

Inclusive Metaverse on Art Education Management of Innovation Ability in China's New Modern Schools

OPEN ACCESS

Volume: 13

Special Issue: 1

Month: April

Year: 2025

P-ISSN: 2320-2653

E-ISSN: 2582-1334

Received: 08.03.2025

Accepted: 14.04.2025

Published Online: 21.04.2025

Citation:

Li, J., Rattanapun, S., Darodjat, T., & White, A. (2025). Inclusive Metaverse on Art Education Management of Innovation Ability in China's New Modern Schools. *Shanlax International Journal of Education*, 13(S1), 53-64.

DOI:

<https://doi.org/10.34293/education.v13iS1-April.8631>



This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License

Jiaojie Li

Rajamangala University of Technology Krungthep, Thailand

Supot Rattanapun

Rajamangala University of Technology Krungthep, Thailand

 <https://orcid.org/0009-0004-4513-0455>

Tubagus Darodjat

Rajamangala University of Technology Krungthep, Thailand

Alan White

Rajamangala University of Technology Krungthep, Thailand

Abstract

This study explores the influence of the inclusive meta-universe on the art education management of China's new modern schools and the influence of art education management on the innovation ability of China's new modern schools. It also explores the influence of inclusive meta-universe on the innovation ability of China's new modern schools, and the mediating role of art education management between inclusive meta-universe and innovation ability. In order to achieve these research objectives, quantitative research methods were adopted to accurately explore the interaction and correlation between variables through numerical data and statistical analysis. Questionnaires were constructed, necessary data were collected from several new modern schools in China, and 471 valid questionnaires were recovered. Through a series of rigorous analyses, such as descriptive statistical analysis, reliability analysis, correlation analysis, regression analysis and intermediary effect analysis, the research hypothesis was verified. The results show that the inclusive meta-universe and art education management are key factors that significantly affect the innovation ability of new modern schools in China, especially art education management; At the same time, there is a strong positive correlation between art education management and the inclusive meta-universe. In addition, art education management plays a key mediating role between the inclusive meta-universe and innovation ability. This study is of great significance in many aspects. It theoretically fills the relevant research gap, combines inclusive meta-universe technology with school art education management and innovation ability, provides the theoretical basis and a research framework for future research, builds a multi-dimensional research model, and proposes the mediating mechanism in educational innovation. It provides important theoretical support and practical guidance for the development of new modern schools in China.

Keywords: Art Education Management, China's New Modern Schools, Inclusive Metaverse, Innovation Ability, Educational Equity

Introduction

With the rapid development of information technology, the technology ecology of the meta-universe, which is a combination of virtual and reality, is profoundly changing people's lives and work. In the field of art education, meta-cosmic technology has triggered a major change in teaching methods, learning experience and educational management. China's new modern schools are at the forefront of education reform, and it is imperative to use digital technology to enhance innovation and promote the development of art education. In this context, the concept of the inclusive metaverse should be born in time. It emphasizes the universality and ease of use of technology, strives to achieve equal participation

of different student groups and personalized learning experience, injects new vitality into art education management, optimizes teaching resources, expands learning space and promotes the construction of school innovation capacity ([Rattanapun et al., 2018](#)). However, the application of the inclusive metaverse in art education and its specific impact on the school's innovation ability still needs systematic research and in-depth analysis.

In view of this, this study focuses on the new modern schools in China and aims to explore the interplay among the inclusive meta-environment, arts education management and innovation capacity. By adopting quantitative research methods, this paper analyzes the application status of virtual reality technology in art education and its role in promoting the optimization of teaching resources, digital construction and innovative teaching modes. This was done to provide theoretical basis and practical guidance for school administrators and education decision-makers, and new ideas for future digital art education. It can also contribute to the innovative development of new modern schools in China in the new era.

Research Objectives

1. To study the inclusive metaverse factor impact on art education management in China's new modern schools.
2. To study the art education management factor impact on innovation ability in China's new modern schools.
3. To study the inclusive metaverse factor impact on innovation ability in China's new modern schools.
4. To study the mediating role of art education management factor has a positive impact between the inclusive metaverse and innovation ability in China's new modern schools.

