate Professor Suwat Junsuwan , Ed.D.

DEGREE Doctor of Education **MAJOR** Educational Administration and Development

UNIVERSITY Mahasarakham University **YEAR** 2024

ABSTRACT

This research aimed to study the component of technology leadership of teachers in Public Art Education Management. This is done with the intent to enhance the effectiveness of hands-on teaching methods and to promote collaborative development in educational institutions. Specifically, the study focuses on examining the current reality and the aspirational state of technology leadership among teachers within the context of Public art education management in Nanning, Guangxi. The exploration is targeted towards understanding how these educators are integrating technology into their leadership roles and how this integration could potentially elevate the quality of education in their respective schools. The author used the literature analysis method to conclude that components and indicators of Teacher Technology Leadership in Public Art Education Management include 1) technological vision, 2) technology competence, 3) technology professional development, and 4) technology integration. The tools used to collect data included document notes and assessment forms for the suitability of elements and indicators by confirming elements and indicators from 5 experts.

Regarding the existence and desire state of Teacher Technology Leadership in Public Art Education Management, the results show as follows: The overall existence state of Teacher Technology Leadership in Public Art Education Management was at the medium level and the overall desire state of Teacher Technology Leadership in Public Art Education Management was at the high levels. From the entire result of the existence and desire state of Technology Leadership of Teachers in Public Art Education Management, from high to low in terms of PNI value, the top three have a strong sense of teaching in terms of educational development, ability to keenly find needed teaching resources, and easily complete educational design, which needs to attract the attention of educational institution managers and teachers. Teachers' technology leadership in the intelligent era is divided into five structural components: the ability to integrate technology and teaching, the ability to plan technology applications, the ability to guarantee technology applications, the ability to manage with technology support, and the ability to think through technology applications. There are four practical paths for

teachers' technology leadership in the intelligent era: first, formulate intelligent technology application strategies and use technology to promote the intelligent transformation of school education; second, focus on technology training and communication to promote the improvement of teachers and students' intelligent educational literacy; third, rely on Intelligent technology optimizes the resource management mechanism and realizes the open sharing of teaching resources and data resources; fourth, adopts distributed leadership behavior to improve the effectiveness of the integration of intelligent technology and subject teaching.

Keyword : Teacher technology leadership, Public art education management

ACKNOWLEDGEMENTS

First and foremost, I would like to extend my deeply sincere gratitude to my advisor Assoc. Prof. Suwat Julsuwan , who has guided me to the world of international students learning management Studies and inspired me greatly in the study. They profound learning, inspiring inculcation and constant strictness have stimulated my enthusiasm for working on the subject and thesis. Without his enlightened instruction and patient revision, it would be impossible for the accomplishment of my thesis.

In addition, I would like to thank Examining Committee,they are Prof.Kanokom Somprach, Asst.Prof.Suwat Junsuwan, Assoc.Prof. Pacharawit, Assoc.Prof.Tharinthorn Namwan andAssoc.Prof. Songsak Phusee-orn.Chansirisira , I would also to thank my teachers in China , they are Prof. Zhou Hong, Prof. Zhang Yuhua etc. Thank you for providing me with a good learning environment, imparting me professional knowledge and giving me valuable advice.

Thanks to all the experts who checked the quality of the tools used in the study and offered improvements, repairs suggestions for complex and improved tools. Include those cited by the researcher in the bibliography.

Finally, I would also like to express my gratitude to my father,mother and my good friend Huo Jingjing. Your support and encouragement have given me the motivation to move forward. Without your company, my graduate life will lack a lot of colors.

Danyang Xu

TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER I
INTRODUCTION

Background

Located in Nanning City, Guangxi Province, China, and founded in 1938, Z University of Nanning, Guangxi Province, China, is one of the eight major comprehensive art universities in China. It is a university co founded by the province and the ministry, and co founded by the People's Government of Guangxi and the Ministry of Culture and Tourism. The school covers an area of approximately 699.57 acres, with over 1300 full-time teachers and 245 teachers with senior professional titles, covering multiple disciplines and majors, including outstanding teachers, experts, artists, and scholars from across the country. (School Profile Released by the Education Bureau,2018).

There are over 180 master's supervisors, and 3 of them enjoy special subsidies from the State Council government. There are more than 16000 students in school, as well as 6 first level master's programs and 35 second level master's programs. Among them, the first level disciplines include journalism Communication studies, design, fine arts, music and dance, art theory, drama and film and television. There are 40 undergraduate majors, 11 higher vocational majors, and a complete art education system. The school running of Z University in Nanning, Guangxi, China, covers the right to grant bachelor's degree, master's degree and master's degree, and can recommend outstanding undergraduate graduates to obtain the qualification to study for master's degree without examination, and can also provide equivalent academic qualifications to apply for master's degree, in-service master's degree, etc. It is the highest level university in South China that can grant master's degree.Nanning Z University in Guangxi, China has established the educational philosophy of "rooted in the local area, diversified integration, inheritance and innovation, and serving society", continuously promoting education and teaching reform, promoting talent cultivation,

promoting connotation and characteristic development, and continuously improving the quality of talent cultivation.

Public art carries contemporary urban ideas and cultural forms, is the creation and design of works for specific public spaces, represents the development and maturity of the city, belongs to the spiritual connotation of the city, displays the cultural values of urban development, covers the citizens' sense of pride and identity in the city, is an important content of art and cultural education, and can inspire people's thinking and unique feeling about the city. Public art can use the way of landscape change to inspire people to think about problems, improve people's cognition, and feel the value and historical connotation of the city. Therefore, Public art can not only change the appearance of the city, but also influence the cognition of the public mental state, and realize the shaping and uniqueness of the city (Jiang Yuanyuan,2020).

The basic courses of Public art major include theoretical knowledge, practical research, etc. of Public art, and involve art forms, art phenomenon forms, creation concepts, creation forms, aesthetic awareness, skills, etc., which belong to the discipline of literature and art.

Public art education is an art elective course for non art students in Chinese universities. It can improve students' humanistic quality and aesthetic experience, promote the comprehensive development of students, and also measure the overall strength of Chinese universities. At the same time, China has also released a series of documents on supporting Public art education in colleges and universities, which has promoted the development of Public art in Chinese colleges and universities. The National Public art Curriculum Guidance Plan for Ordinary Colleges and Universities proposes that the cultivation of high-quality talents in socialist modernization can not be separated from Public art curriculum, and setting it as an elective course can promote the shaping of sound personality and the improvement of innovative practical ability of college students. Public art education courses involve art theory learning, art works appreciation, art activity practice, etc., to help college students improve their

aesthetic taste, cultivate correct humanistic literacy concepts, understand Chinese and foreign multiculturalism and excellent artistic achievements, and cultivate their image thinking and appreciation ability(Zhang Rongfei,2021).

The development of Public art education in Chinese universities can improve the quality of college students in an all-round way. As a humanistic discipline, Public art education can improve students' aesthetic ability and artistic understanding, broaden their aesthetic interest and vision, and improve their aesthetic experience. The major of Public art education is an art education based on emotion to realize the emotional integration of the educated. Public art education can promote the formation of students' ideal personality, strengthen the shaping of personality, inspire college students to improve their self-development and planning, and understand the value and significance of life. existence of the development of Public art education teachers (Liu Wenting,2022).

At present, most Chinese colleges and universities do not have independent institutions and departments to manage Public art education. They are mainly affiliated with the art colleges, youth league committees, student offices, humanities colleges and other departments of Chinese colleges and universities to jointly manage. Their independence is poor. Due to the problems of teachers, courses, funds, student management, etc., the overall quality of Public art education will be affected, especially the lack of teacher construction, The insufficient quantity and low quality limit the development of Public art education in Chinese universities (Wei Xiaoyu,2022).

First, the management ability of Public art teachers is not strong. At present, there is a serious imbalance in the proportion of teachers majoring in Public art education in Chinese universities. In particular, some professional teachers have poor professional theories, lagging ideas, weak scientific research ability, and lack of professionalism, which restricts the improvement of the quality of Public art education (Hu Wei,2022).

Teachers and principals have to adopt the immense changes brought by technology advancement. Teachers are equipped with 21st-century tools thanks to the

administrators' technology expertise and their own; however, the intensity is only a possibility waiting to become a reality upon integration. the skills of positive technology integration for both administrators and teachers are needed to actualize and harmonize their respective areas (Yuan Li,2021).

The results indicated that administrators possess a high level of technology leadership. This implies that they are ready and have full knowledge and practical know-how on the utilization and application of technology. On the other hand, teachers also possessed a high level of technology proficiency. This indicates that they are adept at utilizing technology to aid in the teaching and learning process (Wang Yu,2022).

In order to improve the society, government, and universities, especially university leaders, attach great importance to the technology Technology leadership of college teachers, and fully understand the positive significance of implementing teachers' technology Technology leadership in colleges and universities. At the same time, take effective measures to overcome the unfavorable factors that affect the development of teachers' technology Technology leadership, provide necessary support, create a school culture that is conducive to the development of teachers' technology Technology leadership, and integrate the concept of Technology Leadership of Teachers into the overall management of the school. The realization of teachers' technology Technology leadership provides a suitable soil to encourage teachers to take advantage of their own professional advantages and role characteristics, participate in the school's joint decision-making, and play a role in the school's daily activities, take root and thrive in this soil (Zhao Leilei,2018).

Nowadays, related research on the technology Technology leadership of college teachers has become a hot topic in the academic circle. However, the academic research on teachers' technology Technology leadership has not yet formed a complete theoretical system. The existing research is not yet mature, and relevant theories are still relatively scarce. Since in the process of the formation and development of Technology Leadership of Teachers ideas, the direction of solving the

obstacles to the effective realization of teachers' technology Technology leadership and serving the practice of today's school Technology leadership is very clear, the theory about Technology Leadership of Teachers should be based on a series of empirical research. Therefore, this study conducts an empirical study on the influencing factors of college teachers' technology Technology leadership from the perspective of distributed . Technology leadership theory, and enriches and develops it by redefining the concept of teachers' technology leadership and analyzing its constituent elements and roles and functions. Relevant theories of Technology Leadership of Teachers (Liang Qian,2018).

From a practical point of view, the ultimate goal of theoretical research is to better guide practice. The research on the influencing factors of Technology Leadership of Teachers should not only stop at the discussion of various influencing factors, but also start from these factors, and put forward targeted countermeasures and suggestions to promote the effective display of teachers' technology leadership, so as to better guide colleges and universities The practice of teachers' technology leadership, through the research on the influencing factors of teachers' technology leadership, can enable school leaders and teachers to correctly understand the role and status of teachers in school teaching work, so as to abandon the "hero technology leadership" model and form a democratic Technology leadership culture in colleges and universities . At the same time, it can change the state that teachers have been trapped in external norms for a long time and automatically withdraw their self-consciousness and creative consciousness. It is beneficial for all teachers to develop a positive habit of participating in technology leadership, promote teachers' active participation and professional growth, and make the teaching profession attractive. Technology Leadership of Teachers is an inevitable product of people's pursuit of school excellence. Solving the problem of low efficiency in colleges and universities requires a new and more dynamic Technology leadership paradigm. By empowering teachers and using collective technology leadership to enhance the strength of the school, teachers' desire to speak in school improvement will also be enhanced,

cooperation between teachers will be enhanced, and teachers will be more proactive in focusing on the improvement and change of teaching practices. The state of subject isolation in teaching is broken, strengthening technology leadership energy and radiating the teacher group, thereby promoting the formation of the school's learning community culture and enhancing the school's ability to create the future. The school's improvement will have inherent vitality and passion, bringing not only Temporary surface changes, but deeper and continuous improvements (Sun Yaowu,2018).

To sum up, the construction of university teachers' technology leadership should build a value system of school Technology leadership construction at the conceptual level, build a cooperative culture of universities at the cultural level, and build a mechanism for balancing the rights and interests of school stakeholders at the institutional level. At the practical level, we should pay attention to the positive role of effective implementation of technology leadership of college teachers. In the long run, if the school can continue to improve, some deep-rooted practices must be broken, so that the colleges and universities can completely change their old appearance and establish a cooperation mechanism within the college. Teachers should be empowered to assume technology leadership responsibilities and exercise technology leadership.

The research on Technology Leadership of Teachers has become a hot topic. In recent years, the development of Public art education in Chinese colleges and universities has received widespread social attention and support from relevant policies. However, there is still a certain gap between the development of Public art education in Chinese colleges and universities and the standards, especially the shortage of teachers, which has restricted the rapid and healthy development of Public art education in Chinese colleges and universities. Among them, the management of teachers' technology leadership is an important factor (Tan Yuandi,2018).

Teachers are the guides and participants in teaching activities, and the standardization of their educational and teaching behavior will affect the final effectiveness of teaching activities. Technology Leadership of Teachers is at the core. Technology Leadership of Teachers is reflected through interaction with students and colleagues during teaching activities, and has a significant impact on social

development. Excellent teachers can achieve moral education and achieve the integration of teaching management and emotions. However, in actual teaching activities, some teachers' moral character cannot be convinced, their teaching methods are rigid and lack innovation, knowledge transmission is mechanized, and they do not pay attention to the cultivation of students' healthy personalities. This lack of technology leadership among these teachers affects the normal development of teaching activities.

Therefore, improving teachers' technology leadership is the Critical path method to improve teachers' professional development level and Public art education management professionalism. The cultivation and enhancement of Technology Leadership of Teachers can improve the overall quality of teaching and the professional level of teachers. The technology leadership of teachers not only includes the transmission of professional knowledge, but also the handling of teacher-student relationships, improvement of teaching methods, improvement of teaching skills, and communication in daily teaching. Teachers with stronger teaching technology leadership often have higher professional levels and teaching skills.

Currently, more and more teachers are improving their teaching practices through situational teaching and interaction, and Technology Leadership of Teachers also determines students' willingness to participate and subjective initiative. Technology Leadership of Teachers requires teachers to actively participate in various decisions, encourage students to exert subjective initiative, and promote the improvement and improvement of teaching courses. The improvement of teaching work is based on the development of teachers, and it is necessary to continuously improve teachers' technology leadership and promote the reform of higher education in China. Teachers are the direct executors and participants of various affairs and teaching behaviors in schools. The improvement of teachers' technology leadership can help schools reform and promote the improvement of management decisions. Technology Leadership of Teachers can promote the development and reform of schools, stimulate teachers' sense of ownership, and improve their professional level.

The improvement of teachers' professional level can further improve the quality of teaching, generate positive incentive effects, and provide more opportunities for teachers' development (Cheng Jinkuan,2022).

Technology Leadership of Teachers is based on the transformation of teacher roles, attempting to improve practical teaching level and develop together with schools. The existing Technology leadership models involve distributed Technology leadership, transformational technology leadership, Collective technology leadership, etc. Technology Leadership of Teachers is based on the teachers themselves, taking into account the social and campus cultural environment factors. In order to improve Technology Leadership of Teachers and promote the better development of Chinese universities, more and more scholars are conducting research on Technology Leadership of Teachers. However, existing research has mostly focused on the technology leadership of principals, and research on the technology leadership of professional teachers is not yet in place.

With the continuous deepening of educational informatization, the role of technological means in education and teaching has become increasingly prominent. Public art education is an important way to cultivate students' aesthetic ability and creativity, and teacher leadership is an important force in promoting reform and development in this field. Therefore, studying how to use technological means to improve teachers' leadership is of great significance to promoting the reform and development of public art education; in addition, improving teachers' leadership through technological means will help improve teachers' overall quality and make them better It can better adapt to the requirements of education informatization, better play its leading role in public art education, and promote the balanced development of regional education. By studying the management of public art education in Nanning, it can provide other regions with experience and models that can be used for reference, and promote Balanced development of regional education.

In summary, the research in this thesis is not only of great significance in promoting the reform and development of public art education, but also has important value in improving the quality of teachers, promoting the balanced development of

regional education, providing scientific basis for policy formulation, and expanding the application fields of educational technology.

Research Questions

This research has three questions, these are:

1.What are the components of technology leadership of teachers in Public art education management?

2.What is the existence and desired state and strategy of research on the technology leadership of teachers in public art education management?

3.What is an appropriate program to enhance technology leadership of teachers in public Art education management challenge?

Research Objectives

This research has three objectives, as follows:

1.To Investigate components of technology leadership of teachers in Public art education management.

2.To explore existence,desired state and priority needs of technology leadership of teachers in public art education management

3.To design an appropriate program to enhance technology Technology leadership challenge of teacher in public Art education management challenge.

Benefits of Research

By conducting this research, it is hoped that this research will add more options that program to enhance technology leadership of teacher in public art education management.

1. Teachers

The research of this paper can provide reference opinions for the improvement of teaching work of teachers majoring in Public art education management in Chinese universities. This paper analyzes the technology leadership of Public art education

management teachers. Through this research, it can improve the smooth development of Public art education management, and provide reference content for Public art education management in Chinese universities, It also provides effective reference for improving the technology leadership of Chinese university teachers.

2. Universities

It is expected that the results of this research can improve the technology leadership of Public art education management teachers in colleges and universities. Based on the results of the questionnaire survey, this paper explores the factors that affect the technology leadership of Public art education management teachers in colleges and universities. The perspective and content of the research are somewhat innovative. At the same time, combined with the relevant theories of management and Technology Leadership of Teachers, it carried out interdisciplinary knowledge research, providing a sound theoretical reference and basis for the research on the technology leadership of Public art education management teachers in Chinese colleges and universities, It fills the gap in existing research in related fields,and plays a reference role in enhancing artistic leadership in universities.

Scope of Research

1. Scope of content

1.1 Technology leadership of teachers

Teachers integrate and integrate their information technology literacy, abilities and technology resources into leadership behaviors, promote teachers and students to learn and apply technology, use information technology to improve teaching quality, and enhance administrative efficiency, in order to achieve an ability to organize goals and vision. In studying the components and indicators of Technology Leadership of Teachers in Public Art Education Management, the findings revealed as follows: Technology vision,Technology competence,Technology professional development,and Technology integration.

1.2 Principle of technology leadership of teachers

The researchers adopted the principles of 70,20 and 10.

70 Learning Model is a learning model arising from work experience through seeing or touching the real thing in the real work area. or operations that are actually in the field Makes students quickly gain awareness Effective perception therefore leads to effective learning as well. 20 Learning Model is a learning model that occurs from others (Learn by Others), whether it be your direct supervisor. indirect supervisor Colleagues within the department Colleagues from different departments, subordinates, customers, and partners are learning that occurs from conversation. 10 Learning Model is a learning model that focuses on classroom training (Classroom Training) combined with learning that focuses on tools that are not classroom training (Non Classroom Training), whether it is Learning through e-Learning media and various documents It is studied through programs or courses that have already been prepared.

1.3 Program of technology leadership of teachers development

In the design of a plan to enhance teacher technology leadership in public art education management, researchers conducted in-depth analysis of projects in which there is a significant gap between teacher technology leadership and their desired state in public art education management based on the priority demand index, and designed targeted improvement program.

2.Scope of population and samples

The object of this study is the professional teachers of Public art of Z University in Nanning, Guangxi, China. There are a total of 765 people, including 45 female principals, 675 teachers, and 45 school boards. Then, using random sampling, 263 people were obtained, including 16 female principals, 231 teachers, and 16 school boards. In order to achieve the research objectives, researchers are divided into three stages:

Phase1: the researchers investigated the components and indicators of technology leadership of teachers majoring in Public art at Z University in Guangxi, China, and were verified by five experts.

Phase2: the researchers explored the existence and expectation of the professional teachers of Public art in Z University of Guangxi, China, and the strategies to strengthen technology leadership, which will involve 263 samples of professional teachers of Public art from Z University of Guangxi, China.

Phase3: The researchers designed a project to strengthen the technology leadership of Public art teachers of Z University in Guangxi, China, which was evaluated by 5 supervision experts.

Theoretical Framework

This research is a plan to improve teachers' Technology Technology leadership in Public art management, and improve the relevance of teachers' technology leadership. Achieve the vision of managing Technology Leadership of Teachers, design processes, enable others to apply technology, and improve educational management. Including patterns and methods, inspiring a shared vision, challenging the process, enabling others to take action and encourage. Abuttine et al,(2009) Nohaus, (2010) Hesh, (2009). Jiang Yuanyuan, October (2020) The growth logic and practical positioning of Technology Leadership of Teachers Liu Jun, Luo Hongying, (2014.9) Zhou Weiyuan, (23.3.9) Wang Shufen, (23.11) Zhu Zhiguo, March (2014) Analysis of Technology Leadership of Teachers in the Construction of Teacher Professional Development Model. Explore the technology leadership of teachers majoring in Public art at Z University in Guangxi, China, and then design a project to strengthen the technology leadership of teachers majoring in Public art at Z University in Guangxi, China, including goals, content, methods, length, material resources and evaluation Noe, (2010); Bergo, (2013). In this study.

In this research, the researcher studied based on following framework in Figure 1.

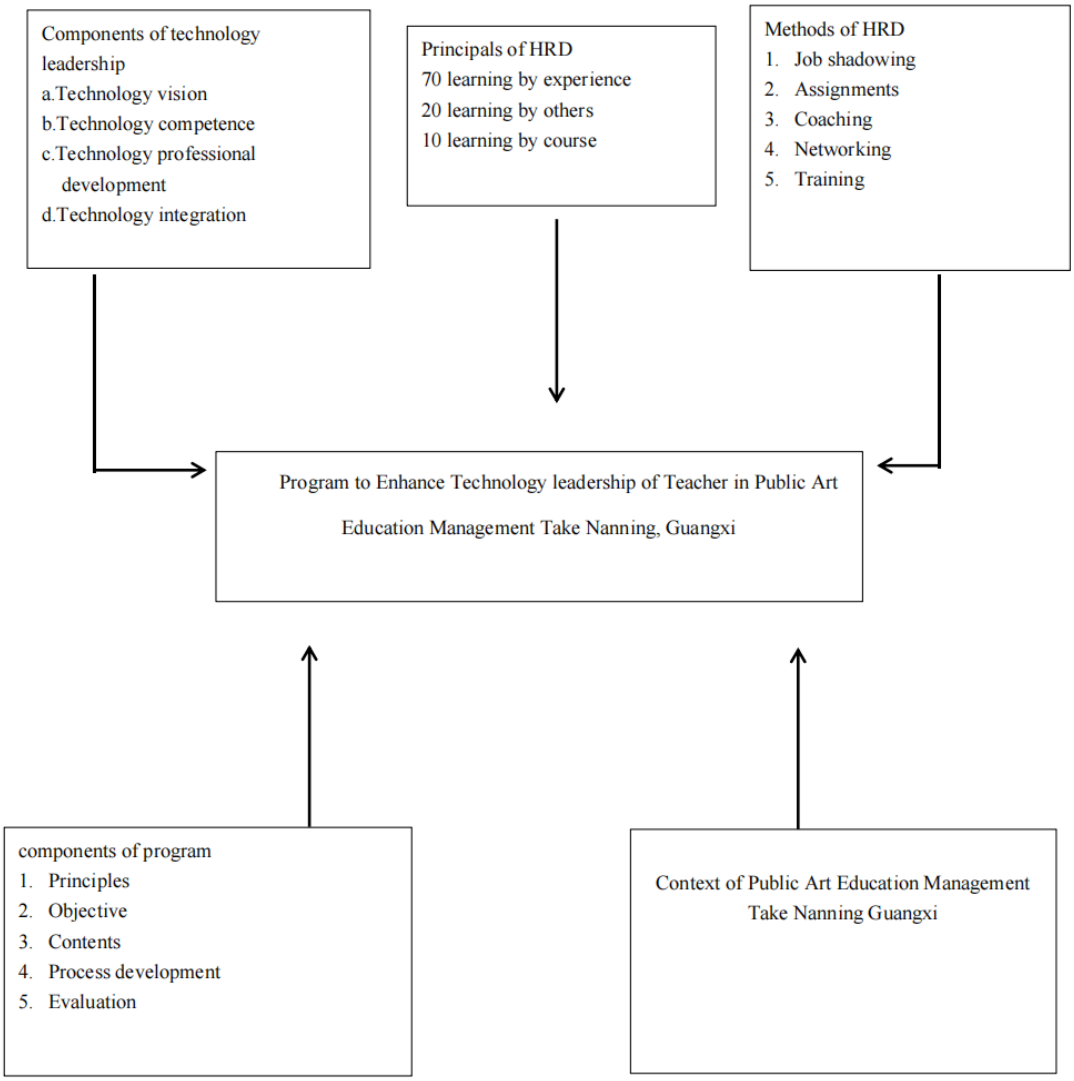


Figure 1 Theoretical Framework Research

Definition terms

1 .Technology leadership means teachers' behavior can be measured from the following elements:

1.1 Technology vision refers to the behavior that teachers show in collecting data. Analyzing the situation both inside and outside the organization By shaping the future of technology schools. Creating a picture of the future of the organization which reflects proactive thinking. Based on reliable information, leaders at all levels

of the organization participate in making dreams come true. There is clear visual communication and every member accepts and is willing to work to achieve the vision There is communication that expands thinking. Explain your beliefs to those involved to understand. It is accepted by everyone. and lead to practice Communication may be in the form of speaking, writing, acting, and using symbols. and rewards, which must be done continuously, consistently, and putting the created vision into action.

1.2 Technology competence refers to teacher behavior that demonstrates Technology competence.concluded that, Have technology knowledge have the ability to remember and recall technology knowledge. Be proficient in using technology fluently and have an attitude towards technology that expresses ideas, beliefs, feelings, and behavioral tendencies towards technology. Have proposed that Competency is a characteristic that everyone has and can use appropriately to drive performance to achieve goals.

1.3 Technology professional development refers to demonstrating the advancement of technology professions,concluded that technology curriculum is organized according to the educational objectives. There is a need to create a technology self-development program for knowledge advancement and to evaluate technology teaching.

1.4 Technology integration refers to the behavior of teachers who demonstrate the ability to apply technology in management and Organize teaching and learning.howing acceptance of technology, promoting, helping, and giving importance to the use of technology Motivating fellow teachers to use technology.

2. Program to Enhance Technology Leadership of Teacher in Public Art Education Management Take Nanning Guangxi refers to a set of activities related to

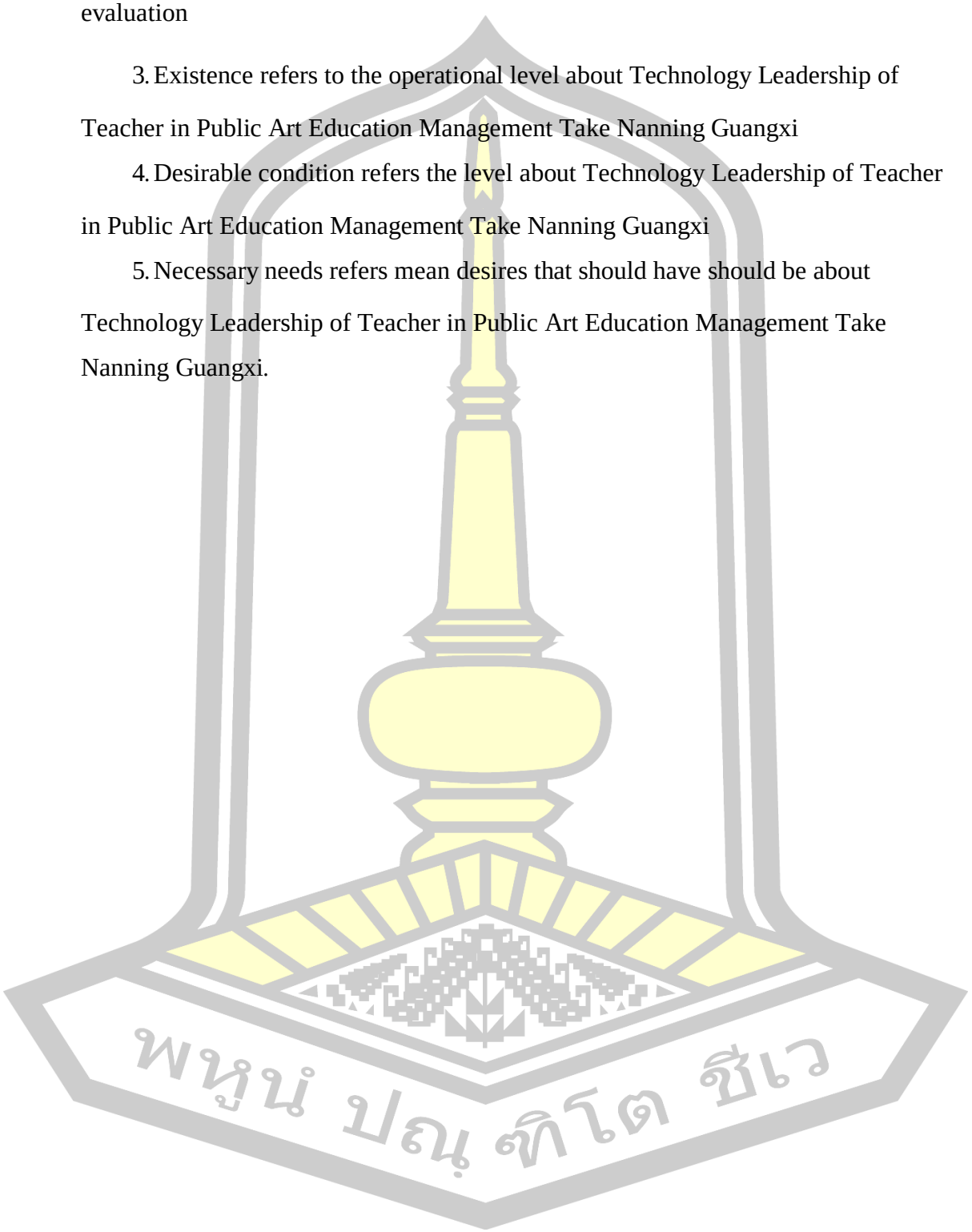
education and training in terms of knowledge, ability, performance, behavior and expertise of Teacher in Public Art Education Management Take Nanning Guangxi have leadership skills. modification the elements of the program Including principles,

objectives, content, development process and evaluation development process and evaluation

3. Existence refers to the operational level about Technology Leadership of Teacher in Public Art Education Management Take Nanning Guangxi

4. Desirable condition refers the level about Technology Leadership of Teacher in Public Art Education Management Take Nanning Guangxi

5. Necessary needs refers mean desires that should have should be about Technology Leadership of Teacher in Public Art Education Management Take Nanning Guangxi.



CHAPTER II
LITERATURE REVIEW

1. Technology leadership of Teachers
   1.1 Definition of Technology Leadership
   1.2 Theoretical Concepts of Technology Leadership
   1.3 Elements of Technology Leadership
   1.4 Component of Technology Leadership
      1.4.1 Technology Leadership
         1) Technology vision
         2) technology competence
         3) Technology professional development
         4) Technology Integration
2. Concept and Theory's of Technology Leadership of Teachers
   2.1 Definition of Technology Leadership of Teachers
   2.2 Principles of Technology Leadership of Teachers
3. Concept and Theory's of Program and Program Development
   3.1 Components of the development program
   3.2 Methods of the developing program
4. Contexts of Public Art Education Management Take Nanning Guangxi
5. Related Research

Technology leadership of teachers

Leadership is not confined to positions or tasks. Leadership is a broad term used in society. Leaders must have vision and imagination as well as knowledge. Leadership is the ability to lead people, tools, and resources along with problem solving to successful results. in today's world Everyone must walk together despite differences in race. geography, culture, etc. However, the use of technology will be the path or tool to achieve success.

1.1 Definition of Technology Leadership

Keen (2003) defines technology leadership as the behavior of leaders who use technology as part of the leadership process to create added value for businesses in the electronic commerce era. (e-commerce) Schmidt, & Porteus (2000) present the concept of technology leadership as the leader's ability to manage the use of technology to create low-investment products. This ability is called cost competence. At the same time, the products that are created are new products that are in demand in the market all the time (marketable products). This management ability is called innovative competence. Annunzio (2001) gives the meaning of leadership. Technology is a leadership behavior that helps traditional leaders change the culture of business management quickly, agile, and more flexible in the digital economy. Pulley, Sessa, & Malloy (2002) define leadership. technology, it is the behavior of leaders in the technology era that leaders must change their leadership. As technology advances occur beyond personnel and The organization will be able to absorb Flanagan, & Jacobson (2003) defined technology leadership. that it is the behavior of leaders who have a mission towards students (pupil engagement) and are firmly committed to the mission of Provide learning experiences for students using appropriate technology. There is a vision that defines the use of technology for education. There is effective professional development. Promote continuous professional development. consistently focusing on teaching and learning Including providing for the use of technology on various occasions, all students have equal access to services.

Riedl (1998) defines technology leadership as the executive's ability to provide infrastructure. Support professional development and integrating technology in teaching and learning In line with the ideas of Flanagan, & Jacobson (shared vision Equal access and effective professional development) Teachers around the world strongly agree that there is a need for time to prepare and use technology for teaching and learning. while measuring is the need to change both how and what we measure in terms of student outcomes.

