GRADUATE SCHOOL OF
BUSINESS AND ADVANCED
TECHNOLOGY MANAGEMENT

Au Virtual International Conference 2021
Entrepreneurship and Sustainability in the Digital Era
Assumption University of Thailand
October 19, 2021

Co-hosted by

Development of a Teacher Guideline for Wisdom Education Management in Teaching and Learning in Yunnan's Secondary Schools

Xuan Wang[1]
Master of Education Program in Educational Management (International Program),
Department of Education, Faculty of Social Sciences and Humanities,
Mahidol University, Thailand. Email:772892190@qq.com

Panchit Longpradit[2]
2Lecturer, Department of Education, Faculty of Social Sciences and Humanities, Mahidol University, Thailand
*Corresponding author. E-mail: panchit.lon@mahidol.ac.th

Abstract

The purposes of this study were to survey current situations of teachers on wisdom education in teaching and learning in secondary schools in Yunnan, China, and to propose a teacher guideline for wisdom education in teaching and learning and evaluate its effectiveness in view of experts. This research adopted two sets of questionnaires of quantitative methodology as data collection methods, one was for surveying 100 secondary school teachers in terms of wisdom education teaching and learning preparation ability, wisdom education teaching and learning implementation ability, wisdom education teaching and learning evaluation reflection ability, wisdom education teaching and learning innovation ability; and another was for verifying the effectiveness of the proposed guideline by views of 5 experts based on the criteria of 4 abilities, including the preparation, implementation, evaluation reflection and innovation abilities of wisdom education in teaching and learning. Firstly, the survey results showed that the overall four components of wisdom education in teaching and learning was at a high level with the mean score of 3.96. Secondly, the expert reviews showed that the effectiveness of the wisdom education guideline for teachers in teaching and learning was very positive and enlightening.

Keywords: Wisdom Education, Wisdom Education in Teaching and Learning, Teacher Guideline

Introduction

In recent years, with the rapid development of technologies such as cloud computing, big data, and the Internet of Things (IoTs), technology has completely penetrated into all aspects of social life, particularly education, from the initial auxiliary media tools. It has brought a great impact on educational resources, traditional learning and teaching modes and other educational factors. The comprehensive and in-depth use of modern information technology is therefore more essential than ever before.

Wisdom education refers to education for wisdom with technology (Wang, 2012). It can be understood as the use of information technology to digitally collect educational information, use intelligent information technology to process and intelligently determine the collected information, and provide feedback and serve education through information terminals, so as to improve the efficiency of teaching and management, and ultimately promote education reform and development (Yun & Rong, 2017). It is a more comprehensive, rich, diverse and education. By constructing a wisdom learning environment and using wisdom teaching methods of wisdom education, it promotes learners to learn vigorously, and cultivates people with high intelligence and creativity (Zhu & He, 2012).

Wisdom education is the current hot spot and trend of education. China has always regarded education as a very important part of its national strategy. The Ministry of Education of China has formulated the relevant policy "Education Informatization 2.0 Action Plan" and invested a large amount of education funds to expand the scale of the wisdom education market to ensure that wisdom education is faster and more efficient. Good generated in the field of

education. This is also a necessary choice for China to promote education informatization to support and lead the development of education modernization and to adapt to the development of education in a wisdom environment.

Secondary education in China is regarded equal importance. The government attaches great importance to compulsory education (primary school and secondary school), and sufficient investment funds for the compulsory education stage. As the age, physical and psychological conditions of secondary school students have developed well, they can concentrate their attention for a longer period of time according to the requirements of teaching. Therefore, improving the teachers' wisdom education ability of secondary school is essential to help learners better individualized development. However, China's secondary wisdom education is still in the development stage and needs to promote the development of teachers' educational wisdom ability, including educational concepts, and the knowledge structure of teaching and learning. Through the study of wisdom education in teaching and learning, it can help stakeholders involved realize the current situation and can deploy the study findings to rectify the problem and to create a good wisdom learning environment for students. Therefore, the main purposes of this research were to develop a guideline for teachers' wisdom education in teaching and learning in secondary school level and evaluate its effectiveness by views of experts, so as to enhance teachers' ability of wisdom education in teaching and learning. This guideline will help teacher better manage wisdom teaching activities, promote teachers' educational wisdom ability, including the development of educational concepts and the knowledge structure of teaching and learning. Through wisdom education in teaching and learning of teachers, it is expected to create a good wisdom learning environment for students. Figure 1 exhibits the research framework for this study.