Literature Review

The Relationship between Inclusive Metaverse and Art Education Management

In recent years, the concept of the metaverse has attracted widespread attention, with discussions ranging from its potential applications in education to its impact on various industries. [Dwivedi et al. \(2022\)](#) emphasized that the metaverse represents a

virtual space where individuals can interact, create and learn in an immersive environment. In the field of art education management, the inclusiveness of the metaverse has the potential to revolutionize the way art is taught and experienced. In addition, [Zallio and Clarkson \(2022\)](#) pointed out that the metaverse provides opportunities for inclusion, diversity and equity in virtual and digital environments, and experts in the technology industry play a key role in shaping these spaces. [Zhang et al. \(2022\)](#) believe that educators recognize the potential of the metaverse in promoting inclusive educational practices. By aligning with the concept of inclusive education, the metaverse can enhance teaching, management and educational practices, ultimately benefiting both teachers and students. Integrating the inclusive metaverse into art education management can create a more attractive and immersive learning environment. By leveraging the collaboration, creativity and inclusiveness of the metaverse, art education management can bring new possibilities for teaching and learning in virtual spaces.

H₁: The inclusive metaverse factor has a positive impact on art education management factor in China's new modern schools.

The Relationship between Art Education Management and Innovation Ability

The relationship between art education management and innovation ability has been a hot topic in the field of employee commitment, sustainability ([Suwannarat et al., 2025](#)) and education management in recent years. Wei discusses the relationship between piano teaching in colleges and universities and the cultivation of students' artistic ability. The author emphasizes the significance of art education management in cultivating students' innovative abilities. [McAdams and Morley \(2017\)](#) proposes that the intersection of arts, STEM, and innovation is recognized as a powerful place to empower young people, inspire creativity, and develop innovative thinking skills. Therefore, effective art education management plays a vital role in improving students' innovative abilities, and innovative teaching methods. Educational reforms are needed to cultivate innovative and innovative talents in the educational environment. The impact

of art education system reform on the innovative ability of China's new modern schools must highlight traditional education concepts, teaching methods, evaluation mechanisms and other factors, and explore new teaching models.

H₂: The art education management factor has a positive impact on the innovation ability factor in China's new modern schools.

The Relationship between Inclusive Metaverse and Innovation Ability

[Zhai et al. \(2023\)](#) pointed out that education is an innovation channel for inclusive meta-universe main business scenarios, and conducting research is an important way to seek high-quality development paths. It can reshape subject relationships, and solve issues such as educational equity, emphasizing the innovative ability and challenges of the inclusive meta-universe of the new generation of internet on education formats. [Zallio and Clarkson \(2022\)](#) propose that representations in inclusive metaverses should reflect the diversity of the real world, thus promoting the development of users' innovative capabilities and providing them with a safe and attractive space. Gupta proposes that by prioritizing diversity, inclusion, and accessibility, schools can create a metaverse world that promotes innovation and provides a platform for students to participate in novel and exciting experiences. As the metaverse continues to evolve, maintaining a focus on inclusion is critical to driving innovation and creating a space that welcomes all users. The above literature points out that the meta-universe brings innovative opportunities and challenges to education and emphasizes the importance of an inclusive environment. Building an inclusive meta-universe can meet the needs of different users, carry out diverse teaching activities, help create innovative learning experiences for students and cultivate future talents. Therefore, it can be seen that the relationship between inclusive metaverse and innovation capacity is closely related.

H₃: The inclusive metaverse factor has a positive impact on the innovation ability factor in China's new modern schools.

The Relationship Analysis between Variables of Mediation Roles of Art Education Management

[Han et al. \(2024\)](#) points out that art education management has a positive impact on students' innovative ability by providing innovative teaching methods and rich learning resources. In addition, the application of meta-universe in art education provides students with an immersive and interactive learning experience, which may further enhance the mediating role of art education management. The study revealed the mediating role of educational leadership between technology integration and students' innovation ability through SEM analysis ([Menghan & Rattanapun, 2024](#)).

In exploring the mediating role of arts education management in the inclusive meta-universe and the innovative capacity of China's new modern schools, the literature review reveals a series of key research and theoretical frameworks. For example, the concept of arts education management as a mediating variable is rooted in extensive research on educational leadership and innovation theory. Art education management plays an important intermediary role between inclusive meta-universe and innovation ability, that is, inclusive meta-universe further promotes innovation ability by optimizing and expanding art education management.

H₄: The mediating role of art education management factor has a positive impact between inclusive metaverse and the innovation ability factor in China's new modern schools.

