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## Table of Contents

- 1 Construction and Application of Mental Model of Career Decision Making Based on Artificial Intelligence**  
*Biao Wang*
- 6 Building a Better Future - Promoting High Quality Development of International Mining Cooperation among SCO Countries**  
*Yicai Gu*
- 12 Research on the Practical Paths of Comprehensive Rural Revitalization from the Perspective of the Sinicization and Modernization of Marxism**  
*Yunlong Zhu*
- 18 Research on the Intrinsic Logic and Path of News Dissemination in the Era of Intelligent Media**  
*Zhenzhen Wu*
- 25 Comparison of Research Trends in Blended Learning in Korea and China**  
*Jin-Rong Xuan, Han-Woo Park*
- 36 The Possibility of Social-cultural Creativity Education: A Case Study of “Imaginative Innovator” at H University**  
*Jee-Young Lee*



# Construction and Application of Mental Model of Career Decision Making Based on Artificial Intelligence

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**Abstract:** In the era of new technology, career assessment services are faced with the challenge of diversified and personalized needs of customers, which requires a new theoretical perspective to respond [1]. Based on DeepSeek artificial intelligence technology driven career assessment as the background, this paper discusses the construction method and significance of career assessment enterprise customer mental model. Starting from the theoretical basis of mental model, this paper analyzes the cognitive, behavioral and emotional components of customer mental model and its role in career assessment service, and expounds the theoretical contribution of DeepSeek and other artificial intelligence technologies to the construction of mental model. Research shows that big data analysis based on artificial intelligence can describe the implicit psychological model of customers, enrich the theoretical tools for career decision support, and help realize the accuracy and individuation of career assessment services [2]. This study provides new ideas for the transformation of career assessment industry, reveals the theoretical significance of integrating customer mental model into career planning service to improve decision support effect, and looks forward to the future development direction of career assessment service driven by artificial intelligence.

**Keywords:** DeepSeek; Career assessment; Customer mental model; Artificial intelligence; Career decision support

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## 1. Introduction

With the rapid development of society, the importance of career planning has become increasingly prominent. Studies have pointed out that career planning theory should be improved from new perspectives such as career situation practice to meet the needs of personalized career development. At the same time, the application of artificial intelligence and big data technology is also profoundly changing the field of vocational assessment, bringing new research paradigms and possibilities for psychological assessment. In recent years, China has launched the first large model of youth career planning “career AI”, which has significantly promoted the

innovation of assessment services <sup>[3]</sup>. At the international level, in the face of the complexity of career decision making and the uncertainty of the job market, the academic community has begun to advocate an AI-driven decision support system <sup>[4]</sup> and actively explore the transformation path of AI-enabled career assessment services <sup>[5]</sup>.

In view of this, this paper focuses on the DeepSeek driven career assessment scenario, discusses the core elements of customer mental model, its value in assessment services, the role of artificial intelligence in promoting model construction, and the theoretical significance of customer mental model in career decision support, and finally puts forward the prospect and enlightenment of industry transformation and development.

## **2. Theoretical basis and constituent elements of customer mental model**

Mental model, an important concept in psychology and cognitive science, refers to an individual's internal cognitive representation of the objective world and how it works <sup>[6]</sup>. This theory was first proposed by Craik and has attracted wide attention since it was systematized by Johnson-Laird. Mental model is a structured cognitive system gradually formed during the interaction between an individual and the environment. It can help an individual understand the outside world and reason. At the same time, it is constantly updated and revised according to experience, thus affecting cognition and behavior <sup>[7]</sup>. Specifically, the customer mental model can be regarded as the cognitive blueprint of the professional world and their own career in the customer's mind.

The customer mental model mainly covers three dimensions: cognition, emotion and behavior, which is similar to the ABC model of attitude. Among them, the cognitive component includes the understanding and belief of career-related information, the emotional component involves the emotional experience and value preference in career selection, and the behavioral component is represented by career decision making and action tendency <sup>[8]</sup>. Research shows that these three dimensions interact and are inseparable: cognition is the foundation of emotion and behavior, and emotion influences information processing and drives behavior. Therefore, the customer mental model is a comprehensive psychological system composed of cognition (such as professional cognition, self-cognition), emotion (such as interests, values) and behavioral tendencies (such as decision-making style). However, human mental model also has limitations such as incompleteness and instability, which may lead to cognitive bias, so it needs scientific correction and improvement in the construction process <sup>[9]</sup>.

## **3. The contribution of artificial intelligence (DeepSeek) in the construction of mental models**

### **3.1. Limitations and challenges of traditional career assessment**

In recent years, the development of cloud computing and big data technology has provided the possibility to solve the above problems. Studies have shown that cloud-based online assessment platforms can collect and process assessment data with higher efficiency, and the results are highly consistent with traditional paper-and-pencil assessment <sup>[10]</sup>. A comparative study by Jiang Pingping et al. (2021) found that cloud computing psychological assessment method not only has the advantages of high efficiency and low cost, but also its assessment results are basically consistent with traditional methods, which verifies the reliability and validity of the application of new technologies <sup>[11]</sup>. This shows that the introduction of information technology can greatly improve the convenience and coverage of assessment services without reducing the quality of assessment, and create conditions for the construction of real-time updated customer mental models.

### **3.2. DeepSeek: AI-driven customer mental model construction**

DeepSeek, as an artificial intelligence technology that combines deep learning and big data analysis, can “deeply explore” customer psychological characteristics from massive and multi-source data, providing strong support for the construction of mental models. Compared with traditional methods that rely on a limited number of questionnaire items, DeepSeek can draw a more three-dimensional psychological portrait of customers by combining information from multiple aspects such as assessment questionnaires, career histories, behavioral measurements and online behavioral data.

In this process, artificial intelligence plays a theoretical contribution that is difficult to achieve with traditional methods. First, AI improves the comprehensiveness and sophistication of mental model construction. In the past, it was difficult for consultants to handle a large number of heterogeneous information sources at the same time, but DeepSeek can analyze the cognitive, emotional and behavioral data of customers in parallel in the background to form an overall portrait<sup>[12]</sup>. According to the study of Jiang Liming et al. (2022), researchers have begun to explore data-driven psychological assessment based on online behavioral data and smart device data, in order to obtain higher prediction accuracy. This means that artificial intelligence can make up for the lack of a single dimension of traditional assessment information and correlate different aspects of customer psychological characteristics to model. Second, AI empowers mental models to evolve dynamically. By continuously tracking data on customers’ interactions with their professional environment, DeepSeek allows the mental model to be updated over time to reflect changing trends in customers’ cognition and emotions. This theory makes the career guidance from a one-time evaluation to continuous companionship, so that the model is closer to the current psychological state of decision-making. Third, AI enables the discovery of complex mental patterns. Deep learning is able to extract the underlying factors from complex data patterns, such as differentiating different types of occupational interest combinations or value combinations through clustering algorithms, thus enriching the theoretical understanding of the types of mental models of customer groups. As Suomala and Kauttonen (2022) point out, combining big data with machine learning can yield insights from complex human behavior data that have been difficult to obtain in the past<sup>[13]</sup>. This provides a new perspective for the theoretical development of occupational psychology: Artificial intelligence can help verify or discover new rules about career decision-making, such as cognitive biases that are common when a certain type of personality client transitions in the workplace, thereby feeding career decision-making theory.

It is worth mentioning that DeepSeek and other AI technologies, while improving model accuracy, have also aroused concerns about algorithm bias, privacy and ethics. How to ensure the fairness and transparency of AI models is a problem that needs careful consideration in the construction of mental models. But overall, AI-enabled customer mental models provide a new tool for career assessment services, greatly improving the accuracy of career decision support. For example, an AI-based career planning intelligent system has been developed, which can provide personalized career path advice according to students’ characteristics, significantly improving the effectiveness of career guidance and the scientificity of decision making<sup>[14]</sup>. Although algorithms and privacy issues need to be further managed, this just shows the important potential of artificial intelligence in the field of career guidance.