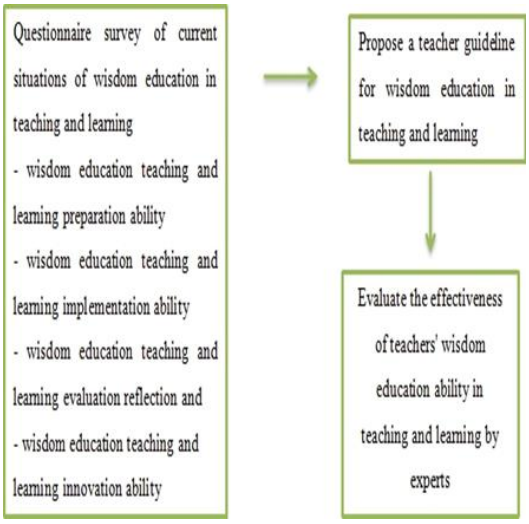

Figure 1: Research Framework

Materials and Methods

In this research, there were two main studies of quantitative methodology.

Firstly, the study was to survey the current situation of wisdom education in teaching and learning. Due to a COVID-19 pandemic and the difficulty in data collection, the samples were 100 teachers determined by a quota sampling from 4 regions of Kunming, Yunnan Province, 25 from Wuhua District, 25 from Panlong District, 25 from Xishan District and 25 from Guandu District, and a convenient sampling was applied for each of the districts. A questionnaire with Sun's wisdom education teaching and learning ability (Sun, 2018), involving wisdom education teaching and learning preparation ability, wisdom education teaching and learning implementation ability, wisdom education teaching and learning evaluation reflection, and wisdom education teaching and learning innovation ability), was adopted. The questionnaire consisted of 2 parts. Part I included personal information of respondents and Part II comprised of 22 items based on Sun's wisdom education teaching and learning ability (Sun, 2018) with five degrees of perception ranked on 5-point Likert scale.

Secondly, the study was to propose a teacher guideline for wisdom education in teaching and learning, and evaluate the effectiveness of the proposed guideline. Another set of a 5-point Likert scale evaluation questionnaire with the integration of management functions:

planning, organizing, leading and controlling and Sun's wisdom education teaching and learning ability (Sun, 2018) was employed, where 5 experts were purposively selected to verify the effectiveness of the questionnaire. The selection criteria for experts were as follows, firstly, considering that the wisdom education guideline in teaching and learning is to improve teachers' ability to apply wisdom education in the classroom, the 5 experts in this research then needed to teach in secondary schools in Yunnan Province and Kunming City and are leaders in teaching and learning. Secondly, they needed to serve as a teacher in the school's wisdom classroom and to be able to carry out wisdom education activities on a regular basis. Following that, the experts needed to be key secondary school teachers with more than 8 years of teaching experience. The last selection criterion was that they needed to be able to make full use of information technology to innovate education and teaching methods and methods. There were 31 items in the questionnaire.

Both questionnaires were verified for its content validity by means of Item-Object Congruence (IOC) by three educational management experts, and the results of each item were between 0.67-1.00. In addition, reliability of the survey questionnaire of wisdom education in teaching and learning was tested by 30 respondents who were not included in the study population prior to the use by the actual respondents. Cronbach's Coefficient (1970) was used to calculate the result, and the result of Cronbach's Alpha Value of the questionnaire was 0.94. Table 1 illustrates the IOC and Cronbach's Alpha Value for each component of Sun's wisdom education ability in teaching and learning.

Table 1: Cronbach's Alpha Value of each of the Item in the Questionnaire

No.	Components	IOC	Cronbach's Alpha Value
1.	Wisdom education teaching and learning preparation ability	1.00	0.94
2.	Wisdom education teaching and learning implementation ability	1.00	0.93
3.	Wisdom education teaching and learning evaluation reflection	1.00	0.93
4.	Wisdom education teaching and learning evaluation reflection	1.00	0.92

Results and Discussion

The study analyzed the data through statistical analysis using computer program. The findings of this study can be divided into three sections as follows.

1) Current situations of teachers on wisdom education in teaching and learning in secondary schools in Yunnan, China.

The overall findings on current situations from teachers' perspectives using descriptive statistics such as mean, standard deviation and level are illustrated in Table 2.