Burke (2009) states that technology leadership is no different from other forms of effective leadership. It's just that technology leadership offers better options. This type of leadership requires transformative leadership because of its nature, the high degree of involvement in the e-world between e-organizations and e-customers. and the connection between leaders and followers and from the synthesis of elements of technology leadership by Yee (2000), Schiller (2000), ISTE (2000), Frazier, & Bailey (2004), Piceiano (2005), HKedCity (2005), Shamburg, & Zieger (2006), Redish, & Chan (2006), Haslam (2006), Kozloski (2006) and AIR (2009) found that there were 18 theoretical framework elements in this study. The researcher selects only the components that have a concordance percentage of 50 or higher to be used as a conceptual framework for research. Therefore, there are 5 components of technology leadership: 1) Technology vision; 2) promoting technology Use of technology in teaching and learning 3) Use of technology in administration 4) Use of technology for measurement and evaluation 5) Ethics in using technology.

1.2 Theoretical Concepts of Technology Leadership

Changes against technology have led to increased use of technology. The use of limitless technology, including computers, has made it possible to quickly and conveniently access a wealth of information that will have an impact on education, business, and everyday life. The next generation of leaders must be able to use these technologies and understand and see their impact. At the same time, there will be problems or gaps between those who have and those who do not have modern technology. Modern leaders must be able to narrow this gap. The new generation of leaders should be capable of modern technology. New technologies emerge quickly.

The amount of information is increasing. The rate of information movement speed is very high. Leaders must keep up with technology. The source of power will change. Different technologies are integrated to increase leader effectiveness (Osten, 2001). The characteristics of modern leaders must be those who understand and see the importance of technology, both present and future. Must pay attention to the environment. This is because ASEAN countries will change from agricultural countries to industrial countries. More people in the country will work in factories than farmers. Therefore, new leaders must be able to use technology to develop land and develop people in the agricultural sector where there are fewer people to get the most benefits. Pollution caused by changes that will affect the country must be taken into account. Over thirty years, educators have seen rapid developments in the integration of technology into education. Nearly every classroom in American teachers has an Internet connection. There has been a proliferation of educational websites (Kleiner, & Lewis, 2003), while the government has invested $55 million in educational technology infrastructure over the past decade. Meanwhile, the adequacy and ability of educational technology has been increasingly used to meet the needs of teachers. Yet the demand for the use of technology in management by executives is still low. Programs have been linked to low levels of technology utilization (Mcleod, Logan, & Allen, 2002), although management trends in teachers are increasingly considering the added value of technology. But the decisions of school administrators must also take into account the issue of returns on technology investments to see how worthwhile they are. In addition, efforts to improve and develop management models using technology are not the answer to all developments. But it is also necessary to consider the experience and learning of technology in each classroom (Consortium for School Networking: CoSN, 2004). Therefore, integrating technology in teachers requires administrators to pay attention to the workload at the school and management level. Learn together in the classroom.

Using modern technology in teachers It will cause success in teaching and learning. This is especially true in schools where school administrators have technology leadership. There will be an intention to demonstrate technology competency. A survey of 64 school principals in New Zealand found that principals want to be leaders in technology. Want to develop professionally and take advantage of technology This finding is inconsistent with the social reality of school administrators having very low technology capabilities (Stuart, Mills, & Emus, 2009).

Technology is important to management for two main reasons: the need to use resources at an increasing rate. while resources are limited Some are reduced, such as the natural environment or the availability of personnel in the community. This condition is a force for the administration to seek technology in the form of tools, materials, or methods to use the existing resources or expand the capabilities of the resources to achieve the desired objectives. Examples of such necessities include: 1) From the social situation that has changed from an agricultural society to industry and services. causing many farmers to sell their land and switch to other occupations Therefore, their children do not have land and continue to work in agriculture. This affects education in many areas, for example, the production of students in agriculture must be reduced and the quality of teaching and learning methods using higher technology to enable graduates to practice new agriculture in a variety of ways. Get higher yields in less space. in the form of integrated farming or modifying the fields to be taught, which will affect the way in which new teachers are produced into the system. and training former teachers to be able to perform their duties in new ways. In order to be able to solve such problems promptly, it must rely on technology in the form of materials and methods. There is high competition. Those who survive and thrive must be quick to keep up with changes because information is a resource that is of high rank to education. This is especially true in fields that are rapidly changing and highly competitive. As a result, information and time management cannot be carried out effectively without technology. 3) Government policies create the need for more resources. Until unable to achieve the objectives with traditional resource management

methods Education systems must adapt to produce more output on the same resources or increase at a lower rate. Including improving methods to maintain good people in the system. 4) Problems in society that arise, such as unwanted political behavior. Deteriorated natural environment, pollution, changes in population structure that make it fresh for people who are aging. This calls for education to take on the burden of developing people to prevent and resolve the problem, Kang said. which education as a sub-system of society It is a system that is so large that it is an obstacle to rapid change. And it is a system which often has to be affected by other systems, such as when problems occur in areas where the damage is more evident than education. Resources will be used in other areas first. Education therefore needs to be moved to find new methods. to always solve problems 5) from the condition of having limited resources with increasing educational objectives and policies This causes executives to use their ability to use methods that will satisfy those involved. and accept the results of resource allocation or have to find ways to expand resources, which is about resources Especially in the area of resource allocation. The state should adjust it to be efficient and fair to the public and facilitate the distribution of educational opportunities to the deprived and underprivileged at various levels and types of education (Sukhothai Thammathirat Open University, 2006). Based on the above theoretical concepts of technology leadership, it can be seen that technology leadership is important to executives for two main reasons: the need to increase the use of resources at a higher rate; while resources are limited some diminish The survival and growth of the education system requires highly effective resource management. But this is only possible when using technology for proper resource management. The importance of technology leadership will make leaders capable of making the most of technology and seeing its impact. Leaders have access to a wide variety of information sources, convenient and fast. School administrators have the ability to integrate technology in accordance with school workloads, which is a model-based leadership development dimension that can improve leadership effectiveness. The behavior of a tech-savvy leader is expressed in technology vision,

i.e. stakeholders are encouraged to participate in the development of the technology vision and widely disseminate that vision. The use of technology in teaching and learning is promoted, that is, they have the knowledge of using appropriate technology to raise the level of teaching and learning in accordance with curriculum standards. to lead to the highest achievement of students Technology is used in the administration, that is, technology is used on a daily basis. Create teams and learning groups in the organization to use technology in job development Build job productivity Develop professional advancement for those who use technology for teaching and learning. Provide the use of technology for measurement and evaluation, that is, use of technology for data collection and analysis. Use technology to measure and evaluate student learning. and ethical in the use of technology, namely ensuring that technology is accessible to all students and meets their needs. Encourage the use of laws and ethics in Use technology responsibly

1.3 Components of technology leadership

1.Mirra (2004) studied the role of school directors as technology leaders. which is a dissertation Department of Leadership and Policy Studies at Virginia Polytechnic Institute and State University found that factors influencing technology leadership include 4 components: 1) Technology vision, 2) Technology competency, 3)Technology professional development, 4) Technology integration.

Ho (2006) studied technology leadership and found that factors influencing technology leadership consisted of 3 components: 1) Technology vision, 2) Technology integration, 3) Technology professional development.

2.Ertmer, Bai, Dong, Khalil, Park, & Wang (2010) Studying leadership in technology: Executive competency through the online professional development course found that factors influencing technology leadership consisted of 4 components: 1) Technology vision, 2) professional development, 3) technology competency, 4) technology integration.

3.Adkin (2001), Professor, Faculty of Science and Mathematics. University North Carolina presented a research paper titled What do we know about the impact

of professional development in technology and how can we know this? (Structural equation model to assess effective professional development) found factors influencing technology leadership consisting of 3 components: 1) professional development 2) technology competency 3) technology integration.

4.Chang (2002) studied the assessment of principals' leadership in implementing technology policy. educational use: by using a structural equation model This is a dissertation presented to the University of Missouri-Columbia. Found factors that influence technology leadership, consisting of 6 components: 1) Technology vision, 2) professional development, 3) technology competency, 4) morality and ethical issues in the use of technology, 5) infrastructure support, 6) evaluation. and research

5.Rogers (2000) studied the relationship between teachers' perceptions of principals' technology leadership and educational technology integration. which was a dissertation presented to Ball state University. Two components were found to influence technology leadership: 1) development of necessary technology personnel 2) integration of technology.

6.Scanga (2004) Study of technology competency of school administrators: development and validity study of self-assessment. A dissertation presented to the University of South Florida found four factors influencing leadership in technology: 1) Supporting professional learning with technology 2) Technology resource planning 3) Providing personnel development 4) Responsible use of technology

7.Sorensen (2007) studied the professional development process to promote the use of WedGate in the dissertation classroom at the University of Wyoming. It was found that two components influencing technology leadership included 1) professional development and 2) integration of technology in teaching

8.Seay (2004) studied the technology leadership of high school principals in Texas, which was a dissertation submitted to the University of North Texas. It was found that there were two components influencing technology leadership: 1) the integration of technology in learning Teach and 2) Leaders with Technology vision

9.Scott (2005) studied students' perceptions of technology leadership. This is a dissertation presented to The University of Oklahoma. It was found that there were 3 components influencing the technology leadership of principals: 1) technology competency of principals, 2) personnel development, 3) Technology vision, and 4) integration. technology in teaching and learning

10.Persaud (2006) studied the view of school administrators on their role in integrating technology. This is a dissertation presented to Walden University. It was found that there were 3 components influencing the technology leadership of school administrators: 1) Technology vision, 2) technology integration, and 3) professional personnel development.

11.Miller (2008) studied the characteristics of technology leadership of principals in elementary schools by using mixed methods, a dissertation presented to Regent University. In elementary schools, there are 5 components: 1) technology knowledge and skills, 2) Technology vision, 3) integration of technology in teaching and learning, 4) professional development, and 5) leadership.

Brown (2010) explored the relationship between principal leadership competencies. Computer competencies of head teachers and student achievement which was a dissertation presented to the University of North Texas. It was found that there were two components influencing the technology leadership of principals: 1) the technology competency of the principal and 2) the integration of technology in teaching and learning.

12.Reinke (1997) studied the development and validation of a principal's staff development sourcebook on leadership for redesigning schools with technology. found that there were 3 components influencing leadership in technology, namely 1) Technology vision, 2) executive competency, and 3) integration of technology in teaching and learning.

13.Bridges (2003) studied principal influence: sustaining a vision for powerful new forms of Learning using technology (principal influence: sustaining a vision for powerful new forms of Learning using technology), which was a dissertation presentation. University of California, Los Angeles found that there are 4 components that influence principals' technology leadership: 1) Technology vision, 2) technology integration, 3) professional development, and 4) technology competency.

14.Wenglinsky, Rosen, & Weil (1995) opined that educational goals and visions of learning through technology are considered important in teacher professional development. It is choosing the right technology to achieve the goal. Students may not benefit from technology if teachers are unfamiliar with using it. Teachers must encourage and endeavor to use technology. The main reason teachers do not use technology in their classrooms is their lack of experience with technology. In summary, three components influencing technology leadership were found: 1) Technology vision 2) professional development 3) proficiency. knowledge and technology skills

15.Fulton, Yoon, & Lee (2005) found that teachers who received professional development with computers over a five-year period were more likely to use computers in more effective ways than those who did not receive such training. Successful teachers have continued professional development in the practical application of technology. Teachers must be dedicated to learning and work collaboratively with their colleagues to overcome obstacles. In addition to encouraging students to use technology to achieve their learning goals, Teachers also need time to familiarize themselves with online information. School reform in the 21st century requires teachers to be members of a rapidly growing network. In summary, there are four components that influence technology leadership: 1) professional development, 2) technology integration, and 3) knowledge and technology skills and 4) working and learning together

16.Ringstaff, Kelley, & Shulla (2002) found that continuing technology professional development is essential to help teachers learn not only how to use new technologies but also how to teach them to be effective. meaning and use of technology in the classroom as well Teachers must receive training in the use of computers. There is communication in many ways, such as e-mail video conferencing, as well as increasing cooperation between teachers in the school and increasing interaction with external collaborators. In summary, the factors influencing technology leadership were found to be 4 components: 1) professional development, 2) technology integration, 3) technology knowledge and skills, and 4) collaborative working and learning.

From the perspectives and works of scholars and institutions above The researcher has synthesized to summarize the factors influencing technology leadership in this research. as show in Table 1

Table 1 Technology leadership synthesis.

Technology Leadership	Mirra (2004)	Ho (2006)	Ertmer et.al. (2010)	Adkin (2001)	Chang (2002)	Rogers (2000)	Scanga (2004)	Sorensen (2007)	Seay (2004)	Scott (2005)	Persaud (2006)	Miller (2008)	Brown (2010)	Reinke (1997)	Bridges (2003)	Wenglinsky et.al. (1995)	Fulton, Yoon, & Lee (2005)	Ringstaff et.al. (2002)	Total
1.Technology vision	□	□	□		□				□	□	□	□		□	□	□			11
2.Technology performance	□		□	□	□					□		□	□	□	□	□	□	□	12
3.Professional development in technology	□	□	□	□	□	□	□	□		□	□	□			□	□	□	□	15
4.Technology integration	□	□	□	□		□		□	□	□	□	□	□	□			□	□	15
5.Morals and ethical issues					□														1
6.Infrastructure support					□														1
7.Evaluation and research					□														1

Technology Leadership	Mirra (2004)	Ho (2006)	Ertmer et.al. (2010)	Adkin (2001)	Chang (2002)	Rogers (2000)	Scanga (2004)	Sorensen (2007)	Seay (2004)	Scott (2005)	Persaud (2006)	Miller (2008)	Brown (2010)	Reinke (1997)	Bridges (2003)	Wenglinsky et.al. (1995)	Fulton, Yoon, & Lee	Ringstaff et.al. (2002)	Total
8.Professional learning with technology							□												1
9. Technology use planning Technology Leadership							□												1
10. Responsibility for using technology							□												1
11. Leadership												□							1
12.Support for professional learning							□												1
13. Working and learning together																	□	□	2
Total	4	3	4	3	6	2	5	2	2	4	3	5	2	3	4	3	4	4	63

From Table 1, the synthesis of factors influencing technology leadership according to the theoretical framework included 13 factors in this research. The researcher used the criterion to consider variables with frequencies from 11 or higher to define them as conceptual framework variables. Therefore, there were 4 components affecting technology leadership of teachers : 1) Technology vision; 2) Technology competence;3) Technology professional development, and 4) Technology integration.

1) Technology vision

Meaning of a Technology vision meaning, & Robertson (2002) describe leadership as behaviors that There are 10 important things that correspond with Hickman, & silva (1984) mentioned above, as follows: Searching for ideas until a clear vision. Making the vision clear and easy to understand in philosophy A strategic direction that integrates and integrates cultural values. Motivating stakeholders through influence Convince and model difficult things. Making commitments to stakeholders and trying to understand personal relationships Expressing yourself in a warm, attention-grabbing manner Interpreting the vision for each stakeholder Paying attention to the principles of the organization Maintaining central activity Seeking ways to improve work by carefully observing the changes both inside and outside the organization Measuring an organization's peak success based on its potential in order to fulfill its vision. It can be separated into key components of leadership, consisting of: 1) having a vision (formulating) 2) Vision is disseminated (articulating) 3) Vision is followed. (implementing), 4) evaluating vision, and 5) role modeling. Wilmore (2002) studied leadership. In addition to having a vision, a leader must be able to articulate the vision so others can understand and accept it. Then discussed the characteristics of executives, including vision development. which tells about the present condition and the desired condition in the future From the created vision, everything in the school must be aligned with the vision. Both goals and strategies to achieve the desired results. Spreading the vision Administrators must communicate to people, including parents. Community members and others, both related and unrelated. To let them know who we are What is the mission and what is the goal? Including telling about the plans that have been set. In order to invite these people to participate, cooperate and help achieve the vision. Executing the vision It's the process of turning visions into reality. It is the stage of implementing the vision. by setting goals Strategic plans and activities in line with the vision Taking responsibility for the vision that is executive The school must continue to implement the plan or follow a cyclical process until the vision is achieved. which can be separated into key components of leadership, consisting of: 1) having a vision; (formulating) 2) Vision is disseminated (articulating) 3) Vision is followed. (implementing) and 4) commitment to the vision (commitment to the vision).

Zaccaro (2004) studied leadership behavior, which found that Behaviors that indicate leadership consist of setting a vision that you want to happen in the future. and communicating to others with words Actions to visualize the desired results. Leaders build trust. and giving importance to others more than oneself which can be separated into key components of leadership, consisting of: 1) having a vision; (formulating) 2) Vision is disseminated (articulating) 3) Vision is followed. (implementing), 4) building trust (trust), and 5) giving importance to others.

Leimbach (2005) describes the characteristics of leadership as follows: creating a vision and a strategy. Being a communicator and practice in organizational strategy Leading organizational change Access to market trends Customers and Competition Planning and supporting organization and customer growth Inspiring Customers and Stakeholders It can be separated into key components of leadership, consisting of: 1) having a vision (formulating) 2) Vision is disseminated (articulating) 3) Vision is followed. (implementing)

Leonard (2008) described leadership as the best leader in in communication and in setting a vision, then following the vision and being a leader who creates unique things to achieve the organization's goals. Start by taking action and then enlisting the support of others to bring your vision to success. A leader is able to think outside the box and can see the big picture of what it wants to be in an organization. The characteristics of leadership include: Being responsible for vision He has a clear vision and inspiration for the organization. A person who empowers the relationship of people in the organization. and is respected by followers Be someone who is dedicated to change. Be a person who has the courage to take action. A creative person who is ready to change. It can be separated into key components of leadership, consisting of: 1) having a vision (formulating) ;2) Vision is disseminated (articulating) 3) Vision is followed. (implementing) and 4) being a good role model (role model). In conclusion, Technology vision refers to the behavior that teachers show in collecting data. Analyzing the situation both inside and outside the organization By shaping the future of technology schools. Creating a picture of the future of the organization which reflects proactive thinking. Based on reliable information, leaders at all levels of the organization participate in making dreams

come true. There is clear visual communication. and every member accepts and is willing to work to achieve the vision There is communication that expands thinking. Explain your beliefs to those involved to understand . It is accepted by everyone. and lead to practice Communication may be in the form of speaking, writing, acting, and using symbols. and rewards, which must be done continuously, consistently, and putting the created vision into action.

In conclusion, technology vision refers three aspects, namely formulating the vision, communicating the vision and executing the vision. Through such a process, we can realize our vision.

2) Technology competence meaning of technology competence.

Hagan (1996) states that competency is the concept that people can transfer, transfer, or move skills and knowledge to new work-related situations. which concept Kang said It is everywhere in the organization, planning work, new changes, as well as activities that are not general routine work. It also includes the quality of performance of people in the workplace. In general, competency has 3 components: 1) knowledge, 2) skills, 3) values, which are important goals or objectives of training and development. koi especially Knowledge and skills will be the most important and can be trained. And it is easier to develop than creating or instilling values. However, even though values or attitudes are more difficult to inculcate or create than knowledge and skill training. But all of them are the basis of increasing. and develop performance

Kirschner, Vilsterm, Hummel, & Wigman (1997) defined competencies as all knowledge and skills that individuals possess. and can be used effectively and effectiveness to achieve one definite goal in a variety of contexts or situations, or competency means the ability to achieve satisfaction and make effective decisions in a particular situation. In order to do so appropriately and Effectiveness in that situation requires judgment, values, and self-confidence. Therefore, competency (C) is a function of knowledge (K), skill (Sk), and situation (S), or summarized as an equation. So that C=f(K, Sk, S)

Dubois, & Rothwell (2004) have proposed that Competency is a characteristic that everyone has and can use appropriately. to drive performance to achieve goals

These characteristics include 1) knowledge, 2) skills, 3) personality, 4) social motivation, 5) thoughts, feelings, 6) actions.

Briscoe (2010) suggests that there are many resources available to help leaders leverage technology to its full potential. Leaders play a key role in determining whether technology improves learning opportunities. "Leaders" refer to everyone who plays a key role in a social system, including school administrators. class leader and staff responsible for supporting course management This role also includes people working at colleges and those in local government and other agencies. Good technology leaders have three key characteristics: 1) they are aware of the technology; 2) they understand the potential of technology and 3) have knowledge of technology, such as knowing the types of technology available and knowing how to find correct information able to choose appropriate technology Leaders know that technology is widely used and does not see it as something outside of everyday life and work. must keep pace with changes are aware of the potential of technology Have knowledge of how to use technology to get the most benefit good technology management having the right technology in the right place is the key to success

Ertmer, Hua Bai, Chaoyan Dong, Mohammed Khalil, Sung Hee Park, Ling Wang, (2006) gave views on the components of technology competency of school administrators. It was found that there were 2 main components: 1) technology knowledge 2) technology skills.

In conclusion, Technology competence refers to teacher behavior that demonstrates Technology competence. Have technology knowledge Have the ability to remember and recall technology knowledge. Be proficient in using technology fluently and have an attitude towards technology that expresses ideas, beliefs, feelings, and behavioral tendencies towards technology.

3) Technology professional development meaning of technology professional development.

Kennedy (1998) gave views on the components of professional development in technology covering 3 components: 1) curriculum 2) teaching and learning. (instruction) and 3) assessment. Richardson (2003) gave a view on the components of professional development in technology covering 3 components: 1) curriculum 2) teaching and learning (instruction) and 3) assessment.

Partington, et al. (2002) views the components of technology professional development as covering two components: 1) training and 2) assessment.

Teague (2010), a doctoral student at the University of Houston, did a dissertation on A case study of a suburban high school's professional development program based on the National Staft Development Council Standards. Professional development in technology encompasses 12 components: 1) collaboration 2) data-driven 3) design 4) equity 5) evaluation 6) family involvement 7) leadership 8) Learning 9) Learning communities 10) Quality teaching 11) research-based and 12) resources.

Sorensen (2007), a doctoral student at the University of Wyoming, did a dissertation on Examining a professional development process for increasing classroom implementation of WEdGate, studying teacher professional development in technology covering 3 components: 1) planning 2) instruction and 3) assessment

Rodrigue2 (2000) gave a view on the components of professional development in technology covering 14 elements: 1) connection to student learning 2) hands-on technology use 3) use a variety of learning experiences 4) curriculum-specific application 5) new roles for teachers 6) collegial learning 7) active participation of teachers 8) process ongoing process 9) sufficient time 10) technology assistance and support 11) administrative support 12) adequate resources 13) continuous funding 14) built-in evaluation

In conclusion, Technology professional development refers to demonstrating the advancement of technology professions. Technology curriculum is organized according to the educational objectives. There is a method for creating a technology self-development plan for knowledge advancement. There is an evaluation of teaching and learning using technology.

4) Technology Integration meaning of Technology Integration

Inan, & Lowther (2010) studied factors affecting technology integration in k-12 classroom: a path model. The objective was to study the direct influence. and indirect influence personal characteristics of the teacher and perception of environmental factors that affect the integration of technology in the classroom. Research uses path molecules. This explains the cause of the relationship between these factors. and used to analyze data from a population of 1,382 public school teachers in Tennessee. The

results clearly evidence that the developed model is useful in explaining factors influencing technology integration and the relationships between factors. There are 5 elements of technology integration: 1) years of teaching 2) technology support 3) teachers' beliefs 4) teachers' readiness 5) computer proficiency

Mathews, & Guarino (2000) gave the view that technology integration has 6 elements: 1) computer use of teachers 2) academic degree 3) gender 4) computer proficiency 5) number of computers in the classroom 6) years of experiences

Bebell et al. (2004) gave a perspective on technology integration with 7 components: 1) age 2) years of teaching 3) computer proficiency 4) readiness in Computer availability 5) Teachers' beliefs 6) Teachers' readiness 7) Support

Ertmer (2005) views technology integration as having 7 elements: 1) age 2) teaching experience (years of teaching) 3 computer proficiency 4) computer availability 5) teachers' beliefs 6) teachers' readiness 7) support.

Mumtaz (2005) gives the view that technology integration has 7 elements: 1) Age 2) Years of teaching 3) Computer proficiency 4) Computer availability 5) Teachers' beliefs 6) Teachers' readiness 7) Support.

Wozney et al. (2006) view technology integration as having three components: 1) teachers' beliefs, 2) access to technology, and 3) support (school support).

Lim, & Chai (2008) point out that technology integration has 3 components: 1) beliefs (teachers' beliefs), 2) access to technology, 3) support (school support).In conclusion, Technology integration refers to the behavior of teachers who demonstrate the ability to apply technology in management and Organize teaching and learning Showing acceptance of technology, promoting, helping, and giving importance to the use of technology Motivating fellow teachers to use technology

In conclusion, Technology integration refers to the behavior of teachers who demonstrate the ability to apply technology in management and Organize teaching and learning Showing acceptance of technology, promoting, helping, and giving importance to the use of technology Motivating fellow teachers to use technology

Concept and Theory's of Technology Leadership of Teachers

2.1 Definition of Technology Leadership of Teachers

Leadership development is based on the belief that Leaders are not born and are created by talent. As scholars have defined the meaning of leadership development as follows:

DuBrin (2007) explained the meaning of leadership development as follows: It is a process that involves (Education) and (Training), (Job Experience), (Coaching) and (self Help).

Lamoureux (2008) explained the meaning of leadership development as:

A process for developing leadership skills, knowledge, and behavior systematically and strategically. (Strategically) and is a process that must be supported and It is consistent with the management of special abilities in other areas as well.

Lawson (2008) stated that Leadership development is a strategic investment in a structured process to offer leaders training opportunities and experiential case studies to develop effective leadership. Leadership development is an integrated method of developing knowledge and skills. To make leaders capable and help drive the organization towards success. Professionalism designed To develop executives and help develop leadership skills.

Hughes, Ginnett, and Curphy (2009) explained the meaning of leadership that leadership development can be done using work experience that occurs through three processes:practical, observing, thinking, considering.

The Society of Human Resource Management (2010) has described the development of Leadership says It provides both formal and informal training and development programs.

From the study of the opinions and explanations of the scholars above The researcher concluded that Leadership development is a process that involves education and training. In terms of knowledge, ability, competency, behavior and expertise of executives or employees to be good leaders according to the needs of the organization.

2.2 Principles of Technology Leadership of Teachers

Lawson (2008) stated that The 70-20-10 best practice is a theoretical and practical approach to learning both in the classroom and outside the classroom. with a focus on leadership as the center of development By giving leaders real learning and real action. with correct theories and principles as a basis Without limiting the place and time for learning.

Arporn Puwitayaphan (2016) that learning based on the concept of 70:20:10 Learning Model is a form of personnel development. There are additional research studies from various thinkers and scholars. It is considered a concept that has been accepted as effective in creating and developing personnel in the organization. Real learning It is learning through experience from real practice in the workplace. The efficiency of learning takes place in the actual workplace, about 70%, while learning from others is only 20% effective and learning from training/participating in various seminar programs. It has an efficiency of only 10%. The details are as follows.

1. 70 Learning Model is a learning model arising from work experience through seeing or touching the real thing in the real work area. or operations that are actually in the field Makes students quickly gain awareness Effective perception therefore leads to effective learning as well. Because learners will bring events or stories that they have learned to remember and show that behavior. It is like a guideline or bridge (Experience is the bridge) between practice (Practice) and concepts, principles or theories (Concept/Theory) that a person already has or has been added to. It causes awareness or accumulated experience, thus leading to learning, imitating, and acting according to the behavior that has been done from the beginning, therefore changing according to the new experience received. Leading to the creation and birth of a new behavior or a new competency of the person that affects the assigned work. To be more efficient, Competency means behavior that requires competency. capability or potential, or some textbooks can use the word Characteristics or necessary dimensions that individuals should have in their work (Job Dimensions). The personnel development tools used with this learning approach will focus on tools that are not classroom training as follows.

Table 2 70 Learning Mode personnel development tools

development tools	Details of development tools
Job Shadowing/ Observation	Following a template that is a person who is accepted or is a role model in the matter that needs to be followed or observed in the behavior of the template.
Executive Job Shadowing	Template tracking focuses on senior management to observe the functionality and expressive behavior of the template, where the selected template must be accepted in the tracked matter.
Job Aids/Manuals	Learning from the code of conduct or work requirements that have been established to serve as a framework or direction for operations to be at the same standard.
Knowledge Sharing Sessions	A gathering of personnel within the organization to exchange knowledge, principles, and concepts that are relevant and can be useful in work.
Outsource/Supplier Sharing	Exchange of opinions, information and experiences received with partner companies that are partners or do business
Lesson Learn Sharing	Exchanging experiences from work Whether an error occurred Or impressive experiences can be exchanged with the team to use as guidelines or lessons learned for the next work.
Self - Reflection Note	Recording information and using recorded information to review and inspect one's own work To be used as information to improve and develop the assigned work.
Secondment	Requesting to temporarily borrow personnel from one agency where they work regularly to work with another agency
Job Rotation	Learning additional work by switching jobs from one department to another
Special Projects	Taking on a special project that is not a job or a regular project specified in the Job Description

Cross Functional Assignment	Assignment to work with other departments in a cross-functional manner Not a person from the same agency
Stretch Assignment	challenging assignments It is work that has never been done before, different from previous work that has been done before.
Work with Consultants or Internal Experts	working with consultants who work within the organization, including having the opportunity to work with experts who are individuals within the organization
Community Activities and Volunteering	Assigning or volunteering to participate in organized group or club activities. The members participating in the activity will be responsible for carrying out activities with the goal of improving and developing the work.
Interaction with Senior Management	Liaising with executives with expertise and seniority with report presentation/presentation or attending a meeting with the management team
Site Visits	Field trips to learn about practices The organization's work process is Best Practice in the matter that needs to be viewed.
Customer Visits	Visiting customers to study customer behavior Including information on customer expectations towards the use of products and services.
Action Research	Implementation of research by determining the subject to be researched by considering the problems in the work that arise. collecting information and applying the research results obtained to solve problems that arise on the daily work site.
Apply Best Practice	Implementing guidelines, procedures, or best practice principles until they are accepted. to apply in practice
On the Job Learning	Learning from real practice in the field, encountering real situations and real customers.

2. 20 Learning Model is a learning model that occurs from others (Learn by Others), whether it be your direct supervisor. indirect supervisor Colleagues within the department Colleagues from different departments, subordinates, customers, and partners are learning that occurs from conversation. Consultation interchange of information This requires restoring the foundation of having a good relationship between two or more interlocutors by making an appointment to talk. and exchange views with each other at times convenient for both sides. Human resource development tools (Development Tools) that are used will focus on human resource development tools that are not classroom training tools or Non Classroom Training as follows

Table 3 20 Learning Model personnel development tools

Development tools	**Details of development tools**
Coaching from Manager/Others	Instructional instruction to spark learning by a direct supervisor or other person who is accepted by the person being taught and is ready to learn along with the instructor.
Peer Coaching	Teaching by colleagues in the same department or different departments assigned as a teacher inspires the learners to have good ideas and perspectives in their work.
Group Coaching	Guided instruction with more than 3 people who are being taught, with an emphasis on teaching to inspire the trainees to have a way of operating for the common goals of the group.
Informal Coaching	Unstructured coaching that can happen at any time Most emphasize teaching in the Life Coach style, where the instructor serves to inspire those being taught to have perspectives and ideas for living their daily lives.
Mentoring	A conversation between the mentor and the person the mentor is supervising. Focus on the mind emotion and adjustment when working with others in the organization

Teaching	telling the learner to recognize and listen Emphasis is placed on steps, methods, formats and work systems that can be put into practice by those being taught.
Counseling	Giving advice when problems arise from working in the organization The consultant will analyze the cause of the problem. and find alternative methods and approaches to solving problems
Mirror	Bringing what a person said or did during that time to talk about how good or bad the words and behaviors that were expressed.
Informal Feedback and Work Debriefs	Providing information about work by collecting past work results over a certain period of time to summarize whether there are good works that need to be maintained and there are areas that need to be improved.
Seeking Advice, Asking Opinions	request for advice or asking knowledgeable people about matters that they do not yet have knowledge about and lack of experience To apply the advice and opinions received to work and personal life.
360 Degree Feedback	Providing information received from people around you, whether it be your direct supervisor indirect supervisor subordinates self, colleague
Assessments Outcomes and Feedback	Evaluating the results of the work and providing feedback from the evaluation results received. The goal is to allow people to listen to feedback to improve and develop their own work.
Assessment Center	Clarification of the results of individual assessments that are conclusive by using a variety of methods. Whether it is an evaluation from a case study role play Taking tests, giving presentations

Learning and Development Center	Participating in the test from the Learning and Development Center by taking a knowledge test or a personality test and listening to the test results from the center to bring information to improve and develop ourselves
Learning through Team/Networks	Joining a group to become a member or network with an emphasis on groups within the organization. To provide information on principles and concepts in a particular area of interest to the group.
External Networks/Contacts	Joining groups with external networks to listen to information and requesting information for use in work
Professional Association Involvement or Active Membership	Being a member of an academic group to listen to information Useful news for work and bring the information Acquired to improve and develop work to be more efficient.
Facilitated Group Discussion by Action Learning	Being assigned to act as a director and organizing group members from people within the organization or different organizations to talk, ask questions, and exchange opinions from their experiences. By emphasizing together to find a solution from the problem.
Peer - Assisted Learning and Work Buddy	Discussing with partners assigned by superiors to help each other in work And have friends who are always there to give advice and advice on work that you do or problems that arise.