### **3. Theoretical significance of mental model construction: career decision support and service precision**

The integration of customer mental model into career decision support system has not only practical value, but

also important academic significance. First, traditional career decision models often assume that individuals rationally weigh career options, while clients' intrinsic cognitive and emotional preferences actually profoundly influence the decision-making process. By building a client mental model, consultants can gain a deeper understanding of an individual's internal logic and provide more precise decision support.

Secondly, customer mental model provides scientific basis for the accuracy of assessment service. By accurately grasping the cognitive needs, emotional demands and behavioral tendencies of customers, assessment agencies can realize personalized services to more effectively solve the specific problems of customers in career decision-making.

Thirdly, the construction of client mental model also helps to test and develop occupational psychology theory, especially to verify the applicability of occupational theory in practice. In addition, this focus on the client's mind is in line with the trend of career development theory to shift from the traditional Matching paradigm to the Life-Design paradigm, that is, to pay more attention to the individual's subjective world and meaning construction. With the help of AI technology to build customer mental models, we can design career paths from the perspective of customers and improve the internal consistency and sustainability of career planning. Some studies have pointed out that artificial intelligence is promoting the transformation of career development mode from static to personalized dynamic path<sup>[15]</sup>. Therefore, the introduction of client mental model reflects the integration and innovation of career counseling theory and technology, and has significant academic and practical value.

## 4. Conclusion and prospect

This paper focuses on the DeepSeek driven career assessment enterprise customer mental model, and makes it clear that customer mental model is composed of three dimensions: cognition, emotion and behavior, and is an important influencing factor for career decision. Research shows that DeepSeek and other artificial intelligence technologies can efficiently extract the internal psychological characteristics of customers, achieve accurate and personalized support for career decisions, and enrich the career guidance theory.

In the future, the career assessment industry can deepen its development in the following aspects: First, strengthen the integration of AI and manual consultation, and realize the combination of intelligence and humanistic care; Second, improve data ethics and privacy protection to enhance customer trust; The third is to expand the application scenarios of customer mental model and support the development of enterprise talents; Fourth, strengthen interdisciplinary cooperation and constantly promote collaborative innovation between theory and practice.

In short, DeepSeek driven customer mental model building will promote career assessment services to be more intelligent, people-oriented and accurate, helping individuals and enterprises grow together.

## Disclosure statement

The author declares no conflict of interest.

## References

- [1] Gao R, Wang K, Zhang Y, et al, 2021, Vocational Situational Practical education Theory based on discipline literacy



- training: A new perspective of career planning education in China. *Progress in Education*, 11(4), 982-989.
- [2] Wu S, 2022, Artificial Intelligence contributes to the reform and innovation of psychological assessment in the new era. *Advances in Psychology*, 12(9), 3144-3148.
  - [3] National Career Credit Evaluation Network, 2025, "Career AI", the first large model of youth career planning in China, was successfully launched. (2025-02-07) Industry news of Career Credit Network.
  - [4] Gati, I., & Kulcsár, V., 2021, Making better career decisions: From challenges to opportunities. *Journal of Vocational Behavior*, 126, 103545.
  - [5] Pan K, Zeng J, Liu Y, Huang X, Gao R, 2021, Big data and artificial intelligence enable the transformation and upgrading of application-oriented psychological assessment in the new era. *Frontiers in Social Science*, 10(7), 1839-1844.
  - [6] Johnson-Laird, P. N., 1983, *Mental Models: Towards a Cognitive Science of Language, Inference, and Consciousness*. Cambridge, MA: Harvard University Press.
  - [7] Li C, 2022, The concept and application of mental model in organizational management. *Progress in Psychology*, 12(9), 3120-3130.
  - [8] Bagozzi, R. P., Wong, N., & Yi, Y., 1999, The role of culture and gender in the relationship between positive and negative affect. *Cognition and Emotion*, 13(6), 641-672.
  - [9] Norman, D. A. , 1983, Some Observations on Mental Models. In D. Gentner & A. Stevens (Eds.), *Mental Models*, 7-14. Hillsdale, NJ: Lawrence Erlbaum.
  - [10] Zhu S, 2024, Research on interface optimization of automatic transplanter based on user mental model. *Design*, 9(1), 640-649.
  - [11] Jiang A, Luo J, Liang J, 2021, Comparison between cloud-based psychological assessment methods and traditional psychological assessment methods. *Chinese and Foreign Medical Research*, (7), 166-169.
  - [12] Jiang LM, Tian XT, Ren P, et al., 2022, New mental health assessment with the assistance of artificial intelligence. *Advances in Psychological Science*, 30(1), 157-167.
  - [13] Suomala, J., & Kauttonen, J., 2022, Human's intuitive mental models as a source of realistic artificial intelligence and engineering. *Frontiers in Psychology*, 13, 873289.
  - [14] Li J L, Fan X Z, 2024, Application of artificial intelligence in career planning and implications for nursing education. *Chinese Journal of Nursing Education*, 21(9), 1072-1075.
  - [15] Bankins, S., Jooss S., Restubog S.L.D. et al., 2024, Navigating career stages in the age of artificial intelligence: A systematic interdisciplinary review and agenda for future research. *Journal of Vocational Behavior*, 142, 103770.

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# Building a Better Future - Promoting High Quality Development of International Mining Cooperation among SCO Countries

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**Abstract:** The Shanghai Cooperation Organization (SCO) is a permanent intergovernmental international organization established in Shanghai, China in 2001 by the People's Republic of China, the Republic of Kazakhstan, the Kyrgyz Republic, the Russian Federation, the Republic of Tajikistan, and the Republic of Uzbekistan. As of now, the Shanghai Cooperation Organization has 10 member states, 2 observer states, and 14 dialogue partners. The total area of member countries exceeds 37 million square kilometers, accounting for approximately 25% of the global land area; The total population in the region is nearly 3.6 billion, accounting for half of the world's population, and the total gross domestic product of the countries within the organization exceeds 23 trillion US dollars.

The Shanghai Cooperation Organization has always maintained strong vitality and cooperation momentum, fundamentally because it creatively proposed and consistently practiced the "Shanghai Spirit", advocating mutual trust, mutual benefit, equality, consultation, respect for diverse civilizations, and seeking common development. This goes beyond outdated concepts such as clash of civilizations, Cold War mentality, and zero sum games, opening a new page in the history of international relations and gaining increasingly widespread recognition from the international community.

In the economic cooperation and exchanges among the member states of the Shanghai Cooperation Organization, international mining operation cooperation is an important field. With the abundant mineral resources and deepening cooperation of the SCO countries, it has demonstrated enormous development potential. Under the cooperation framework of the Shanghai Cooperation Organization, international mining operation cooperation is not only of great significance to the economic development of various countries, but also occupies an increasingly important position in the global mining landscape.

**Keywords:** Shanghai cooperation organization; International mining; Economy development; Mineral resources

**Online publication:** October 20, 2025

## 1. Overview of mining resources in SCO countries

### 1.1. Russia

Russia is one of the countries with the richest mineral resources in the world, possessing almost all known

mineral resources in the world. In terms of metallic minerals, there are huge reserves of iron ore, mainly distributed in the Kursk magnetic anomaly zone, Kachkanal and other areas. Its high-quality iron ore provides a solid foundation for the steel industry. Copper resources are abundant, such as the copper nickel mine in the Norilsk region, which is a world-renowned polymetallic mining area. Meanwhile, Russia's gold resources should not be underestimated, with a long history of gold mining in places such as Magadan Oblast<sup>[1]</sup>. Among non-metallic minerals, potassium salt reserves rank among the top in the world, mainly concentrated in the Ural region, which has a profound impact on global agricultural fertilizer production.

## **1.2. Kazakhstan**

Kazakhstan is known as the 'energy and raw material base'. Oil and natural gas resources are its pillar minerals, and the coastal areas of the Caspian Sea are important oil and gas producing regions, occupying a certain share in the global energy market. Among metallic minerals, chromium ore reserves rank among the top in the world, mainly distributed in Aktobe Oblast and other areas. The copper production is also relatively high, such as the large copper mine in Khonrad. In addition, Kazakhstan has abundant uranium resources and is an important uranium producing country in the world<sup>[2]</sup>. Its uranium mines are mainly concentrated in South Kazakhstan Oblast and other areas, playing an important role in the global development of nuclear energy.