Table 2: Overall Teachers' Wisdom Education Ability in Teaching and Learning

No.	Components	$\bar{x}$	SD	Level
1.	Wisdom education teaching and learning preparation ability	3.97	0.85	High
2.	Wisdom education teaching and learning implementation ability	3.91	0.83	High
3.	Wisdom education teaching and learning evaluation reflection	4.00	0.83	High
4.	Wisdom education teaching and learning evaluation reflection	4.07	0.88	High
	Overall	**3.97**	**0.85**	**High**

Note:1.00-1.80 Lowest, 1.81-2.60 Low, 2.61-3.40 Moderate, 3.41-4.20 High, 4.21-5.00 Highest (Best & Kahn, 1998).

As per the findings, the overall mean score of teachers' wisdom education ability in teaching and learning was 3.97 at a high level, which clearly indicated that the current teachers' basic recognition of the 4 components of wisdom education in teaching and learning, including preparation ability, implementation ability, evaluation reflection ability, and innovation ability. The mean score of wisdom education teaching and learning evaluation reflection component received the highest mean score of 4.07 (SD=0.88) among them.

The results of the first component of Sun's wisdom education ability (Sun, 2018) are presented in Table 3. There were 6 items under this dimension.

Table 3: Items under Wisdom Education Preparation Ability Component

No.	Wisdom education teaching and learning preparation ability	$\bar{x}$	SD	Level
Q1	I understand the basic concepts and basic knowledge of wisdom education.	3.71	0.82	High
Q2	I think information technology (multimedia, etc.) help wisdom classroom teaching and learning activities.	4.26	0.77	Highest
Q3	I can skilfully apply wisdom education to the daily teaching and learning content in the classroom.	3.78	1.01	High
Q4	I can clearly position the learning objectives of the teaching subjects.	4.05	0.81	High
Q5	I can make a plan for students' thinking ability according to their characteristics based on the situations of wisdom education.	3.90	0.86	High
Q6	I think wisdom education in teaching and learning can help students to learn and understand knowledge points faster and easier.	4.13	0.83	High
	Overall	**3.97**	**0.85**	**High**

Note: 1-1.80: lowest, 1.81-2.60: low, 2.61-3.40: moderate, 3.41-4.2: high, 4.21-5.00: highest (Best & Kahn, 1998).

As per the result from the survey questionnaire, this component was overall rated high with a mean score of 3.97 (SD=0.85). The item Q2 had the highest mean score of 4.26 (SD=0.77), indicating that teachers are more proficient in applying information technology as a medium of modern education to teaching and learning activities in wisdom classrooms, whereas the item Q1 had the lowest mean score of 3.71 (SD=0.82), indicating that teachers' awareness of the basic concepts and knowledge of wisdom education is lower than other aspects.

The results of 5 items under wisdom education implementation ability component, are exhibited in Table 4.

Table 4: Items under Wisdom Education Implementation Ability Component

No.	Wisdom education teaching and learning implementation ability	$\bar{x}$	SD	Level
Q7	I can integrate subject education and intelligent information technology to assist students in wisdom classroom teaching and learning activities.	3.86	0.83	High
Q8	I can use wisdom technology to monitor students' learning in time and make timely adjustments in the teaching process.	3.76	0.83	High
Q9	I can acquire subject resource knowledge through different channels (network, book or self-created).	4.17	0.79	High
Q10	I have the ability to solve technical problems in the wisdom classroom.	3.75	0.83	High
Q11	I am proficient in using multimedia for daily teaching and learning activities.	4.03	0.88	High
	Overall	**3.91**	**0.83**	**High**

Note: 1-1.80: lowest, 1.81-2.60: low, 2.61-3.40: moderate, 3.41-4.2: high, 4.21-5.00: highest (Best & Kahn, 1998).

As can be seen from Table 4, the item Q9 had the highest mean score of 4.17 (SD=0.79), indicating that teachers are relatively good at acquiring knowledge of subject resources through different channels, whereas the item Q10 had the lowest mean score of 3.75 (SD=0.83), suggesting that teachers need to improve their ability to solve technical problems in the wisdom classroom.

The results of wisdom education teaching and learning evaluation reflection ability component, which contained 5 items, are illustrated in Table 5.