Research Methodology

This study employs quantitative research methods. The population consists of 1274 respondents. A formula was used to compute the sample size for this investigation at a 5% significance level, yielding 304 participants. The actual survey used simple random sampling, including 14 school managers, 85 art teachers, and 372 students obtaining art instruction in China's new modern schools (Model University, Key Middle Schools, and Art Characteristic School) with 471 samples taken and examined to verify data correctness. Statistics and data analysis include descriptive statistical analysis, to calculate mean, standard deviation and frequency. Reliability analysis, correlation analysis, Pearson correlation

coefficient, regression analysis, linear regression and multiple linear regression were used.

Results

Descriptive Analysis of the Demographics

Table 1 Respondents' Demographic Characteristics (N=471)

Name	Option	F	%	Cumulative percentage (%)
Gender	Male	151	32.1	32.1
	Female	320	67.9	100
Age	Under 18	35	7.4	7.4
	18~25	366	77.7	85.1
	26~35	40	8.5	93.6
	36~45	20	4.2	97.9
	Above 45	10	2.1	100
	Student	372	79	79
Status	Teacher	85	18	96
	School administrators	14	3	98.1
School Type	Primary schools	7	1.5	1.5
	Junior high schools	6	1.3	2.8
	Senior high schools	20	4.2	7
	Universities	415	88.1	95.1
	Others	23	4.9	100
School Location	First-tier cities	42	8.9	8.9
	Second-tier cities	70	14.9	23.8
	Third-tier cities	307	65.2	89
	Townships and below	52	11	100
Total		471	100	100

A total of 510 questionnaires were distributed in this study, and 471 valid questionnaires were collected and screened. The basic demographic characteristics of the respondents include gender, age, identity, school type and school location. According to the data analysis, it was found that females accounted for a relatively high proportion of the respondents at 67.9%, The respondents were mainly concentrated between the ages of 18 and 25, accounting for 77.7% of the total number. Most of the respondents were students, accounting for 79%. The survey respondents were mainly from universities, accounting for 88.1%, and there were relatively few primary school, junior high school and high school students. Most of the respondents were from third-tier cities, accounting for 65.2% of the total.

Variables Characteristics

Table 2 Mean and Standard Deviation of Art Education Management, Innovation Ability and the Inclusive Metaverse

Variables	Mean	S.D.	Meaning
Art Education Management	4.18	0.72	Strongly agree
Innovation Ability	4.19	0.71	Strongly agree
Inclusive Metaverse	4.31	0.68	Strongly agree

Reliability Analysis

The range coefficient can reveal the validity of the reliability. If the value is higher than 0.8, it means that it has a high reliability; if the value is between 0.7~0.8, it means that the reliability is at a good level; if the value is between 0.6~0.7, it means that the reliability is within an acceptable range; if the value is less than 0.6, it means that the reliability is insufficient.

Table 3 Reliability Analysis of Each Variable

Variable	Questions	Total Correlation (CITC)	Item deleted a Coefficient	Cronbach α Coefficient
Inclusive Metaverse	Virtual reality (VR) technology can enhance the learning experience and increase learning interest in the classroom.	0.761	0.972	0.953
	Augmented reality (AR) technology can help provide a better understanding of course content.	0.815	0.971	
	Mixed reality (MR) technology can provide a richer learning environment and enhance learning interest.	0.825	0.971	

	The application of inclusive design principles in the classroom can meet the needs of different students.	0.858	0.97	
	I feel comfortable using metaverse technology, the interface is user-friendly and easy to operate.	0.86	0.97	
Art Education Management	The school has complete art education resources	0.783	0.971	0.935
	The use of inclusive metaverse technology can improve the utilization efficiency of teaching resources and enrich teaching resources.	0.889	0.97	
	The school's art education management has obvious advantages.	0.787	0.972	
	Inclusive metaverse technology enables us to collaborate and learn in virtual space.	0.889	0.97	
	Art education management has a great impact on students' innovation ability.	0.868	0.97	
Innovation Ability	Inclusive metaverse contributes to the digital construction of schools.	0.895	0.97	0.926
	Inclusive metaverse promotes the implementation of innovative teaching models.	0.906	0.969	
	Inclusive metaverse technology makes teaching methods more flexible and diverse.	0.874	0.97	
	The level of satisfaction with the school's innovation ability development is very high.	0.797	0.971	
	Traditional education concepts constrain the development of innovative education.	0.659	0.974	

The Cronbach's α coefficients of each dimension are as follows: The Cronbach's α coefficient of the inclusive metaverse factor is 0.953, the Cronbach's α coefficient of the art education management factor is 0.935, and the Cronbach's α coefficient of the innovation ability factor is 0.926. All scales of the questionnaire are greater than 0.7, indicating that the data reliability quality is high and can be used for further analysis.