4. 10 Learning Model is a learning model that focuses on classroom training (Classroom Training) combined with learning that focuses on tools that are not classroom training (Non Classroom Training), whether it is Learning through e-Learning media and various documents It is studied through programs or courses that have already been prepared. This is another important form of development and it is necessary that the organization cannot cancel this form of learning in order to create integrated learning and result in learning for the learner. really know People development tools that are commonly used are as follows:

Table 4 10 Learning Model Personnel Development Tools

Development tools	**Details of development tools**
In-House Training	Learners from the same organization learn together in training courses organized by the organization. It is a training organized both internally and/or externally.
Public Training	Students from different organizations are interested in the same course. Organized by external training institutes
Seminar	Participating in group meetings where members have the same interest or expertise in the same subject to listen, get to know, and exchange views.
Workshop	Participating in group meetings where members have the same interest or expertise in the same subject, participate in practice or jointly act on a specified matter. The conclusions obtained from the seminar will be continued or not.
E-Learning	Learning via electronic media such as the internet, satellite signals, etc., including learning via On-Line according to the conditions set by the organization/institution that provides the learning media.
Certification Program	Participate in a program in a long-term course with a certificate certifying that learners are knowledgeable with an international standardized knowledge test that the institution organizes a specified learning program.
Formal Education	Continuing education at a university or college It is learning that takes time to study according to the organized program. Students can choose the program and subjects that they are interested in and have enough time to learn according to the specified program.
Reading	Reading on topics of interest to increase one's own perspective, ideas, and knowledge on the subject of interest.

Sutham Thamtasananon (2020) has explained the 70-20-10 learning management principle as follows:

7 0-20-10 learning is a model to develop effective leaders and help leaders learn from a real work context rather than a classroom context. The important learning characteristics of this model are A clear and appropriate mix of activities in the 70-20-10 ratio. To promote the learning process in each channel The 70-20-10 learning management principle consists of 3 important parts of learning management.

70 percent come from learning and developing through real work experience. Learning in this section comes from "Learning on the job" can be a routine or a project within the department or in conjunction with other departments, challenging assignments, or hands-on work. Most of this learning comes from work experience where you have to take on changing roles and changing tasks. Work experience is a clear component of a leader's effectiveness because without experience, Knowledge cannot be changed back to skills. Experience that can help develop leadership is Challenging Experiences, work-related experiences (Source of Experiences), broader experiences according to the situation that occurs (Broad Experiences), and experiences that are important life turning points (Pivotal Experiences). This proportion of 70 percent is a focus on Learn from performing real work responsibilities in real workplaces. So that leaders can use their full abilities and bring out their work potential more efficiently. Through working in a variety of situations, the more experience you have, the more opportunities you have to use your leadership more effectively, whether it be in delegating work. job rotation Learning from actual practice, etc.

20 percent comes from learning and developing through others. Learning in this section comes from "Learning from others" by building and continuing to build informal connections. Including having the opportunity to work with good role models and bad role models, which is learning through society. nanny Teaching and learning from others Learning from those around you or from the network, such as being

coached by a supervisor. Receiving advice from other people being a mentor, etc. It can be said that in the overall picture of this type of learning management, emphasis will be placed on development from co-workers. People work and learn from the society in which leaders live. This proportion of 20 percent is a focus on learning from others through interaction and good networks that lead to the exchange of new perspectives that can be developed. leadership In particular, senior leaders are responsible for developing the leadership of younger leaders through their own wide-ranging experiences. Where leaders gain different perspectives through the experiences of others. Including people around you to help broaden the leader's worldview. See the organization more clearly and be able to prepare to deal with the future with confidence An example of this type of learning is coaching, mentoring, etc.

10 percent comes from learning and development through formal courses. Learning in this section comes from "Learning from the classroom" whether in a classroom or a formal training room, such as an education, training or seminar. training Online learning (E-learning) or higher education etc. In summary, this 10 percent is the focus on learning from formal curriculum or development programs. To acquire knowledge and understanding of theories, principles and concepts to help develop leadership systematically. and learn about the work as comprehensively as possible To see an overview of all operations within the organization. An example of this kind of learning is Studying courses in teachers, training, learning from different media and learning online, etc.

The principles of development in each proportion complement each other. For leaders to learn Develop and change effective leadership behaviors, for example, if 70 percent of learning is learned on the job. But it appears that it still doesn't work well, probably due to the lack of a learning proportion of 20 percent to provide feedback on what works well and what needs to be corrected to improve the work. Leaders may make the same mistakes over and over again because they don't know what to fix. How to work or how to do a good job should have to learn the basics of theory in the proportion of 10 percent to help leaders have the basic knowledge needed in

leadership roles. But studying only the theoretical part. Without practice, it is difficult to make a better leader. The learning ratio of 70 and 20 percent will complement the development in both theory and practice. As a result, the 10 percent proportion of learning is still a necessity.

From the study of principles of leadership development, the researcher summarized the leadership development model. Modifications can be made as follows.

Table 5 Methods for developing technology leadership

development principles	method of development
Learning from experience 70%	1. Job Shadowing 2. Job Assignments
Learning from others 20%	1. Coaching 2. Networking
Learning from courses 10%	1. Training

From Table 5, from the study of leadership development styles modified by various academics, the researcher can conclude that Principles used in the development of transform national leadership have 3 forms: 1) experiential learning 70%. and assignments 2) learning from others 20% has development methods including coaching (Coaching) and networking (Networking) and 3) learning from courses 10% has development methods including training Training

2.3 Methods of the development program

From leadership development methods Each of the methods mentioned above has similar aims and approaches to development. Personnel development can be done in many ways. It depends on the suitability of the issues that need to be developed and the context of work in each department. which in this research The researcher selects the human resource development method by taking into account the suitability and context of the research area. To determine how to strengthen technology leadership

consists of 1) Job Shadowing 2) Job Assignments 3) Coaching 4) Networking 5) Training with the following concepts and principles.

2.3.1 Job Shadowing

Aporn Phuvitayaphan (2016) said that following a role model who is a person who is accepted or is a role model in the matter that needs to be followed or observed in the work behavior of the role model.

Patchara Wanichawasin (2017) Job shadowing is a method of focusing on learning.Learn through leaders who are good examples by following, observing, inquiring, learning about work characteristics. and work with real leaders

The Office of Personnel Development (2021) explains that Job Shadow is another form of personnel development tool that gives personnel the opportunity to learn through tracking work with individual experts. It is a technique for creating and following a template or role model that focuses on short-term learning activities without much investment. All it takes is a good template that can be shown as an example for your employees to recognize and imitate during their normal working hours. So that employees can see the skill environment they need to work, the scope of work responsible for managing the actual work. Includes the expression and attitude of the archetype within a short period of time. The duration ranges from one day to months or years. However, tracking and observing behavior from the template will arise from the interest of the personnel themselves. Or it will be one of the assignments of the supervisor that allows personnel to monitor and observe the behavior of the template. It was found that this technique is often used in developing high potential personnel. (Talent) or the development of talented people to have the opportunity to follow executives during their work. to have the opportunity to study behavior and the working methods of executives that should be used as role models. In addition, Job Shadowing is used to allow personnel to learn how others work. To improve one's own work and Job Shadowing is also used as a tool for developing personnel's career progress (Career Path). Benefits of following templates It is a tool for developing the career path of personnel (Career Path). Personnel have the opportunity to study the behavior and working methods of administrators or experts in various career fields that should be used as role models during normal working hours and low budget or no budget Steps to follow templates

1. Define tasks and templates. Supervisors must find a template that is not only good at tasks. but must be a template that Good consists of being a good person, being able to get along with others. Friends and people around me agree to work. have views or attitudes towards living and positive organization

2. Plan the follow-up template as follows: Plan the follow-up period. between the template and personnel who will follow up and create a list of knowledge that personnel should know from the template and report such items to personnel and templates before starting follow-up.

3. Communication and advice Before assigning work to personnel, follow and observe behavior from the template. Supervisors must explain their conduct during follow-up on the following issues: Recording work steps, speeches, or various perspectives obtained from a template informing objectives, goals, and desired results from personnel.

4. Follow/Observe the template. Personnel may become concerned during the monitoring and behavioral observation period. because they do not know how to behave In order to learn and understand what is seen from the template. Supervisors should therefore find time to talk to relieve pressure and teach and advise on correct practices during the behavior observation period from the template.

5. Evaluation to ensure that employees learn from working from the model behavior. Especially abilities related to work skills. The supervisor must provide opportunities for personnel to perform their actual work. Evaluate the results of the practice. Guidance on what to do and what not to do after following and observing the behavior of the template.

In conclusion, template tracking is Behavior Observational Personnel.

Development Tools follow the master who is a good role model in the area that needs to be developed.

2.3.2 Assignment

Patchara Vanitchawasin (2017) explains that job assignment is a method that focuses on Learn through challenging tasks. To stimulate learning from real experiences assigned.

Sutham Thamtasananon (2020) explains that Job Assignments is a way to

help develop Leadership by assigning tasks that help develop leadership, such as challenging tasks To allow leaders to look at the organization from a wider and more diverse perspective or to assign work content. To stimulate learning on the job faster Special assignments should provide opportunities for leaders to develop and refine their leadership skills while on the job or during regular duties. The advantage of assignments is that they accelerate learning through hands-on work and learning. From direct experience resulting from working on assignments However, the point of caution with this method is that it focuses on working to get results rather than focusing on developing one's own leadership. Moreover, the measurement between performance and leadership development results may not be as clear as it should be.

The Human Resources Development Office (2021) explains that special work assignments (Job Assignment) are a tool for Develop competency that emphasizes actual work as assigned by superiors. Assignment of work consists of 2 main types: Job Enrichment and Job Enlargement, as follows:

1. Job Enrichment is a management activity that emphasizes design.

The nature of the work is different from what was previously done. Emphasis on making personnel skilled in a variety of tasks (Skill Variety), responsibility for their work (Task identity), important work characteristics (Task Significance), freedom and ability to manage that work by themselves (Autonomy) and Receiving feedback from supervisors periodically. Adding value to the job (Job Enrichment) is adding value to the job. By adding work of the same type to make it more valuable. It is a more difficult and challenging job. In which operators must use analytical thinking to create new things and think more systematically in their work. And it is a method of personnel development that uses job description design. This is work that is different from what was previously done, emphasizing on personnel's expertise in a variety of tasks, which is an important type of work, having freedom and being able to manage that work by themselves. and receive feedback

2. Job Enlargement is another interesting tool for developing

employee capabilities that focus on assigning an increased amount of work. With the nature of work having a lob value not different from the current scope of responsibilities. It's just that the amount of work that is responsible will increase or expand the scope of work. Emphasis on management (Managerial Competency) that

has increased from managing a larger amount of work than ever before, including planning skills. Time management skills Problem solving and decision making skills Teaching team management and team development Increasing the amount of work (Job Enlargement) is increasing work at a horizontal level. or horizontal, which is the expansion of work sideways.

In conclusion, the assignment It is the development of leadership from real experiences according to the tasks assigned to them. Learn from real experiences through direct work in the form of adding value to the job or increasing the amount of work.

2.3.3 Coaching

Busaya Wirakul (2015) explains that coaching is related to many aspects of human resource and organizational development work. As a result of coaching, employees' work performance is prepared as a means of improving work efficiency by providing feedback that increases knowledge, ability, and confidence to promote organizational goals. Successful results.

Patchara Wanichawasin (2017) explains that Coaching is a method that focuses on learning through leaders who have knowledge and skills. and effective work experience Serve as a coach, guiding ideas and practices. So that leaders can choose to apply what they think is good and useful.

Personnel Development Office (2021) explains that Coaching is a type of personnel development tool used. Develop employee competency It can be considered a process that coaches use to strengthen and develop employees. Knowledge skills and personal abilities (Personal Attribute) with various methods or techniques that are well planned. Teaching in accordance with the established plan. Until the employees can be trained to perform the tasks taught to achieve the goals set forth. Through an interactive process between trainers and coaching staff, usually in small groups or individually. which requires time to develop continuously Therefore, coaching is a technique for developing personnel or their own subordinates. Coaching has 3 objectives: solving job problems, developing careers, improving and developing work to be more efficient through methods and forms of coaching. including Provide one-

on-one or small group mentoring. It is continuous teaching throughout the work in that position. The duration depends on the nature of the work and the convenience of the instructor. It may be a formal or informal style between the boss and subordinates. It's called two-way communication, that is, supervisors use it to inform and listen to what they expect and want from subordinates. Another channel is to inquire about problems and obstacles that occur in work and it is a good opportunity for bosses and subordinates to work together to solve various problems that arise from work.

From the above it can be concluded that coaching is the development of individuals to be more efficient in their work in order to achieve Organizational goals There is an instructor or coach to guide and bring out the potential of what the person being taught is already capable of. Only the instructor gives some guidance. Makes those being taught understand and be able to use them in their work to be effective.

2.3.4 networking

Aporn Phuvitayaphan (2016) Joining as a group member with external networks to listen to information. and asking for information to be used in work Patchara Vanitchawasin (2017) Networking is a method that focuses on learning through various social interactions. To get to know people and maintain good relationships with them.

Sutham Thamtasananon (2020) Networking is a way to help develop leadership through social interaction. Get to know people both inside and outside the industry. To exchange opinions and various perspectives, creating continuous good relationships. for the opportunity to rely on Empower and inspire leadership Learn from leadership experiences from other leaders to create a learning network. Because leadership should never be alone. But you should have a partner to ask for advice, support or even encouragement. Including leaders do not know everything. The good point of networking is that it trains social skills. and being able to take advantage of it, whether it be as a way to solve problems or asking for support in various areas from the network. The caution of this method is Lack of a clear structure for leadership development Also, if being in a bad network results in a bad image of the leader as well.

In summary, building a network means developing leadership from socializing, joining groups to get to know many different people, to listen to information and to apply information to work. Build a network of learning relationships.

2.3.5 Training

Patchara Wanichawasin (2017) explains that Training is a method that focuses on practical work to gain expertise and increase experience by using real locations as training grounds. However, the person delivering the training must be an experienced person.

Sutham Thamtasananon (2020) explains that Training This is a way to develop leadership through actual work. To gain expertise in the job and increase work experience. Using the actual workplace as a training ground This method is suitable for new employees. or has been appointed, transferred to a position in a new position The trainer will be the person who will give advice closely. Training in this way will only work if you get a good trainer. Be knowledgeable on the job and have enough time to teach the advantages of on-the-job training, i.e. gaining practical guidance and transferring knowledge back to the real job. Both can see the results of work immediately, however, the point to be careful is If the conveyer is not good or doesn't have time to give, learning may not occur. Also, mistakes and damage can affect the organization while training to perform the job.

Personnel Development Office (2021) Training is personnel development that has the characteristics of a face-to-face transmission The supervisor or trainer will be able to guide and teach. Directly transfer knowledge and techniques to personnel in detail. Supervisors or trainers and personnel are therefore closely related. There is intimacy and trust. It also helps to create a good atmosphere at work by focusing on personnel development through on-the-job training. think of themselves to be able to understand personnel There may be differences in age, education and experience, and try to create a feeling that the trainees are eager to work. Create a good working atmosphere and increase the work capacity of personnel as well thus making the training on the job a success

It can be concluded that Training is a training to increase experience by getting to do real work by transferring knowledge from experienced people who are waiting to pass on knowledge closely.

Concept and Theory's of Program and Program development

3.1 Components of the development program

Yukl (2010) outlined the key elements of leadership development as follows:

1. The top management supports

2. There is an atmosphere that creates leadership learning.

3. There is a connection between leadership development activities and other developments in the organization.

4. Associated with the organization's human resource development work (such as placing people in various positions, providing career advice, performance appraisals, recruiting people to higher positions).

5. Consistent with the main business objectives of the organization.

Mintzberg (2015) discusses several key elements of development programs. Effective Leadership:

Context effective leadership development programs take into account the specific context in which leaders operate, including factors such as organizational culture. strategy and structure.

1 .Goals Leadership development programs should be designed with clear goals and objectives that should align with the organization's needs and priorities.

2. Process Effective leadership development programs use a variety of methods and activities to help participants learn and practice new skills. This may include classroom instruction, experiential learning activities, coaching, giving. Mentoring and self-learning.

3.Participants Leadership development programs should be tailored to the needs and characteristics of the participants. This may include considerations such as experience level, learning style, and development goals.

1. Culture Effective leadership development programs should take into account Organizational culture includes the beliefs, beliefs, and norms that determine behavior within the organization.

Hughes, Ginnett, and Curphy (2019) describe several key elements of an effective leadership development program.

2. Context: Effective leadership development programs take into account the organizational context in which leaders operate. This includes factors such as

organizational culture, strategy and structure, as well as external factors such as the competitive environment and regulatory landscape.

3. Content: Leadership development programs should focus on developing the specific skills and behaviors most important for success in a given context. This may include skills such as communication, decision-making and strategic thinking. as well as the specific leadership style or approach that is appropriate for the organization.

Process: Effective leadership development programs use a variety of methods and activities to help participants learn and practice new skills. This may include classroom instruction, experiential learning activities, coaching, Mentoring and self-learning Participants: Leadership development programs should be tailored to the needs and characteristics of participants. This may include considerations such as experience level, learning style, and development goals.

Evaluation: Effective leadership development programs should have a process for evaluating the program's impact on both individual participants and the organization as a whole. This may involve measures such as feedback from assessment participants. Changes in behavior or performance and analysis of organizational results.

From studying the elements of the development program from various academics, it can be concluded that the elements of the program consist of 1) principles or conceptual framework 2) objectives 3) content 4) Development Process 5) Evaluation

3.2 Developing program

Popper and Lipshitz (1993) identified the key elements of leadership development as follows:

1.Evaluate the work abilities of members in the organization.

2.Set desired performance indicators.

3.Identify the factors that are critical to achieving your goals.

4. Identify the resources in the organization that people can use to accomplish tasks.

5. Create a work system and an atmosphere in the organization that supports success in work.

Goleman (2000) identifies the key elements of leadership development as

follows:

1. Required competencies The first step is to determine the strategy and competencies needed for leaders to effectively implement that strategy.

2.Identify leadership potential The second step is to identify leaders' potential to develop leadership competencies that may involve the use of assessments through interviews or performance appraisals.

1. Assess Current Leadership Skills: The third step is to assess current leadership skills. This may involve using 360-degree feedback or interviews to identify areas for improvement.

2. Design a development program The fourth step is to design a leadership development program taking into account identified competencies and development requirements. The program should include a variety of development activities such as coaching, mentoring, Training and experiential learning. Use development programs The fifth step is the implementation of the leadership development program. This may involve assigning a mentor or coach to provide training or development opportunities or giving them new responsibilities. to individuals to build their skills.

Evaluate the effectiveness of the program: The final step is to evaluate the effectiveness of the leadership development program. This may involve the use of participant feedback assessments or Assessing the program's impact on organizational outcomes. Leskiw and Singh (2007) discussed the key elements of leadership development as follows:

1. Assess the organization's needs for leadership task competence.

2. Select people in the organization with potential

3. Create an atmosphere and work system that fosters the development of desired leadership.

4. Create a good learning system throughout the organization.

5. There is a continuous evaluation system for leadership development.

6.Give rewards to those who have good results due to the development results.

Bailey and Clarke (2008) outlined the key elements of leadership development.

1. Link your leadership development plan to your business strategy.

2.Link development methods to the development of competencies required by the organization.

3.Clearly define the goals and outcomes of the leadership development plan.

4.Establish appropriate assessment methods for all key stages of the development program.

5. Also value individual leadership abilities.

Berk, Kossler, and Wakefield (2008) identified the key elements of leadership development as follows:

Define the administrative competency required by the organization.Incorporate established administrative competencies into the overall development plan of the organization.

1.The top management and the group of senior management give

importance and necessary resources to develop the administrative abilities set by the organization.

2.There is a model of job competence that can be used to communicate

to members of the organization what abilities and behaviors the organization needs.

3.The gap between the competency of the current job and the ability of the required or desired job is assessed.

4.There is a system for recruitment, selection, development, pulling people to stay with the organization and excellent performance management.

5.Continuously evaluate the development of job competency.

Lamoureux (2008) outlined the key elements of leadership development as follows:

1.High-level executives are highly involved in the project.

2. Clearly define the core competencies of the organizational leaders.

3.There is a connection with the overall business plan of the organization.

4. Develop leadership at all levels.

5. Design development that is linked as a whole system.

6. Bring knowledge of talent management of individuals to be used in development.

Dubrin (2010) outlined the key elements of leadership development as follows:

1. Assessment is an assessment of the existence of leadership in the organization. This may involve using survey assessments to identify strengths, weaknesses and

opportunities for improvement.

2. Development is the provision of development opportunities to individuals identified as having leadership potential. This may involve providing training, coaching, mentoring and experiential learning opportunities to develop necessary leadership skills and competencies.

3. Implementation is the implementation of a development plan that allows individuals to use their newly acquired skills in real-life situations. This may involve delegation of work. Job rotations or other experiential learning opportunities. Evaluation is an evaluation of the effectiveness of a leadership development program. This may involve using evaluations of feedback from participants or evaluating the program's impact on organizational outcomes.

Horwitz (2010) mentioned the important elements of leadership development as follows:

Create a model of competence in the work that is the core of the organization. Determine competence in the most important tasks in the organization.

1.Evaluate to know the difference between the ability to do the work that the organization has and the ability to do the work that the organization needs. By using focus groups, 360-degree assessments, or employee surveys.

2. Connect the leadership development plan with human resource work such as Recruitment, selection, preparation of people for management positions, and performance management. There is support from the highest level of management of the organization.

3.Keep the learning period between 3-8 months.

4.Development methods include: Stimulating each person to develop themselves, coaching, training, learning from actual practice.

5.Periodically evaluate continuous development results.

Berke and Kossler (2013) propose the following components of leadership development:

1.Evaluation of the development plan: The development plan should begin with a comprehensive assessment of each individual's current leadership skills, strengths, and weaknesses. This may include assessment. such as personality tests.

2.Goal setting is to set clear goals for the development of the person.

These goals should be specific. It is measurable, achievable, reasonable, and has a clear timeline. (SMART) .Development Activities There are a variety of development activities that target specific goals. each person for improvement and development This may include coaching (coach) and counseling. Creation of job shadowing templates, workshops and online courses .Support and suggestions They should receive continuous support and feedback throughout development. This may include regular meetings with a coach or mentor. Feedback from colleagues and opportunities for self-reflection. Responsibility: Individuals should take responsibility for their own development. This may include Reviewing progress toward goals and ensuring that individuals are accountable for their learning and self development Evaluation: It should be evaluated to assess its effectiveness in achieving the desired results. This may include measures such as developing leadership skills. Increased job satisfaction and improved organizational outcomes. Overall, a leadership development program that incorporates these elements can help individuals develop leadership skills, improve performance, and lead to organizational success. From the study of program development From various scholars, it can be concluded that program development has The steps are as follows: 1) Study the components of leadership that you want to develop. 2) Study the existence. Desirable conditions for leadership development 3) creating a leadership development program 4) applying the leadership development program to develop leadership 5) evaluating the effectiveness of the program.

Contents of Public Art Education Management take Nanning Guangxi

Public art education is still a new discipline in China. The concept of public art awakened in China in the 1980s, and entered the initial transformation stage to environmental art in the 1990s. In western developed countries, it was popular in 1950s and 1960s. After more than half a century's efforts, the appearance and humanistic spirit of many cities have been obviously improved due to the involvement of public art, and citizens have already obtained spiritual satisfaction in public space, which has enhanced their self-confidence and cohesion. In this transformation stage, the reflection and change of ideas, the diversified trend of art forms and the

relationship between environment and space are gradually brought into the vision of public art.

4.1 The definition of public art

Public art is based on people (the public).The artistic form, taking the urban public environment and public facilities as the object and the comprehensive media form as the carrier. Under the development trend of contemporary disciplines with high degree of separation and high degree of integration, public art design involves many disciplines, industries and departments, and its core disciplines include landscape planning design, environmental art design, visual communication design, industrial product design, painting and sculpture, which belong to two disciplines under the discipline of architecture, art and engineering. The awakening of the concept of public art in China began in the 1980s, and entered the initial transformation stage to environmental art in the 1990s. In this transformation stage, the reflection and change of ideas, the diversified trend of art forms and the relationship between environment and space are gradually brought into the vision of public art.

4.2 Existence of public art education:

4.2.1 General situation of public art education in foreign universities:

Many countries have attached great importance to public art education for a long time. In 1959, the United States established the Art Education Committee, and in 1977, it published the report "Our Comprehension-the Importance of Public Art to American Education", followed by Art Education.

The National Standard defines art as the core subject of basic education. In 2002, the latest research published by the American "Art Education Partnership" shows that educating students in public art can develop their thinking. In a period of time, the organization conducted 62 studies on dance, drama, music, multimedia, vision and other aspects of education, and found that public art education is of great benefit to students in the development of reading and writing language ability, the understanding of abstract concepts, basic independent thinking, active learning and social behavior. The Australian government attaches great importance to public art education and other cultural and artistic industries. Every year, there are public art design competitions with different names. At the same time, government, non-

government and private public art foundation committees provide policy support, and also provide funds and sponsorship projects for the public art education industry. It is precisely because of the attention of these organizations and governments that the cultural and artistic education industry in Australia is promoted.

4.2.2 Analysis of the existence of public art education in Chinese universities

Public art education is an important part of college education. Public art education is an indispensable course for students to form systematic thinking. It can not only improve students' creative aesthetic ability, but also improve their comprehensive creative practical ability. It is one of the important courses offered by art colleges. However, public art started very late for the present situation of art education in China, and the educational ideas and curriculum ideas of major art colleges are complicated and diverse. Dozens of schools across the country have successively built public art departments, which shows the importance of public art disciplines. This paper mainly takes Nanning University, which has made outstanding achievements in the discipline construction of public art education, as an example, and puts forward personal suggestions and strategies for the popularization of public art education.

At present, the teaching mode of public art in colleges and universities (art majors) and art colleges in China has gradually developed steadily towards maturity and diversity. Social practice is also included in the important courses of teaching. Through the combination of public art workshops on campus and social practice, it promotes the social training of education and the integration of society, and creates a real creative environment for students in virtual space, which is one of the directions of public art education.

4.3 Problems in the discipline construction of public art education in China

Because our public art education has a short development time and its own development is in the exploratory stage, there are still some problems that need to be faced squarely:

4.3.1 The curriculum lacks a complete system.

Because many colleges are still in the primary exploration stage, they lack experience in teaching and research in all aspects of public art discipline construction from their different professional perspectives, and extend a single discipline in their respective professional fields, such as architecture, sculpture, murals, landscape design, decoration, etc., without multi-disciplinary intersection. However, in the field of public culture involved in the complete knowledge construction of public art disciplines, the interdisciplinary knowledge, such as sociology, environmental science, psychology, materials science and philosophy, is still in the primary stage. For example, after investigation and research, the construction of public art education in my college's College of Art and Design lacks a multi-angle and multi-disciplinary cross-integration teaching system, but only extends the traditional discipline in a single direction.

4.3.2 Lack of mature teaching experience and academic exchange platform. In order to meet the needs of society and market, some domestic colleges and universities have successively set up public art disciplines. Because the concept and nature of public art disciplines have not been fully and uniformly understood, and there is a lack of systematic teaching materials and teachers, students of this major are confused and lacking in skills and discipline direction in some colleges and universities, and some teachers' professional knowledge is not systematic and lack of corresponding teaching.

Experience and social practice experience highlight the lack of knowledge required for public art teaching. Therefore, it is hard to imagine that in just four years of undergraduate education, a student majoring in public art can become a professional and comprehensive expert in such a multi-disciplinary and multi-dimensional field.

4.3.3 The rational allocation of teaching subjects and systems is still being explored. The materials of teaching theory can't meet the learning needs of students, and the relevant standardized teaching reference books are still too few, especially the reference books and literature materials for deepening subjects are even less.

4.4.4 The construction and development of public art must be guided by the development direction of the government, and the promotion of policies is particularly important for public art..

A perfect and harmonious public art space can not be separated from stable and lasting policy support. Many good public art works are only small-scale and isolated designs, which can not form a complete and democratic cultural space, and the market is in a state of disorder and abandonment. In addition to the above points, in the concrete teaching practice of contemporary public art, how to solve the contradiction between public art creation and mass aesthetics is also a problem we must face. In public art creation, we only pay attention to the artistic value of public art, create public art from the perspective of pure art, simply pursue the artistry of works, and take a total negative attitude towards previous urban art works, thus ignoring the publicity, popularity and over-emphasis on art of public art.

The artist's personal aesthetic sense will inevitably produce public works of art that the public can't understand and are unwilling to participate in, which is not conducive to the diversified development of public art education.

Related Research

Through Document retrieval in the full-text database, "Technology Leadership of Teachers" was set as a keyword to search, and there were 357 search results by April （2023). According to the quantifiable analysis results obtained from CNKI, Figure 2-1 is obtained.

Figure 2 Trend of Technology Leadership of Teachers Publication Volume

Combined with the trend statistics in Figure 2-1, research on “Technology Leadership of Teachers” peaked at 55 articles in 2022 and has continued to increase in recent years.

Research on the Connotation of Technology Leadership of Teachers

The concept of Technology Leadership of Teachers is very abstract. Scholars define the connotation of Technology Leadership of Teachers through different methods. But the results of the definition are still different. There are mainly the following views:

The first view is that Technology Leadership of Teachers belongs to a competency. Li Xiaotian （2023) proposed that Technology Leadership of Teachers examines the level of technology leadership of teachers, which involves teachers' competencies as well as Technology leadership skills, and belongs to a kind of influence formed on the basis of special interpersonal relationships. Its purpose is to achieve the goals of the organizational group Technology Leadership of Teachers involves the ability to act, react, innovate, teach, and call for action. These competencies are ultimately reflected through teachers' teaching activities, problem awareness, teamwork, reflective research, and professionalism. Yao Jihai, Shen Ling, and Zou Honghui （2022) proposed that Technology Leadership of Teachers encompasses research competencies, teamwork competencies, and teaching competencies. Competencies that are unique to teachers Technology Leadership of Teachers is a leading role for schools, teaching, and students based on teachers' moral consciousness, professional competence, teaching philosophy, and sense of cooperation. It promotes the all-round development of students, improves the quality of education and teaching, and promotes the reform and development of education.

The second view is that Technology Leadership of Teachers is a form of influence. Jiang Yuanyuan（2020) proposed that Technology Leadership of Teachers is based on the influence that one has on others based on one's own influence. Technology Leadership of Teachers is power in the form of teaching and learning goals around which specific teaching practice activities are carried out and has various influences on teachers in schools. It is an influence effect based on the application of skills, knowledge, personality and ethics through the teacher, aimed at the rest of the school population .

The third view is that Technology Leadership of Teachers is a kind of behavior. Song Lei （2020) proposed that Technology Leadership of Teachers is a Technology leadership behavior for school students under the empowerment of the school, which

mainly targets teachers with higher positions. Its ultimate purpose is to influence the education of others, which belongs to practical behavior. It is necessary to combine the role of teachers, improve their willingness to participate in school management and curriculum management, and improve students' learning efficiency with the help of teachers' authority.

Overall, Technology Leadership of Teachers belongs to a type of ability, influence, and behavior that can have a positive impact, involving factors such as emotions and abilities that teachers are involved in organizational activities.

An Empirical Study on Technology Leadership of Teachers. The empirical research on Technology Leadership of Teachers is mainly based on existing literature research methods, models, and scales, with the following viewpoints:

Viewpoint 1: Develop a Technology Leadership of Teachers questionnaire based on the Five Forces Model. Wang Jikang, Xu Jicun, （2021) A Technology Leadership of Teachers questionnaire was developed based on the "Five Forces Model". A group survey was conducted on teachers in a certain middle school, taking into account their classroom behavior and performance.

Viewpoint 2: Develop a Technology Leadership of Teachers questionnaire based on the Technology Leadership of Teachers Model Standard TLMS. Dong Juan (2021) proposed to construct a Technology leadership questionnaire for Zhejiang preschool subject leaders based on the American Technology Leadership of Teachers Model Standard TLMS for evaluation and analysis. Xu Lixin, （2019) proposed that the Teacher Leader Model Standards, also known as TLMS in English, is proposed by the American Technology Leadership of Teachers Exploration Alliance to improve the knowledge and skills of educators, analyze the responsibilities and roles that schools need to assume and play for teachers in participating in competition. Zhu Ailing （2019) believes that the improvement of Technology Leadership of Teachers requires teachers to actively engage in formal or informal learning, participate in training through formal channels, and receive recognition in the form of degrees and credits, in order to better assume the Technology leadership role of teachers.

The development of Technology Leadership of Teachers demonstration standards in March 2010 can provide guidance for the development and improvement

of teaching work. Technology Leadership of Teachers demonstration standards can provide reference for the development and improvement of higher education, and teachers are the main members of implementing Technology Leadership of Teachers demonstration standards to conduct research and improve communication and communication skills. Wang Feiye, Hong Chengwen, Sally Zapada,（2014) Teacher leaders combine Technology Leadership of Teachers demonstration standards to continuously promote the improvement of teaching and the improvement of teaching technology. Combining the knowledge of Technology Leadership of Teachers with the school's development goals, they work together to promote the development of the teaching profession.