Table 5: Items under Wisdom Education Teaching and Learning Evaluation Reflection Ability Component

No.	Wisdom education teaching and learning evaluation reflection ability	$\bar{x}$	SD	Level
Q12	I can make multiple evaluations based on the students' mastery of knowledge.	3.95	0.73	High
Q13	I can generally use some auxiliary means to give feedback on wisdom teaching and learning effects.	4.08	0.91	High
Q14	I can conduct self-evaluation regularly.	3.94	0.80	High
Q15	I can communicate with other teachers or experts to get advice and feedback on wisdom teaching and learning.	3.99	0.88	High
Q16	I can help students make personalized teaching and learning choices based on their learning feedback and evaluation.	4.03	0.82	High
	Overall	**4.00**	**0.83**	**High**

Note: 1-1.80: lowest, 1.81-2.60: low, 2.61-3.40: moderate, 3.41-4.2: high, 4.21-5.00: highest (Best & Kahn, 1998).

As depicted in the table, the item Q13 gained the highest mean score of 4.08 (SD=0.91), signifying that teachers are more proficient in the feedback on the effects of wisdom teaching and learning through some auxiliary means. On contrary, the item Q14 had the lowest means score of 3.94 (SD=0.80), indicating that teachers pay less attention to the regular self-evaluation part than other items.

Lastly, the results of the wisdom education innovation ability, with 6 items measurement, are presented in Table 6.

Table 6: Items under Wisdom Education Innovation Ability Component

No.	Wisdom education teaching and learning innovation ability	$\bar{x}$	SD	Level
Q17	I am willing to accept, try and explore new lesson preparation methods (for example, through wisdom education intelligent systems).	4.16	0.75	High
Q18	I can accept differentiated teaching and learning in wisdom education.	4.17	0.79	High
Q19	I believe wisdom classrooms can improve the quality of teaching and learning in the classroom.	4.17	0.99	High
Q20	I can create a wisdom learning environment that effectively improves students' learning effects.	3.95	0.89	High
Q21	I can use new situational methods combined with intelligent technology to complete an interesting wisdom classroom format.	3.91	0.90	High
Q22	I realise that wisdom education can form good ideological and moral qualities and scientific and cultural literacy, and lay the foundation for lifelong learning and development.	4.03	0.85	High
	Overall	**4.07**	**0.86**	**High**

Note: 1-1.80: lowest, 1.81-2.60: low, 2.61-3.40: moderate, 3.41-4.2: high, 4.21-5.00: highest (Best & Kahn, 1998).

As exhibited in Table 6, this component was overall rated at a high level with a mean score of 4.07 (SD=0.86). The items Q18 and Q19 were both perceived with the highest mean score of 4.17 (SD=0.79 and SD=0.99, respectively). This shows that teachers have a higher degree of acceptance of differentiated teaching and learning in wisdom education. Additionally, teachers agree that the current wisdom classroom can improve the quality of teaching and learning. On the other hand, the item Q21 received the lowest mean score of 3.91 (SD=0.90), depicting

that teachers still need to improve their ability to complete the wisdom classroom through the situational method of intelligent information technology. Although teachers agree and accept the use of wisdom classrooms, they are relatively new and immature to incorporate new scenarios compared to other wisdom technologies.

2) Development of a teacher guideline of wisdom education in teaching and learning in secondary schools by means of expert review

The survey results were summarized and used to formulate a teacher guideline of wisdom education in teaching and learning, under the integration of Sun's wisdom education teaching and learning ability (Sun, 2018) and 4 functions of management –planning, organizing, leading and controlling. Table 7 illustrates the results.