Correlation Analysis

Correlation analysis is used to measure the linear relationship between two or more variables, to determine whether there is a linear relationship between the variables and the strength of this relationship.

The analysis results show that the correlation coefficient between art education management and the inclusive metaverse is 0.835, and the significance

level is $p < 0.01$, indicating that there is a strong positive correlation between the two. The higher the art education management, the stronger the inclusive metaverse ability. The correlation coefficient between art education management and innovation ability is 0.804, also at $p < 0.01$, showing a very strong positive correlation.

Table 4 Correlation Analysis for Inclusive Metaverse, Arts Education Management and Innovation Ability

	Art Education Management	Inclusive Metaverse	Innovation Ability
Art Education Management	1		
Inclusive Metaverse	0.835**	1	
Innovation Ability	0.804**	0.925**	1

Regression Analysis

Table 5 Regression Analysis of Innovation Ability

	Unstandardized coefficients		Standardized coefficient	t	p	VIF
	B	Standard error	Beta			
Constants	-0.015	0.572		-0.026	0.979	-
Inclusive Metaverse	0.103	0.033	0.098	3.07	0.002	3.396
Arts Education Administration	0.829	0.031	0.839	26.329	0	3.377
R ²	0.928					
Adjust R ²	0.861					
F	F (7,463)=408.681, p=0.000					

Dependent variable: Innovation ability; * p<0.05 ** p<0.01

The table shows the regression analysis results of innovation ability. Through the regression model, the following key points can be observed:

1. The overall explanatory power of the model is strong. The R² of the regression model is 0.928, and the adjusted R² is 0.861, indicating that the model can well explain the variation of innovation ability, with an explanation rate of 92.8%.
2. Significant variables, inclusive metaverse: The standardized coefficient (Beta) is 0.098, the t value is 3.07, and p=0.002, indicating that the inclusive metaverse has a significant positive impact on innovation ability. Art education management: The standardized coefficient (Beta) is 0.839, the t value is 26.329, and p<0.01, indicating that

art education management has a significant and strong positive impact on innovation ability.

3. Non-significant variables, the p values of variables such as identity, gender, age, school type, and school location are all greater than 0.05, indicating that they have no significant impact on innovation ability.
4. Multicollinearity, the VIF values of each variable are all lower than 10, indicating that there is no serious multicollinearity problem.

Based on the above data analysis, the inclusive metaverse and art education management are key factors that significantly affect innovation ability, the influence of art education management is particularly prominent.

Table 6 Regression Model of the Mediating Effect of Art Education Management on the Relationship Between Inclusive Metaverse and Innovation Ability (N=471)

Variable	Model 1		Model 2		Model 2	
	β	t	β	t	β	t
Inclusive Metaverse	0.843	29.317**	0.886	32.821***	0.111	3.372**
Art Education Administration					0.826	26.555**
R ²	0.647		0.697		0.859	
F	859.504***		1077.205***		1427.607***	

The table shows the regression analysis results of the mediating effect of art education management on the inclusive metaverse and innovation ability. Through the stepwise regression analysis of models one, two and three, the following conclusions can be drawn. Model one shows that the inclusive metaverse has a significant positive impact on innovation ability, with a regression coefficient of 0.843, a t value of 29.317, and an R² of 0.647, indicating that the inclusive metaverse explains 64.7% of the variance in innovation ability. Model

two further strengthens the impact of the inclusive metaverse, with the regression coefficient rising to 0.886, the t value of 32.821, and the R² increasing to 0.697, indicating that the impact of the inclusive metaverse is more significant. Model three introduces art education management as a mediating variable, the regression coefficient of the inclusive metaverse drops to 0.111, but it is still significant (t=3.372). At the same time, the impact of art education management on innovation ability is also significant, with a regression coefficient of 0.826 and

a t value of 26.555. R^2 is greatly increased to 0.859, indicating that the explanatory power of the model is significantly enhanced. Art education management plays a significant mediating role between the inclusive metaverse and innovation ability.