Viewpoint 3: Develop a Technology Leadership of Teachers questionnaire based on other standards. Zhao Ying（2021)proposed to draw on relevant measurement tools for Technology Leadership of Teachers to develop a questionnaire on technology leadership of teachers, which can be used to evaluate teachers' technology leadership decision-making abilities in school management and curriculum development.

Overall, empirical research on Technology Leadership of Teachers is mainly conducted through questionnaire surveys and interviews. Scholars mainly draw on the Five Forces Model, the American Technology Leadership of Teachers Model Standard TLMS, or analyze the characteristics and cultivation methods of Technology Leadership of Teachers through self-made questionnaires. However, there are few empirical research results available.

A Study on the Technology leadership of Teachers with different subjects. The main body of Technology Leadership of Teachers research involves three categories, including university based college teachers, primary and secondary school teachers, and Preschool teacher. Different education objects have different educational needs and characteristics, mainly including the following points of view:

Viewpoint 1: Research on the Technology leadership of university teachers. Wang Xinhua, Zhu Dequan（2021) proposed that the Technology leadership level of university teachers is directly related to their social cooperation ability, research ability, teamwork ability, professional development ability, teaching ability, etc. Wei

Xiaoyu, Cheng Jinkuan, （2022) proposed that the Technology leadership of university teachers largely utilizes the resources of universities, improves the learning ability of teachers and students, reforms the curriculum plan, and implements the specific implementation of the curriculum. Through the improvement of Technology leadership, university teachers achieve democratic participation and decision-making, and also promote the comprehensive development of students. He Lin（2018) proposed that Technology Leadership of Teachers is based on existing educational policies, improving students' practical abilities, meeting practical teaching needs, enhancing the influence and role of the education industry, and improving teachers' professional abilities and professional levels.

Viewpoint 2: Research on the Technology leadership of primary and secondary school teachers. Liu Xiaodi（2021) proposed that the development of Technology Leadership of Teachers should pay attention to the impact on primary and secondary school students, and primary school principals should have the ability to build platforms, guide learning, lead goals, and innovate systems. Lili Zhou, Peter McClaren（2021) proposed that rural teachers in primary and secondary schools should constantly improve the school atmosphere, improve teachers' self-efficacy and job satisfaction. Teachers with Technology leadership usually need to carry out substantive surveys and analysis of primary and secondary students.

The third point is the research on Preschool teacher 'Technology leadership. Li Keqin, Yuan Xiaoping, Ning Yanlin（2016) proposed that the Technology leadership of Preschool teacher will have an impact on the teaching of children, colleagues, communities and schools, and improve children's learning achievements. Kindergarten teachers should reasonably carry out curriculum guidance work in combination with children's characteristics. Preschool teacher 'Technology leadership not only includes indoor courses, but also outdoor activities, especially outdoor collective activities, and should play a positive and positive role.

In general, the research on the Technology leadership of different teachers in the existing literature mainly involves three subjects: college teachers, primary and secondary school teachers, and Preschool teacher. Teachers' Technology leadership

should be constantly improved through the integration with administrative management, and expand the coverage of Technology leadership.

Research on the Scope of Technology Leadership of Teachers. Regarding the research dimension of Technology Leadership of Teachers, different researchers have different and more diverse perspectives, mainly including the following:

Viewpoint 1: Technology Leadership of Teachers encompasses 2-3 areas. Sun Jie, Cheng Jinkuan （2020) Combining with the American Technology Leadership of Teachers Model Standard (TLMS), the dimensions of Technology Leadership of Teachers are divided into teaching Technology leadership, value Technology leadership, and academic Technology leadership. Technology Leadership of Teachers includes three development concepts: teacher participation, teacher ownership, and teacher enjoyment. Sun Jie, Cheng Jinkuan （2020) proposed that the research focus of Technology Leadership of Teachers mainly includes two dimensions. The first dimension is broad participation, providing more choices for teachers, children, and parents. The second dimension is skilled participation, improving the quality and skills of Technology leadership. At the same time, Technology Leadership of Teachers includes both formal and informal Technology leadership.

Viewpoint 2: Technology Leadership of Teachers includes four dimensions. Zhang Xiangzhong, Xu An'an（2023) proposed that in undergraduate education in colleges and universities, the goal of Technology Leadership of Teachers is that everyone is a leader, and the dimensions are refined into moral Technology leadership, class Technology leadership, teaching Technology leadership and professional Technology leadership. The core content of Technology Leadership of Teachers is to lead the team and self-development, and drive innovation and coach others under the premise of goal Technology leadership. Li Sisi, Li Li（2021) proposed that there are four dimensions of Technology Leadership of Teachers, which also forms the theoretical basis for the study of university Technology Leadership of Teachers. The first dimension is the transformation of the school curriculum led by the principal, which enhances the substantive requirements of Technology Leadership of Teachers. The second dimension is the degree of teacher participation, which enhances the sense of ownership of teachers. The third dimension is the mediating role of teachers in

school management and the rational use of internal and external resources. The fourth dimension is to build effective relationships with other teachers and learn from each other, Improve each other's Technology leadership and learning abilities.

Viewpoint 3: Technology Leadership of Teachers includes 5-6 ranges. Peng Yun（2017) Combining physical models, further subdivide Technology Leadership of Teachers into five dimensions: personality charisma, teaching Technology leadership, academic foresight, organizational cohesion, and educational decision-making, which affect the development of student behavior. Wang Feiye, Hong Chengwen, Sally Zapada（2017) proposed that Technology Leadership of Teachers includes organizational power, decisive power, charisma, executive power, teaching power, learning power and so on, thus building a Six forces model of Technology leadership

Overall, existing literature on the dimensions of Technology Leadership of Teachers has defined and differentiated it based on the role of teachers in groups and individual abilities.

Literature on Technology Technology leadership of Domestic Teachers. Through Document retrieval in the CNKI full-text database, "teachers' Technology Technology leadership" was set as a keyword for search, and there were 51 search results as of April（2023). Based on the quantifiable analysis results obtained from CNKI.

According to the statistical results, the research on "teacher Technology Technology leadership" reached its peak in 2009, with a total of 9 articles. In recent years, there has been a fluctuating trend, and the total amount of research is not significant.

Research on the Connotation of Teacher Technology Technology leadership with the development of educational informatization, promoting the informatization construction of teachers has also become the key to improving their Technology Technology leadership. However, there is currently limited research on teacher Technology Technology leadership and there is no clear definition. Existing research on the connotation of teacher Technology Technology leadership has yielded preliminary results.

Sun Jie, Cheng Jinkuan（2019) proposed that education and teaching are based on cognitive work, and teacher Technology Technology leadership is based on teachers' understanding of students to carry out Technology teaching Technology leadership work. Teacher Technology Technology leadership is based on their own subjective foundation, using information-based teaching methods to promote better completion of teaching tasks. Li Haixia, He Gaoda（2017) proposed that teacher Technology Technology leadership is achieved through the use of information-based teaching methods and methods in classroom teaching, in order to control the entire teaching process and guide teaching work. Wei Xing（2022) believes that Technology leadership itself is not singular, but rather possessed by multiple organizational members. Especially in universities, members will jointly assume Technology leadership functions, achieve dynamic sharing, guide teachers to actively assume their own functions, and provide standardized guarantee mechanisms.

Overall, teacher Technology Technology leadership not only exists in the classroom teaching process, but also in learning activities, classroom discipline, behavioral norms, campus culture, interpersonal relationships, and other aspects.

Research on the Composition of Teacher Technology Technology leadership.The composition of teacher Technology Technology leadership is multifaceted, and currently there are relatively few research results on teacher Technology Technology leadership or teacher information Technology leadership. Among them, research on the composition of teacher Technology Technology leadership mainly includes the following viewpoints.

Wang Shufen（2020) Teacher Technology Technology leadership is based on the perspective of teacher participation, continuously improving the level of teaching evaluation, improving teaching research and judgment, and enhancing the rationality of teaching decision-making. Based on the five forces model of technology leadership, it is proposed that teacher Technology Technology leadership involves teachers' foresight, influence, charisma, control, and decision-making power. Zhou Weiyuan, Huang Meichu,（2023) proposed that teacher Technology Technology leadership involves the design, development, understanding, and curriculum design, evaluation, and reflection abilities of information technology teaching. Teacher Technology

Technology leadership is built on the basis of friendly cooperation, achieving common growth with colleagues, using good communication skills and methods, strengthening conflict resolution ability, arranging various tasks reasonably, and improving team collaboration level, Teacher Technology Technology leadership includes Technology leadership in information technology teaching and development, as well as Technology leadership and Technology abilities in information culture

Mu Su, Tang Dongmei, Qiao Jinxiu （2019) proposed that teachers' professional Development theory proposed that there were differences in professional needs and levels of teachers at different stages of development. Professional teachers need to constantly learn, strengthen the internal circulation of knowledge, and clarify the key to development at each stage. Teachers should also be aware of the differences between individuals, improve their exploration and research abilities, allocate resources reasonably, improve the effectiveness of collective teaching, and implement multi-channel development and progress. Teachers should also pay attention to their growth experiences and problems, fully understand different developmental characteristics, propose targeted and comprehensive theoretical basis, and improve their professional development level.the professional development of teachers should be based on information technology, continuously promote the development of information technology education and teaching, and improve the Technology leadership and professional Technology level of teachers' teaching.

Based on existing research results, it can be seen that teacher Technology Technology leadership mainly includes teachers' Technology leadership in teaching, simultaneous development, campus culture, personal qualities, and evaluation decision-making. In the work of information technology teaching in schools, teachers also need to continuously improve their ability in information technology, promote the development of information technology, and thereby improve their professional level and teaching ability in information technology. Therefore, it can be summarized that the constituent elements of teacher Technology Technology leadership include: teacher information technology ability, campus information culture Technology leadership, information technology professional Technology leadership, and information technology teaching Technology leadership.

This article summarizes relevant literature on strategies for improving teacher Technology Technology leadership in China, and explores specific strategies for improving teacher Technology Technology leadership in the context of informatization.

From the perspective of teachers themselves, Zhu Zongshun (2016) analyzed the strategies for improving teachers' Technology Technology leadership. He believed that in order to transform traditional teaching concepts, establish a learning community for teachers, actively develop teaching culture, and improve the selection mechanism for teachers, it is necessary to enhance teachers' professional knowledge and teaching skills, promote the creation of a new teacher-student relationship, and build a good learning vision, in order to enhance their Technology Technology leadership, In addition, the improvement of the principal's Technology Technology leadership should focus on self-improvement, improve the school management mechanism, and strengthen the principal's concept of self-improvement. Zhu Zhiguo （2014) analyzed the strategies for improving teachers' Technology Technology leadership from the perspective of school managers, and believed that the improvement of teachers' Technology Technology leadership should be improved from the aspects of teachers themselves, school management, and education administration. The improvement of teachers' Technology Technology leadership should focus on the incentive effect of external factors, and continuously improve education and training, and delegate power if necessary . Wang Na（2019) proposed that the development of teachers' career should be analyzed based on the stages of their career, and assistance and support should be provided to teachers who have difficulties and difficulties, in order to improve their professional development level. The professional development of teachers runs through various stages of their career, requiring them to proficiently master the skills and knowledge required for professional practice.

Overall, existing literature on teacher Technology Technology leadership has focused on the aspect of teacher information technology Technology leadership, and combined with the actual situation of Chinese universities, the development background of educational information technology, education training, and system

reform, it is believed that teachers' own differences should be emphasized to improve teacher Technology Technology leadership.

Through Document retrieval in the full-text database, "technology Technology leadership" was set as the keyword for search, and there were 963 search results by April （2023). Quantifiable analysis results based on CNKI.

According to the statistical results, the research on "technology Technology leadership" reached its peak in 2016, with a total of 101 articles, and has shown a continuous increasing trend in recent years.

Research on the Connotation of Technology Leadership of Teachers. The definition of Technology Leadership of Teachers has been analyzed by multiple scholars from multiple perspectives, with the following main viewpoints:

Viewpoint 1: Technology Leadership of Teachers is a form of behavior. Douglas K（2022) proposed that Technology Leadership of Teachers is action research and development based on professional development and the mining of new ideas, and put forward reasonable suggestions to improve teaching level and quality. Therefore, we should become a good Action research and improve our own influence. Technology Leadership of Teachers is mainly used for daily guidance, achieved through participation in school management, including formal Technology leadership and informal Technology leadership. Technology Leadership of Teachers is a teaching management strategy that improves the overall professional level of teachers by assigning tasks to professional roles such as teaching leaders, course leaders, and mentors.

Viewpoint 2: Technology Leadership of Teachers is an ability. Evans L2022 proposes that Technology Leadership of Teachers is a model established based on team practice, which not only involves teaching work itself, but also involves leading students outside of teaching work. It proposes that every teacher can become a leader. Stephen C, Oura C（2021) proposed that Technology Leadership of Teachers itself is a process. It is necessary to put forward constructive suggestions on team management through Action research to improve the degree of mutual trust between teachers and students. Technology Leadership of Teachers is a unique skill formed through training based on competency standards, development projects, and

professional abilities. Li X（2022) proposed that the organizational structure of teachers involves teachers' knowledge and abilities, career planning, teaching behavior, educational concepts, etc., all of which provide a foundation for the improvement of teachers' professional abilities. Valeska G, Elisa C, David D P, et al.（2017) believe that the quality of teachers involves professional abilities, professional qualities, psychological qualities, etc. The professional literacy of teachers involves ability structure, knowledge structure, and professional beliefs.

Viewpoint 3: Technology Leadership of Teachers is an influence. Ambrose D（2021） proposes that Technology Leadership of Teachers is based on joint cooperation, achieving the improvement of professional level, which can enhance the professionalization level of teachers and enhance their overall influence. The main body of Technology Leadership of Teachers is principals, teachers, or other management personnel, with the aim of promoting students' academic progress Improving teaching practice activities . Morrissey M B Q, Ellis BD（2021) proposes that Technology Leadership of Teachers is based on the specific influence of individuals in organizational goals in a specific environment, providing resources and basic conditions for teacher career development, and enhancing teachers' autonomy and professional development level. Ahsan A, Hongwei W, Russell E J （2020) It is proposed that Participatory democracy Technology leadership is an important way of Technology leadership and a basic Technology leadership model. With the help of participatory Technology leadership in schools, teachers can improve their Technology leadership role, strengthen the unity between the upper and lower levels, and improve the quality of decision-making. School administrators should also seek teachers' opinions to make more democratic and scientific decisions.

Overall, Technology Leadership of Teachers should be based on the professionalism of teachers, and through spontaneous learning methods, improve one's professional level and improve teaching cooperation.

A Study on Teachers' Technology leadership development .The research on Technology Leadership of Teachers in the United States and the United Kingdom has different stages of development and has produced different results. The main viewpoints are as follows:

Viewpoint 1: The Technology leadership of American teachers has gone through four stages of development. Ayaya G I（2021) Based on the development of Technology Leadership of Teachers in the United States over the past 20 years, the evolution process is summarized. In the first stage, the Technology leadership of teachers is officially empowered and exercised, with school administrators and department heads as the main body. In the second stage, the professional abilities of teachers are fully utilized and applied in team Technology leadership. In the third stage, teachers engage in independent cooperation and pay attention to cultural guidance and shaping, The fourth stage is the existence of practice and development, which has enhanced teachers' awareness of cooperation and participation. Wolfinbarger K G, Shehab R L, Trytten D A, et al.

Viewpoint 2: The Technology leadership of British teachers has gone through three stages of development. Heckscher C（2021), based on the development process of Technology Leadership of Teachers in the UK, summarizes the development stages of Technology Leadership of Teachers. In the first stage, Technology Leadership of Teachers is in the stage of theoretical development, and research on Technology Leadership of Teachers mainly focuses on the management personnel of principals, as well as the positions of middle level leaders. However, it does not consider the specific situation of the teacher group. In the second stage, research on the professional abilities of teachers has begun, The UK Teachers' Union (NUT) and the Teaching Council (GTC) have jointly proposed a comprehensive and collaborative learning model, believing that teachers' teaching Technology leadership skills can be applied to school decision-making and have a positive promoting effect on students. The third stage is the evaluation stage of Technology Leadership of Teachers, which is based on the analysis of teachers' work efficiency, self-efficacy, and professional happiness, If teachers need to handle a large amount of work outside of the classroom, it will reduce the time spent working in the classroom. Maccoby M, Cortina M（2021) proposed that Technology Leadership of Teachers has gone through three main stages. The first stage is for teachers to be leaders, responsible for the administrative management of the school, with the aim of improving the operational efficiency of the organization. The second stage is for excellent teachers to take on the

responsibility of curriculum Technology leadership. The third stage is for teachers to become the backbone and leader of curriculum learning, promoting the improvement of school culture.

Overall, the development of Technology Leadership of Teachers has gone through multiple stages. Through role appointment, teachers have established a Technology leadership mechanism centered around teachers, which promotes the improvement of their professional competence and literacy, creates dynamic development concepts, and expands the channels for Technology Leadership of Teachers.

Research on Technology Leadership of Teachers Skills. The lack of democratic decision-making in the traditional sense of Technology Leadership of Teachers can easily increase the Communication disorder between teachers and between teachers and students, and also affect the improvement of organizational incentives, which is not conducive to the exertion of teachers' work enthusiasm. The skills of Technology Leadership of Teachers are multifaceted, and existing research has summarized the following aspects of Technology Leadership of Teachers skills:

Viewpoint one: handling emergencies and teamwork skills. Conan S J（2021) proposed that the skills of Technology Leadership of Teachers mainly include harmonious and trusting relationships among colleagues, as well as the ability to handle and analyze unexpected events. Teachers should focus on practicing and advocating for a cooperative culture. Technology Leadership of Teachers should enhance the ability to participate in and make decisions in the curriculum, improve curriculum concepts, promote the improvement of teaching courses, strengthen cooperation mechanisms, and improve organizational culture.

Viewpoint two, personal abilities and specialized skills. Lakomski G, Evers C W（2022) proposed that Technology Leadership of Teachers should improve the cultural construction of schools through professional level, development background, clubs, curriculum, and other aspects. Technology Leadership of Teachers is based on cooperation ability, change ability, personal ability, and specialized skills. The analysis of Technology Leadership of Teachers should be based on distributed theory, combined with teacher practice forms, to explore the essential characteristics of Technology Leadership of Teachers.

Viewpoint three is to assess the situation and execute skills. Abdul E, Santhosh L（2022) proposed that the skills of Technology Leadership of Teachers are based on executive power, supervision of educational abilities, and improvement of target functions, with appropriate responses to the situation, while respecting the views of other team members, in order to make correct decisions. McGinity R, Heffernan A, Courtney S J（2022) proposed that Technology Leadership of Teachers is a behavioral pattern that utilizes school resources to enhance cultural connotations and shift towards curriculum Technology leadership. Technology Leadership of Teachers should be based on career development and school management, shoulder the responsibilities that young teachers should have, assess the situation, and make reasonable decisions.

Viewpoint four:Improve teaching and create learning community skills. Haim S（2022） proposes that the improvement of Technology Leadership of Teachers skills should be carried out through sound evaluation methods and mechanisms, with the aim of improving teachers' professional skills and students' grades, enhancing the connection between parents and schools, emphasizing the improvement of teachers' personal abilities, and improving data analysis and decision-making abilities. Patel M D, Shin A（2022) proposed that Technology Leadership of Teachers should be based on the provision of teaching resources, improve teaching curriculum reform for problematic students, promote sustainable development of schools, improve teaching atmosphere, dare to do challenging things, improve the management form of schools, and transform the management style of school leaders.

Technology Technology leadership of foreign teachers. Document retrieval was carried out through the full-text database, and Technology Technology leadership was set as the key word to search. There were 112 search results by April（2023). Quantifiable analysis results obtained.

The research on "Technology Technology leadership" reached its peak in 2010, with a total of 13 articles, and has shown a continuous increasing trend in recent years.

News has a distribution of 20 entities, including technology Technology leadership and intellectual capital. Below is a detailed description of technology Technology leadership.

Yuting Z, Adams D, Lee K C S（2022) proposed that information-based teaching is an indispensable part of higher education, and information technology also has a significant impact on teachers of professional disciplines. Especially in terms of professional knowledge and skills, professional development models and standards, concepts and cognition, targeted efforts should be made to improve the Technology Technology leadership of professional teachers. Scornavacco K, Kelly M R, Boardman A（2022) Based on the specific situation of English major teachers, this study explores the correlation between information technology and English major teachers. Under information technology, teachers should focus on personal professional ability improvement and growth, improve the overall level of information technology, and pay attention to the development and enhancement of Technology Technology leadership of teachers in rural areas. Rutten L, Doyle S L, Wolkenhauer R, et al.Yumo Z（2022) proposed that teachers should use information technology to enhance the Technology content of relevant courses, improve the evaluation mechanism for online courses, and explore the challenges of improving teacher Technology Technology leadership under information technology through qualitative and quantitative analysis methods. This will promote their own professional development and progress, improve their professional level, and enhance their role as role models, in conjunction with the national "double reduction" policy, Determine the direction for improving teachers' Technology Technology leadership. Fiona K, Howard S 2017 proposed that Technology Leadership of Teachers is based on specific Technology leadership behaviors and ways of exchanging opinions, breaking through traditional culture and barriers, implementing democratic decision-making and teamwork, thus forming a distributed Technology leadership theory and decentralized Technology leadership concept.

Comparing the research status of Technology Leadership of Teachers at home and abroad, it can be found that:

1.Firstly, in terms of theoretical and practical models. Foreign scholars have formed a relatively complete theoretical foundation and practical research model for Technology Leadership of Teachers research. The commonly used theoretical models of Technology Leadership of Teachers include Technology leadership practice model, Technology leadership role practice model, etc. However, the existing analysis models still lack a relatively unified and authoritative analysis model, and there is still a slight lack of practical problems in solving Technology Leadership of Teachers.

2.Secondly, in terms of research methods. The research methods of foreign scholars are more diverse, and research should also be conducted from aspects such as team cooperation, teaching promotion, and school improvement. The perspective of teaching research is more detailed. In contrast, Chinese scholars tend to focus on theoretical research on Technology Leadership of Teachers, and empirical research is not rich enough. The innovation level of research methods is insufficient, and there is a lack of expansion.

3.Thirdly, research on the subject of Technology Leadership of Teachers. Foreign scholars' research on Technology Leadership of Teachers is mostly based on the perspective of appointed Technology leadership. There is a slight lack of research on the role of Technology Leadership of Teachers, and it is based on the analysis of team cooperation from the perspective of teacher subject sustainable development. The research on frontline teachers and vocational teachers has only started in the past two years, and it is not yet mature and complete.

Based on existing literature research results, further refinement and in-depth research are needed on the issue of Technology Leadership of Teachers, especially for the Technology leadership of professional teachers in universities, which requires further refinement and analysis to enrich relevant research content. This paper draws on the methods of questionnaire survey and analysis of existing relevant literature, conducts research on the Technology Technology leadership of teachers majoring in Public art education management at Z University in Guangxi, China, and discusses the influencing factors and improvement strategies, with a view to providing valuable reference for the research of related topics.

CHAPTER III
RESEARCH METHODOLOGY

This chapter gave an outline of the research design and procedure involving "Program to Enhance technology leadership of Teacher in Public Art Education Management into three phases. Each phase was presented in details consisting of steps of procedures and expect outcomes as shown in figure.

According to the 3 kinds of research questions, researcher was conducted 3 phase to investigate the research answers. They were:

Phase 1:Study components and indicators of components and indicators of technology leadership of teachers in Public art education management.

Stage 1 Review literature to summarize components of Technology leadership of teachers in Public art education management.

Stage 2 Evaluation of suitability of components of Technology leadership of teachers in Public art education management.

Phase 2:Explore existence , desired state and PNI of technology leadership of teachers in public art education management.

Phase3:Developing an appropriate program to enhance technology leadership challenge of university Nanning, Guangxi.

Stage 1 In-depth interview with Experts

Stage 2 Develop an appropriate program to enhance technology leadership of teachers in public Art education management.

Stage 3 Evaluation program

Each phase was presented in details consisting of steps of procedures and expected outcomes as shown in figure.

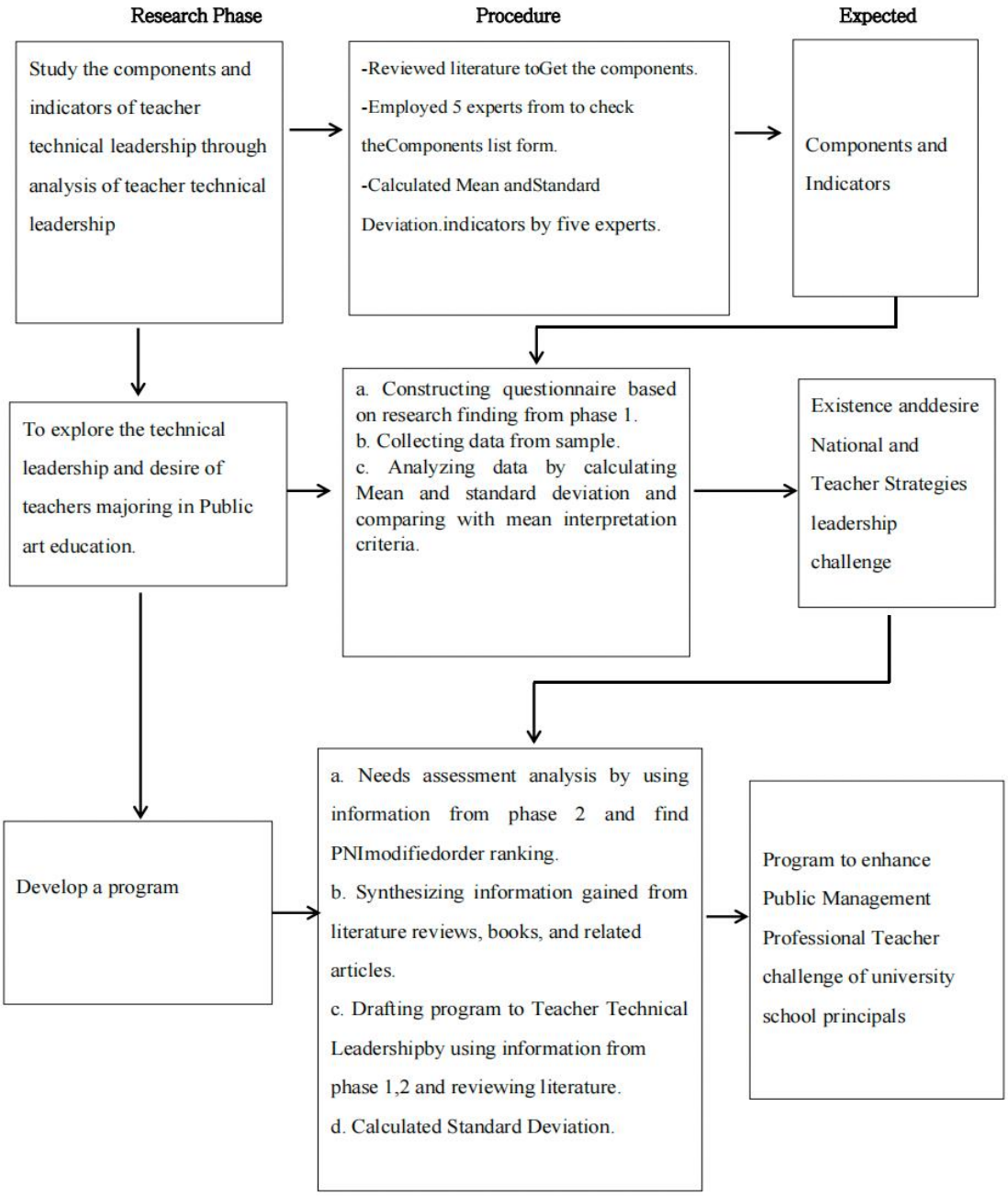


Figure 3 Develop the process of research on improving the technology leadership of teachers in Public art education management

The details of each phase are as follows:

Phase 1 Study components and indicators of components and indicators of technology leadership of teachers in Public art education management.

1.1 Data sources

To investigate the policy implementation component in this research, researcher conducts activities step by step. Evaluating the suitability of the components and technology leadership of teachers in Public art education management. Firstly, the researcher reviewed literature and synthesized to find out the elements and indicators of teachers leadership challenge. Then, the evaluation form included those contents was sent and verified by five experts to check the validity of elements and indicators through Index of Item-Objective Congruence (IOC).

1.2 Five Experts

who were chosen to evaluate and check the validity of

the elements of technology leadership of Teacher in Public Art Education Management. They are the people who have professional knowledge and experiences of educational management, educational research, or educational psychology and educational technology leadership; have master degree at least, and have experience in teaching and advice post-graduate students in the fields mentioned above. The experts' names and qualification are as follows;

（1）Assoc.prof.Dr.Tharinthorn Namwan

（2）Assist.prof.Dr.Karn Ruangmontri

（3）Assoc.prof.Dr.Pacharawit.Chansirisira

（4）Assoc.prof. Dr. Suttipong Hoksuwan;

（5）Assist. Prof. Dr. Prasong Saihong.

1.3 Research Instrument:

1.3.1 Type of Research Instrument

The evaluation form included the elements and indicators of teacher in Public Art Education Management five experts to verify the content validity through Index of Item-Objective Congruence (IOC).

1.3.2 Instrument Construction

The research instrument was constructed in detail as follows: The contents of the elements and indicators of Technology Leadership of Teachers challenge of school principals was synthesized based on the literature review and previous empirical studies related to Technology Leadership of Teachers challenge. Then, the researcher putted the contents.

1.4 Data Collection

In order to collect the data of research, researcher required request letter from the Faculty of Education, Mahasarakham University for asking the permission from the experts to consult evaluation form. This letters will be evidence used to introduce the researcher to the experts and institutions before delivering the evaluation form to experts in order to make collecting data process smoothly, accurately and effectively. Next, the letter and the contents of the elements of Technology Leadership of Teachers challenge was sent to five experts by using the hard copy, by Email and also face to face to discuss to verify and check the content validity, then adjusted them relevantly in order to construct questionnaire form. Researcher obtained all questionnaires within 2 weeks.

1.5 Data Manipulation and Analysis

1.5.1 The researcher proceeds as follows. validate Completeness of the data according to the variables studied.

The questionnaire was assessed by IOC (the index of Item Objective Congruence) which used to find content validity of questionnaire. The IOC was considered as follows:

+1 refers to experts agree with the item responds the content.

0 refers to the contents of the elements and indicators are unsuitable

-1 refers to experts disagree with the contents

1.5.2 Data analysis of the questionnaire, the researcher summarizes, analyzes and synthesizes using content analysis techniques and uses the analytical data to classify items into data analysis tables.

To generate the results of this thesis, the researcher used the statistical package program, called Statistical Package for Social Science (SPSS for Windows) to find Mean score and Standard Deviation for each items of policy implementation

components. The Mean score of three-rating scale was adapted from five-rating scales, and the rank of Mean score categorizes into three as shown below:

Finally, the result of component and indicators of Technology Leadership of Teachers challenge are in level of agreement from five experts.

Phase 2 Exploring the existence, desirable state and strategy of teacher technology leadership challenge of teacher in Public Art Education Management.

The researcher conducted the study by using survey research method with the following research methods.

2.1 Procedure

In this phase, the researcher constructed draft of survey questionnaire based on the elements and indicators that found out from phase 1. in exploring existence and desire state and strategy of Technology Leadership of Teachers. The evaluation form includes questionnaires content was sent and verified by five experts to check the validity of questionnaire. Experts evaluated about the suitability of questionnaire which are important evidence before using to survey.

Afterwards, the researcher obtained the questionnaire for 2 weeks. Then it was analyzed in order to have real questionnaire.

2.2 Population and Sample

To obtain the sample of this study, the researcher was applied the stratified random sampling technique, the criteria such as high and low national examination score and accreditation of teacher and Technology leadership sample. The population size is 45 responsibility of Ministry of Education In addition, the population was involved 675 teachers under Ministry of Education. Then the School Board is 45 people that 45 schools that under responsibility principals. Formula Yamane (1973) is utilized to get sample.

Formula

$$n = \frac{N}{1 + Ne^2}$$

The meanings are

n = sample size

N = population

e = confidence level (95%)

Then the result of sample size is shown in the table

Table 6 Population and Sample

No.	Kind of Population	Total Population	Total Sample
1.	Teacher Leader Principals	45	16
2.	Teachers	675	231
3.	School Boards	45	16
	Total	**765**	**263**

2.3 Research Instrument

2.3.1 Instrument characteristics

The research tool was a questionnaire. Divided into sections, which are:

Part I: Background investigation. This paper investigates the gender, age, teaching experience, education background, professional title, learning background and the frequency of information.

PartII: The five-scale questionnaire and the priority number question form were used as the research instrument was developed based on essential components and indicators of Technology Leadership of Teachers from phase 1 to explore existence state and desire state and strategy Technology leadership of teachers in Public art education management.