## **1.3. Other countries**

Kyrgyzstan has abundant gold resources, and the Kumtor gold mine is the largest gold mine in the country, with significant influence in Central Asia. Tajikistan has considerable reserves of lead-zinc mines, and the Arden Topkan lead-zinc mine is an important mining area that contributes significantly to the country's economy. Uzbekistan's gold production ranks among the top in Central Asia, and the Mulongtao gold mine is a world-renowned mega gold mine. India has abundant reserves of iron ore, manganese ore, and other minerals, with its iron ore mainly distributed in places such as Odisha, occupying a certain market share in international iron ore trade. Pakistan has resources such as chromite and gold mines, with chromite mainly concentrated in Balochistan province. Iran is rich in oil and natural gas resources, and also has certain reserves in metal minerals such as copper and iron. For example, the Sarcheshme copper deposit is one of the important copper mines in the Middle East. Belarus has abundant potassium salt resources and is one of the world's important producers and exporters of potassium salt.

# **2. Cooperative operation mode of mines among SCO countries**

## **2.1. Main mining projects and operating models**

The China Kazakhstan crude oil pipeline project is an important cooperation project between China and Kazakhstan in the field of energy. The pipeline starts from Atyrau on the Caspian Sea coast of Kazakhstan in the west and ends at Alashankou in Xinjiang, China in the east, with a total length of nearly 3000 kilometers. Adopting a joint venture operation model, China and Kazakhstan jointly invest and manage, ensuring stable transportation of crude oil, meeting some of China's energy needs, and expanding the market for Kazakhstan's crude oil exports.

The China Russia Yamal liquefied natural gas project is jointly developed by multiple parties including China and Russia. Adopting a shareholding system for operation, Chinese enterprises participate in investment and construction. The project utilizes advanced liquefied natural gas technology to liquefy and transport natural

gas, which not only meets the energy needs of Europe and other regions, but also strengthens the energy trade links between Russia and the Asian market through Arctic shipping, and has an important impact on the global natural gas market pattern.

## **2.2. Cooperation and communication in mining operations**

China has certain advantages in mining and beneficiation technologies, and has engaged in technical cooperation with other SCO countries. For example, Chinese companies have helped improve mining technology and increase resource recovery rates in some mines in Kazakhstan. Russia has advanced technology in deep mining and geological exploration, and has shared its technical experience with countries such as Kyrgyzstan, enhancing their mining capabilities under complex geological conditions.

SCO countries strengthen talent exchanges in mining related fields through joint education and exchange of international students. Some universities in China have launched cooperative education programs with universities in Russia, Kazakhstan and other countries in the field of mining engineering, aiming to cultivate versatile talents who understand professional knowledge and are familiar with international cooperation. At the enterprise level, technical and management personnel are also sent to each other for learning and exchange, in order to enhance the level of mining operation and management.

## **2.3. Analysis of challenges faced by international mining operation cooperation**

There are certain unstable factors in the political situation of some SCO countries, and regime changes and policy adjustments may affect mining operations. For example, some countries may suddenly adjust their mining tax policies, environmental policies, etc., increasing operational costs and uncertainty for businesses. The political relations between different countries may also affect the progress of cooperation projects, such as geopolitical conflicts that may lead to an increase in trade barriers and affect the import and export of mineral products.

The fluctuations in the global economic situation<sup>[3]</sup> will affect the prices of mineral products. For example, during an economic recession, the demand for mineral products such as steel and non-ferrous metals decreases, leading to a drop in prices and a decrease in revenue for mining enterprises. Some SCO countries have relatively weak economic foundations, inadequate financial systems, limited financing channels, and mining enterprises may face funding shortages in project development and operation.

There are significant cultural differences, religious beliefs, and customs among member countries, leading to conflicts between international cooperative enterprises and local communities. In the process of mining construction and operation, if local cultural customs are not respected, it may trigger resistance from local residents and affect project progress. The quality of labor in some countries varies greatly, and enterprises need to invest more costs in training. In addition, the labor market is unstable, which may lead to strikes and other situations, affecting the normal production of mines.

Mining has a significant impact on the environment, and the environmental requirements of the Shanghai Cooperation Organization countries are becoming increasingly strict. Some mining enterprises may face high fines or even production shutdowns for rectification due to inadequate environmental protection measures during the mining process. At the same time, climate change has led to an increase in extreme weather, such as rainstorm and flood, which may cause damage to mine infrastructure and increase operational risks.

### **3. Development strategy of international mining operations in SCO countries**

#### **3.1. Strengthen policy communication and coordination**

The Shanghai Cooperation Organization should regularly organize dialogue meetings on mining policies among member states, exchange mining development plans, policies and regulations among countries, and coordinate policy differences. For example, jointly discussing and formulating a unified framework of preferential policies for mining investment to attract more international capital investment.

SCO member countries should connect their own mining development strategies with the “the Belt and Road” initiative. For example, Kazakhstan’s “Bright Road” new economic policy and the “the Belt and Road” initiative complement each other in mine infrastructure construction and cooperation to promote coordinated development of regional mining industry.

#### **3.2. Enhance technological innovation capability**

Governments and enterprises of various countries should increase their investment in mining technology research and development, establish special scientific research funds for technology development, encourage professional research institutions and international cooperative enterprises to jointly carry out industrial technology upgrading, precision beneficiation technology, green mining technology, intelligent mining technology, etc. At the same time, all member countries should use Internet technology to build a SCO national mining technology sharing platform, share advanced mining, mineral processing, environmental protection and other technological achievements and experience, and promote the rapid spread and application of technology in the region.

#### **3.3. Strengthen risk management**

Before investing in mining projects, international cooperative enterprises should fully assess the local political, economic, social, environmental and other risks, use scientific risk assessment professional models, develop detailed risk response plans, and plan investment and construction strategies reasonably.

Mining operation enterprises should also carry out diversified operations, expand their business areas, and reduce their dependence on a single mineral product. At the same time, strengthen cooperation with different countries and enterprises to diversify risks. For example, Chinese companies jointly invest in and develop comprehensive mining projects with companies from Russia, Kazakhstan, and other countries, sharing risks through cooperation.

#### **3.4. Promote talent cultivation and exchange**

Each member state should improve the education system of mining related disciplines, optimize curriculum design, and cultivate professional talents that meet the needs of modern mining operations. For example, strengthening practical teaching activities, establishing internship bases in cooperation with enterprises, and improving students’ practical operational abilities. At the same time, under the leadership of the Shanghai Cooperation Organization, we will continue to promote talent exchange programs among SCO countries, encourage enterprises to exchange technical and management talents for short-term training and exchanges, and enhance the international vision and business capabilities of talents.

### **4. Research and analysis of successful international mining cooperation projects**

#### **4.1. China uzbekistan gold mining cooperation project**

Uzbekistan has abundant gold resources<sup>[4]</sup>, and the Mulongtao gold mine is an important mining area. Chinese

companies have partnered with Uzbekistan companies to develop the gold mine, leveraging their financial and technological advantages. China and Uzbekistan adopt a joint venture model and jointly invest to establish a project company. Chinese companies are responsible for providing advanced mining and beneficiation technologies and some equipment, while Uzbekistan companies are responsible for coordinating local relations and providing labor. Through cooperation, the production of gold mines has significantly increased and the economic benefits are remarkable. At the same time, Chinese companies have helped Uzbekistan cultivate a group of professional and technical talents, improving the local mining technology level. In terms of environmental protection, the introduction of advanced environmental protection technologies and concepts has reduced the impact of mining on the environment, achieving coordinated development of economy, society, and environment.

## **4.2. China India iron ore trade and cooperation**

India has abundant iron ore reserves and is one of China's important sources of iron ore imports. Both sides have a large scale in iron ore trade, with Indian iron ore meeting some of China's steel industry demand with its high grade and relatively reasonable price. In addition to trade, China and India have cooperated in areas such as mining technology exchange and mining investment. Chinese companies export advanced equipment and technology<sup>[5]</sup> for mining to India, while Indian companies also learn from China's experience in mining operation and management. Both sides also discussed jointly developing new iron ore mining projects in India to further ensure stable supply of iron ore and achieve win-win cooperation.