- **H₄:** The art education management factor has a positive impact on the mediating effect between the inclusive metaverse and innovation ability factor of China's new modern schools. Hypothesis H4 is established.

Table 7 Analysis of the Mediating Effect of Art Education Management Between Inclusive Metaverse and Innovation Ability (N=471)

	Effect size	Standard error	Bootstrap 95% CI		Proportion of total efficiency
			Lower limit	Upper limit	
Total effect	0.8428	0.0287	0.7863	0.8993	
Direct effect	0.1113	0.0330	0.0464	0.1761	
Indirect effect	0.7315	0.0569	0.6192	0.8374	86.79%

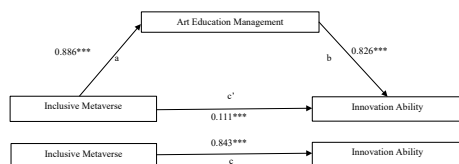


Figure 1 The Mediating Effect Regression Model

Note: *** means $P < 0.001$, ** means $P < 0.01$,
* means $P < 0.05$

The total effect value is 0.8428, indicating that the overall impact of inclusive metaverse on innovation ability is significant. The direct effect is 0.1113,

indicating that when the mediating variable is not considered, the direct impact of inclusive metaverse on innovation ability is small. The indirect effect is 0.7315, accounting for 86.79% of the total effect, indicating that most of the impact is achieved through the mediating variable of art education management. The bootstrap 95% confidence interval does not contain 0, which further proves the significance of the indirect effect. Overall, art education management plays a key mediating role between the inclusive metaverse and innovation ability.

Table 8 Summary of Hypotheses

Hypothesis	Path	R^2	Result
H1:The inclusive metaverse factor has a positive impact on art education management factor in china's new modern schools	IM→AEM	0.886***	Accepted
H2:The art education management factor has a positive impact on innovation ability factor in china's new modern schools	AEM→IA	0.826***	Accepted
H3:The inclusive metaverse factor has a positive impact on innovation ability factor in china's new modern schools	IM→IA	0.111***	Accepted
H4:The mediating role of art education management factor has a positive impact between inclusive metaverse and innovation ability factor in china's new modern schools	IM→AEM→IA	0.843***	Accepted

Conclusion

Through the questionnaire survey and multi-dimensional analysis of China's new modern schools, this study draws the following conclusions:

Inclusive meta-universe and art education management are key factors that significantly influence the innovative ability of new modern schools in China, especially art education management (H2 and H3 confirmed).

There is a strong positive correlation between art

education management and inclusive meta-universe, and the stronger the inclusive meta-universe ability, the higher the art education management level (H1 confirmation).

Art education management plays a key mediating role between the inclusive metaverse and innovative capacity (H4 confirmation). This suggests that China's new modern schools can focus on promoting innovation by developing an inclusive meta-universe and strengthening art education management.

Discussion

There was a positive impact of the inclusive metaverse on the management of art education. The introduction of the inclusive metaverse can greatly enrich the teaching methods and learning experience of art education through VR, AR and MR technologies. These technologies not only enhance the interactivity and participation of art courses but also break the physical and time constraints in traditional educational environments to create a more flexible and adaptable learning space. Students can create in a virtual environment and experience different art styles and techniques, while teachers can use virtual tools to teach and manage more effectively. This integration of technology helps to optimize teaching resources and improve the efficiency of educational management, thereby improving the management quality of art education as a whole ([Rattanapun, 2021](#)). Through the above analysis, the acceptance of H1 is based on the recognition of the positive impact of inclusive metaverse in arts education management, while combining the views of relevant studies in the literature to form a more comprehensive understanding.

In China's new modern schools, the effectiveness of art education management is directly related to the school's innovation ability. Art education management involves multiple aspects such as the optimization of teaching resources, the expansion of teaching space, and the innovation of teaching methods. These factors work together to promote students' creativity and innovation and promote educational innovation. Through effective resource management, teachers can better utilize existing art education resources, thereby stimulating students' innovative thinking. Providing flexible teaching space and encouraging interdisciplinary projects can promote cooperation and innovation among students. This environment enables students to explore and experiment in practice, thereby improving their innovation ability. The adoption of emerging teaching methods can cultivate students' critical thinking and problem-solving skills, further enhancing their innovation ability ([Qi & Rattanapun, 2024](#)). The effectiveness of art education management directly promotes the development of school innovation ability, forming a positive feedback loop.