5 refers to the level is very high

4 refers to the level is high

3 refers to the level is medium

2 refers to the level is low

1 refers to the level is very low

2.3.2 Instrument construction

The questionnaire form was designed based on the components and

study components and indicators of components and indicators of technology leadership of teachers in Public art education After draft of questionnaire was proposed to the advisor to edit and correct in order to get the accurate questionnaires, then it was sent to 5 experts:

1. Asst. Prof. Dr.Liu ming , Lecturer of Research and Development at Liaoning University. Dean of the Faculty of Education.

2. Dr. Surachet Noirid, Lecturer of Educational Administration and Development at Mahasarakham University.

3.Professor Liu xiaodong, Director of Teaching Management, Nanning Normal University, Guangxi, China

4.Asst. Prof. Dr. Huang Jianyi, Lecturer of Educational Management at Guangxi Normal University for Nationality. Vice Dean of Faculty of Education Management.

5.Dr. Zhang yuhua, Guangxi Normal University Specialist.Director of the Teaching and Research Section of the Faculty of Education.

The researcher used a questionnaire on existences**.** and desirable condition**.**Let experts consider and give opinions on the consistency of the questions using the IOC **(**Index of Congruence**)** technique and select questions with a consistency index greater than or equal to 0.60 Then, the questionnaire was revised based on the experts**'** suggestions and recommendations, and was returned to the adviser to adjust it before trying it out**.** The IOC was considered as follows**:**

+1 refers to experts are agree that the question responds to the content**.**

0 refers to experts are not sure that the question responds to the content**.**

-1 refers to experts are disagree that the question does not respond to the content.

The researcher took the questionnaire and tested it out (Try-Out) to find the discrimination and reliability value.

Index of Congruence(IOC)=0.80-1.00. The discrimination used to find item classification power by finding the simple correlation coefficient between item scores and total scores (Item-Total Correlation) from Pearson's simple correlation coefficient. 0.690 or more by looking at the correlation of item scores and total scores (Item Total Correlation) The researcher took the questions that had discrimination

values to find the confidence values for the entire version using the Cronbach's Alpha Coefficient method, criteria of 0 .921 and above.

Print the complete questionnaire. Then used to collect data from the sample group.

2.4 Data collection

2.4.1 Memo to the Faculty of Education Mahasarakham University Issue a letter asking for cooperation in answering the questionnaire asking for the assistance of collecting data from the specified sample group.

2.4.2 Send the questionnaire to the sample group. The researcher went school in Take Nanning, Guangxi. The researcher distributed questionnaire for 263 people. Then it took back 100% from the sample. Schools are about 25 kilometer form . The researcher verified the validity by rating mean score interpretation and input the data to computer program to get the data output for analyzing.

2.5 Data Manipulation and Analysis

1) Check the number and completeness of returned questionnaires. Data were analyzed using ready-made programs.

2) Bring general information about the status and size of the school. Analyzed using Frequency and Percentage.

3) Take a completed questionnaire for grades.

4) Analyze necessary needs by priority Need of Index

Interpreting the meaning of the scores, the researcher defined the criteria, meaning, mean, using the criteria (Srisa-ard, B., 2010) interpreting the meaning according to the following criteria:

4. 51- 5.00 means existence/desired condition very high level

3. 51- 4.50 mean existence/desirable condition high level

2. 10- 3.50 means existence/desired condition moderate

1. 51- 2.50 means existence/desired condition low level

1. 00- 1.50 mean existence/desirable condition very low level

2.6 Statistics for data analysis

In this research The researchers used statistics to analyze data by computer. By using a statistical package, selecting and analyzing data that is consistent with the aims and using statistics as follows.

5.1 Average (Mean)

5.2 Standard Deviation

5.3 Priority Needs Index = PNI

Formula = (I-D)/D

I refer the average of the condition Should be or Expectation

D refer the average of the actual condition

Modified PNI= (I-D)/D

Where; I was referred to desired state

D was referred to current state

The modified PNI value was normally in the range of 0.00-1.00. The average score of modified PNI was considered as the critical point to determine the performance.

Phase 3 Developing an appropriate program to enhance technology leadership challenge of university Nanning, Guangxi.

3.1 Procedure

In order to assess the existence state and desire state of Technology Leadership of Teachers challenge of university principals, the researcher will use the calculation Mean of existence level minus Mean of desired level. In addition, the needs for technology leadership teacher in student assessment will be analyzed by modifying Priority Needs Index (PNI modified)

3.2 Experts

The key informants were five experts, who had experiences in educational training field or organizing conferences, workshops or training courses was invited to evaluate the possibility and suitability of the program and gave some comments to develop the appropriate program to enhance Technology Leadership of Teachers challenge. The experts' standards were as follows: 1) Have professional knowledge in the field of educational training, educational management, educational research, or

educational psychology; and 2) have doctoral degree at least, 3) have experience in teaching, educational technology leadership and 4) advising postgraduate students in the fields mentioned above. The experts' names and qualification:

1.Dr. Songsak Phusee-On， President of Mahasarakham University.

2.Dr. zhang yuhua, Guangxi Normal University Specialist.Director of the Teaching and Research Section of the Faculty of Education.

3.Professor Liu xiaodong, Director of Teaching Management, Nanning Normal University, Guangxi, China

4.Asst. Prof. Dr. Zhao Fucai,Vice President of Psychological Science Phetchabun Liaocheng University.

5.Dr. Surachet Noirid, Lecturer of Educational Administration and Development at Mahasarakham University.

3.3 Research Instrument

3.3.1 Type of Research Instrument

The evaluation form was designed and used to ask 5 experts in order to collect the primary data. The evaluation form was divided into two parts as follows:

Part 1: (there- scales close-ended questions): The questionnaires focused on the suitability and possibility of the program in order to implement to enhance Technology Leadership of Teachers Challenge of Technology Leadership of Teachers.

Part 2: (Open-ended questions): The questionnaires focused on asking 5 experts' comments to develop program completely to enhance teachert echnology leadership challenge .

3.2.2 Instrument Construction

The research instrument was constructed in detail as follows:

3.2.2.1 The evaluation form was used to ask 5 experts which are developed based on the findings of existence and desired state of Technology Leadership of Teachers challenge of school principals development in Nanning University review of program.

3.2.2.2 After completing study in step 1, the evaluation form was designed based on the components of program to enhance Technology Leadership of Teachers challenge of Nanning Iniversty the suggestion of advisor.

3.2.2.3 The draft of evaluation form was proposed to the advisor to edit and correct in order to get an accuracy.

3.2.2.4 Finally, the evaluation form was proposed to 5 experts in order to collect data.

3.4 Data collection

The researcher collects data. (Describe methods for collecting data, such as coordinating with experts. conduct an interview The details are as follows.

3.4.1 Prepare a letter asking for cooperation from the Faculty of Education to experts.

3.4.2 Submit a letter requesting cooperation thesis outline and a structured interview form to the experts to ask for assistance in giving an interview

3.4.3 Coordinate with experts to request an interview date and time.

3.4..4 Interview on the appointed date and time.

The researcher started to deliver the evaluation form to experts after the form was completely finished. By the time of delivering manual, the researcher attached the evaluation form with it. The next responsibility after delivering the forms for the researcher was to follow up with each expert and to also get the forms back on the expected date. At the same time of delivering the evaluation form, the interview section was conducted.

At the time of getting evaluation forms back, the researcher carefully checked the evaluation form to guarantee that all information was completed. Researcher required the approval letter from the Faculty of Education, Mahasarakham University before starting the data distribution process. In order to make data collection process effectively and objectively, the request letter was attached with the evaluation form and sent to respondents. The data was distributed by hard copy in which given directly to the experts and also sent evaluation form to the experts through their email. The researcher will receive the data through email or collect complete papers by meeting directly to the experts. And then researcher obtained draft back within one week.

3.5 Data Manipulation and Analysis

Validate analyze data and interpret data. Criteria by using the mean interpretation criterion (Boonchom Sri-saard, 2010).

In this phase of research, software program was used to analysis of collecting data. The evaluation form with two parts was used to ask experts to evaluate the system. The content analysis was used to analyze qualitative data from some suggestions of experts about components of program in specific and in general to develop completely the program. This analysis was used descriptive statistic to quote some comments of experts to develop the appropriate program to enhance Technology Leadership of Teachers challenge of principals.

The researcher invited experts to check the evaluation form based on three criteria: Expert's agreement to use Programme is "Strongly agree" refers to 5 Expert's agreement to use Programme is "Agree" refers to 4

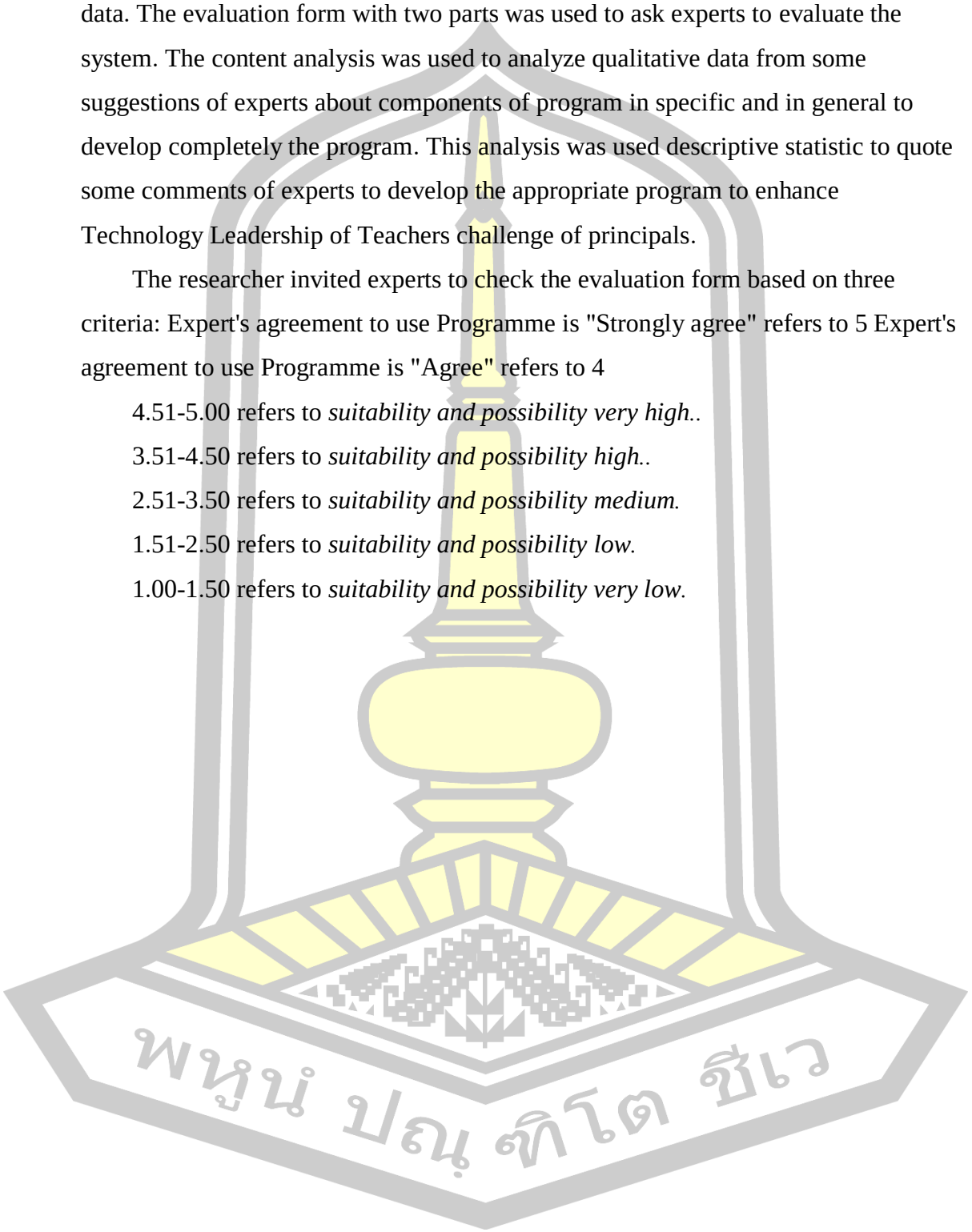
4.51-5.00 refers to *suitability and possibility very high..*

3.51-4.50 refers to *suitability and possibility high..*

2.51-3.50 refers to *suitability and possibility medium.*

1.51-2.50 refers to *suitability and possibility low.*

1.00-1.50 refers to *suitability and possibility very low.*



CHAPTER IV
RESULT OF DATA ANALYSIS

Presentation of results of analysis of research data on Program to enhance technology leadership of teachers in Public Art Education Management Take Nanning, Guangxi, the researcher presents the order of presentation as follows:

1. Symbols used in data analysis
2. Sequence of steps in presenting data analysis results
3. Results of data analysis

Symbols used in data analysis

Presentation of data analysis results and interpretation of data analysis results. The researcher defined symbols representing various meanings as follows:

$\overline{X}$	Average
S.D.	Standard deviation
N	Number of samples
D	Existence condition
I	Desired condition
$PNI_{modified}$	Priority Need Index

The sequence of steps in presenting data analysis results

The researcher studied documents, principles, and concepts of academics related to the development of technology leadership of teachers in Public Art Education Management Take Nanning, Guangxi, the researcher presents the results of the research data analysis in 3 phases, in the following order.

Phase 1: Investigate the components of Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi.

Phase 2: To explore the existence condition, desired condition, and priority needs of Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi.

Phase 3: Develop a program to enhance Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi.

Data analysis results

Phase 1: Investigate the components of Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi.

1) The results of the research found that technology leadership has the following components: 1) Technology vision 2) Technology competence 3) Technology professional development 4)Technology integration.

2) The results of the evaluation components of technology leadership research found that adaptive leadership had suitability as shown in Table 7

Table 7 Mean and standard deviation of Components of Technology Leadership of Teachers

Items	Components of Teacher Technology Leadership	x̄	S.D	Interpret
1.	Technology vision	4.60	.49	Very high suitability
2.	Technology competence	4.60	.48	Very high suitability
3.	Technology professional development	4.40	.44	Very high suitability
4.	Technology integration	4.80	.40	Very high suitability
	Total	4.60	0.16	Very high suitability

From the table mean and standard deviation of Components of Technology Leadership of Teachers found that the component of Technology Leadership, adjusted according to the opinions of experts, was overall at the very high ($\bar{X}$=4.60) When the order of the components of the average from highest to lowest is Technology integration ($\bar{X}$=4.80), Technology vision and Technology competence ($\bar{X}$=4.60), and Technology professional development ($\bar{X}$=4.40) in order.

Phase 2 : Explore of existence conditions, desirable conditions and priority needs of Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi.

Results of existence conditions, desirable conditions, and priority needs index for the results are shown in Table 8

Table 8 Shows the average, standard deviation of of Existence, desirable conditions, and priority needs index of Technology Leadership of Teachers

Components	Existence			Desired condition			PNI	Rank
	$\bar{X}$	SD	Interpret	$\bar{X}$	SD	Interpret		
1.Technology vision	3.45	1.23	medium	4.77	0.46	Very High	0.38	4
2.Technology competence	3.46	1.25	medium	4.80	0.39	Very High	0.39	3
3.Technology professional development	3.44	1.22	medium	4.85	0.35	Very High	0.41	1
4.Technology integration	3.42	1.22	medium	4.82	0.41	Very High	0.40	2
Total	3.44	1.23	medium	4.81	0.40	Very High	0.40	/

From the table 8 , it is found that the Existence of the technology leadership were overall at a moderate level ($\bar{X}$=3.44), When considering each aspect Arranged in descending order, including Technology competence ($\bar{X}$=3.46), Technology vision ($\bar{X}$=3.45), Technology professional development ($\bar{X}$=3.44), and Technology integration ($\bar{X}$=3.41), in order.

Table 9 The results of existence, desired condition and PNI of Technology vision

Item	Question	Existence		Desired		PNI	Rank
		$\overline{X}$	SD	$\overline{X}$	SD		
1	Have a correct understanding of technology leadership	3.10	1.147	4.01	1.248	0.294	8
2	Have a strong sense of the importance of technology	3.48	0.905	4.56	0.965	0.310	5
3	Recognize technology as the trend of future education development	3.04	1.106	4.00	1.216	0.316	3
4	Have a strong sense of teaching in terms of educational development	3.29	1.091	4.62	1.212	0.404	1
5	Correctly understand the relationship between technology and education development	3.15	1.115	3.94	1.289	0.251	10
6	Technology leadership has an impact on teaching work	3.07	1.065	4.08	1.140	0.329	2
7	Have a certain understanding of technology leadership	3.07	1.119	3.97	1.228	0.293	7
8	Understand the theoretical principles of technology leadership	3.08	1.120	4.00	1.194	0.299	6
9	Have a strong desire to learn technology leadership	3.01	1.114	3.95	1.239	0.312	4
10	Have a positive attitude towards technology	3.12	1.159	3.98	1.249	0.276	9
Total		3.14	1.094	4.11	1.198	0.304	/

It can be seen from Table 9 that the existence of Technology vision , No.2 have a strong sense of the importance of technology has the highest average($\overline{X}$=3.48), and No.9 have a strong desire to learn technology has the lowest average($\overline{X}$=3.01).The desire of Technology vision , and No.5 correctly understand the relationship between technology and education development has the lowest average.

The result of existence and desired condition of Technology vision, from high to low in terms of PNI value, the top three are No.4 Have a strong sense of teaching in terms of educational development,No.6 technology leadership has an impact on teaching work and No.3 recognize technology as the trend of future education development.

Table 10 The results of existence, desired condition and PNI of Technology competence

Item	Question	Existence		Desired		PNI	Rank
		$\bar{X}$	SD	$\bar{X}$	SD		
1	Ability to clearly search for the information you need	3.08	1.120	4.00	1.194	0.299	8
2	Ability to keenly find needed teaching resources	3.01	1.114	3.95	1.239	0.312	5
3	Able to use teachers' technology leadership to create a professional atmosphere	2.99	1.159	3.98	1.249	0.331	3
4	Proficient in processing and sharing tools such as projection and ppt	3.11	1.153	3.98	1.171	0.280	10
5	Be able to skillfully apply technology to develop teacher resources	2.97	1.155	4.45	1.173	0.498	2
6	Proficient in using the evaluation system to record and evaluate teachers' technology performance	3.09	1.141	4.05	1.149	0.311	6
7	Ability to evaluate educational effectiveness	3.05	1.133	4.06	1.167	0.331	3
8	Proficient in using Internet-based communication tools	3.13	1.076	4.06	1.190	0.297	9
9	Use technology skills proficiently to improve educational goals	3.06	1.067	4.00	1.199	0.307	7
10	Easily complete educational design	2.95	1.120	4.53	1.147	0.536	1
Total		2.73	1.124	4.11	1.188	0.348	/

It can be seen from Table 10 that the existence of Technology competence , No.8 proficient in using Internet-based communication tools has the highest average, and No.10 easily complete educational design has the lowest average.The desire of Technology competence , No.10 easily complete educational design has the highest average, and No.3 able to use teachers' technology leadership to create a professional atmosphere has the lowest average.

The result of the existence and desired condition of Technology vision, from high to low in terms of PNI value, the top three are No.10 easily complete educational design ,No.5 be able to skillfully apply technology to develop teacher resources and No.7 ability to evaluate educational effectiveness.

Table 11 The results of existence, desired condition and PNI of Technology professional development

Item	Question	Existence		Desired		PNI	Rank
		$\bar{x}$	SD	$\bar{x}$	SD		
1	Ability to use teaching needs to clarify teaching goals	3.10	1.089	4.06	1.195	0.310	5
2	Proficient in using tools for educational development	3.11	1.107	4.10	1.166	0.318	3
3	Ability to clarify learning steps according to educational goals	3.10	1.140	3.97	1.221	0.281	7
4	Easily carry out classroom teaching activities	3.08	1.086	4.07	1.152	0.321	2
5	Ability to predict performance after the completion of the practice plan	3.08	1.138	3.94	1.195	0.279	9
6	Ability to plan educational activities and knowledge presentation methods well	3.04	1.132	3.99	1.246	0.313	4
7	Use leadership technology to complete educational evaluation	3.10	1.142	3.99	1.232	0.287	6
8	Be able to correctly evaluate teachers' technology learning status	3.12	1.152	3.96	1.292	0.269	10
9	Able to reflect on and improve problems in education	3.14	1.053	4.02	1.223	0.280	8
10	The professional ideal is to strive to improve the technology leadership level of teachers.	3.34	1.142	4.42	1.164	0.323	1
Total		3.12	1.118	4.05	1.209	0.298	/

It can be seen from Table 11 that the existence of Technology professional development, No.10 the professional ideal is to strive to improve the technology leadership level of teachers has the highest average, and No.6 ability to plan educational activities and knowledge presentation methods well has the lowest average.The desire of Technology professional development, No.10 the professional ideal is to strive to improve the technology leadership level of teachers has the highest average, and No.5 ability to predict performance after the completion of the practice plan has the lowest average.

The result of the existence and desired condition of Technology professional development, from high to low in terms of PNI value, the top three are No.10 the

professional ideal is to strive to improve the technology leadership level of teachers ,No.4 easily carry out classroom teaching activities and No.2 proficient in using tools for educational development.

Table 12 The results of existence, desired condition and PNI of Technology integration

Item	Question	Existence		Desired		PNI	Rank
		$\bar{X}$	SD	$\bar{X}$	SD		
1	Understand the school's development goals and education setting standards	3.09	1.118	4.03	1.228	0.304	5
2	Education plans will be determined based on the development vision	3.14	1.136	4.02	1.181	0.280	7
3	Put forward your own opinions on equipment procurement	3.11	1.111	4.03	1.179	0.296	6
4	If there is a lack of teaching software and hardware, the school can solve it in time	3.09	1.118	3.91	1.207	0.265	10
5	Able to jointly manage the educational resource library with colleagues	3.05	1.119	4.03	1.198	0.321	4
6	Ability to keenly find needed teaching resources	3.00	1.123	4.00	1.166	0.333	1
7	Consciously realize the integration of education and life	3.03	1.093	4.03	1.173	0.330	2
8	Interest in improving teachers' abilities with the help of teachers' technology leadership	3.07	1.147	3.90	1.207	0.270	8
9	Actively comply with and participate in formulating school policies	3.05	1.062	4.04	1.154	0.325	3
10	Able to use teachers' technology leadership to supervise the teaching process	3.09	1.128	3.92	1.231	0.267	9
Total		3.07	1.116	3.99	1.192	0.266	/

It can be seen from Table 12 that the existence of Technology integration, No.2 education plans will be determined based on the development vision has the highest average, and No.6 able to use teachers' technology leadership to create a professional atmosphere has the lowest average.The desire of Technology integration, No.9

actively comply with and participate in formulating school policies has the highest average, and No.8 interest in improving teachers' abilities with the help of teachers' technology leadership has the lowest average.

The result of the existence and desired condition of Technology professional development, from high to low in terms of PNI value, the top three are No.6 Able to use teachers' technology leadership to create a professional atmosphere ,No.7 consciously realize the integration of education and life and No.9 actively comply with and participate in formulating school policies.

3. The results of in-depth interview on existence of technology leadership of teaches in Nanning University, Guangxi

Technology Leadership of Teachers is defined as: teachers integrate and integrate their information technology literacy, abilities and technology resources into leadership behaviors, promote teachers and students to learn and apply technology, use information technology to improve teaching quality, and enhance administrative efficiency, in order to achieve organizational goals A capacity for goals and vision. In the intelligent era supported by new technologies such as artificial intelligence, big data, and 5G as the core, teacher technology leadership is a key factor affecting the development of school informatization. The following is a compilation and summary of the interview content:

Principal A says: Currently, teachers majoring in public art at University in Nanning, Guangxi, China have a shallow understanding of technology leadership. They only understand the general components of technology leadership, and their understanding of relevant theories is not yet in-depth. With the further development of technology, it is undeniable that technology has been integrated into our lives. Therefore, improving teachers' technology leadership is an option to adapt to future education trends. As university administrators, we have an obligation to help teachers improve their ability to apply technology to teaching.

Principal B points out: Most teachers generally believe that the use of technology methods in practice can greatly improve the efficiency of the classroom. In the daily class process, teachers will use multimedia courseware, micro-lecture videos, audio and other resources to assist in explanations. These resources are all sourced from university resource libraries or the Internet. But only a small proportion of teachers

have established a library of information resources related to technology leadership, this is an issue that requires managers' attention and guidance.

Principal C says: For the modern equipment equipped in schools, most schools will provide training on the new equipment so that teachers can become familiar with its operation. And more than half of teachers use the Internet to teach themselves about technology leadership in their spare time. At present, nearly 80% of schools have not held teacher technology ability competitions, and they generally provide technology ability training. My personal suggestion is that there should be a technology ability competition to stimulate interest in improving technology ability. If you just do training, the effect is not that good.

Principal D talks about : The technology leadership has been mentioned frequently in the education community in recent years. With the development of the times, more requirements have been placed on teachers. In the past, teachers only used chalk to write teaching content on the blackboard, but now teachers have to flexibly use various technology devices, download teaching resources from the Internet, use audio or video to assist teaching, and so on. Therefore, for teachers, improving technology leadership is a requirement of education. At present, our universities do not pay enough attention to the improvement of teachers' technology leadership. In the long run, this will restrict the development of teachers and hinder the further improvement of Chinese education.

Many interviewees said that technology leadership has become one of the key indicators to improve the competitiveness of schools. Leaders of major universities are paying more and more attention to cultivating and improving teachers' technology leadership. The main methods include inviting experts to give special lectures, Organize teachers for training, establish technology leadership groups, etc.

Phase 3: Develop a program to enhance Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi.

1. The results of the study of or In-depth interview with experts on key issues in adaptive leadership development. Adjusting using the 70:20:10 Learning Model. Experts have consistent opinions on using the 70:20:10 Learning Model in developing the adaptive, as in the following statement.

1.1 Principle of technology leadership development.

“...The cultivation of self-leadership must have a clear goal. With a goal, actions will have a direction, and you can constantly compare your actions with the goal, and clearly know your progress speed and distance from the goal. On the contrary, If there is a lack of goals, actions will lose direction and effective self-management cannot be formed...."

(1st teachers, November17, 2023: interview)

“...Based on the principle of plan feasibility, I believe that the plan made by an individual should be able to adapt to his own physical and mental characteristics and endurance, and should be a combination of near and far, high and low, large and small, and light and heavy. The first is to prioritize tasks and arrange time reasonably; the second is to grasp the main contradictions and main aspects of contradictions; the third is to distinguish between routine work and non-routine work; the fourth is to combine one's own quality and ability level with development requirements. Develop a feasibility plan..."

(Second teachers, December 9, 2023: interview)

1.2 Methods of technology leadership development

“...I believe that we need to establish a goal-oriented learning mechanism, set personal learning goals based on the roles and responsibilities of technology leaders, and clarify the technology areas, skill requirements and management methods that need to be mastered, so as to improve their technology capabilities and leadership..."

(1st teachers, November17, 2023: interview)

“...I believe that we should participate in practical projects, accumulate experience and improve technology leadership by participating in actual technology projects or leading teams to carry out technology innovation practices..."

(Second teachers , December 9, 2023: interview)

“...To seek guidance from mentors, look for mentors with rich experience and professional knowledge to provide one-on-one coaching and guidance, provide targeted learning suggestions and development plans, and promote the improvement of technology leadership..."

"...Participate in trainings and seminars and actively participate in training courses, seminars and academic conferences in related fields to broaden your horizons and gain practical experience and skills..."

(School administrator number 3, December 22, 2023: interview)

1.3 Content of technology leadership development

"...leadership and management skills,As a technology leader, you must not only be technologyly authoritative, but also have the ability to lead and manage a team. This includes: setting goals, assigning tasks, coordinating resources, motivating team members, communication and negotiation, etc..."

(1st teachers, November17, 2023: interview)

"...Innovation ability. In the rapidly developing technology field, innovation ability is an important quality that technology leaders must possess. Innovation is not only the development of new technologies, but also the improvement and optimization of existing technologies..."

(Second teachers, December 9, 2023: interview)

1.4 Development process of technology leadership

"...I believe that the development process includes an initial stage: at this stage, university teachers have not yet formed a clear understanding and goals for the development of technology leadership; Knowledge accumulation stage: In this stage, teachers begin to systematically learn and accumulate technology knowledge, and continuously expand their knowledge reserves;Practical application stage: Teachers begin to try to apply this knowledge to actual teaching. They may explore new teaching methods and introduce new technology tools. This stage is a critical period for teachers to transform theoretical knowledge into practical abilities..."

(1st teachers, November17, 2023: interview)

"...I think the development process includes the initial stage: at this stage, college teachers have not yet formed a clear understanding and goal of the development of technology leadership; the leadership development stage: teachers

begin to actively learn and develop abilities in this area, such as setting goals and assigning Tasks, team building, etc.; Maturity stage: After continuous learning and practice, teachers' technology leadership gradually reaches a mature state..."

(Second teachers, December 9, 2023: interview)

"...I think it includes the knowledge accumulation stage: in this stage, teachers begin to systematically learn and accumulate technology knowledge, and constantly expand their knowledge reserves; the practical application stage: teachers begin to try to apply this knowledge to actual teaching; the leadership development stage: teachers Gradually realize that technology leadership is not limited to the mastery of technology knowledge, but also includes leadership and management capabilities..."

(Third teachers, December 17, 2023: interview)

1.5 Evaluation of technology leadership development

"...The evaluation of technology leadership development is an important part of ensuring the continuous development and improvement of teachers' technology leadership. Set clear technology leadership development goals and evaluate them against reality. The focus of the evaluation includes whether the expected goals are achieved, whether the tasks are completed within the scheduled time, the quality of the project, etc..."

(1st teachers, November17, 2023: interview)

"...Conduct a comprehensive assessment of technology leadership by gathering feedback from superiors, peers, subordinates, and other relevant parties; Combining self-assessment with assessment by others can provide a more comprehensive understanding of your own technology leadership status..."

(Second teachers, December 9, 2023: interview)

Obtaining relevant professional certifications or participating in training courses is also one of the basis for evaluating technology leadership development. These records can demonstrate teachers' knowledge and skill levels in specific areas, and assessing technology leadership development requires a comprehensive consideration

of multiple factors and methods to ensure the accuracy and reliability of assessment results.

(Third teachers, December 17, 2023: interview)

2. Formulation or constructed programs to Enhance Technology Leadership program. of administrators Under the jurisdiction of the Public Art Education Management in Nanning, Guangxi.

Part 1: Introduction to the Technology Leadership program. of Public Art Education Management in Nanning, Guangxi, the program components are as follows:

1. Principle

In the current era known as VUCA, the world is experiencing inherent uncertainty and rapid change. technology advances and a fiercely competitive environment prompt organizations to continuously adapt to changes in the external and internal environment, and economic developments further exacerbate these challenges. Against this background, teachers are facing pressure to transform teaching and management methods to keep pace with the times. Educational leaders need their revised strategic direction to ensure that teachers can effectively respond to these challenges and be prepared to deal with future changes. In this dynamic environment of teachers play a vital role. Not only are they key decision-makers driving innovation and change, but their decisions will directly impact the institution's ability to adapt to change, whether in a positive educational direction or not. Therefore, in order to lead effectively in a VUCA world, leaders need to exercise a high degree of educational leadership.They must be forward-thinking and strategic-thinking, able to guide the organization's continued development and move steadily forward amid change. This requires educational leaders to have the ability to flexibly adapt to changing circumstances, manage teamwork effectively, build strong relationships, and be able to find common ground within cultural diversity. They need to possess a high degree of foresight to be able to adapt strategies to meet future challenges, anticipate changes and develop effective strategies to achieve educational

goals, ensuring schools can remain competitive and relevant in an ever-changing environment.

2. Objective

2.1 To enhance knowledge and understanding of the principles of technology leadership development.

2.2 To Enhance the Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi, which has 4 components: Technology vision,Technology competence,Technology professional development,and Technology integration.

2.3 For teachers that receive development have technology leadership and be able to apply knowledge and experience to use in the teaching process.

3. Content

The program to enhance the Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi, has a content scope divided into 4 Modules include

Topic 1 Technology vision : Module 1

Technology vision refers to the ability to foresee and understand technology trends and how these trends will impact the field of education. This requires teachers to understand the latest technology developments and be able to combine these trends with educational practices to explore their potential and applications in education.

For teacher technology leadership, the importance of Technology Vision is mainly reflected in the following aspects:

(1) Guiding the development direction: A teacher with "Technology Vision" can provide guidance for the development direction of education. They are able to foresee future trends and formulate far-sighted strategies for the development of education.

(2) Promote innovation: Teachers with "Technology Vision" can gain insight into the possibilities of technology, thereby promoting innovation in education and the improvement and upgrading of teaching methods.

(3) Improve teaching quality: By grasping technology development trends, teachers can use the latest technology tools to improve teaching quality and improve students' learning effects.

(4) Build future competitiveness: In today's era of rapid technology development, teachers with "Technology Vision" can help students build future competitiveness. They are able to anticipate future career needs and provide students with the skills and knowledge to adapt to future developments.

Therefore, "Technology Vision" is not only an important part of teachers' technology leadership, but also a capability that teachers must possess in the modern educational environment.

Topic 2 Technology Competency: Module 2

technology ability refers to teachers' ability to understand and use various educational technologies. For modern teachers, mastering these technology abilities is a necessary condition for effective teaching.