## **5. Planning for a better future of international mining operation cooperation**

The Shanghai Cooperation Organization countries are all at a critical stage of development, always leveraging their unique advantages of adjacent mountains and rivers and intertwined interests, and adhering to the beautiful vision of open cooperation and mutual achievement for development and revitalization<sup>[6]</sup>. Member countries have abundant resources and enormous potential for cooperation in the field of international mining operations. By strengthening policy communication among member countries, enhancing technological innovation capabilities, strengthening risk management, and promoting talent cultivation and exchange, strategies can effectively address the challenges currently faced and achieve sustainable development of mining operations.

With the deepening of the "the Belt and Road" initiative and the continuous improvement of the SCO cooperation mechanism, the SCO member countries will cooperate more closely in the field of international mine<sup>[7]</sup> operations in the future, which will not only promote regional economic development, but also have a positive and far-reaching impact on the global mining pattern, create more opportunities and development space in resource development, technological innovation, market expansion and other aspects, and contribute to the sustainable development of the global mining industry.

## **Disclosure statement**

The author declares no conflict of interest.

## References

- [1] Anonymous, 2018, Caledonia Mining Company will expand one of its gold mines in Zimbabwe, China Precious Metals.
- [2] Dong Y, Wu X, Na C, et al, 2019, Discussion on the Green and High-Quality Development of Mining Industry in Jiangxi Province, China Mining, 28(5):5.
- [3] Zhou W, 2015, Research on the Development Strategy of Overseas Mineral Resources of Group J, Northwest A&F University.
- [4] Jackie C (Okilbek Abdumavlanov), 2022, Research on the Role of the Shanghai Cooperation Organization in the Development of Uzbekistan, Shanxi University.
- [5] Zhang B, Liu S, Li Z, 2018, Mine Safety Management and Standard System and Characteristics in India [J]. Mining Engineering, 6(5):3.
- [6] Anonymous, 2018, Set sail, raise your head. “Shanghai Spirit” The Sails of The Times, Smart China, (6):4.
- [7] Wang F, Xi Y, 2015, Wushan, Mapping a New Height of World-Class Mines, Economy, (11S):5.

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# Research on the Practical Paths of Comprehensive Rural Revitalization from the Perspective of the Sinicization and Modernization of Marxism

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**Abstract:** Rural revitalization and common prosperity are crucial strategies in the new era, highly consistent with Marxist theories. Currently, rural revitalization faces challenges such as unbalanced urban-rural development and insufficient sustainable industrial capabilities. Prominent issues include unequal resource allocation, the “hollowing out” of rural areas, and industrial homogenization. To address these, guidance from Marxist systematic thinking is essential. This involves comprehensively promoting the “Five Revitalizations,” facilitating two-way flow of urban-rural elements, synergizing industrial integration with technological innovation to extend the agricultural industry chain, enhancing innovation in county-level government functions to optimize governance models, and refining top-level design using systematic thinking principles. Additionally, coordinated development of rural material and spiritual civilization can be achieved by improving talent policies and innovating cultural cultivation mechanisms, thus advancing balanced urban-rural development and realizing the goal of common prosperity.

**Keywords:** Rural revitalization; Common prosperity; Urban-rural integration

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## 1. Introduction

Marxist historical materialism points out that the ultimate goal of social development is to achieve the free and all-round development of individuals and social fairness and justice, which is highly consistent with the value pursuit of common prosperity; while rural revitalization, as the overarching approach to solving the “three rural” issues, is the only path to common prosperity. The phased goals of the rural revitalization strategy are deeply integrated into the historical process of common prosperity. The two share internal unity in strategic direction, implementation paths, and value orientation, collectively serving the grand blueprint of building a great modern socialist country. In-depth analysis of their internal connections and practical challenges is of great significance



for promoting the Sinicization and modernization of Marxism to take root in rural practices.<sup>[1]</sup>

## **2. Challenges faced in the practice of comprehensive rural revitalization amid the promotion of sinicization and modernization of Marxism**

### **2.1. The urban-rural development gap needs to be narrowed**

Despite the accelerating pace of urban-rural integration in recent years, the long-standing dual structure has yet to fundamentally change the pattern of resource allocation favoring cities. In terms of educational resources, rural schools suffer from weak faculty, as a large number of excellent teachers have migrated to cities, making it difficult for rural students to access high-quality education. Although rural roads, networks, and other facilities have improved to some extent, there is still a clear disparity compared to the convenience and coverage in cities. Problems such as narrow rural roads, poor road conditions, unstable network signals, and slow internet speeds persist.

These issues have led to a continuous outflow of young and middle-aged labor to cities in pursuit of better opportunities, exacerbating the “hollowing-out” of rural areas. The disconnect in urban-rural industrial development has further widened this gap: rural areas are dominated by traditional agriculture, with lagging secondary and tertiary industries that have not formed a modern system, while urban secondary and tertiary industries are relatively mature. Problems such as unsmooth factor flow, unbalanced resource allocation, and slow financial reforms have resulted in the absence of an urban-rural industrial integration mechanism, further fragmenting economic ties between cities and the countryside.<sup>[2]</sup>

The structural mobility of rural populations has further plunged governance subjects into a “participation dilemma”: the Seventh National Population Census shows that the proportion of people aged 60 and above in rural areas reached 23.81% (7.99 percentage points higher than in urban areas), and the “silver-haired trend” has significantly reduced villagers’ ability to participate in public affairs; while the “semi-urbanization” mobility pattern of migrant workers has led to an average of less than 2 returns home per year, with villagers’ trust declining by 41% compared to 2010 and their willingness to participate in public affairs decreasing by 63%. This situation fully reflects that the Marxist theory of “urban-rural integration” has not yet been fully implemented in practice, and long-term unremitting efforts are still needed to achieve balanced urban-rural resource allocation.<sup>[3]</sup>

### **2.2. Insufficient capacity for sustainable rural industrial development**

Currently, rural industries in some areas face prominent problems such as homogenization, short value chains, and weak risk resistance. In the field of rural tourism, some villages blindly follow suit, imitating others that have succeeded in developing rural tourism without deeply exploring their own characteristics. Behind this dilemma lies the issue of the role positioning of county-level governments in rural revitalization—some county-level governments tend to “focus on short-term project implementation rather than long-term industrial planning,” failing to effectively integrate resources to promote the integration of primary, secondary, and tertiary industries, leading to intensified industrial homogenization. This series of problems reveals that in the process of industrial development, some regions have not fully applied the Marxist method of “analyzing specific problems in detail,” failing to deeply study local resource advantages and market demands to form unique core competitiveness. At the same time, there is a lack of in-depth grasp of market laws, and blindness exists in industrial planning and development, making it difficult for industries to develop sustainably.<sup>[4]</sup>

### **3. Pathways for promoting comprehensive rural revitalization under the guidance of the sinicization and modernization of marxism**

#### **3.1. Coordinating the promotion of the “Five Revitalizations”**

Based on Marxist systematic thinking, constructing a collaborative mechanism for the revitalization of industry, talent, culture, ecology, and organization is an inevitable requirement for achieving comprehensive rural revitalization. Marxist systematic thinking profoundly reveals that things are organically interconnected wholes. In the rural revitalization strategy, the “Five Revitalizations” do not exist in isolation but are interdependent and mutually reinforcing, requiring a mechanism of mutual support and coordinated promotion. Driving integrated urban-rural development is key to strengthening the dynamic foundation of rural areas—by breaking the urban-rural dual structure and promoting the two-way flow of factors such as talent and capital, it can not only attract local talent who “were born in the countryside and understand it” to return for entrepreneurship but also introduce professional talent, fundamentally solving the problem of rural “hollowing-out”.