Through the above analysis, it can be seen that the positive impact of art education management on innovation ability is not only widely recognized but also consistent with the views in the existing literature in many aspects, providing solid theoretical support for this study.

The inclusive metaverse is seen as a key technology to promote educational innovation. It breaks the limitations of traditional education models by providing an immersive virtual environment that places students in a dynamic and interactive learning space. In regard to the application of virtual and augmented reality technology, the metaverse provides students with an immersive learning experience by simulating real-life situations, enhancing their creativity and problem-solving skills. Learning in the metaverse is no longer limited to a certain subject or region. Students can collaborate across disciplines and cultures on virtual platforms to increase opportunities for innovation. In addition, the metaverse can provide real-time feedback on students' performance, helping them to quickly adjust their thinking and improve innovation efficiency. In summary, although most opinions are consistent with this research paper's point of view, believing that the inclusive metaverse can actively promote innovation ability, some literature focuses more on the accessibility and social impact of technology, while focusing more on its potential educational innovation ability.

The inclusive metaverse introduces cutting-edge technologies such as virtual reality (VR) and augmented reality (AR). These technologies themselves can provide great potential for innovation, but without good art education management, these technologies are difficult to integrate into the education system efficiently. Art education management can ensure that metaverse technology is fully applied in the classroom by coordinating resources and formulating reasonable teaching strategies, thereby enhancing students' innovation ability.

The introduction of the metaverse means the redefinition of teaching models and spaces. Art education management can guide this transformation, enable teachers and students to better adapt to the digital and virtual teaching environment, and

promote the innovation of teaching models. This management can provide institutional guarantees for innovation, so that metaverse technology not only exists as a tool but also becomes the core driving force of educational change.

Management factors provide stable institutional support for innovation. If the art education management system is improved, schools can better organize, plan and apply metaverse technology, thus laying the foundation for the development of school innovation ability (Zhang et al., 2024). Therefore, art education management is not only an operational management tool but also an important bridge between inclusive metaverse technology and innovation ability. Through effective management, the application effect of the metaverse in education can be optimized, thereby enhancing innovation ability.

Recommendation

After the discussion, the authors can put forward the following specific suggestions based on the research results and possible problems in practice to help schools better apply inclusive metaverse technology, improve the level of art education management, and thus enhance the school's innovation ability. 1) Strengthen teacher training and professional development 2) Optimize the construction of digital teaching resources 3) Promote the experiment and promotion of innovative teaching models 4) Improve the application strategy of inclusive metaverse technology 5) Strengthen home-school cooperation and social support 6) Policy formulation and institutional guarantee.

These recommendations are intended to provide a reference for schools, education policymakers and researchers to better apply inclusive meta-cosmic technology to arts education management, improve the innovation capacity of schools, and thus achieve high-quality education development.

Research Contribution

After the research summary and discussion, it is necessary to identify the academic and practical contributions of this research in order to demonstrate the value of the research in both theoretical and practical applications.

Theoretical Contribution: This study provides a new perspective for understanding the complex interaction between educational technology and teaching effect.

Practical Contribution: This study provides specific practical guidance for school administrators, decision-making reference for educational policy makers, and market demand insight for educational technology enterprises. The importance of parental support and social resources is emphasized, and the research direction of educational technology development in the future is put forward. To help schools better integrate inclusive metaverse technology into art education and promote innovation:

Teacher training, implement rigorous teacher training to master metaverse technologies, and encourage multidisciplinary collaboration with other departments to develop novel teaching tools.

Teaching Resources, create an open digital platform that includes virtual exhibitions, art libraries, and creativity tools, as well as high-quality, interactive virtual reality resources, in conjunction with professional teams.

Innovative teaching models, encourage experimentation with novel teaching methods like VR classrooms and hybrid learning. Evaluate the efficacy of these models and encourage the most successful ones. Organize student competitions to promote innovation.

Metaverse Technology Application, develop a clear application strategy for metaverse technology that ensures accessibility and fairness for all students, especially those with minimal resources.