The importance of technology capabilities is mainly reflected in the following aspects:

(1) Improve teaching effects: Teachers who master educational technology can use technology to optimize the teaching process and improve teaching effects.

(2) Promote innovative teaching: Teachers with technology abilities can try new teaching methods and technologies to promote educational innovation.

(3) Improve teachers’ professionalism: With the development of educational technology, teachers’ professionalism also includes the ability to master and apply educational technology.

(4) Meet students’ learning needs: In the digital era, students’ expectations and demands for technology are growing day by day.

In summary, technology ability, as a basic component of technology leadership, has an important impact on teachers' professional development and teaching quality.

Topic 3 Technology professional development: Module 3

The meaning of technology professional development is that teachers continuously improve their technology knowledge and skills through continuous

learning and growth to adapt to the rapid development and changes of educational technology.

The importance of technology professional development is mainly reflected in the following aspects:

(1) Coping with technology changes: Through technology professional development, teachers can understand and master new educational technologies in a timely manner, so as to better respond to changes in the educational environment.

(2) Improve teaching quality: Teachers with technology professional development awareness can use more advanced educational tools and methods to improve teaching quality and better meet students' learning needs.

(3) Enhance teachers' technology leadership: Through continuous learning and practice, teachers can better play the role of technology in teaching and management and promote technology innovation and progress in schools.

(4) Promote teachers' professional development: technology professional development not only improves teachers' technology abilities, but also provides more opportunities for teachers' professional development.

(5) Leading the technology culture of the school: Teachers with technology professional development awareness can influence the technology culture of the entire school.

By providing continuous learning and development opportunities, teachers are encouraged to continuously improve their technology knowledge and skills to adapt to the rapidly developing educational environment and make greater contributions to the innovation and development of education.

Topic 4 Technology integration: Module 4

Technology professional development refers to teachers' continuous learning and growth in the field of technology and how to apply this knowledge and skills in practical teaching and management.

The importance of technology professional development is mainly reflected in the following aspects:

(1) Teachers need to constantly learn new technology knowledge and skills and understand the latest educational technology trends and developments. This attitude and ability of continuous learning is a key component of teachers' technology leadership. It can help teachers better respond to changes in the educational environment and improve teaching quality and effectiveness.

(2) technology professional development teachers need to have the ability to combine technology with teaching, be able to select appropriate technology tools and platforms based on teaching content and goals, optimize the teaching process, and improve teaching effects.

(3) Teachers also need to master skills in how to use technology for student management, teaching resource management and school information management to improve the efficiency and level of school management.

(4) technology professional development is also of great significance to teachers' career development and improvement of personal competitiveness. At the same time, teachers can also further expand their career development space through technology professional development and lay the foundation for personal career planning and development.

To sum up, technology professional development is an important part of teachers' technology leadership and is of great significance to improving teachers' professional quality and career development.

4. Development process

4.1 Principles of development

From the study and synthesis of documents from academics and educators, the concept of 70 : 20 : 10 learning is Lawson (2008), Aporn Phuvitayaphan, (2016), Patchara Wanichawasin (2017), and Sutham Thamtasananon (2020) consists of 3 important learning principles:

1. 70% Learning from experience (70% Learning Model)

It is a form of learning that occurs through work experience through seeing or touching real things in real work areas. or operations that are actually in the field

Makes teachers quickly aware Effective perception leads to effective learning as well. This is because teachers will take events or stories that they have learned to lead to remembering. and displaying that behavior It is like a guideline or bridge (Experience is the Bridge) between practice (Practice) and concepts, principles, or theories (Concept/Theory). that a person already has or has received more This causes awareness or accumulated experiences to increase, leading to learning, imitating, and acting according to the behavior that was followed from the past therefore changes. Go according to the new experiences you receive. This leads to the creation and birth of new behaviors or new competencies of school administrators that affect the work assigned to them more efficiently. The personnel development tools used in this learning approach will focus on tools that are not classroom training.

2. 20% Learning from others (20% Learning Model)

It is a form of learning that occurs from others (Learn by Others). Whether it is a direct supervisor indirect supervisor Colleagues within the agency Colleagues from different departments, subordinates, etc. It is learning that occurs from conversation. Consultation Exchange of information between each other This requires the basis of having a good relationship between two or more conversation partners by making an appointment to talk. and exchange views with each other at times convenient for both sides. The development tools used are focused on personnel development tools that are not classroom training tools.

3. 10% Learning through the curriculum (10% Learning Model)

It is a learning format that focuses on classroom training (Classroom Training) combined with learning that focuses on tools that are not classroom training.

(Non-Classroom Training) whether it is through e-learning media and various documents. Studying through programs or courses that have already been prepared. This is another form of development that is important and necessary and the organization cannot cancel this form of learning. To create integrated learning and result in real learning for the learner.

4.2 Development methods/activities

Ways to strengthen technology leadership of school administrators and teachers are as follows:

4.2.1 70% Learning by Experience

It took a period of 63 hours using the following development methods. Template tracking/observation takes 32 hours.

1. Meet and talk activities Exchange experiences in technology leadership (Module 1)

2. Activities to follow up on the performance of teachers in competency (Module 2)

3. Activities to follow up on the performance of teachers in Technology professional development (Module 3)

4. Meet and talk activities Exchange integration experiences (Module 4)

The assignment lasts 31 hours.

1. Project writing and technology leadership plan activities (Module 1)
2. Activities to present project work on competency(Module 2)
3. Technology professional development activities (Module 3)
4. Integration building activities (Module 4)

4.2.2 20% Learning by Others takes time.

18 hours using the following development methods

4.2.2.1 Coaching (8 hours)

1. Technology leadership learning activities (Module 1)
2. Multicultural learning interaction activities (Module 3)
3. Group discussion activity on integration (Module 4)

4.2.2.2 Networking (10 hours)

1. Learning network activities in technology leadership (Module1)
2. Competency building discussion activity (Module 2)
3. Technology professional development activities (Module 3)

4.2.3 10% Learning through courses (Learning by Courses)

Takes 9 hours to use the following development methods.

4.2.3.1 On-the-job training (9 hours)

1. Technology leadership training activities (Module 1)
2. Competency training activities (Module 2)
3. Technology professional development training activities (Module 3)
4. Integration training activities (Module 4)

5. Measurement and evaluation

5.1 Evaluate before development. By evaluating leadership changes before It was developed using the Technology Leadership Assessment for school administrators and teachers.

5.2 Evaluation during development. By evaluating group activities Evaluate the exchange of technology, evaluate worksheets, evaluate assigned tasks, and evaluate satisfaction with development activities. Using a satisfaction assessment of the leadership development program.

5.3 Evaluate after development. By evaluating technology leadership after being developed using the technology leadership assessment form for school administrators and teachers.

The researcher summarizes the details of the draft program to strengthen enhance Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi. as shown in Table 13

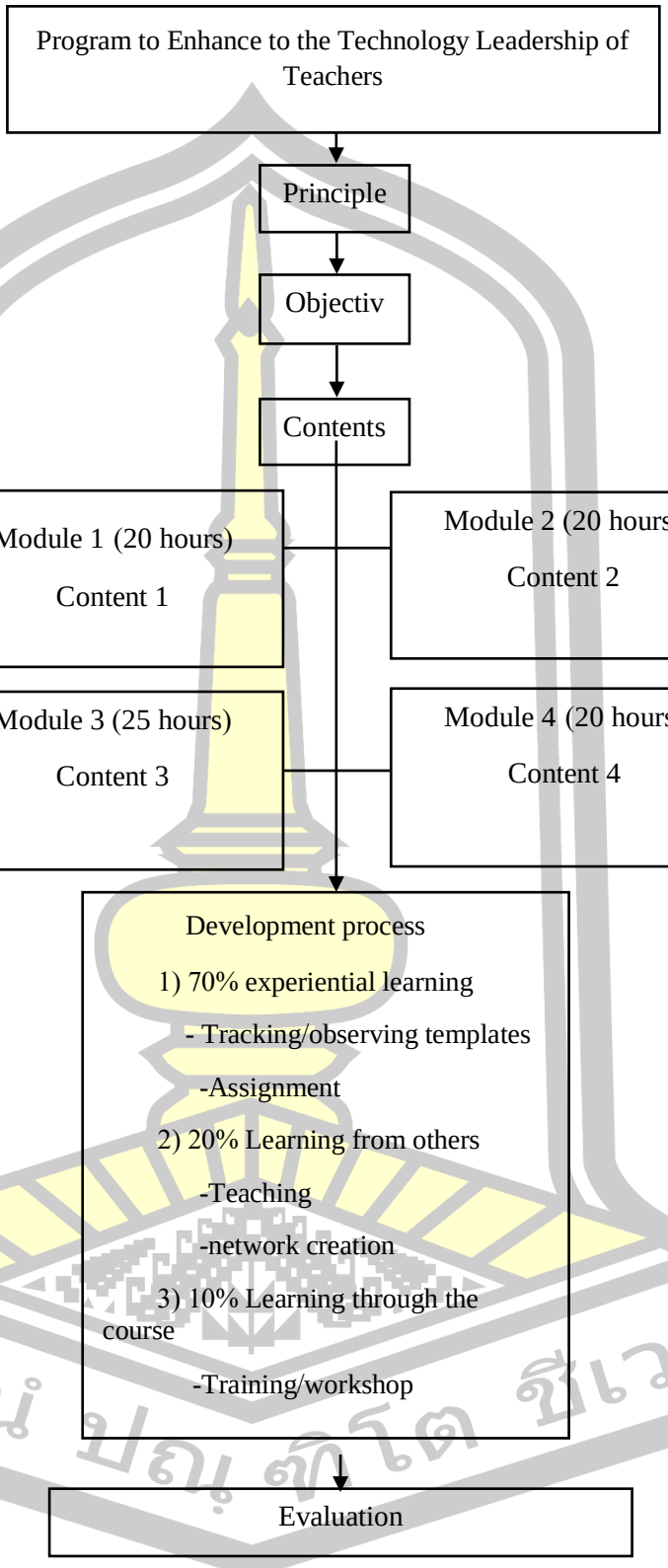


Table 13 program to enhance Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi.

Part 2 Details of the program content to enhance Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi, the program components are as follows:

1. Module 1: Technology vision

1.1 Principles

Technology vision is the behavior of teachers who can manage the Technology vision of the teachers. By creating Technology Collection of existing Technology in the organization to develop it into a system. so that everyone in the organization can access Technology and develop oneself to be a technology person Share and spread Technology vision Able to use that vision and manage Technology teachers information To help make decisions and increase the efficiency of teachers' work. Today's world is changing rapidly. If teachers want to survive and grow sustainably, they need to leader their environment well. To create a systematic learning community of personnel. By using the Technology and experience of efficient personnel to vision Technology as a tool for human resource development. and bring that Technology.

Let's develop the organization for sustainable growth. To apply ideas in Technology and people leadership to achieve efficiency. Increase technology in vision to develop the quality of education.

1.2 Objectives

To enhance Technology vision and understanding of the principles of technology vision development. Enhancing the technology vision of Teachers in Public Art Education Management Take Nanning, Guangxi, which has 4 components: Technology vision,Technology competence,Technology professional development,and Technology integration. Teachers receive development have technology vision and be able to apply knowledge and experience to use in the teaching process.

1.3 Content

1.31 Meaning and importance of learning organizations and Technology vision .

1.3.2 Steps in the Technology vision process.

1.3.3 Tools for storing and gathering Technology vision.

1.3.4 Implementation of Technology vision of teachers.

1.4 Development process Technology vision of teachers.

The details are shown in Table 14

Table 14 Development process Technology vision of teachers.

Development methods	**Development activities**
Learning by Experience: 14 hours	
Job shadowing/observation (8 hours)	Meet and greet activities Exchange experiences in Technology vision
Assignment (6 hours)	Project writing and Technology vision plan activities
Learning by Others: 4 hours	
Coaching (2 hours)	Technology vision learning activities by following up on Technology vision operations in teachers of training by people with expertise In the field of Technology vision
Networking (2 hours)	Learning network activities in Technology vision by participating in meetings and discussing and exchanging ideas and practices regarding Technology vision in teachers.
Learning by Courses takes 2 hours.	
Training/Working (2 hours)	Technology vision learning activities.There is a sequence of steps as follows: 1.Administrator to provide technology by administrator including: - Meaning and importance of Technology vision - Technology vision process - Tools for storing and gathering technology 2. Join a group to exchange Technology and design Technology vision processes using various technology collection tools. 3. Discuss and present the results of the activities. Ready to exchange technology

1.5 Measurement and evaluation

1.4.1 Evaluate the results of Technology vision exchange.

1.4.2 Evaluate project writing and Technology vision plans.

1.4.3 Evaluate the results of monitoring Technology vision operations.

1.4.4 Evaluate results from the presentation of Technology vision activities.

2. Module 2: Technology Competency

2.1 Principles

Technology leadership is the behavior of teacher and administrators who can leader the Technology of the teacher. By creating competency Collection of existing competency in the organization to develop it into a system. So that everyone in the organization can access competency and develop oneself to be a competent person Share and spread competency Able to use that competency and leader competency to help make decisions and increase the efficiency of teachers' work. Today's world is changing rapidly. If teachers want to survive and grow sustainably, they need to leader their environment well. To create a systematic learning community of personnel. By using the competency and experience of efficient personnel to leader technology as a tool for human resource development. and bring competency.

Let's develop the organization for sustainable growth. To apply ideas in leadership and people leadership to achieve efficiency. Increase productivity in leadership to develop the quality of education.

2.2 Objectives

To enhance knowledge and understanding of the principles of Technology Competency development. Enhancing the Technology Competency of Teachers in Public Art Education Management Take Nanning, Guangxi, which has 4 components: Technology vision,Technology Competency,Technology professional development,and Technology integration. Teachers receive development have Technology Leadership Competency and be able to apply competency and experience to use in the teaching process.

2.3 Content

2.3.1 Meaning and importance of Technology Competency

2.3.2 Steps in the development of Technology Competency

2.3.3Implementation of Technology Competency of teacher.

2.4 Development process Technology Competency of teachers.

The details are shown in Table 15

Table 15 Development process Technology Competency of teachers.

Development methods	Development activities
Learning by Experience: 14 hours	
Job shadowing/observation (8 hours)	Meet and greet activities Exchange experiences in Technology Competency
Assignment (6 hours)	Project writing and Technology Competency development activities
Learning by Others: 4 hours	
Coaching(2 hours)	Technology Competency learning activities by following up on Technology Competency operations of teacher training by people with expertise In the field of Technology Competency (instructor)
Networking (2 hours)	Learning network activities in technology leadership by participating in meetings and discussing and exchanging ideas and practices regarding Technology Competency development activities of teachers.
Learning by Courses takes 2 hours.	
Training/Working (2 hours)	Technology Competency training activities.There is a sequence of steps as follows: 1.Administrator to provide technology by administrator including: -Meaning and importance of technology Competency - Technology leadership process - Tools for storing and gathering technology 2. Join a group to exchange Technology Competency and design Technology Competency processes using various technology collection tools. 3. Discuss and present the results of the activities. Ready to exchange technology Competency.

2.5 Measurement and evaluation

2.5.1 Evaluate the results of Technology Competency exchange.

2.5.2 Evaluate project writing and Technology Competency plans.

2.5.3 Evaluate the results of monitoring Technology Competency operations.

2.5.4 Evaluate results from the presentation of Technology Competency activities.

3. Module 3: Technology professional development

3.1 Principles

Technology leadership is the behavior of teachers who can leader technology of the teachers. By creating Technology professional development Collection of existing Team work in the organization to develop it into a system. so that everyone in the organization can access Technology professional development and develop oneself to be a Technology professional development person. Share and spread Team work able to use that Team work and Technology leadership teachers information To help make decisions and increase the efficiency of teachers' work. Today's world is changing rapidly. If teachers want to survive and grow sustainably, they need to manage their environment well. To create a systematic learning community of personnel. By using the Team work and experience of efficient personnel to Technology leadership (Technology Leadership) as a tool for human resource development. and bring that Team work.

Let's develop the organization for sustainable growth. To apply ideas in leadership and people leadership to achieve efficiency. Increase productivity in leadership to develop the quality of education.

3.2 Objectives

To enhance understanding of the principles of technology leadership professional development. Enhancing the technology leadership professional development of Teachers in Public Art Education Management Take Nanning, Guangxi, which has 4 components: Technology vision,Technology competence,Technology professional development,and Technology integration. Teachers receive development have technology leadership professional development and be able to apply experience to use in the teaching process.

3.3 Content

3.3.1 Meaning and importance of Technology Leadership professional development

3.3.2 Steps in the Technology Leadership professional development

3.3.3Implementation of Technology Leadership professional development teachers.

3.4 Development process Technology Leadership professional development of teachers.

The details are shown in Table 16

Table 16 Development process Technology Leadership professional development of teachers.

Development methods	**Development activities**
Learning by Experience: 16 hours	
Job shadowing/observation (8 hours)	Meet and greet activities Exchange experiences in Technology Leadership professional development
Assignment (8 hours)	Project writing and technology leadership professional development plan activities
Learning by Others: 6 hours	
Coaching(2 hours)	Technology leadership professional development learning activities by following up on Technology leadership operations of teachers ‹training by people with expertise In the field of Technology leadership (instructor)
Networking (2 hours)	Learning network activities in technology leadership professional development by participating in meetings and discussing and exchanging ideas and practices regarding Technology leadership of teachers.
Learning by Courses takes 3 hours.	
Training/Working (3 hours)	Technology leadership teamwork learning activities.There is a sequence of steps as follows: 1.Administrator to provide technology professional development by administrator including: - Meaning and importance of technology leadership professional development -Technology leadership process - Tools for storing and gathering technology teamwork 2. Join a group to exchange Technology professional development and design Technology leadership professional development processes using various technology professional development collection tools. 3. Discuss and present the results of the activities. Ready to exchange technology professional development

3.5 Measurement and evaluation

3.5.1 Evaluate the results of Technology leadership professional development exchange.

3.5.2 Evaluate project writing and Technology leadership professional development plans.

3.5.3 Evaluate the results of monitoring Technology leadership professional development operations.

3.5.4 Evaluate results from the presentation of Technology leadership professional development activities.

4. Module 4: Technology integration

4.1 Principles

Technology leadership is the behavior of teachers who can leader the Technology of the teachers. By creating leadership Collection of existing technology in the organization to develop it into a system. so that everyone in the organization can access Technology integration and develop oneself to be a People with technology integration skills person. Share and spread Technology integration able to use that Technology integration and leader Technology integration, teachers' information To help make decisions and increase the efficiency of teachers' work. Today's world is changing rapidly. If teachers want to survive and grow sustainably, they need to manage their environment well. To create a systematic learning community of personnel. By using the Technology integration and experience of efficient personnel to leader technology as a tool for human resource development. and bring Technology integration.

Let's develop the organization for sustainable growth. To apply ideas in leadership and people leadership to achieve efficiency. Increase productivity in leadership to develop the quality of education.

4.2 Objectives

Enhance Technology integration and understanding of the principles of Technology development. Enhancing the Technology integration of Teachers in Public Art Education Management Take Nanning, Guangxi, which has 4 components: Technology vision,Technology Technology integration,Technology professional development,and Technology integration. Teachers receive development have

Technology Leadership integration and be able to apply competency and experience to use in the teaching process.

4.3 Content

4.3.1 Meaning and importance of Leadership integration

4.3.2 Steps in the Leadership integration

4.3.3 Development process Leadership integration of teachers

The details are shown in Table 17

Table 17 Development process Leadership integration of teachers

Development methods	**Development activities**
Learning by Experience: 14 hours	
Job shadowing/observation (8 hours)	Meet and greet activities Exchange experiences in Leadership integration
Assignment (6 hours)	Project writing and technology Leadership integration building activities
Learning by Others: 4 hours	
Coaching(2 hours)	Technology leadership Group discussion activities on integration by following up on Technology leadership operations of teachers ‘training by people with expertise In the field of Technology leadership (instructor)
Networking (2 hours)	Technology leadership Group discussion activities in technology leadership by participating in meetings and discussing and exchanging ideas and practices regarding Technology leadership of teachers.
Learning by Courses takes 2 hours.	
Training/Working (2 hours)	Technology leadership integration .There is a sequence of steps as follows: 1. Administrator to provide technology by administrator including - Meaning and importance of integration - Technology leadership process - Tools for storing and gathering technology 2. Join a group to exchange Technology and design Technology leadership processes using various technology collection tools. 3. Discuss and present the results of the activity. Ready to exchange integration.

4.4 Measurement and evaluation

4.4.1 Evaluate the results of integration exchange.

4.4.2 Evaluate project writing and integration plans.

4.4.3 Evaluate the results of monitoring integration operations.

4.4.4 Evaluate results from the presentation of integration activities.

5.Results of evaluating the suitability of the technology leadership enhance program.

Evaluation of the suitability and feasibility of the program to enhance Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi by 5 experts, as shown in Table 18

Table 18 Mean and standard deviation of appropriateness levels of the program to enhance Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi

	Suitability			Feasibility		
	$\overline{X}$	SD.	Interpret	$\overline{X}$	SD.	Interpret
1. Principles	4.73	.33	Very high	4.73	.33	Very high
2. Objectives	4.70	.36	Very high	4.69	.36	Very high
3. Contents						
3.1 Module 1	4.71	.35	Very high	4.69	.36	Very high
3.2 Module 2	4.73	.33	Very high	4.72	.34	Very high
3.3 Module 3	4.70	.36	Very high	4.71	.35	Very high
3.4 Module 4	4.72	.34	Very high	4.69	.36	Very high
4. Development Processes						
4.1 Job Shadowing/observation	4.68	.34	Very high	4.68	.34	Very high
4.2 Assignment	4.70	.36	Very high	4.72	.34	Very high
4.3 Coaching	4.65	.38	Very high	4.66	.37	Very high
4.4 Networking	4.67	.37	Very high	4.69	.36	Very high
4.5 Training/Workshop	4.71	.35		4.71	.35	
5. Evaluation	4.69	.36	Very high	4.70	.36	Very high

From Table 18 it is pointed out that the program to enhances Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi 1) Principles 2) Objectives 3) Content 4) Development process 5) Overall measurement and evaluation It is appropriate at the highest level.

CHAPTER V
CONCLUSION

Research on Program to enhance the adaptive leadership of school administrators Under the jurisdiction of the Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi, the researcher brought the results of data analysis to summarize the results, discuss the results, and make recommendations, to follow:

1. Research objectives
2. Research results
3. Discussion
4. Suggestions and Recommendations

Research Objectives

1. To Investigate the components of Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi.

2. To explore the existence , desired state and PNI of Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi.

3. To design an appropriate program to enhance Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi.

Research Results

The entire results of this research were reported according to the research questions sequence as follows:

1.The results of the research found that Technology leadership has the following components: 1) Technology vision 2) Technology competence 3) Technology professional development 4) Technology integration The results of evaluation appropriate components of Technology leadership found that were overall at very high, the order of the components of the average from highest to lowest is Technology professional development, Technology integration, Technology competence, and Technology vision.

2.Explore the existence condition, desired condition, and priority needs of the Technology leadership of school administrators Under the Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi. Summary of research results, the existence condition of the adaptive leadership of teachers. Overall, it is at a medium level. Desired conditions of transformational leadership of teachers. Overall, it is at a very high level. Priority need index of adaptive leadership of teachers. Arranged from most to least: 1) Cultural competency; 2) Technology integration 3) Technology competence It has an adjusted needs index value of 0.41, 0.40, and .039.

3. Develop a program to enhance the Technology leadership of school administrators under the Public Art Education Management Take Nanning, Guangxi.

Results of the research found that program to enhance the adaptive leadership Consisting of 1) principles, 2) objectives, 3) content, consisting of...4) development, consisting of 70% experiential learning, 20% Learning from others, and 0% Learning through the course. Methods to Technology Leadership Development including Job shadowing, observation, assignment, coaching, networking, training/workshop, and 5) measurement and evaluation. Results of evaluation of suitability and feasibility of program to enhance the adaptive Technology as very high.

Discussion

The overall of this research result was discussed based on the research question as follows:

1. Studying Components and Indicators of Technology Leadership of Teachers in Public Art Education Management , The first question was executed by studying literature that verified by five experts. This research study was pointed on developing Technology Leadership of Teachers that consists of four exemplary practice leadership such as Technology vision,Technology competence,Technology professional development,and Technology integration.Then, each component has indicators.

Technology vision includes three aspects, namely formulating the vision, communicating the vision and executing the vision.A leader must be able to articulate the vision so others can understand and accept it. Behaviors that indicate leadership

consist of setting a vision that you want to happen in the future. and communicating to others with words Actions to visualize the desired results. Leaders build trust. and giving importance to others more than oneself. Technology competence refers to teacher behavior that demonstrates Technology competence. Have technology leadership Have the ability to remember and recall technology leadership. Be proficient in using technology fluently and have an attitude towards technology that expresses ideas, beliefs, feelings, and behavioral tendencies towards technology. Competency is the concept that people can transfer, transfer, or move skills and leadership to new work-related situations.Technology professional development refers to demonstrating the advancement of technology professions. Technology curriculum is organized according to the educational objectives. There is a method for creating a technology self-development plan for leadership advancement. There is an evaluation of teaching and learning using technology.Technology integration refers to the behavior of teachers who demonstrate the ability to apply technology in management and Organize teaching and learning Showing acceptance of technology, promoting, helping, and giving importance to the use of technology Motivating fellow teachers to use technology.

2. Explore Existence and desire state of Technology Leadership of Teachers in Public Art Education Management context as follows:

The top three are have a strong sense of teaching in terms of educational development, ability to keenly find needed teaching resources , and easily complete educational design. The emergence and application of emerging technologies make it difficult for teachers to adapt, digest and absorb, causing technology overload, exacerbating teachers' workload, and dissolving teachers' awareness and belief in professional development. In this context, teachers have more demands for mastering emerging technologies. However, the existence cannot support teachers to learn and understand these emerging technologies and use them in teaching. The educational application of emerging technologies requires corresponding conditions to support the results of teacher professional development during the implementation process. The intelligent environment used for teacher training is different from the classroom teaching environment, making it difficult to transfer the results of teacher professional development to implementation. At the same time, teachers’ digital literacy restricts

the application of their professional development results in classroom teaching. The teaching application of emerging technologies requires teachers to have corresponding basic leadership, application capabilities, awareness of innovation and exploration, ethical and safety standards, etc., and requires the comprehensive guarantee and continuous promotion of the corresponding environment, resources, abilities, systems, etc.

The teaching form supported by traditional education situations can no longer adapt to the current requirements of the new normal of intelligent education, and it is necessary to actively seek new and suitable educational contexts. The construction of an intelligent education context requires the coordinated development of people, technology and resources, that is, people use various resources to collaboratively promote social development with the support of certain technologies. The integration and symbiosis of technology and teaching requires the provision of real technology experience for teaching with the support of context. In order to prepare for a future characterized by uncertainty and continuous change, whether it is face-to-face teaching or virtual teaching, teachers must have certain intellectual literacy to cope with the complex and ever-changing intelligent education context. As a virtual environment, structured virtual platform or virtual system provides teachers with a field for teaching practice. Integrating technology subject teaching leadership through intelligent education context design can provide a spatial field for the internalization of leadership, enabling the teaching of new leadership and the updating of old leadership.

In order to adapt to the digital education environment, teachers need to possess four key teaching abilities: the ability to use digital resources, the ability to organize the teaching process, the ability to evaluate and give feedback, and the ability to promote learner communication. Smart forms of educational technology can support and facilitate student learning, but successfully integrating smart technology with teaching is a complex task. The development of information technologies such as artificial intelligence and big data has brought new ideas for technology to promote personalized learning. Relying on intelligent technology, we can overcome the limitations of the human brain in processing attention, perception, knowledge acquisition and knowledge conversion, and promote the smooth flow of knowledge

conversion and knowledge access processes. With the development of information technology, the place where education takes place integrates online and offline teaching environments and becomes increasingly intelligent. Intelligent education spaces represented by Yuanverse and smart classrooms are modern learning environments that mainly integrate and use emerging technologies such as the Internet of Things, network technology, mobile technology, and cloud computing. They can achieve the visualization of teaching content, the intelligence of education management, and the teaching of Convenient access to resources, integrating teaching, learning, management and research. By providing educators with a personalized, intelligent and adaptable learning environment, intelligent education spaces can meet the different educational needs of different educators, enhance the educational experience, and enhance the value of education.

3.Develop a program to enhance the Technology Leadership of Teachers in Public Art Education Management .Results of the research found that program to enhance the adaptive leadership Consisting of 1) principles,2) objectives, 3) content, consisting of...4) development, consisting of 70% experiential learning, 20% Learning from others, and 0% Learning through the course. Methods to Adaptive Leadership Development including Job shadowing, observation, assignment, coaching, networking, training/workshop and 5) measurement and evaluation, because (Reference principles, concepts, and theories of academics person) , according to the research based on the follows:

3.1 Training objectives; the objectives of the program was based on developing skills learning (Noe, 2010).

3.2 Content; definitely it was from the research findings to develop Technology Leadership of Teachers as leadership style. As the components of Technology Leadership of Teachers such as; setting an example , Technology competence, Technology professional development, engage others in actions and encouragement are main concern of this program (Kouzes and Posner, 2008).

3.3 Method; The methods of program are as follows classroom lecturer, assessment feedback, video case studies, individual assignments, small and large group discussions and assignments and outdoor experiential activities.

3.4 Materials resources; It will provide handout, technology, video,and visual aids for training program.

3.5 Evaluation; The evaluations consist of evaluation pre-test, open- ended evaluation and fast feedback regarding content of program, Evaluate the trainers during instruction, evaluation post-test, Evaluation the program through filling the questionnaire, evaluation peer participants and reflection (Noe, 2010).

3.6 Size and Location of training program was undecided level. They believe that those aspect can be set in the real situation and flexible to organize.

Suggestions and Recommendations

1. Suggestions for using research results

For the interest in Technology Leadership of Teachers in Public Art Education Management researcher recommends that the result of this research as follows:

1.1 To improve Technology Leadership of Teachers in Public Art Education Management, the suggestions and recommendation are fostered.

1.2. To improve Technology Leadership of Teachers in Public Art Education Management require to develop and upgrade knowledge of technology leadership.

1.3 Technology Leadership of Teachers in Public Art Education Management should notice that the component of leadership.

1.4 Recently Technology Leadership of Teachers is growing rapidly, yet they still deal with many obstacles and constrains, so that required more attention in order to study regarding Technology Leadership of Teachers, so that they can improve their ability and get equal right.

1.5 The implementation of proposed training program of Technology Leadership of Teachers in Public Art Education Management.

2. Suggestions for future research:

2.1 The empowerment of Technology Leadership of Teachers in Public Art Education Management.

2.2 The developing program of Technology Leadership of Teachers in Public Art Education Management.

REFERENCES

Abdullah A. Technology Technology leadership in Saudi schools. EDUC INF TECHNOL, 2017,22(3).

Ahsan A. Hongwei W, Russell E J. Empirical analysis of shared Technology leadership promotion and team creativity: An adaptive Technology leadership perspective. JORGAN BEHAV, 2020,41(5).

Ambrose D. Interdisciplinary, International Exploration to Strengthen Creativity, Giftedness and Technology leadership. EDUC SCI, 2021,11(12).

Bennett, K. S., & Leung, K. (2005). Teacher professional development in the knowledge age: What counts? Educational leadership, 62(4), 8-14.

Berry, J. W. (2007). Improving student learning through teacher professional development: Evidence from randomized trials. Review of educational research, 77(1), 59-94.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Prentice-Hall, 46(2), 55-68.

Benson, P., & Volk, T. L. (2003). Understanding teacher identity: A review of the literature. Educational Management Administration & Leadership, 31(4), 475-499.

ChaabanY.Sawalhi R, Du Xiangyun. Exploring Technology Leadership of Teachers for professional learning in response to educational disruption in Qatar. PROF DEV EDUC, 2022,48(3).

Chen Mingli. (2007).Status quo and countermeasures of psychological counseling teachers' professionalization-taking Ruian City, Zhejiang Province as an example . Nanjing: Zhejiang Normal University, 2,5- 8.

Cui Jinggui. (2009).Psychological problems and role orientation in the professional development of psychological education teachers. Ideological and theoretical education, 2 (1),74.

Cai Jing. (2010).College psychological education teachers' professional development strategy Science and Technology Information, 2(12), 351.

Clement M,Staessens K. (1993).The professional development of primary school teacher and the tension between autonomy and collegiality. In: Kievient FK, Vandenberghe R,eds.School culture,school improvement and teacher development.Leiden ,The Netherlands:DSWO Press, 2,129-152.

Cui Jinyui. (2018).Psychological barriers in the professional work of school psychological teachers. psychological education in primary and secondary schools,2(11),6-9.

Cui Jinyui. (2020).On the Paradigm of Psychological Education . Beijing: Social Science Academic Press, 3,348.

Cheng, Caimeng. (2006). The effects of a school-based intervention on the psychological well-being of Chinese junior high school students: A randomized controlled trial. Journal of School Psychology, 44(1), 77-92.

Chiu, C. Y., & Koh, J. H. (2013). Developing a model for enhancing the professional competence of teachers in Hong Kong primary schools: An action research approach. Asia Pacific Journal of Education, 33(1), 1-17.