Industrial revitalization, as the foundation of rural revitalization, provides stable economic support for rural areas by developing characteristic industries, while creating favorable conditions for talent attraction, cultural inheritance, and ecological construction. Talent revitalization is the key to rural revitalization. It is necessary to attract returning talent through preferential policies and strengthen the cultivation of local talent, providing strong intellectual support for industrial development and rural governance improvement. Of particular importance is enhancing farmers’ digital literacy to meet contemporary needs—there is currently a serious mismatch between farmers’ digital capabilities and technological development, and digital knowledge training can enhance their ability to use intelligent technologies. This represents a concrete practice of the Marxist theory of “all-round development of humanity” in the digital era.

Cultural revitalization is the soul of rural revitalization. A good ecological environment can not only support the development of green industries but also significantly improve rural livability, attracting talent and resource agglomeration. Innovating farmers’ organizational forms is an effective path to strengthen subject identity—encouraging farmers to participate in economic cooperatives and promoting the transformation of small-scale peasant production to scale operation upgrades farmers’ subjectivity from individual to “village-community community”. Organizational revitalization is the guarantee of rural revitalization. Strengthening the leading role of grass-roots organizations can effectively coordinate various resources, ensuring that the “Five Revitalizations” advance in the correct direction and in an orderly, collaborative manner.<sup>[5]</sup>

The key to rural talent revitalization lies in breaking the dual dilemma of “insufficient quantity and low quality.” Based on the Marxist theory of “all-round development of humanity,” it is necessary to establish a talent support system that matches the needs of rural revitalization. In terms of cultivation, the model of Japan’s “Agricultural College” can be referenced, combining vocational skill training with academic education to focus on enhancing farmers’ digital literacy and innovative capabilities. In terms of attraction, policy combinations such as “subsidies for talent returning to start businesses + activation of homestead qualification rights” can reduce the cost of talent return. Pilot data from a certain province show that systematic talent policies can increase the success rate of returning talent entrepreneurship by 40%, directly driving rural industrial upgrading.<sup>[6]</sup>

A good ecological environment serves as the fundamental guarantee for thriving industries. Ecological agriculture promotes industrial upgrading through green transformation, while ecological culture injects diverse values into the rural economy. These three elements jointly drive a virtuous cycle of “ecology-economy-culture.” Industrial revitalization, as the foundation of rural revitalization, provides stable economic support for rural areas by developing characteristic industries and creates favorable conditions for talent attraction, cultural inheritance,

and ecological construction. Talent revitalization is the key to rural revitalization. It is essential to attract returning talent through preferential policies and strengthen the cultivation of local talent, providing robust intellectual support for industrial development and rural governance improvement. Ecological revitalization not only concerns environmental governance but also serves as the core driving force for transforming agricultural production into an ecological model. Through the development of integrated agriculture, forestry, and animal husbandry, as well as creative agriculture, a win-win situation can be achieved in both ecological protection and industrial value-added. A good ecological environment can not only support the development of green industries but also significantly enhance rural livability, attracting talent and resource agglomeration. Organizational revitalization is the guarantee of rural revitalization.<sup>[7]</sup>

### **3.2. Promoting the coordinated development of industrial integration and technological innovation**

Rural industrial revitalization requires breaking through the bottleneck of a single - structure and constructing a development model driven by the dual engines of “integration of the three industries” and technological innovation. International experience shows that agricultural modernization and industrial integration are the core paths to rural economic diversification. By guiding agricultural scientific and technological innovation, the extension of the industrial chain to high - value - added links can be accelerated. “ Within this framework, rural industrial revitalization needs to establish a transmission mechanism of “technological innovation - industrial integration - farmers’ income increase.” On the one hand, relying on platforms such as agricultural science and technology parks, digital technology should be deeply integrated with traditional agriculture to develop smart agriculture. On the other hand, by learning from the integration model of “agriculture + cultural and creative industries + tourism.”<sup>[8]</sup>

### **3.3. Strengthening top-level design and coordinated development by applying the principles of systematic thinking**

The principle of hierarchy requires overall planning from three dimensions: macro, meso and micro. At the macro level, it is necessary to base on national strategies and regional characteristics, construct policy support systems for finance, talent, etc, and avoid “one-size-fits-all”. The meso level focuses on industrial upgrading and infrastructure construction. The micro level takes grass-roots governance as the core, and by enhancing villagers’ self-governance capacity, the principal role of farmers can be activated. This principle is also applicable to spatial layout. Regions, counties and villages need to be collaboratively planned, and production, living and ecological spaces should be reasonably zoned to achieve comprehensive revitalization.

The principle of openness emphasizes that rural revitalization needs to break through closure and achieve self-innovation through factor flow with the external environment. On the one hand, rural areas need to strengthen internal capabilities: improve infrastructure such as transportation and communication, optimize the business environment, and enhance farmers’ quality, so as to transform from “passive blood transfusion” to “active hematopoiesis”. On the other hand, multi-dimensional cooperation should be strengthened. It is necessary to not only give play to the dual role of government and market, but also promote urban-rural integration and regional collaboration, so as to facilitate the two-way flow of factors such as talent, technology and capital. For example, in East-West cooperation, the capital and talent advantages of the East can complement the resource endowments of the West, accelerating rural industrial upgrading.<sup>[9]</sup>

### 3.4. Cultivating new rural civilization trends

The concepts of “harmonious coexistence between humanity and nature”, “thrift and frugality”, and “neighborhood mutual assistance” contained in the excellent traditional farming culture are consistent with the value orientation and spiritual essence of the socialist core values. Integrating the socialist core values into rural cultural construction is not only a response to the spirit of the times but also an inheritance and development of traditional farming culture.

In practice, cultural venues such as village history museums and folk museums can be constructed to showcase the historical changes of rural areas and traditional farming culture. Traditional folk activities, such as temple fairs and festival celebrations, can be organized to enhance villagers’ sense of identity and belonging to traditional culture. Meanwhile, platforms like the New Era Civilization Practice Centers can be utilized to carry out publicity activities for core socialist values, organize volunteer services, and advocate new civilized habits, such as promoting simplified weddings and funerals and resisting bad practices like extravagance and feudal superstition. In particular, through the construction of rural civilization, it is necessary to specifically address issues such as “insufficient knowledge and weak environmental awareness” among some villagers, transforming Marxist ecological concepts into a mode of production and living that emphasizes “harmonious coexistence between man and nature,” providing cultural support for rural ecological revitalization. By converging consensus on rural development through cultural identity and guiding social behavior through value orientation, rural cultural soft power can be transformed into spiritual motivation for rural revitalization, achieving coordinated development of rural material and spiritual civilization.<sup>[10]</sup>

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### References

- [1] Xia C, 2024, Implementation Effectiveness and Optimization Path of Promoting Comprehensive Rural Revitalization through Sound Rural Governance, *Agricultural Economy*, (12): 50-51.
- [2] Long W, Meng T, Fan S, 2024, Integrating New Urbanization with Comprehensive Rural Revitalization[J]. *Rural Work Communication*, (21): 35-36.
- [3] Press Conference on Answering Reporters’ Questions about the Main Data Results of the Seventh National Population Census [EB/OL]. 2021.05.11, 2025.01.25.
- [4] Yu X, 2024, From Rural Revitalization to Common Prosperity: Dilemmas, Practical Logic, and Implementation Pathways, *Agricultural Economy*, (12): 75-77.
- [5] Yin Z, Li L, Wu Z, 2024, Research on the Development of “Two Creations” of Excellent Traditional Chinese Culture Boosting Rural Revitalization, *Shanxi Agricultural Economy*, (24): 5-9.
- [6] Yang Z, 2024, Talent Cultivation Paths for Rural Revitalization in Higher Agricultural Institutions, *University*, (32): 1-2+205.
- [7] Shi J, 2024, Talent Development Strategies for Grassroots Party Organizations in the Context of Rural Revitalization, *China Collective Economy*, (35): 110-113.
- [8] Shi J, 2024, Rural Grassroots Party Building Leading Rural Revitalization: Goals, Foundations, and Pathways, *Chongqing Social Sciences*, (11): 60-74.

- [9] Wang X, Zou S, 2024, The Implications of Taiwan's Community Governance Experience for Mainland China's Rural Revitalization in the Context of Cross-Strait Integrated Development, *Taiwan Agricultural Research*, (06): 9-16.
- [10] Huang C, 2024, Reform Pathways to Advance Comprehensive Rural Revitalization from the Perspective of Urban-Rural Integrated Development, *New Horizons*, (06): 34-45.