Home-School Cooperation and Social Support, hold meetings and open classes to raise parental understanding and support for metaverse technologies. Collaborate with businesses, universities, and art institutions to provide external resources and technical assistance.

Policy and Institutional Support, create school-wide regulations for the use of metaverse technology, including equipment management, data security, and teacher development. Create a continual improvement method to fine-tune technology utilization based on feedback.

These contributions and recommendations enable schools correctly integrate metaverse technologies, improve educational quality, and foster creativity in art instruction.

Social Impact: By analyzing the application of inclusive meta-universe technology in art education, this study provides an important reference for promoting educational equity and inclusiveness. At the same time, the potential of this technology in cultural inheritance and innovation provides new ideas for cultural education and cross-cultural communication.

Further Research

Further research is discussed from two aspects. The first is the future research direction, including longitudinal research and follow-up investigation on the influence of different education stages, cross-cultural comparative research and interdisciplinary research, so as to provide a broader vision for the improvement of school innovation ability. This is followed by recommendations for future research, including expanding the scope of the study, delving into mechanisms of action, focusing on long-term effects, and exploring other factors that affect schools' ability to innovate.

The inclusive meta-universe and art education management bring opportunities and challenges for the improvement of innovative ability of China's new modern schools and all parties need to work together to promote the process of education modernization in China.

References

- Al-Kfairy, M., Alomari, A., Al-Bashayreh, M., Alfandi, O., & Tubishat, M. (2024). Unveiling the metaverse: A survey of user perceptions and the impact of usability, social influence and interoperability. *Heliyon*, 10(10).
- Bernaschina, D. (2023). Inclusive metaverse in media arts education: New innovative-methodological proposal for inclusive school. *Metaverse*, 4(2), 1-9.
- Bobbink, P., Larkin, P., & Probst, S. (2024). Application and challenges of using a constructivist grounded theory methodology to address an undertheorized clinical challenge: A discussion paper. *International Journal of Nursing Studies Advances*, 6.
- Coucke, P. (2024). Should we add metaverse to the future medical lexicon?. *Revue Medicale de Liege*, 79(2), 116-119.
- Dudley, J., Yin, L., Garaj, V., & Kristensson, P. O. (2023). Inclusive immersion: A review of efforts to improve accessibility in virtual reality, augmented reality and the metaverse. *Virtual Reality*, 27(4), 2989-3020.
- Dwivedi, Y. K., Hughes, L., Baabdullah, A. M., Ribeiro-Navarrete, S., Giannakis, M., Al-Debei, M. M., Dennehy, D., Metri, B., Buhalis, D., Cheung, C. M. K., Conboy, K., Doyle, R., Dubey, R., Dutot, V., Felix, R., Goyal, D. P., Gustafsson, A., Hinsch, C., Jebabli, I., ..., Wamba, S. F. (2022). Metaverse beyond the hype: Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, 66.
- Feng, K., Wu, Y., & Zhang, R. (2024). Transformation path and promotion countermeasures of aerospace enterprise management strategy based on industrial chain integration. *Heliyon*, 10(11).
- Firmansyah, D., & Wahdiniwaty, R. (2023). Prediction of innovation ability: The role of mediation in the relationship between digital transformation and competitiveness with the PLS-SEM model. *International Journal of Management and Business Intelligence*, 1(2).
- Foka, F. E. T., & Mufhandu, H. T. (2023). Current ARTs, virologic failure, and implications for AIDS management: A systematic review. *Viruses*, 15(8).
- Gilbert, K. L., Baker, E. A., Bain, K., Flood, J., & Wolbers, J. (2023). *Say Something, Do Something*: Evaluating a forum theater production to activate youth violence prevention strategies in schools. *International Journal of Environmental Research and Public Health*, 21(1).
- Menghan, W., & Rattanapun, S. (2024). The influence of team management competencies on high-quality development of Chinese