Table 7: A Teacher Guideline of Wisdom Education in Teaching and Learning

Component	Planning
Wisdom education teaching and learning preparation ability	GP1: Teachers should understand the importance of wisdom education in teaching and learning.
	GP2: Teachers should actively apply wisdom education related plans to wisdom classroom teaching to create a wisdom learning environment.
	GP3: Teachers should prepare themselves to understand the basic concepts of wisdom education in teaching and learning, and know how to apply them to the teaching and learning of wisdom classrooms.
	GP4: Teachers need to understand how to use modern information technology to carry out normalized wisdom education activities in teaching and learning.
	GP5: Teachers must prepare to analyze the thinking ability of students according to the situation of wisdom education and the characteristics of learners.
Wisdom education teaching and learning implementation ability	GP6: Teachers need to make a plan to implement new modern education technology (wisdom education platform or knowledge resource library) to continuously supplement rich learning resources and improve their professional ability development to achieve the expected wisdom education goals.
	GP7: Teachers should design and combine multiple forms of intelligent technology in teaching to make learning more open, let students have a sense of actual participation, and stimulate students' interest in learning, enthusiasm and innovation.
Wisdom education teaching and learning evaluation reflection	GP8: With the help of wisdom technology, teachers should make plans to understand students' learning and welcome feedbacks in order to reflect on the deficiencies in teaching.
	GP9: Teachers should make multiple evaluation plans based on students' knowledge mastery.
Wisdom education teaching and learning innovation ability	GP10: Teachers have to design a hierarchical teaching and learning process according to different subject attributes.
	GP11: Teachers should be equipped with the knowledge about innovation creation prior to delivering classes.
Component	**Organizing**
Wisdom education teaching and learning preparation ability	GO1: While implementing the wisdom education, teachers must guide students to use modern information technology reasonably and widely disseminate relevant operating rules and moral and ethical concepts to students.
	GO2: Teachers have to clarify the responsibilities of students in the learning process of wisdom education.
Wisdom education teaching and learning implementation ability	GO3: Teachers must proficiently apply the basic operations of various intelligent technologies (such as multimedia).
	GO4: Teachers have to use software packages or educational technology to create activities related to course contents.
Wisdom education teaching and learning	GO5: Teachers must form group activities with experienced teachers to discuss and reflect on students' weaknesses and ways to improve.

evaluation reflection	GO6: Teachers should regularly conduct teaching research and demonstrate lessons in the form of group activities in order to summarize and find a better way to conduct teaching and learning activities.
	GO7: Teachers should use the wisdom education platform to communicate with their peers and clarify their rights and responsibilities in teaching and learning.
Wisdom education teaching and learning innovation ability	GO8: Teachers should combine modern information technology with the teaching and learning of daily courses, rationally allocate the learning resources brought by wisdom education, create a good wisdom learning environment, and promote the development of students' expression, understanding and exploration capabilities.
	GO9: Teachers should organize wisdom education lessons on innovation creation so that students can develop their innovation skills.

Component	**Leading**
Wisdom education teaching and learning preparation ability	GL1: School administrators should encourage teachers to train in modern information technology related to wisdom education.
Wisdom education teaching and learning implementation ability	GL2: Teachers should have the knowledge and ability to lead students to solve basic modern information technology problems.
Wisdom education teaching and learning evaluation reflection	GL3: School administrators should support teachers to have a strong sense of evaluation, through timely adjustment of relevant wisdom education strategies through the problems arising in the process of teaching and learning.
Wisdom education teaching and learning innovation ability	GL4: Teachers should inspire students to establish the consciousness of lifelong learning.
	GL5: Teachers should encourage students to learn wisdom education and apply related wisdom technologies.

Component	**Controlling**
Wisdom education teaching and learning preparation ability	GC1: Teachers should effectively store teaching resources and process management teaching activities through an intelligent management system according to the results of wisdom teaching and learning goals, so as to realize the equalization of students' learning resources and the fairness of learning.
Wisdom education teaching and learning implementation ability	GC2:Teachers should use the campus supervision system (APP) to effectively manage students' daily routines, notices, and home-school contact and to ensure the timeliness of the actual situation of the school.
Wisdom education teaching and learning evaluation reflection	GC3:Teachers should make use of modern information technology to record the teaching process, summarize the practical sessions and reflect on the deficiencies of wisdom education in teaching and learning.
	GC4:Teachers should revise the plan of wisdom education in teaching and learning regularly in order to have a better plan.
	GC5:School administrators should make use of modern information technology to evaluate the teaching and learning activities of teachers' wisdom education, update all aspects of teaching in real time, check for defects, and take relevant measures.
Wisdom education teaching and learning innovation ability	GC6:Teachers use modern information technology, combining new situational methods with intelligent technology, to equip students with good scientific and cultural literacy and lay the foundation for lifelong learning and innovation development.

As illustrated in Table 7, the proposed guideline is composed of 11GPs (Guideline for Planning), 9GOs (Guideline for Organizing), 5GLs (Guideline for Leading, and 6GC (Guideline for Controlling), each of which is incorporated under Sun's wisdom education teaching and learning ability (Sun, 2018).