Chen, Yu., & Kao, Tao. (2018). The impact of professional development on teachers' instructional practice and student learning: A case study in a rural elementary school in Taiwan. Teachers and Teaching: Theory and Practice, 24(4), 450-469.

Clandinin, D. J., Connelly, F. M., & Ladson-Billings, G. (2000). Teacher professional community: An introduction. Theory into practice, 39(2), 64-70.

Chen, X., & Zhou, M. (2017). An empirical study on the factors affecting the professional development of rural primary school psychology teachers in Guangxi border areas. Journal of Rural Counseling, 25(2), 67-78.

Chen, X., & Lee, M. (2015). Professional development for rural school counselors: A case study. Journal of School Counseling, 13(2), 107-127.

Chen, M. Y., & Hsueh, Y. T. (2012). The effects of a school-based teacher professional development program on teachers' instructional practices and students' achievement in mathematics: A study of a rural elementary school in Taiwan. Journal of science education and technology, 21(3), 365-384.

Douglas K. Is Technology leadership Taught or Learned. Systems Contractor News, 2022,29(5).

Esplin N L, Stewart C, Thurston T N. Technology Technology leadership Perceptions of Utah Elementary School Principals. J RES TECHNOL EDUC, 2018,50(4).

Guo Ping, Xiong Yan, Hu Tao. etc Introduction to Teacher Professional Development Southwest Jiaotong University Press, 2017 two hundred and sixty-five

Harding R. Debate: The 70:20:10 'rule' in learning and development—The mistake of listening to sirens and how to safely navigate around them[J]. PUBLIC MONEY MANAGE, 2022,42(1).

He Lin. Research on the cultivation of American Technology Leadership of Teachers and its reference value for us China Adult Education, 2018 (08): 103-105

Hu Wei, Deng Yu.Xiong Yao The Dilemma and Outlet of Public art Education in Colleges and Universities -- Comment on Research on Public art Education China University Science and Technology, 2022 (Z1): 148

Jesse H R. Progressive Policy Making in a Conservative Age Civil Rights and the Politics of Federal Education Standards, Testing, and Accountability. PERSPECT POLIT, 2011,9(3).

Jiang Yuanyuan.The Growth Logic and Practical Positioning of Technology Leadership of Teachers: A Perspective on the Integration of Experience and Distributed Technology leadership in Primary and Secondary Schools in Beijing Educational Science Research, 2020 (10): 41-46

John Rocklen, Zhu Gang, Shen Liang, etc Development theory and Practice of Teacher Professional Development from a Multidimensional Perspective -- In depth Dialogue and Reflection with Professor John Locklen of Monash University University Education Science, 2022 (02): 4-11

Li Keqin. Yuan Xiaoping, Ning Yanlin Investigation and Analysis on the existence of Information Technology Technology leadership of Kindergarten Principals in Hunan Province Journal of Hunan First Normal University, 2016,16 (01): 15-18

Li Sisi. Li Li A Systematic review of research on the ways to improve the Technology leadership of teachers in foreign medical colleges Medicine and Society, 2021,34 (12): 94-99

Li X. A Theoretical Review on EFL/ESL Teachers' Professional Development: Approaches, Applications, and Impacts&#13. FRONT PSYCHOL, 2022,13.

Li Xiaotian.An Analysis of the Connotation and Development Strategies of Technology Leadership of Teachers [J] Education Theory and Practice, 2023,43 (02): 41-43

Lili Zhou. Peter McClaren Analysis of the New Round of Technology leadership Framework Reform for Primary and Secondary School Teacher Development in the UK Journal of Comparative Education, 2021 (05): 118-131

Liu Jun, Luo Hongying.The Construction of Teachers' Professional Development Model -- Review of Research on Teachers' Professional Development theory Chemistry education (Chinese and English), 2020,41 (09): 113

Liu Wenting.Analysis of the existence and development path of college students' Public art education -- Comment on the Phenomenology of Art Pedagogy Principles Chinese Journal of Education, 2022 (05): 140

Liu Xiaodi. Research on Technology Leadership of Teachers and Improvement Strategies Based on Primary School Chinese Classroom Teaching Elementary School Composition Counseling (Chinese Language Garden), 2021 (01): 28

Morrissey. M B Q, Ellis B D. The introduction to law, medicine, and bioethics: Role of interdisciplinary Technology leadership in influencing health and public health policy and democratic systems of governance. JTHEOR PHILOS PSYCH, 2021,41(4).

Peled, Yehuda, Perzon, et al. Systemic model for technology integration in teaching. EDUC INF TECHNOL, 2021(prepublish).

Peng Yun.The core elements and improvement paths of Technology Leadership of Teachers Education Theory and Practice, 2017,37 (23): 27-29

Petterd R. 70:20:10 based learning ecosystems. Training & Development, 2016,43(4).

Raman A, Thannimalai R, Ismail S N. Principals' Technology Technology leadership and its Effect on Teachers' Technology Integration in 21st Century Classrooms. INT J INSTR, 2019,12(4).

Ronald E A. School Technology Technology leadership: An Empirical Investigation of Prevalence and Effect[J]. EDUC ADMIN QUART, 2005,41(1).

Samantha J J, Deborah A B, Fiona B. The 70:20:10 framework and the transfer of learning. HUM RESOUR DEV Q, 2018,29(4).

Song Lei.Stimulate Technology Leadership of Teachers and develop new driving forces for improving quality and efficiency in education and teaching Primary and Secondary School Management, 2020 (09): 1

Starr J P. On Technology leadership: In equity efforts, which voices should be included — and excluded[J]. PHI DELTA KAPPAN, 2021,103(1).

Stephen C, Oura C. Reflections on One Health Technology leadership training needs for the 21st c entury[J]. ONE HEALTH-AMSTERDAM, 2021,13.

Sun Jie. Cheng Jinkuan Sharing, Collaboration, and Reconstruction: New Trends in Foreign Technology Leadership of Teachers Research Foreign Education Research, 2020,47 (01): 103-115

Sun Jie.Cheng Jinkuan The American Experience and Enlightenment on Improving the Technology leadership of Primary and Secondary School Teachers Jiangsu Education, 2020 (50): 76-80

Sun Yaowu, Tan Yuandi.Research on the Technology leadership and Structural Evolution of Modular Innovation Network Leading Enterprises Science and Technology Progress and Countermeasures, 2018,35 (01): 80-87

Teece D J.Technology leadership and 5G Patent Portfolios: <sc>Guiding Strategic Policy and Licensing Decisions. CALIF MANAGE REV, 2021,63(3).

Tracey R. Blending training with 70:20:10. Training & Development, 2016,43(3).

Valeska G, Elisa C, David D P, et al. Teachers' professional development through university–school partnerships: theoretical standpoints and evidence from two pilot studies in Chile. CAMB J EDUC, 2017,47(1).

Wang Feiye, Hong Chengwen.Sally Zapada The Development of Technology Leadership of Teachers in the United States: Connotation, Value, and Application Prospects Foreign Education Research, 2014,41 (01): 93-103

Wang Hui. Tan Qi Research on the existence and Development of Public art Education in Shaanxi Universities Hunan Packaging, 2022, 37 (04): 174-176

Wang Jikang, Xu Jicun.The practical model and theoretical model of western teachers' Technology leadership development and its enlightenment to China Journal of Comparative Education, 2021 (03): 105-121

Wang Na.On the improvement of young teachers' practical teaching ability in application-oriented colleges from the perspective of teachers' professional Development theory Education and Career, 2019 (08): 62-65

Wang Shufen.Analysis of the Research Framework for Teacher Curriculum Technology leadership Social Science Front, 2020 (11): 274-280

Wang Xinhua, Zhu Dequan.Practice pattern and action direction of Technology leadership development of vocational college teachers Jiangsu Higher Education, 2021 (03): 113-118

Wang Yu.The Connotation, Value, and Improvement Path of Informationization Technology leadership of University Teachers in the Digital Era Information Science, 2022, 40 (12): 22-27

Wang Zhaoxuan, Zhang Yaqing, He Kewei. etc The impact of school atmosphere perceived by rural teachers on their job satisfaction: the mediating role of Technology Leadership of Teachers and self-efficacy Research on Teacher Education, 2020,32 (06): 84-90

Wei Xiaoyu, Cheng Jinkuan.How to improve teachers' Technology leadership -- based on the analysis of support measures for the development of teachers' Technology leadership development in the United States Journal of Comparative Education, 2022 (04): 98-116

Wei Xiaoyu.Cheng Jinkuan How to improve teachers' Technology leadership -- based on the analysis of support measures for the development of teachers' Technology leadership development in the United States Journal of Comparative Education, 2022 (04): 98-116

Wei Xiaoyu.The existence, hotspots, and trends of international Technology Leadership of Teachers research in the past two decades Heilongjiang Higher Education Research, 2022,40 (08): 74-82

Wei Xiaoyu.The existence, hotspots, and trends of international Technology Leadership of Teachers research in the past two decades Heilongjiang Higher Education Research, 2022,40 (08): 74-82

Wong A Y, Khadijah B D. Technology Technology leadership in Malaysia's High Performance School. Journal of Education and e-Learning Research, 2017,4(1).

Xu Lixin.Analysis of the Technology leadership Framework of "Leading Educators" Teachers in the United States Research on Teacher Development, 2019,3 (03): 117-124

Yao Jihai, Shen Ling, Zou Honghui. The relationship between teacher autonomy in teaching and Technology Leadership of Teachers: the mediating role of psychological empowerment and teaching autonomy Psychological and Behavioral Research, 2022-20 (01): 108-114

Yao Wang.Research on the development of teacher education and the theory of teacher belief -- A review of Research on the Development theory of Teacher Professional Development Exploration of Higher Education, 2020 (08): 142

Ye Juyan,Zhu Xudong. On the Value, Connotation, and Cultivation of Technology Leadership of Teachers in Collaborative Education Reform [J] Research on Teacher Education, 2018,30 (02): 8-15

Yoo S H. Development and Application of 70:20:10 ARCS-Gamification Model for Job Performance Competency of National Competency Standards. JOURNAL OF SECRETARIAL STUDIES, 2018,27(3).

Yu Tianzhen.Zhang Xiaofeng A Study on the Role of Teacher Information Technology Technology leadership in Informatization Teaching Effectiveness: An Empirical Analysis Based on Structural Equation Modeling Research on Teacher Education, 2020,32 (02): 48-56

Yuan Li, Zhang Jinhua.Reflections on empowering Technology Leadership of Teachers in the new era through data-driven approaches Contemporary Education Forum, 2021 (01): 82-88

Zhang Rongfei.Zhao Leilei Teacher Technology Technology leadership in the Intelligent Era: Structure and Practical Path Chongqing Higher Education Research, 2021,9 (06): 87-94

Zhang Xiangzhong.Xu An'an Differentiation and Analysis of School Change Technology leadership for the Future Primary and Secondary School Management, 2023 (03): 17-20

Zhao Leilei, Liang Qian Technology Integration: A New Perspective on the Construction of Principal Informatization Technology leadership Research on Teacher Education, 2018,30 (05): 104-110

Zhao Ying.Research on the Construction of a Technology leadership Model for Young Teachers in Universities Research on Education Development, 2021, 41 (01): 57-63

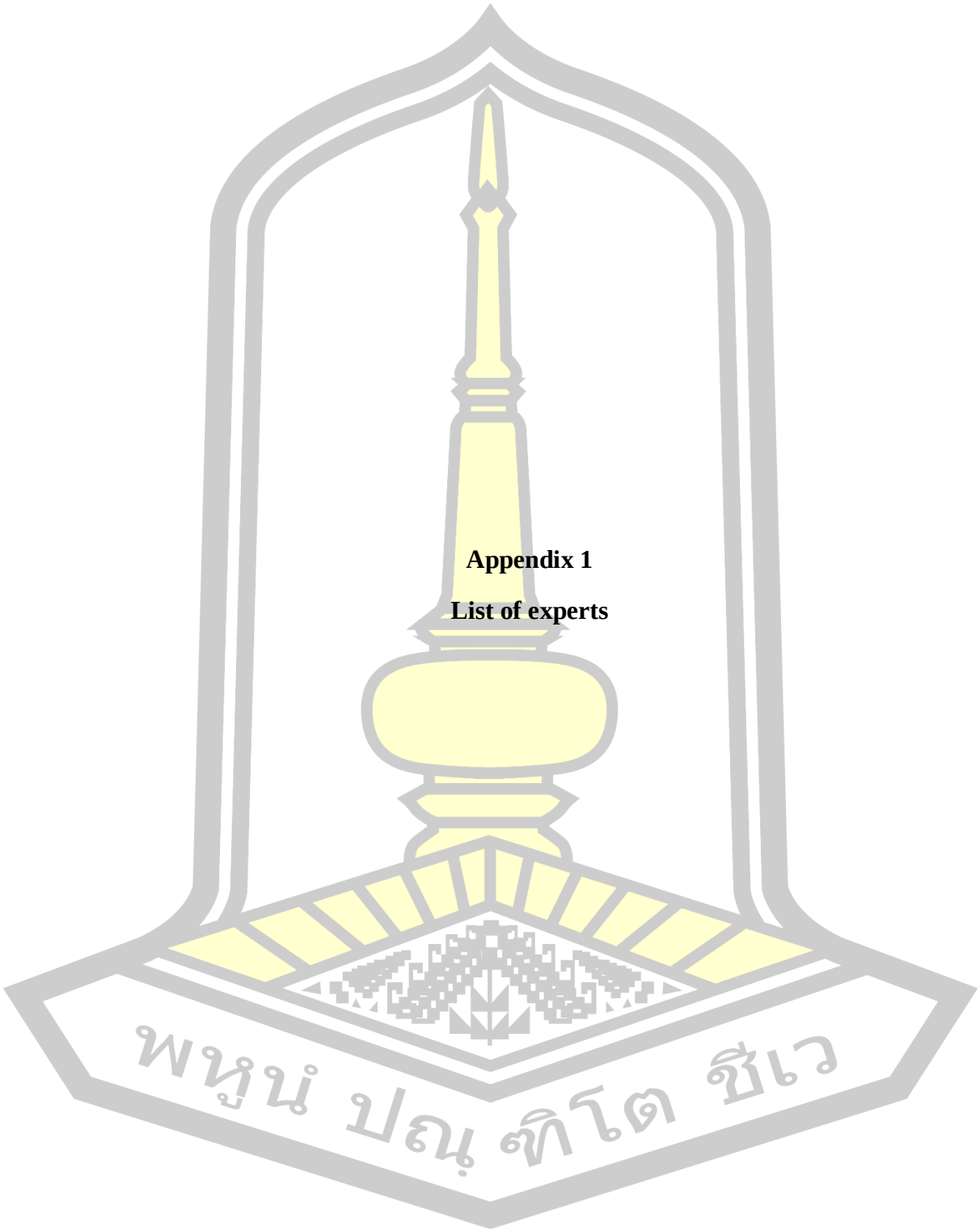
Zhou Weiyuan. Huang Meichu Construction of a Technology leadership Evaluation Index System for Adult University Teachers Based on "Delphi+AHP" Vocational Education Forum, 2023,39 (02): 105-113

Zhu Ailing. Exploring the Paths and Methods of Developing Technology Leadership of Teachers in the United States Journal of Teacher Education, 2019,6 (01): 92-99

Zhu Zhiguo.Analysis of Technology Leadership of Teachers in Ecological Classrooms Education in Shanghai Scientific Research, 2014 (03): 50-52

Zhu Zongshun.The existence and Reflection on the Technology leadership of Kindergarten Subject Leaders in Zhejiang Province: A Sampling Survey Based on the Technology Leadership of Teachers Model Standard (TLMS) Research on Teacher Education, 2016,28 (04): 49-56

Appendix



Appendix 1

List of experts

List of component check experts

Five Experts who were chosen to evaluate and check the validity of the elements of technology leadership of Teacher in Public Art Education Management. They are the people who have professional knowledge and experiences of educational management, educational research, or educational psychology and educational technology leadership; have master degree at least, and have experience in teaching and advice post-graduate students in the fields mentioned above. The experts' names and qualification are as follows;

（1）Assoc.prof.Dr.Tharinthorn Namwan

（2）Assist.prof.Dr.Karn Ruangmontri

（3）Assoc.prof.Dr.Pacharawit.Chansirisira

（4）Assoc.prof. Dr. Suttipong Hoksuwan；

（5）Assist. Prof. Dr. Prasong Saihong.

List of experts in the evaluation of research tools

The questionnaire form was designed based on the components and study components and indicators of components and indicators of technology leadership of teachers in Public art education After draft of questionnaire was proposed to the advisor to edit and correct in order to get the accurate questionnaires, then it was sent to 5 experts:

1. Asst. Prof. Dr.Liu ming , Lecturer of Research and Development at Liaoning University.

2. Dr. Surachet Noirid, Lecturer of Educational Administration and Development at Mahasarakham University.

3.Professor Liu xiaodong, Director of Teaching Management, Nanning Normal University, Guangxi, China

4.Asst. Prof. Dr. Huang Jianyi, Lecturer of Educational Management at Guangxi Normal University for Nationality.

5.Dr. Zhang yuhua, Guangxi Normal University Specialist.Director of the Teaching and Research Section of the Faculty of Education.

List of experts to evaluate the suitability and feasibility of the program

The key informants were five experts, who had experiences in educational training field or organizing conferences, workshops or training courses was invited to evaluate the possibility and suitability of the program and gave some comments to develop the appropriate program to enhance Technology Leadership of Teachers challenge. The experts' standards were as follows: 1) Have professional knowledge in the field of educational training, educational management, educational research, or educational psychology; and 2) have doctoral degree at least, 3) have experience in teaching, educational technology leadership and 4) advising postgraduate students in the fields mentioned above. The experts' names and qualification:

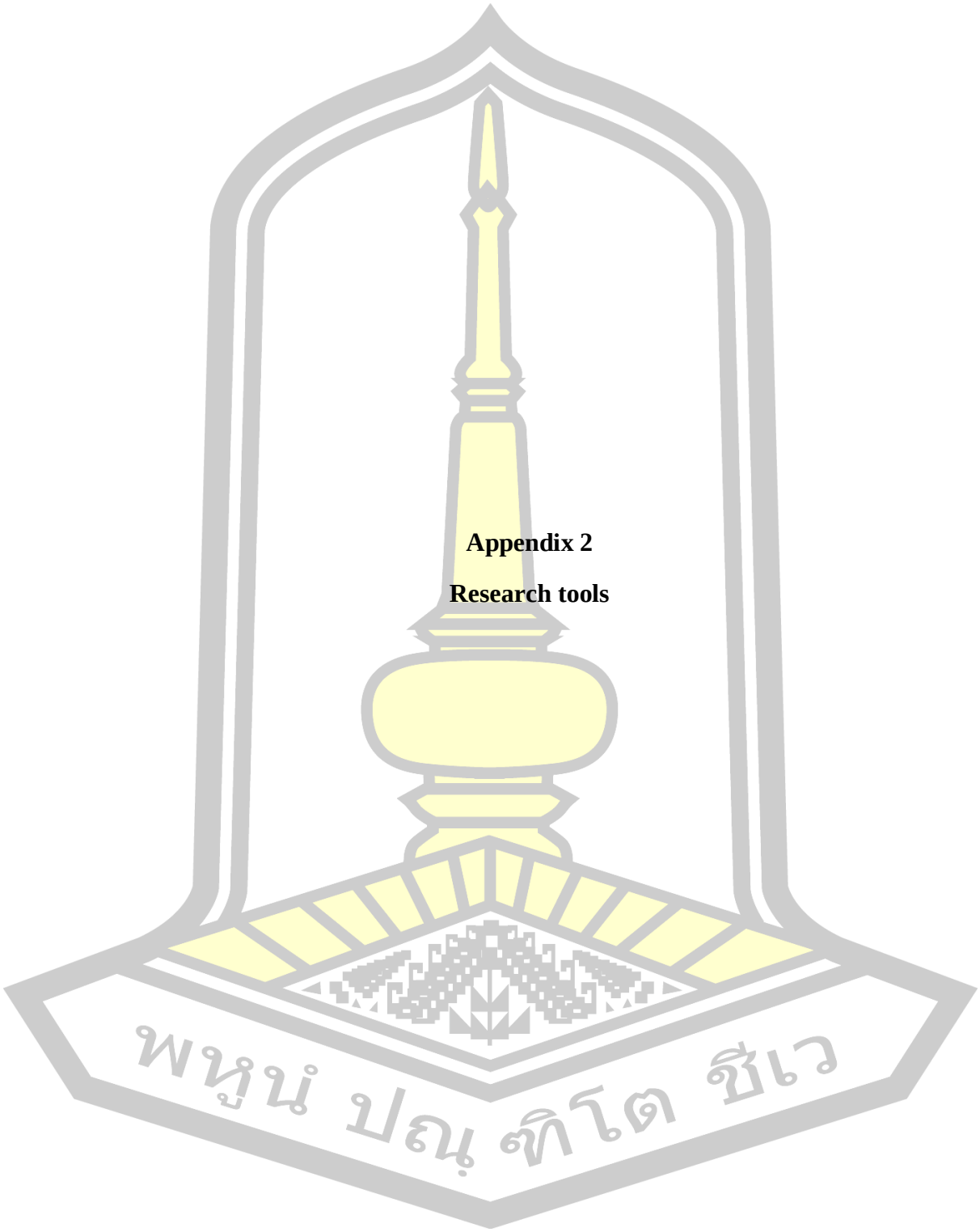
1.Dr. Songsak Phusee-On， President of Mahasarakham University.

2.Dr. zhang yuhua, Guangxi Normal University Specialist.

3.Dr.Liu xiaodong,guangxi Normal University Specialist.

4.Asst. Prof. Dr. Zhao Fucai,Vice President of Psychological Science Phetchabun Liaocheng University.

5.Dr. Surachet Noirid, Lecturer of Educational Administration and Development at Mahasarakham University.



Appendix 2

Research tools

Questionnaire on the current of technology leadership of teachers majoring in public art education management at Nanning University in Guangxi

Dear teachers:

In order to complete the doctoral thesis, a special questionnaire was designed to understand the existence of teachers' technology leadership in the context of public art education management in my country. This survey data is only used for academic research and does not involve your personal and school performance evaluation.

Please answer truthfully and sincerely. Hope to get your support and help! Thank you!

Basic information:

Part One

Please read the following questions about background , choose the one that best describes the situation, and use the following symbol □

1. Your gender

□ Male
□ Female

2. Your age

□ 20-30 years old
□ 31-40 years old
□ 41-50 years old
□ 51 years old and above

3.Your teaching experience

□ Less than 5 years
□ 5-10 years
□ More than 10 years

4.Your academic qualifications

□ College
□ Undergraduate
□ Master's degree student
□ Ph.D. candidates and above

5.Your job title

□ Not yet rated
□ Junior
□ Intermediate
□ Advanced
□ Very high-end

6. Do you have a background in teacher leadership technology theory?

□ Yes
□ No

7. How often do you carry out Technology Leadership of Teachers practices?

□ Each lesson is carried out
□ Carry out every day
□ Weekly
□ Carry out monthly
□ Conducted every semester
□ Basically not carried out

8. What do you think is the overall level of teachers' technology leadership?

□ Very high
□ relatively high
□ General
□ Not too high
□ Not high

Part Two

Please read the following questions about Technology Leadership of Teachers, choose the one that best describes the situation, and use the following symbol □

5 refers to the level of Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi is very high

4 refers to the level of Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi is high

3 refers to the level of Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi is medium

2 refers to the level of Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi is low

1 refers to the level of Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi is very low

1.Technology vision

Item	Question	Existence					Desired				
		5	4	3	2	1	5	4	3	2	1
1	Have a correct understanding of technology leadership										
2	Have a strong sense of the importance of technology										
3	Recognize technology as the trend of future education development										
4	Have a strong sense of teaching in terms of educational development										
5	Correctly understand the relationship between technology and education development										
6	Technology leadership has an impact on teaching work										
7	Have a certain understanding of technology leadership										

8	Understand the theoretical principles of technology leadership										
9	Have a strong desire to learn technology leadership										
10	Have a positive attitude towards technology										

2.Technology competence

Item	Question	Existence					Desired				
		5	4	3	2	1	5	4	3	2	1
1	Ability to clearly search for the information you need										
2	Ability to keenly find needed teaching resources										
3	Able to use teachers' technology leadership to create a professional atmosphere										
4	Proficient in processing and sharing tools such as projection and ppt										
5	Be able to skillfully apply technology to develop teacher resources										
6	Proficient in using the evaluation system to record and evaluate teachers' technology performance										
7	Ability to evaluate educational effectiveness										
8	Proficient in using Internet-based communication tools										
9	Use technology skills proficiently to improve educational goals										
10	Easily complete educational design										

3. Technology professional development

Item	Question	Existence					Desire				
		5	4	3	2	1	5	4	3	2	1
1	Ability to use teaching needs to clarify teaching goals										
2	Proficient in using tools for educational development										
3	Ability to clarify learning steps according to educational goals										
4	Easily carry out classroom teaching activities										
5	Ability to predict performance after the completion of the practice plan										
6	Ability to plan educational activities and knowledge presentation methods well										
7	Use leadership technology to complete educational evaluation										
8	Be able to correctly evaluate teachers' technology learning status										
9	Able to reflect on and improve problems in education										
10	The professional ideal is to strive to improve the technology leadership level of teachers.										

4. Technology integration

Item	Question	Existence					Desire				
		5	4	3	2	1	5	4	3	2	1
1	Understand the school's development goals and education setting standards										
2	Education plans will be determined based on the development vision										
3	Put forward your own opinions on equipment procurement										
4	If there is a lack of teaching software and hardware, the school can solve it in time										
5	Able to jointly manage the educational resource library with colleagues										
6	Ability to keenly find needed teaching resources										
7	Consciously realize the integration of education and life										
8	Interest in improving teachers' abilities with the help of teachers' technology leadership										
9	Actively comply with and participate in formulating school policies										
10	Able to use teachers' technology leadership to supervise the teaching process										

The Frequency and Percentage of Respondent's Demographic

Items	(n= 263)	
	Frequency	Percentage
Respondents		
Principals	16	6.1
Teachers	231	87.8
School Board	16	6.1
Gender		
Female	181	68.8
Male	82	31.2
Age Group		
20 - 30 years old	23	8.7
31 - 40 years old	38	14.5
41 - 50 years old	159	60.5
51 years old and above	43	16.3
Working Experiences		
Less than 5 years	46	17.5
5-10 years	79	30
More than 10 years	138	52.5
Qualification		
College	65	24.7
Undergraduate	12	4.5
Master's Degree	130	49.4
Ph.D candidates and above	56	21.4
Background in teacher leadership technology theory		
Yes	150	57
No	113	43
Carry out Technology Leadership of Teachers practices		
Each lesson is carried out	0	0
Carry out every day	25	9.5
	75	28.5

Weekly	40	15.2
Carry out monthly	103	39.2
Conducted every semester	20	7.6
Basically not carried out		
The overall level of teachers' technology leadership		
Very high	13	4.9
Relatively high	125	47.5
General	80	30.4
Not too high	40	15.2
Not high	5	2

The table shown as demographic information about respondents. It consists of the most respondents such as 231 teachers (87.8 %), gender of respondents 181 female respondents (68.8%), 159 people in group of 41-50 years old (60.5%) and over 10 years old with 138 people (52.5%) , most of them graduated from Master's degree with 130 people (49.4%), 150 people (57%) have a background in teacher leadership technology theory,103 people (39.2%) carry out Technology Leadership of Teachers practices every semester,and than 125 people(47.5%) think the overall level of teachers' technology leadership relatively high.

Interview outline on existence of teachers' technology leadership in Nanning University, Guangxi

Dear teacher:

Hello!

Thank you very much for taking the time from your busy schedule to be interviewed.

This anonymous survey aims to understand the basic situation of technology leadership of teachers majoring in public art at Nanning University in Guangxi. Please fill in the information truthfully according to your actual situation. This survey data is only used for academic research and does not involve your personal or school evaluation. We will keep it strictly confidential and sincerely hope to get your support and help! Thank you for your cooperation!

Part One Basic Information

1.Interviewee.....

2.Interview time.....

3.Interview location.....

4.Interviewer.....

Part Two Interview Content

1. Do you have a background in Technology Leadership of Teachers expertise? What are some?

.....

.....

.....

2. Do you think using technology methods in practice can improve your classroom efficiency?

.....

.....

.....

3. What technology leadership will you choose to use to manage and practice?

.....

.....

.....

4. What are the sources or ways of obtaining the resources you use in class, such as multimedia courseware, micro-lecture videos, etc.?

.....

.....

.....

5. Are you able to build your own information and resources related to teacher management technology leadership?

.....

.....

.....

6. Can you use the newly equipped information equipment in the school proficiently in class? What are your methods for learning to use these equipment?

.....

.....

.....

7. In your spare time, will you actively use the Internet to learn emerging technology methods and knowledge by yourself?

.....

.....

.....

8. Is the discipline community construction provided by the school to teachers in place? What is the frequency of discipline activities in your school?

.....

.....

.....

9. In your school, have you held any activities similar to teachers' technology ability competition? How many times have you participated?

.....

.....

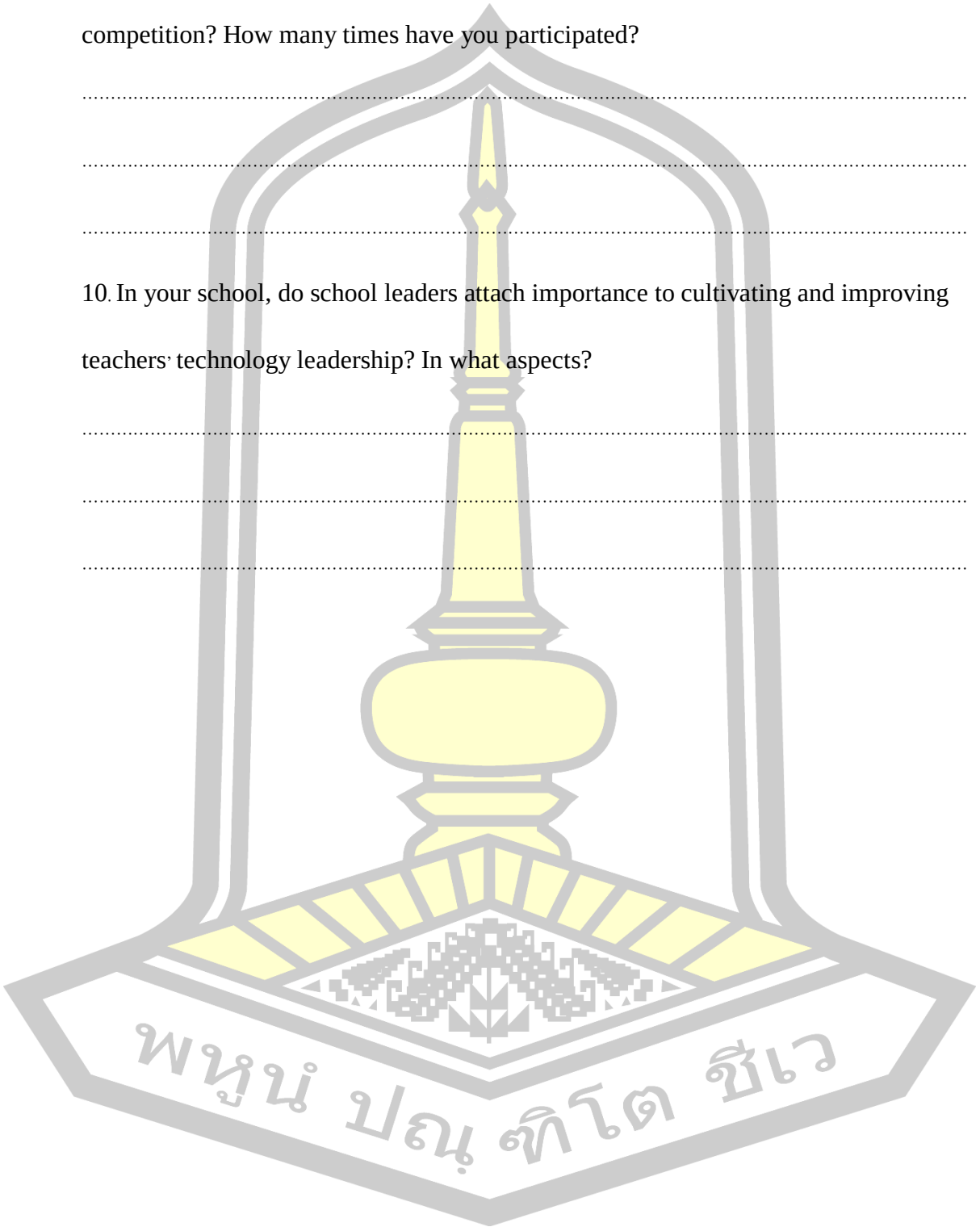
.....

10. In your school, do school leaders attach importance to cultivating and improving teachers' technology leadership? In what aspects?

.....

.....

.....



Technology Leadership of Teachers Improvement Program Expert Evaluation Form

This evaluation form is divided into 2 parts, expert basic information and expert opinion 5-level scale.

Part One Expert Basic Information

Name.....

Job title.....