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# Research on the Intrinsic Logic and Path of News Dissemination in the Era of Intelligent Media

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**Abstract:** The advent of the intelligent media era has profoundly changed the landscape of news dissemination. This article delves into the inherent logic of news dissemination in the intelligent media era, elucidating its characteristics from perspectives such as technological empowerment and the transformation of user needs. It analyzes current issues faced by news dissemination, including the proliferation of misinformation and algorithmic biases. The focus is on exploring optimization strategies for news dissemination from aspects such as technological innovation, improvement of content quality, and reconstruction of user relationships. The aim is to provide theoretical support and practical guidance for the healthy development of news dissemination in the intelligent media era, to adapt to the needs of the times, and to better serve society and the audience.

**Keywords:** Smart media era; News dissemination; Intrinsic logic; Significance of inquiry; Issues; Strategies

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## 1. Introduction

With the rapid development of emerging technologies such as artificial intelligence, big data, and the Internet of Things, the field of news dissemination has entered the Smart Media Era. Intelligent technologies are deeply integrated into various aspects of news production, distribution, and reception, reshaping the ecological environment of news dissemination. In the Smart Media Era, the speed, breadth, and depth of news dissemination have been expanded to unprecedented levels, yet they also face a series of new challenges and problems. A thorough study of the intrinsic logic and pathways of news dissemination in the Smart Media Era is of significant importance for grasping the trends of news dissemination and for promoting innovation and transformation within the news industry.

## 2. The significance of research on news communication in the age of intelligent media

### 2.1. Theoretical significance

Enriching the theoretical system of news communication studies. The intelligent media era has brought about

new news communication models and phenomena, such as algorithmic recommendations and robotic journalism. Research into these new phenomena helps to expand the scope of news communication studies, infuse new connotations into traditional theories, and promote theoretical innovation and development. Analyzing the application mechanisms of intelligent technologies in news communication can deepen the understanding of basic theoretical issues such as the relationship between communicators and recipients, and the laws of information flow<sup>[1]</sup>.

Providing opportunities for interdisciplinary research. News communication in the intelligent media era involves multiple disciplines, including computer science, data science, and sociology. Studying these aspects can promote cross-disciplinary integration, break down disciplinary barriers, and provide comprehensive theoretical perspectives and research methods for solving complex real-world problems<sup>[2]</sup>.

## **2.2. Practical significance**

The study of the inherent logic of news in the era of intelligent media can effectively guide news media in achieving their own transformation and development. In the macro perspective of the intelligent media era, traditional news media are generally facing a more intense competitive situation and must seek new “tracks” under the reform of digitization and intelligence. The development of related work can provide more specific practical guidance for news media, helping relevant institutions to further utilize intelligent technology to improve the news production process and enhance the quality and dissemination dimension of core content, thereby effectively enhancing their industry competitiveness.

In addition, related work can also effectively improve the professional quality of news practitioners. In the context of the intelligent media era, the professional abilities of news practitioners are facing more and higher requirements for improvement. On the one hand, they must possess traditional news editing and reporting capabilities, and on the other hand, they must master more technical knowledge and data analysis methods. Through the study of news dissemination in the intelligent media era, news practitioners can further clarify the direction and goals of their own ability development, promote the reform and innovation of related educational activities, and thus cultivate more high-quality news talents who meet the comprehensive needs of the new era<sup>[3]</sup>.

Protect the information rights and interests of the public. In the information explosion of the intelligent media era, the public is facing problems such as information overload and the proliferation of false information. In-depth research on news dissemination paths helps to regulate the order of news dissemination, improve the quality of information, and protect the rights and interests of the public in accessing true, accurate, and valuable information, promoting social information fairness.

## **3. Issues in news dissemination in the era of smart media**

### **3.1. False information and decreased information credibility**

In the era of smart media, the speed of information dissemination is extremely fast and the threshold for dissemination has been lowered, making it easier for false information to spread rapidly. Some self-media platforms deliberately fabricate false news to attract traffic. Additionally, some intelligent algorithms fail to effectively identify false content during information filtering and recommendation, further promoting the spread of false information. For instance, after some hot events occur, various unverified rumors and false reports often appear on the internet quickly, misleading public perception and damaging the credibility of news media<sup>[4]</sup>.



### **3.2. Algorithmic bias and information narrowing**

“Algorithmic recommendation” can be considered an important method of news distribution in the context of the intelligent media era. However, different algorithms may exhibit certain biases under various circumstances. Fundamentally, “algorithms” are interpretive logics generated based on a “data” integration model. If the data itself has serious biases or if there is irrationality in the algorithm’s program design, then the recommended results will inevitably be significantly biased. For example, some algorithms may combine the target user’s historical browsing records to push homogenized content with high frequency and precision, thus trapping the user in the cocoon of “information silos,” greatly restricting the user’s access to and internalization of diverse information, and subsequently severely affecting the public’s cognitive horizon and the quality of social information exchange<sup>[5]</sup>.

### **3.3. Privacy infringement and data security issues**

In the perspective of the intelligent media era, the news dissemination process will inevitably involve the collection, storage, and analysis of a large amount of user data. Some news media and platforms still have significant deficiencies in data management, which could lead to leaks of users’ private information; furthermore, some unscrupulous businesses might illegally obtain users’ private data, providing a breeding ground for illegal marketing and fraud activities. At the same time, the cross-border flow of some data has brought significant data risks to users and related industries, making “how to ensure user data security and privacy” a challenging problem for many news media workers<sup>[6]</sup>.

### **3.4. Journalism professionalism is under assault**

The application of intelligent technology has made news production more automated and fragmented. Some journalists overly rely on technology, leading to a weakening of basic skills such as news reporting and investigation. In the pursuit of timeliness, some media outlets have neglected the principles of truthfulness and objectivity in journalism, subjecting journalism professionalism to unprecedented challenges. For instance, news articles written by robots can be generated quickly, but they often lack depth and humanistic care, failing to meet the audience’s demand for high-quality news.

## **4. Optimization strategies for news dissemination in the age of smart media**

### **4.1. Technological innovation and reasonable application**

Technological innovation and application are the core “engines” for the vigorous development of the news industry. Based on this, in the context of the smart media era, workers should further strengthen the research and development and application of artificial intelligence technologies. Specifically, news media should continuously improve and expand their investment mechanisms and scale in the field of artificial intelligence, developing and utilizing more advanced and diversified news collection, writing, editing, and distribution technologies based on specific work demands<sup>[7]</sup>. For example, workplaces should regularly improve robot writing algorithms to ensure that they can automatically generate news content with greater reading depth and personalized expression paths based on news materials; they can also use artificial intelligence image recognition, video analysis, and other technologies to quickly and accurately screen and process news materials, completing the classification and categorization of material projects and their application, thereby further improving the quality and efficiency of news production<sup>[8]</sup>.

In addition, workers should also pay attention to the reasonable use of algorithmic recommendation



mechanisms, and when using algorithmic recommendations, they must pay special attention to the normal optimization and parameter adjustment of the algorithm to avoid algorithmic bias as much as possible. In the specific execution of work, workers can combine manual intervention mechanisms to build a review mechanism, conducting a secondary review and manual selection of the results automatically recommended by the algorithm, effectively ensuring the diversity and objectivity of the recommended content. At the same time, relevant units should also give users more autonomy, allowing them to manually adjust the platform's recommendation parameters based on their preferences and demands, helping themselves effectively break through the "information cocoon"<sup>[9]</sup>.

In addition, staff members should actively explore emerging technologies and promote their organic integration with traditional technologies, focusing on the media communication application paths of emerging technologies such as blockchain, Virtual Reality (VR), and Augmented Reality (AR) to build a multi-dimensional guarantee mechanism. Specifically, staff should rely on blockchain technology to strengthen the traceability of news information, recording the production and dissemination process of news information through a decentralized distributed ledger path, effectively ensuring the objectivity and non-tamperability of news materials; at the same time, by leveraging VR and AR technologies, they can provide users with a more immersive news experience, enhancing the impact and internalization of news information, allowing users to have a "sense of being there" when reading the news<sup>[10]</sup>.