3) Evaluation of the effectiveness of the proposed teacher guideline for wisdom education in teaching and learning in secondary schools by means of expert review

Applying Sun's wisdom education teaching and learning ability (Sun, 2018) as evaluation criteria, Table 8 presents the results of expert reviews toward the proposed teacher guideline.

Table 8: Overall Expert Reviews toward the Proposed Teacher Guideline for Wisdom Education in Teaching and Learning

Management Functions	$\bar{x}$	SD	Level
Planning (11GPs)	4.71	0.58	Highest
Organizing (9GOs)	4.58	0.84	Highest
Leading (5GLs)	4.60	0.61	Highest
Controlling (6GCs)	4.47	0.54	Highest
Overall	**4.59**	**0.55**	Highest

Note: 1-1.80: lowest, 1.81-2.60: low, 2.61-3.40: moderate, 3.41-4.2: high, 4.21-5.00: highest (Best & Kahn, 1998).

As illustrated in Table 8, the overall mean score of expert reviews was 4.59 (SD=0.55) at a highest level. The Planning components with 11 items had the highest mean score ($\bar{x}$ = 4.71, SD=0.58), followed by the Leading component ($\bar{x}$ = 4.60, SD=0.61), the Organizing component ($\bar{x}$ = 4.58, SD=0.84) and finally, the Controlling component ($\bar{x}$ = 4.47, SD=0.54). All results can be interpreted that the 5 purposively selected experts expressed their most highly positive views toward the proposed guideline.

In teaching and learning of wisdom education, teachers can use the teaching interactive platform as the basis to realize the interaction between students and intelligent systems. At the same time, they can use new media to push technology to broaden the knowledge resources of teachers and students, and realize student learning, teachers and students. Communication. Real-time education technology is used for teaching and learning feedback to form an efficient teaching and learning evaluation.

Conclusions

This research was mainly aimed at providing an effective teacher guideline for wisdom education in teaching and learning in Yunnan's secondary schools. Although the wisdom education has been a promising area of research, affirmed elsewhere that it is essential and that the ability of teachers' wisdom education can help foster student learning in the digital era, the similar studies are still limited in the secondary education level in China. Teachers' attitudes and beliefs towards information technology and their knowledge and their skills in information technology are the most direct and critical factors for the integration of technology into teaching. Their acceptance of information technology directly affects the depth of the integration of information technology and curriculum (Wang & Tang, 2017). Only teachers who are proficient in the application of information technology, the integration of information technology and education, and the creation of a wisdom teaching classroom environment, can better promote sustainable students' wisdom learning ability and promote student diversity development.

Especially now during the COVID-19 pandemic, students cannot go to the classroom for learning activities. Teachers are required to use modern and/or intelligent information technology for teaching and learning activities much more than ever before, through the integration of education resources and information to analyze and monitor the classroom, manage teaching and learning, provide feedback and evaluation to improve the efficiency of teaching and learning, and to create wisdom and efficient classrooms. This study has provided an affirmation that every teacher should be encouraged and promoted to have the ability of wisdom education.

Acknowledgment

This paper was developed from the master thesis in Faculty of Graduate Studies, Mahidol University, Thailand prepared by Xuan Wang. The author would like to express her deep gratitude to the advisory committee for their encouragement, guidance, advice and unfailing support from the start to final level of writing the thesis.

References

Best, J.W, & Kahn, I.V. (1998). Research in Education. Boston: Allyn and Bacon.

Cronbach's alpha - Wikipedia. (2021). Retrieved 9 March 2021, from https://en.wikipedia.org/wiki/Cronbach%27s_alpha

Sun, P. (2018). Research on the Construction of Evaluation Index System of the Wisdom Teaching in primary

and middle school (Ph.D.). Northeast Normal University.

Wang, S. (2012). Say "wisdom City". Library And Information Work, 5-9. https://doi.org/CNKI:SUN:TSQB.0.2012-02-003

Yun, R., & Rong, N. (2017). "wisdom Education" in the Context of Educational Information. The Chinese Education Information Website. Retrieved 6 July 2020, from http://www.ict.edu.cn.

Zhu, Z., & He, B. (2012). Wisdom Education: A New Realm of Education Informatization. Audio-Visual Education Research, (1003-1553), 5-14. https://doi.org/CNKI:SUN:DHJY.0.2012-12-0