- wellness sport enterprises. *Edelweiss Applied Science and Technology*, 8(6), 9189-9205.
- Han, X., Xu, Q., Xiao, J., & Liu, Z. (2024). Academic atmosphere and graduate students' innovation ability: The role of scientific research self-efficacy and scientific engagement. *European Journal of Psychology of Education*, 39(2), 1027-1044.
- Haque, M. A., Rahman, M., Faizanuddin, M., & Anwar, D. (2024). Educational horizons of the metaverse: Vision, opportunities, and challenges. *Metaverse Basic and Applied Research*.
- Hung, C. L., Yu, T. F., Lin, Y. H., Lin, Y. C., Chen, Y. H., & Lo, W. S. (2023). Reflective and cooperative learning for understanding sustainability through an eco-innovation strategy in rural travel and hospitality: A STEAM case study. *Sustainability*, 15(17).
- Memmini, A. K., Bos, L. N., Maluski, K., Ellsworth-Kopkowski, A., Savvidou, P., & Schuyten, K. H. (2024). Evaluating post-concussion clinical management of university-aged performing artists: A systematic review. *Journal of Dance Medicine & Science*, 29(1), 32-42.
- McAdams, D. M. M., & Morley, J. E. (2017). An international perspective on implementing frailty into clinical practice. *Innovation in Aging*, 1318-1319.
- Park, H., Kim, S., Choi, M., & Choi, J. (2021). Human, technical, and organizational drivers affecting sustainability of content firms through management and innovation ability during COVID-19. *Sustainability*, 13(12).
- Pregowska, A., Osial, M., & Gajda, A. (2024). What will the education of the future look like? How have metaverse and extended reality affected the higher education systems?. *Metaverse Basic and Applied Research*, 3.
- Qi, Y., & Rattanapun, S. (2024). Optimizing education: How dual teacher technology, communication, and decision-making drive performance?. *Journal of Information Systems Engineering and Management*, 9(4).
- Rattanapun, S. (2021). 5G Technology: Re-future the Printing Industry. *The Federation of Thai Printing Industries*.
- Rattanapun, S., Khantanapha, N., & Piriyaikul, R. (2018). Strategies for Survival of the Publishing Businesses. *International Journal of Management and Business Research*, 8(3), 39-52.
- Sahin, I. (2006). Detailed review of Rogers' diffusion of innovations theory and educational technology-related studies based on Rogers' theory. *Turkish Online Journal of Educational Technology-TOJET*, 5(2), 14-23.
- Saukh, I. (2019). The creative education within the educational process changes. *Annales*, 32(2), 23-32.
- Shen, M., Zhang, F., Zhu, W., Shen, Y., Ma, L., & Huang, K. (2023). Design of a single-phase inverter control strategy with improved BP neural network. In *2023 8th International Conference on Intelligent Computing and Signal Processing*.
- Suwanarat, P., Untachai, S., Piewdang, S., Rattanapun, S., Waisarayutt, C., & Wiwatpiyawong, R. (2025). A comparative study of the impact of service climate on employee commitment in the greater Mekong subregion. *International Journal of Asian Business and Information Management*, 16(1), 1-20.
- Ye, H., Chen, Q., Chen, Y., & Chen, Y. (2021). Research on how to integrate innovation and entrepreneurship education into professional education - Based on empirical analysis of administration management major in six colleges of Guangzhou. In *E3S Web of Conferences*.
- Zallio, M., & Clarkson, P. J. (2022). Designing the metaverse: A study on inclusion, diversity, equity, accessibility and safety for digital immersive environments. *Telematics and Informatics*, 75.
- Zhai, X. S., Chu, X. Y., Chen, M., Shen, J., & Lou, F. L. (2023). Can edu-metaverse reshape virtual teaching community (VTC) to promote educational equity? An exploratory study. *IEEE Transactions on Learning Technologies*, 16(6), 1130-1140.
- Zhang, X., Chen, Y., Hu, L., & Wang, Y. (2022). The metaverse in education: Definition,

framework, features, potential applications, challenges, and future research topics. *Frontiers in Psychology, 13*.

Zhang, Z., Rattanapun, S., Yang, Z., Khantanapha, N., & Suwannarat, P. (2024). The mediating

roles on job stress and job satisfaction of teachers' work-life balance in higher education of Chengdu, China. *Contemporary Readings in Law and Social Justice, 16*(1), 145-161.

Author Details

Jiaojie Li, *Rajamangala University of Technology Krungthep, Thailand*

Supot Rattanapun, *Rajamangala University of Technology Krungthep, Thailand*,
Email ID: supot.r@mail.rmutk.ac.th

Tubagus Darodjat, *Rajamangala University of Technology Krungthep, Thailand*

Alan White, *Rajamangala University of Technology Krungthep, Thailand*