## **4.2. Content and quality enhancement**

Staff members must further demonstrate the principle of authenticity in news editing and dissemination, always considering "authenticity" as the "first vitality" of news, and continuously strengthening the review and control of news content. Specifically, staff members should establish and improve a more stringent news information verification mechanism, conducting multi-angle cross-verification of news leads and interview content, ensuring news reporting is as accurate as possible to the greatest extent. Moreover, during the application of intelligent technology, staff members should always be vigilant against the potential risks of false information that intelligent technology may bring, avoiding a "superstitious" attitude towards intelligent technology, and always maintaining and improving their industry alertness, professional ethics, and professional judgment standards<sup>[11]</sup>.

Furthermore, staff members should pay more attention to the optimization design of in-depth reporting and exclusive content. In the rapidly updating information age of smart media, "in-depth reporting" and "exclusive content" can often highlight the core competitiveness of news media at a higher level<sup>[12]</sup>. Therefore, staff members should further strengthen the in-depth, multi-dimensional exploration and integration of core hot events and social issues, organize more professional editing and reporting teams to carry out investigations and analyses in deeper fields, and strive to bring more valuable and in-depth news information to users. In addition, staff members should focus on their industry and institutional characteristics to achieve the differentiated design of intelligent media push content, consciously creating more exclusive news, thereby effectively attracting and capturing user attention and establishing a more unique and positive media brand image<sup>[13]</sup>.

It is worth mentioning that staff members should also strengthen the humanistic care attribute of news content. News is definitely not just a simple report of facts, but should also demonstrate the connotations of humanism and anthropocentrism at a higher dimension<sup>[14]</sup>. Therefore, in the process of news writing and dissemination, staff members should pay close attention to the emotions and subjective needs of "people", abandoning the abnormal mindset of excessively pursuing "traffic" and social shock effects. For example, in the reporting of some disaster events, staff members should fully respect the feelings of the affected people, avoid

causing secondary harm to the victims, and spread news information through a warmer and more humanistic perspective and approach, realizing the “appreciation” of news social value <sup>[15]</sup>.

### **4.3. User relationship restructuring**

The optimization and construction of user relationships is one of the core projects for news development in the era of intelligent media. Therefore, staff must establish and improve a good user feedback mechanism, further focusing on proactive feedback from users, actively collecting and integrating users’ opinions and suggestions through composite channels such as social media, comment sections, and questionnaires; at the same time, they should adjust and optimize the paths, methods, and projects of news dissemination in a timely manner based on user feedback content, thereby effectively catering to and satisfying the personalized needs of different users. For example, staff can adjust the types of news topics and reporting methods based on users’ levels of attention and comments on different types of news, to increase user engagement and satisfaction <sup>[16]</sup>.

Additionally, staff should continuously open up new paths for user participation in the feedback mechanism, actively encouraging users to participate in the production and dissemination of news through online channels, organizing user contribution and interactive live streaming events around different themes, to enrich news content sources and content using user-generated content (UGC), and objectively enhance users’ sense of identification, belonging, and acquisition with news media. For instance, staff can open a “Citizen Journalist” column on media websites, allowing ordinary users to provide hot local materials through “online submissions,” actively sharing fresh stories from their daily lives or personal views on social hotspots, broadening the corresponding perspectives and channels for news media integration <sup>[17]</sup>.

Staff can also more precisely target users’ personalized needs, fully utilizing “big data” analysis technology to deeply, comprehensively, and accurately understand the interests, hobbies, behavioral habits, and information acquisition needs of different users, to create precise “profiles” for each user. Following this, staff should combine different users’ “profiles” to develop more personalized news dissemination plans for them, pushing news projects that align with their subjective demands, thereby strengthening the relevance, effectiveness, and service orientation of news dissemination. For example, for younger user groups, staff can adopt more dynamic forms such as short videos and animations to push news, to capture the attention of these users.

### **4.4. Industry standards and regulatory improvement**

“Without rules, there is no square or circle,” staff should formulate and improve corresponding industry standards according to the macro characteristics of the Smart Media era. Specifically, the News Industry Association needs to promulgate news communication industry standards for the Smart Media era in conjunction with existing conventional regulations and statutes, further clarifying the standard items and required criteria for different aspects such as news production, dissemination, and data usage. For instance, relevant personnel should establish industry standards for intelligent algorithm recommendations, entering from perspectives such as parameter design, module design, and macro presets to regulate the construction of the algorithm system, data usage, and the presentation of recommendation results, thereby effectively ensuring a stronger sense of fairness in algorithmic recommendations <sup>[18]</sup>.

At the same time, staff must actively strengthen the comprehensive intensity of supervision. Government departments need to further improve the regulatory effectiveness of news media and platforms, establishing and improving comprehensive and cross-cutting regulatory mechanisms. At the same time, relevant departments must also intensify efforts to crack down on illegal activities such as the spread of false information and privacy

violations, imposing serious penalties and public notifications on media and platforms that violate regulations. In addition, departments must continuously improve the regulatory mechanism for data security, further standardizing the collection, storage, transmission, and use of different data, thereby truly ensuring the data security of each user<sup>[19]</sup>.

Most crucially, the news media industry must also do well in terms of industry self-regulation, actively establishing and improving internal management systems and methods, strictly constraining their own behavior in accordance with relevant requirements and ethical standards. For example, relevant media institutions can establish content review committees to internally review news content collected and released by staff; they can also establish and improve corresponding internal data security management systems, using intelligent keys to strengthen the protection of user data, thereby fully creating a healthier and more orderly environment for news dissemination<sup>[20]</sup>.

## 5. Conclusion

In summary, the era of intelligent media has brought tremendous opportunities for the development of news dissemination, while also inevitably generating a series of industry challenges. The vast number of workers should actively clarify the interaction among technology, content, users, and other factors in news dissemination through in-depth research on its internal logic. They should continuously adopt strategies such as technological innovation and reasonable application, improvement of content quality, reconstruction of user relationships, and improvement of industry norms and regulation to further promote the healthy and stable development of news dissemination in the era of intelligent media. They should provide the general public with higher quality and more valuable news information services in a normal and effective manner, thereby allowing themselves to play a more important social function in the new communication landscape and effectively promoting the effective dissemination of information and the harmonious development of society.

## Disclosure statement

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## References

- [1] Chen X, Chen L, 2020, The Transformation of Journalism and Communication Education in the Era of Smart Media, *Media*, (9):17-21.
- [2] Qin J, 2021, The New Situation and Development Strategies of Journalism and Communication Education in the Era of Smart Media, *Today's Media (Academic Edition)*, 29(11):135-137.
- [3] Xu F, Ying Z, 2024, The Communication Practice and Future Prospects of Virtual News Anchors in the Era of Smart Media, *News World*, (4):41-44.
- [4] Qin F, 2019, The Transformation of Journalism and Communication Education in the Era of Smart Media, *News Front*, (24):112-115.
- [5] Yang C, 2023, The Practical Approach to Enhancing the Effectiveness of Journalism and Communication in the Era of Smart Media, *Journal of Qiqihar University (Philosophy and Social Sciences Edition)*, (8):123-126.