Workplace.....

Part Two Expert Opinion 5-level Scale

Please read the following questions about Technology Leadership of Teachers improvement program , choose the most appropriate one, and use the following symbol □

Score	**Meaning**
5	Program to enhance Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi is appropriate/possibility. At the highest level.
4	Program to enhance Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi is appropriate/possibility . At a high level.
3	Program to enhance Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi is appropriate/possibility. Be moderate.

2 Program to enhance Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi is appropriate/possibility. Be moderate.

1 Program to enhance Technology Leadership of Teachers in Public Art Education Management Take Nanning, Guangxi is appropriate/possibility. At the least level.

Evaluation item	Opinion				
	5	4	3	2	1
Program Objectives					
1.Introduction of Technology Leadership.					
2. Overview Technology Leadership.					
3.Component of Technology Leadership.					
Content of Program					
1. Technology vision					
2. Technology competence					
3.Technology professional development					
4. Technology integration					
Method and Hours					
Program Materials and Support Resources					
1. Handouts					
2. Technology					
3. Video					
4. Visual Aids					
Evaluation					
1. Evaluate themselves before training started (pre-test)					
2. Open-ended evaluation and fast feedback regarding content of program such as objective, length of time, practice, method and resource on each activity.					

3. Evaluate the trainers during instruction (e.g. demonstration, communicative and open-minded).					
4. Evaluate themselves after training (post-test).					
5. Evaluate the program through filling the questionnaire.					
6. Evaluation peer participants.					
7. Reflection.					

Module 1 Technology vision	Opinion				
	5	4	3	2	1
1. Principles and objectives.					
2. Content.					
3. Development process Technology vision of teachers.					
4. Measurement and evaluation					

Module 2 Technology competence	Opinion				
	5	4	3	2	1
1. Principles and objectives.					
2. Content.					
3. Development process competence of teachers.					
4. Measurement and evaluation					

Module 3 Technology professional development	Opinion				
	5	4	3	2	1
1. Principles and objectives.					
2. Content.					

3. Development process professional Technology of teachers.					
4. Measurement and evaluation					

Module 4 Technology integration	Opinion				
	5	4	3	2	1
1. Principles and objectives.					
2. Content.					
3. Development process Technology integration of teachers.					
4. Measurement and evaluation					

Principles

1. 70 Learning Model is a learning model arising from work experience through seeing or touching the real thing in the real work area. or operations that are actually in the field Makes students quickly gain awareness Effective perception therefore leads to effective learning as well. Because learners will bring events or stories that they have learned to remember and show that behavior. It is like a guideline or bridge (Experience is the bridge) between practice (Practice) and concepts, principles or theories (Concept/Theory) that a person already has or has been added to. It causes awareness or accumulated experience, thus leading to learning, imitating, and acting according to the behavior that has been done from the beginning, therefore changing according to the new experience received. Leading to the creation and birth of a new behavior or a new competency of the person that affects the assigned work. To be more efficient, Competency means behavior that requires competency. capability or potential, or some textbooks can use the word Characteristics or necessary dimensions

that individuals should have in their work (Job Dimensions). The personnel development tools used with this learning approach will focus on tools that are not classroom training as follows.

Table 19 70 Learning Mode personnel development tools

development tools	Details of development tools
Job Shadowing/ Observation	Following a template that is a person who is accepted or is a role model in the matter that needs to be followed or observed in the behavior of the template.
Executive Job Shadowing	Template tracking focuses on senior management to observe the functionality and expressive behavior of the template, where the selected template must be accepted in the tracked matter.
Job Aids/Manuals	Learning from the code of conduct or work requirements that have been established to serve as a framework or direction for operations to be at the same standard.
Knowledge Sharing Sessions	A gathering of personnel within the organization to exchange knowledge, principles, and concepts that are relevant and can be useful in work.
Outsource/Supplier Sharing	Exchange of opinions, information and experiences received with partner companies that are partners or do business
Lesson Learn Sharing	Exchanging experiences from work Whether an error occurred Or impressive experiences can be exchanged with the team to use as guidelines or lessons learned for the next work.
Self - Reflection Note	Recording information and using recorded information to review and inspect one's own work To be used as information to improve and develop the assigned work.
Secondment	Requesting to temporarily borrow personnel from one agency where they work regularly to work with another agency

Job Rotation	Learning additional work by switching jobs from one department to another
Special Projects	Taking on a special project that is not a job or a regular project specified in the Job Description
Cross Functional Assignment	Assignment to work with other departments in a cross-functional manner Not a person from the same agency
Stretch Assignment	challenging assignments It is work that has never been done before, different from previous work that has been done before.
Work with Consultants or Internal Experts	working with consultants who work within the organization, including having the opportunity to work with experts who are individuals within the organization
Community Activities and Volunteering	Assigning or volunteering to participate in organized group or club activities. The members participating in the activity will be responsible for carrying out activities with the goal of improving and developing the work.
Interaction with Senior Management	Liaising with executives with expertise and seniority with report presentation/presentation or attending a meeting with the management team
Site Visits	Field trips to learn about practices The organization's work process is Best Practice in the matter that needs to be viewed.
Customer Visits	Visiting customers to study customer behavior Including information on customer expectations towards the use of products and services.
Action Research	Implementation of research by determining the subject to be researched by considering the problems in the work that arise. collecting information and applying the research results obtained to solve problems that arise on the daily work site.

Apply Best Practice	Implementing guidelines, procedures, or best practice principles until they are accepted. to apply in practice
On the Job Learning	Learning from real practice in the field, encountering real situations and real customers.

2. 20 Learning Model is a learning model that occurs from others (Learn by Others), whether it be your direct supervisor. indirect supervisor Colleagues within the department Colleagues from different departments, subordinates, customers, and partners are learning that occurs from conversation. Consultation interchange of information This requires restoring the foundation of having a good relationship between two or more interlocutors by making an appointment to talk. and exchange views with each other at times convenient for both sides. Human resource development tools (Development Tools) that are used will focus on human resource development tools that are not classroom training tools or Non Classroom Training as follows.

Table 20 20 Learning Model personnel development tools

Development tools	Details of development tools
Coaching from Manager/Others	Instructional instruction to spark learning by a direct supervisor or other person who is accepted by the person being taught and is ready to learn along with the instructor.
Peer Coaching	Teaching by colleagues in the same department or different departments assigned as a teacher inspires the learners to have good ideas and perspectives in their work.

Group Coaching	Guided instruction with more than 3 people who are being taught, with an emphasis on teaching to inspire the trainees to have a way of operating for the common goals of the group.
Informal Coaching	Unstructured coaching that can happen at any time Most emphasize teaching in the Life Coach style, where the instructor serves to inspire those being taught to have perspectives and ideas for living their daily lives.
Mentoring	A conversation between the mentor and the person the mentor is supervising. Focus on the mind emotion and adjustment when working with others in the organization
Teaching	telling the learner to recognize and listen Emphasis is placed on steps, methods, formats and work systems that can be put into practice by those being taught.
Counseling	Giving advice when problems arise from working in the organization The consultant will analyze the cause of the problem. and find alternative methods and approaches to solving problems
Mirror	Bringing what a person said or did during that time to talk about how good or bad the words and behaviors that were expressed.
Informal Feedback and Work Debriefs	Providing information about work by collecting past work results over a certain period of time to summarize whether there are good works that need to be maintained and there are areas that need to be improved.
Seeking Advice, Asking Opinions	request for advice or asking knowledgeable people about matters that they do not yet have knowledge about and lack of experience To apply the advice and opinions received to work and personal life.

360 Degree Feedback	Providing information received from people around you, whether it be your direct supervisor indirect supervisor subordinates self, colleague
Assessments Outcomes and Feedback	Evaluating the results of the work and providing feedback from the evaluation results received. The goal is to allow people to listen to feedback to improve and develop their own work.
Assessment Center	Clarification of the results of individual assessments that are conclusive by using a variety of methods. Whether it is an evaluation from a case study role play Taking tests, giving presentations
Learning and Development Center	Participating in the test from the Learning and Development Center by taking a knowledge test or a personality test and listening to the test results from the center to bring information to improve and develop ourselves
Learning through Team/Networks	Joining a group to become a member or network with an emphasis on groups within the organization. To provide information on principles and concepts in a particular area of interest to the group.
External Networks/Contacts	Joining groups with external networks to listen to information and requesting information for use in work
Professional Association Involvement or Active Membership	Being a member of an academic group to listen to information Useful news for work and bring the information Acquired to improve and develop work to be more efficient.
Facilitated Group Discussion by Action Learning	Being assigned to act as a director and organizing group members from people within the organization or different organizations to talk, ask questions, and exchange opinions from their experiences. By emphasizing together to find a solution from the problem.

Peer - Assisted Learning and Work Buddy	Discussing with partners assigned by superiors to help each other in work And have friends who are always there to give advice and advice on work that you do or problems that arise.

3. 10 Learning Model is a learning model that focuses on classroom training (Classroom Training) combined with learning that focuses on tools that are not classroom training (Non Classroom Training), whether it is Learning through e-Learning media and various documents It is studied through programs or courses that have already been prepared. This is another important form of development and it is necessary that the organization cannot cancel this form of learning in order to create integrated learning and result in learning for the learner. really know People development tools that are commonly used are as follows:

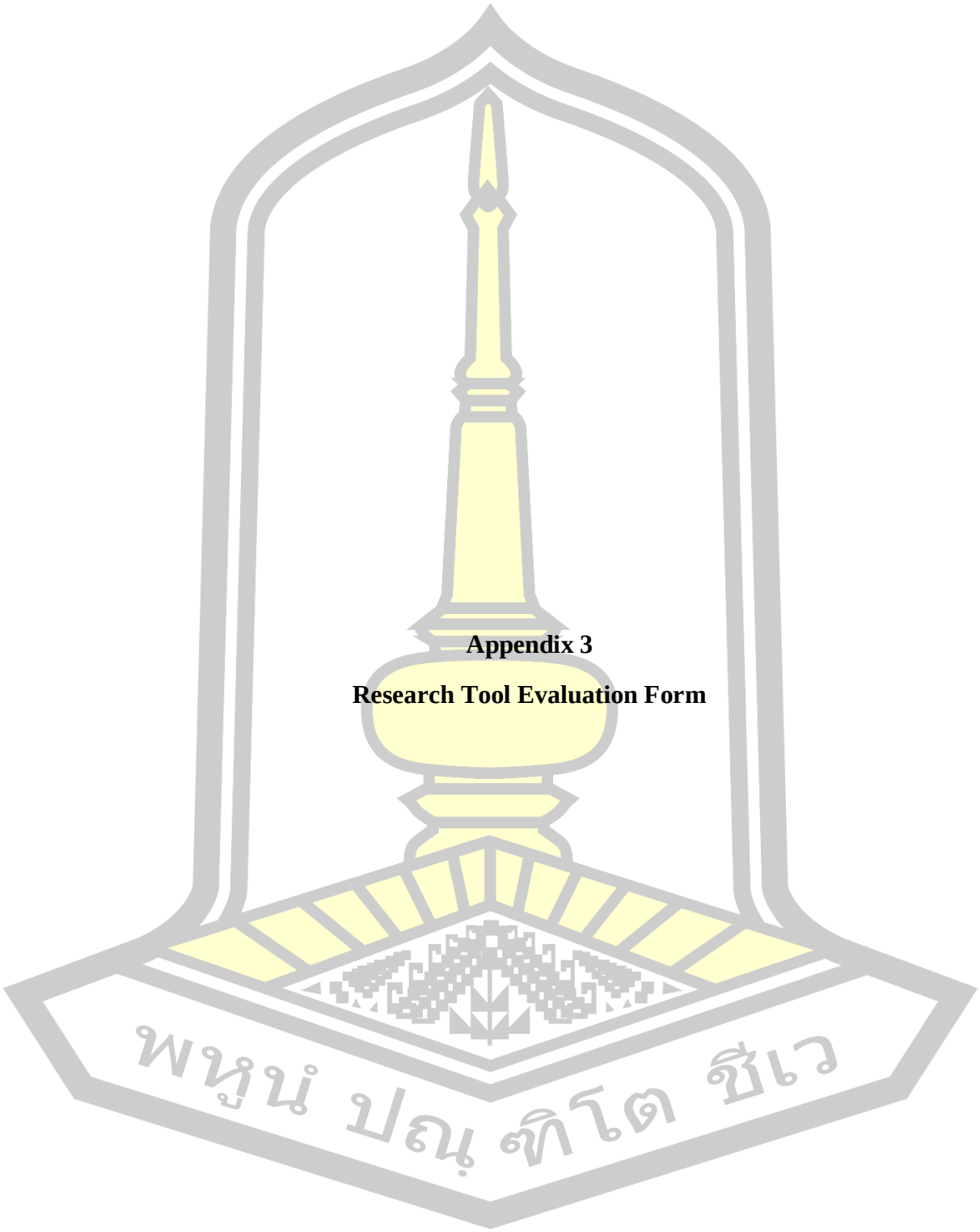
Table 21 10 Learning Model Personnel Development Tools

Development tools	**Details of development tools**
In-House Training	Learners from the same organization learn together in training courses organized by the organization. It is a training organized both internally and/or externally.
Public Training	Students from different organizations are interested in the same course. Organized by external training institutes
Seminar	Participating in group meetings where members have the same interest or expertise in the same subject to listen, get to know, and exchange views.
Workshop	Participating in group meetings where members have the same interest or expertise in the same subject, participate in practice or jointly act on a specified matter. The conclusions obtained from the seminar will be continued or not.

e-Learning	Learning via electronic media such as the internet, satellite signals, etc., including learning via On-Line according to the conditions set by the organization/institution that provides the learning media.
Certification Program	Participate in a program in a long-term course with a certificate certifying that learners are knowledgeable with an international standardized knowledge test that the institution organizes a specified learning program.
Formal Education	Continuing education at a university or college It is learning that takes time to study according to the organized program. Students can choose the program and subjects that they are interested in and have enough time to learn according to the specified program.
Reading	Reading on topics of interest to increase one's own perspective, ideas, and knowledge on the subject of interest.

Components	70:20:10	Method	Hours
1.Technology vision 2.Technology competence 3.technologyprofessional development 4.Technology integration	70 learning by experience	Job shadowing Assignments	28 hours
	20 learning by others	Coaching Networking	8 hours
	10 learning by course	Training	4 hours

70 learning by experience	Job shadowing(20 hours)	Let teachers without technology leadership shadow experienced teachers to observe and learn from their daily work. Improve technology leadership capabilities and learn new knowledge and experiences through observation and interaction.
	Assignments(8 hours)	Assign tasks so that teachers can learn and improve technology leadership in the process of completing tasks. Arrange for senior experts or teachers with technology leadership to evaluate and provide feedback on the work.
20 learning by others	Coaching (6 hours)	Work in pairs, a teacher with technology leadership coaches a teacher without technology leadership. Improve technology leadership by working as a team to complete tasks.
	Networking (2 hours)	Teachers from various universities are invited to hold exchange meetings to learn from each other how to improve technology leadership.
10 learning by course	Training（4 hours）	Experts in the field of technology leadership are invited to give special lectures, which are divided into two sections: understanding of technology leadership and methods of improving it.



Appendix 3

Research Tool Evaluation Form

Expert Index of Concordance Assessment Form (IOC)

illustration:

1. This evaluation form is designed to test the validity of the research questionnaire on technology leadership of teachers majoring in public art education management at Nanning University in Guangxi;

2. Please tick "√" in the corresponding box according to the degree of consistency

between the question and the term definition. The numerical values represent the following meanings:

+1 means that the question meets the definition of the term

0 means not sure whether the question meets the definition of the term

-1 means it is determined that the question does not meet the definition of the term

Item	Question	Opinion			Suggestion
		+1	0	-1	
1	Have a correct understanding of technology leadership				
2	Have a strong sense of the importance of technology				
3	Recognize technology as the trend of future education development				
4	Have a strong sense of teaching in terms of educational development				
5	Correctly understand the relationship between technology and education development				
6	Technology leadership has an impact on teaching work				
7	Have a certain understanding of technology leadership				
8	Understand the theoretical principles of technology leadership				
9	Have a strong desire to learn technology leadership				

10	Have a positive attitude towards technology				
11	Ability to clearly search for the information you need				
12	Ability to keenly find needed teaching resources				
13	Able to use teachers' technology leadership to create a professional atmosphere				
14	Proficient in processing and sharing tools such as projection and ppt				
15	Be able to skillfully apply technology to develop teacher resources				
16	Proficient in using the evaluation system to record and evaluate teachers' technology performance				
17	Ability to evaluate educational effectiveness				
18	Proficient in using Internet-based communication tools				
19	Use technology skills proficiently to improve educational goals				
20	Easily complete educational design				
21	Ability to use teaching needs to clarify teaching goals				
22	Proficient in using tools for educational development				
23	Ability to clarify learning steps according to educational goals				
24	Easily carry out classroom teaching activities				
25	Ability to predict performance after the completion of the practice plan				
26	Ability to plan educational activities and knowledge presentation methods well				

27	Use leadership technology to complete educational evaluation				
28	Be able to correctly evaluate teachers' technology learning status				
29	Able to reflect on and improve problems in education				
30	The professional ideal is to strive to improve the technology leadership level of teachers.				
31	Understand the school's development goals and education setting standards				
32	Education plans will be determined based on the development vision				
33	Put forward your own opinions on equipment procurement				
34	If there is a lack of teaching software and hardware, the school can solve it in time				
35	Able to jointly manage the educational resource library with colleagues				
36	Ability to keenly find needed teaching resources				
37	Consciously realize the integration of education and life				
38	Interest in improving teachers' abilities with the help of teachers' technology leadership				
39	Actively comply with and participate in formulating school policies				
40	Able to use teachers' technology leadership to supervise the teaching process				

Table 22 Conformity index (IOC), the content of the questionnaire

Article	Expert					Together	IOC	Results of consideration
	1st person	2nd person	3rd person	4th person	5th person			
1	+1	+1	+1	+1	+1	5	1.00	consistent
2	+1	+1	+1	+1	+1	5	1.00	consistent
3	+1	+1	+1	+1	+1	5	1.00	consistent
4	+1	+1	+1	+1	+1	5	1.00	consistent
5	+1	+1	+1	+1	+1	5	1.00	consistent
6	+1	+1	+1	+1	+1	5	1.00	consistent
7	+1	+1	+1	+1	+1	5	1.00	consistent
8	+1	+1	+1	+1	+1	5	1.00	consistent
9	+1	+1	+1	+1	+1	5	1.00	consistent
10	+1	+1	+1	+1	+1	5	1.00	consistent
11	+1	+1	+1	+1	+1	5	1.00	consistent
12	+1	+1	+1	+1	+1	5	1.00	consistent
13	+1	+1	+1	+1	+1	5	1.00	consistent
14	+1	+1	+1	+1	+1	5	1.00	consistent
15	+1	+1	+1	+1	+1	5	1.00	consistent
16	+1	+1	+1	+1	+1	5	1.00	consistent
17	+1	+1	+1	+1	+1	5	1.00	consistent
18	+1	+1	+1	+1	+1	5	1.00	consistent
19	+1	+1	+1	+1	+1	5	1.00	consistent
20	+1	+1	+1	+1	+1	5	1.00	consistent
21	+1	+1	+1	+1	+1	5	1.00	consistent
22	+1	+1	+1	+1	+1	5	1.00	consistent
23	+1	+1	+1	+1	+1	5	1.00	consistent
24	+1	+1	+1	+1	+1	5	1.00	consistent
25	+1	+1	+1	+1	+1	5	1.00	consistent
26	+1	+1	+1	+1	+1	5	1.00	consistent
27	+1	+1	+1	+1	+1	5	1.00	consistent
28	+1	+1	+1	+1	+1	5	1.00	Consistent
29	+1	+1	+1	+1	+1	5	1.00	consistent
30	+1	+1	+1	+1	+1	5	1.00	consistent
31	+1	+1	+1	+1	+1	5	1.00	consistent
32	+1	+1	+1	+1	+1	5	1.00	consistent
33	+1	+1	+1	+1	+1	5	1.00	consistent
34	+1	+1	+1	+1	+1	5	1.00	consistent
35	+1	+1	+1	+1	+1	5	1.00	consistent
36	+1	+1	+1	+1	+1	5	1.00	consistent
37	+1	+1	+1	+1	+1	5	1.00	consistent
38	+1	+1	+1	+1	+1	5	1.00	consistent
39	+1	+1	+1	+1	+1	5	1.00	consistent
40	+1	+1	+1	+1	+1	5	1.00	consistent

Table 23 Confidence level of the existenceand desired status query

Table 1 Confidence level of the existence query

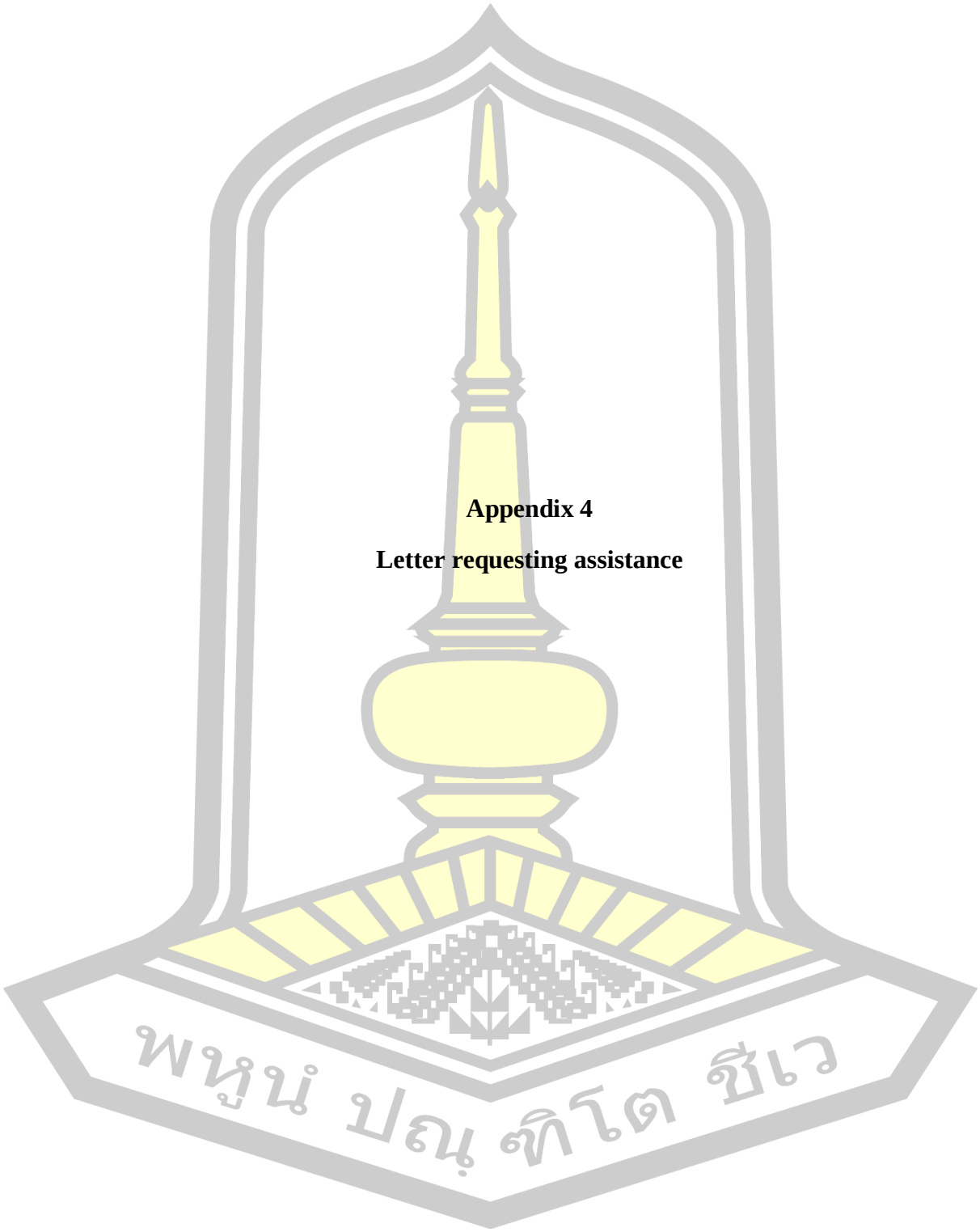
Reliability statistics	
Cronbach's Alpha Coefficient	Number of items
0.83	40

It can be seen from table 1,the confidence value of the existence questionnaire To be equal to 0.83.

Table 24 Confidence level of the desired state query

Reliability statistics	
Cronbach's Alpha Coefficient	Number of items
0.87	40

It can be seen from table 2, the confidence value of the desired condition questionnaire To be equal to 0.87.



Appendix 4

Letter requesting assistance

FACULTY OF EDUCATION
MAHASARAKHAM UNIVERSITY

79/2 Muang, Maha Sarakham,
44000, THAILAND
Tel/fax +66 43 713 174
Email: cia.edu@msu.ac.th

Center for International Affairs

MHERSI No. 0605.5 (2)/ 5112 Date: November 2, 2023

To: Whom It May Concern
Guangxi Normal University

Subject: Data Collection Permission Request

Our student, **Ms. Xu Danyang**, student number **64010561018**, majoring in the **Ed.D. Educational Administration and Development Program** is currently undertaking a research project titled **"Program to Enhance Technology Leadership of Teacher in Public Art Education Management Take Nanning, Guangxi "** under the guidance of Assoc. Prof. Suwat Julsuwan.

To ensure this project's success and quality, we seek your permission to allow our students to process data collection within your institution.

The details of the data collection are as follows:

Thesis title: **Program to Enhance Technology Leadership of Teacher in Public Art Education Management Take Nanning, Guangxi**

The period of data collection: **December 2023 to January 2024**

We believe that your institution provides a valuable environment and resources that are essential for the successful execution of this research. The data collection process will be carried out diligently and with the utmost respect for your institution's policies and procedures. We acknowledge that the student has made the necessary preparations, including obtaining the Thesis title approval from our institution.

Should you require further information or clarification regarding this permission, please feel free to email us.

Yours sincerely,

Assoc. Prof. Chowwalit Chookhampaeng
Dean, Faculty of Education,
Mahasarakham University

FACULTY OF EDUCATION
MAHASARAKHAM UNIVERSITY

79/2 Muang, Maha Sarakham,
44000, THAILAND
Tel/fax +66 43 713 174
Email: cia.edu@msu.ac.th

Center for International Affairs

MHERSI No. 0605.5 (2)/CL45 Date: January 3, 2024

To:
Dr. Surachet Noirid
Faculty of Education, MSU

Subject:
Thesis Reviewer Invitation

Our student, **Ms.Xu Danyang**, student ID **64010561018** majoring in the **Ed.D. Educational Administration and Development Program** is currently undertaking a research project titled **" Program to Enhance Technology Leadership of Teacher in Public Art Education Management Take Nanning, Guangxi "** under the guidance of Assoc. Prof. Suwat Julsuwan.

To ensure the successful execution and the highest quality of this research project, we are seeking your valuable expertise and experience. Therefore, I am delighted to formally invite you to serve as a reviewer for the research instrument designed for this thesis project.

Your participation in this academic endeavor is highly valued and appreciated. Should you require any further information or have questions regarding this invitation, please do not hesitate to email us.

Yours sincerely,

Assoc. Prof. Chowwalit Chookhampaeng
Dean, Faculty of Education,
Mahasarakham University

FACULTY OF EDUCATION
MAHASARAKHAM UNIVERSITY

79/2 Muang, Maha Sarakham,
44000, THAILAND
Tel/fax +66 43 713 174
Email: cia.edu@msu.ac.th

Center for International Affairs

MHERSI No. 0605.5 (2)/CL45 Date: January 3, 2024

To:
Asst. Prof. Zhao Fucai
Specialist of Guangxi Normal University

Subject:
Thesis Reviewer Invitation

Our student, **Ms. Xu Danyang**, student ID **64010561018** majoring in the **Ed.D. Educational Administration and Development Program** is currently undertaking a research project titled **" Program to Enhance Technology Leadership of Teacher in Public Art Education Management Take Nanning, Guangxi "** under the guidance of Assoc. Prof. Suwat Julsuwan.

To ensure the successful execution and the highest quality of this research project, we are seeking your valuable expertise and experience. Therefore, I am delighted to formally invite you to serve as a reviewer for the research instrument designed for this thesis project.

Your participation in this academic endeavor is highly valued and appreciated. Should you require any further information or have questions regarding this invitation, please do not hesitate to email us.

Yours sincerely,

Assoc. Prof. Chowwalit Chookhampaeng
Dean, Faculty of Education,
Mahasarakham University

FACULTY OF EDUCATION
MAHASARAKHAM UNIVERSITY

79/2 Muang, Maha Sarakham,
44000, THAILAND
Tel/fax +66 43 713 174
Email: cia.edu@msu.ac.th

Center for International Affairs

MHERSI No. 0605.5 (2)/CL45 Date: January 3, 2024

To:
Asst. Prof. Zhang Yuhua
Specialist of Guangxi Normal University

Subject:
Thesis Reviewer Invitation

Our student, **Ms.Xu Danyang**, student ID **64010561018** majoring in the **Ed.D. Educational Administration and Development Program** is currently undertaking a research project titled **" Program to Enhance Technology Leadership of Teacher in Public Art Education Management Take Nanning, Guangxi "** under the guidance of Assoc. Prof. Suwat Julsuwan.

To ensure the successful execution and the highest quality of this research project, we are seeking your valuable expertise and experience. Therefore, I am delighted to formally invite you to serve as a reviewer for the research instrument designed for this thesis project.

Your participation in this academic endeavor is highly valued and appreciated. Should you require any further information or have questions regarding this invitation, please do not hesitate to email us.

Yours sincerely,

Assoc. Prof. Chowwalit Chookhampaeng
Dean, Faculty of Education,
Mahasarakham University

FACULTY OF EDUCATION
MAHASARAKHAM UNIVERSITY

79/2 Muang, Maha Sarakham,
44000, THAILAND
Tel/fax +66 43 713 174
Email: cia.edu@msu.ac.th

Center for International Affairs

MHERSI No. 0605.5 (2)/CL45 Date: January 3, 2024

To:
Asst. Prof. Liu Xiaodong
Specialist of Guangxi Normal University

Subject:
Thesis Reviewer Invitation

Our student, **Ms. Xu Danyang**, student ID **64010561018** majoring in the **Ed.D. Educational Administration and Development Program** is currently undertaking a research project titled **" Program to Enhance Technology Leadership of Teacher in Public Art Education Management Take Nanning, Guangxi "** under the guidance of Assoc. Prof. Suwat Julsuwan.

To ensure the successful execution and the highest quality of this research project, we are seeking your valuable expertise and experience. Therefore, I am delighted to formally invite you to serve as a reviewer for the research instrument designed for this thesis project.

Your participation in this academic endeavor is highly valued and appreciated. Should you require any further information or have questions regarding this invitation, please do not hesitate to email us.

Yours sincerely,

Assoc. Prof. Chowwalit Chookhampaeng
Dean, Faculty of Education,
Mahasarakham University

FACULTY OF EDUCATION
MAHASARAKHAM UNIVERSITY

79/2 Muang, Maha Sarakham,
44000, THAILAND
Tel/fax +66 43 713 174
Email: cia.edu@msu.ac.th

Center for International Affairs

MHERSI No. 0605.5 (2)/CL45 Date: January 3, 2024

To:
Assoc. Prof. Songsak Phusee-On
Faculty of Education, MSU

Subject:
Thesis Reviewer Invitation

Our student, **Ms.Xu Danyang**, student ID **64010561018** majoring in the **Ed.D. Educational Administration and Development Program** is currently undertaking a research project titled **" Program to Enhance Technology Leadership of Teacher in Public Art Education Management Take Nanning, Guangxi "** under the guidance of Assoc. Prof. Suwat Julsuwan.

To ensure the successful execution and the highest quality of this research project, we are seeking your valuable expertise and experience. Therefore, I am delighted to formally invite you to serve as a reviewer for the research instrument designed for this thesis project.

Your participation in this academic endeavor is highly valued and appreciated. Should you require any further information or have questions regarding this invitation, please do not hesitate to email us.

Yours sincerely,

Assoc. Prof. Chowwalit Chookhampaeng
Dean, Faculty of Education,
Mahasarakham University

Appendix 5

Expert Interview Photographs

Interview with teachers from Nanning University, Guangxi

Teacher learning and exchange at Nanning University, Guangxi

In-depth interview on the existence of teachers' technology leadership in Nanning University, Guangxi.

พหุน ปณฺ ฑิโต ชีเว

BIOGRAPHY

NAME	Danyang Xu
DATE OF BIRTH	23 October 1993
PLACE OF BIRTH	China
ADDRESS	Fuxin city, Liaoning Province
POSITION	Teacher
PLACE OF WORK	Nanning Normal University
EDUCATION	2009 - 2012 Yu Cai No. 1 Middle School, Fuxin City, Liaoning Province，China 2012 - 2016 Graduated from Liaoning University, major Literature. 2017 - 2020 Master of Education in Educational Science, Faculty of Education, Nanning Normal University,China. 2021 - 2024 Doctor of Education in Educational Administration and Development, Faculty of Education Mahasarakham University, Thailand.