- [6] Man X, 2024, The Internal Logic and Path Exploration of Journalism and Communication in the Era of Smart Media, *Internet Weekly*, (11):30-32.
- [7] Wei S, 2019, The Practice and Reflection on Journalism and Communication in the Era of Smart Media, *Journal of News Research*, 10(18):172-173.
- [8] Dang W, 2022, Research on Short Video News Visual Communication in the Era of Smart Media, *Packaging World*, (7):73-75.
- [9] Li Y, 2020, Research on Human Memory, Attention, and Journalism and Communication Studies in the Era of Smart Media, *Audio-Visual*, (8):193-194.
- [10] Guo H, 2023, Chu Yingying. Research on the Innovation of Mainstream Value Dissemination of News Media in the Era of Intelligent Media, *Journal of Hezhou University*, 39(2): 66-71.
- [11] Xing M, Lu J, 2019, Reconstruction of Content Production and Dissemination Model of News Anchors in the Era of Intelligent Media, *Publishing Perspectives*, (10): 28-31.
- [12] Chen M, Ao Y, 2020, Four Dimensions to Enhance the Effectiveness of News Dissemination in the Era of Intelligent Media, *World of Journalism*, (7): 46-49.
- [13] Wang J, Yang Q, Yu Y, 2018, Communication Characteristics of “Personalized News” in the Era of Intelligent Media, *Western Radio & Television*, 8(16): 75-76.
- [14] Huang J, 2023, Development Logic and Enhancement Path of Short Video News in the Era of Intelligent Media, *Media*, (2): 59-61.
- [15] Song R, 2024, Multidimensional Breakthrough and Transcendence of Journalists in the Era of Intelligent Media, *Communication Power Research*, 8(17): 121-123.
- [16] Deng R, Liu Q, 2024, Research on the Application of Artificial Intelligence in News Reporting in the Era of Smart Media, *Communication Power Research*, 8(32): 37-39.
- [17] Li D, 2024, Research on the Construction of Communication Ability of Journalist Hosts in Radio and Television Media in the Era of Smart Media, *Journalism Research Digest*, 15(7): 106-108.
- [18] Liu J, 2024, Research on Optimization Strategies for Integrated Media News Reporting in the Era of Smart Media, *Western Radio & Television*, 45(17): 25-28.
- [19] Yang R, 2024, Challenges and Responses to News Authenticity in the Era of Smart Media, *Voice & Screen World*, (11): 14-16.
- [20] Wu Y, 2024, Remodeling and Transformation of News Anchors’ Comprehensive Ability in the Era of Smart Media, *Journalist Cradle*, (6): 123-125.

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# Comparison of Research Trends in Blended Learning in Korea and China

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**Abstract:** Blended Learning is one of the most popular methods in education for encouraging active learning and improving student learning effectiveness, and it is regarded as one of the most effective methods for universities to attract students. Based on the cultural dimension theory, this paper examined blended learning research trends in both South Korea and China, which are culturally similar but also differ. The research methods include keyword analysis and visualization. Academic papers on blended learning indexed by WoS, KISS, and CNKI from 1990 to June 2022 were collected and analyzed. According to the findings, since the outbreak of COVID-19, the common research topic of blended learning has been subdivided by forming clusters in various research fields. Korea and China exhibit similarities to global research trends while exhibiting differences based on cultural background. The cultural dimension theory-based analysis reveals a common pattern that is especially long-term oriented. The findings can suggest significant implications for designing what role national culture plays in forming patterns of education and research and for developing blended learning with effective impacts in a multicultural educational environment.

**Keywords:** Blended Learning; Cultural Dimensions Theory; Keyword Analysis; Visualization; KH Coder

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## 1. Introduction

Blended Learning (BL), as a method to promote active learning and enhance learning effectiveness, has been widely applied in the field of education and is seen as an effective way for universities to attract learners. Although Blended Learning has existed for more than a decade, there are still many challenges: most Blended Learning research has been conducted in developed countries, and cooperation is needed to promote Blended Learning in developing countries <sup>[1-2]</sup>. The peak of research related to basic education appeared in 2020. This may be due to the COVID-19 pandemic forcing many institutions around the world to adapt to the needs of learners <sup>[3]</sup>. As many institutions encourage the implementation of basic education, there is growing interest in research on best practices in basic education <sup>[4]</sup>.

Broadly speaking, the concept of BL can be a combination of various technologies/media and traditional face-to-face classroom activities. The changes brought about by online learning are affecting our schools and how they operate<sup>[5]</sup>. E-learning, also known as Internet-based learning, makes learning methods more portable and flexible<sup>[6]</sup>, which is especially important in modern higher education. The number of university students worldwide adopting e-learning is constantly increasing. In an increasingly international world, students from different countries are studying the same courses. In addition, if educational institutions fail to address multicultural issues in capacity-building courses in order to attract new students, their reputation may also be adversely affected<sup>[7]</sup>.

Whenever a new technology emerges, there is huge potential for educational exploration and application. Among them, BL is one of the most commonly used methods for interdisciplinary research, and the research topics are also very wide<sup>[8]</sup>. Technological advancements have driven the development of various teaching methods and educational platforms, but a new educational model is especially needed during pandemics like COVID-19. For example, during a pandemic, it is necessary to try innovative methods that are more attractive to students than traditional teaching methods<sup>[9]</sup>.

Compared with the traditional educator-centered approach, the new technology-based teaching method is learner-centered. Technology-based personalized learning, digital and demographic data can be used to design personalized learning programs<sup>[10]</sup>. In the learner-centered teaching method, learners are responsible for their own learning as partners in designing learning paths, while educators become co-creators of course content<sup>[11]</sup>. Understanding the learner's cultural background and course content can make communication smoother and maximize training effectiveness.

Innovation capability is a social process of reconfiguring knowledge that exists in different entities<sup>[12]</sup>. Hans de Wit once pointed out that “we are in a transitional period where localization and globalization are increasingly connected.” Information technology, competition, and standardization will become key factors in the transformation of higher education. Transnational strategic cooperation among universities in scientific research, teaching, and knowledge transfer will become the future trend of education development. It is worth noting that competition and cooperation with private institutions, especially in areas such as professional learning, lifelong learning, distance learning, and the application of new technologies, are increasingly becoming the forefront of higher education development<sup>[13]</sup>. At the same time, Generation Z tends to be pragmatic when choosing a university<sup>[14]</sup>. Partnerships, networks, and collaborations between academic institutions and between universities and businesses are becoming increasingly important to occupy a place on the international stage. In today's information age, cross-border and borderless education is becoming increasingly important. The internationalization of higher education, in the sense of emphasizing intercultural interaction rather than cultural homogenization, plays an important role in balancing the potential risks of multicultural education<sup>[15]</sup>.

Looking at the literature, it can be found that in the West, British scholars have moved from the “ivory tower” to the “market” through research on university education cooperation models. American scholars focus on international exchanges between universities and businesses worldwide as well as international competition in transnational education. Canada has conducted in-depth research on international education, internationalization process settlement, and strategies to promote the mobility of international students<sup>[15]</sup>. On the other hand, research on Asian countries is basically lacking.

Therefore, this study investigated the research patterns of basic law in Korea and China through keyword analysis and visualization methods. The significance of this study lies in identifying the underlying reasons



for new learning models and knowledge innovation across different cultural backgrounds, and proposing directions for effective basic education research in the future. It can also provide reference for countries or regions that lack basic education capabilities to implement basic education and promote cross-border cooperation <sup>[4]</sup>.

## **2. Literature review and research questions**

### **2.1 Blended learning (BL): what is it?**

The term blended learning is increasingly used in both academic and business circles <sup>[16]</sup>. It is a concept that was first introduced in the field of corporate training to complement the advantages of traditional face-to-face classroom learning and online learning, and later introduced into primary and secondary education <sup>[18]</sup>. In 2003, the American Society for Training and Development (ASTD) identified “online learning” (BL) as one of the top ten trends in knowledge dissemination <sup>[17]</sup>. Initially defined as a simple fusion of online and offline elements, it is now widely used to integrate learning tasks and experiences, optimizing the learning environment by utilizing various learning methods, strategies, tools, and technologies based on learning content or objectives. In other words, it is defined as combining the medium of knowledge transmission and pedagogy through the integration of Computer-Assisted Instruction (CMI) courses and offline courses <sup>[18]</sup>.

Improving pedagogy, facilitating knowledge acquisition, learner interaction, personal presence, cost-effectiveness, and ease of modifying learning content are the main reasons for using basic pedagogy <sup>[19]</sup>. Optimal learning effects can be achieved through the integration of physical or technological spaces, as well as the fusion of various learning elements and teaching and learning <sup>[20]</sup>. The learning experience can be deployed online or on-site, depending on the relative advantages and disadvantages of each mode. In BL courses, teachers have the opportunity to create a brand-new learning environment for students, which can positively impact learning efficiency, convenience, and performance. Nowadays, much of learning can be moved online to increase the flexibility of learners’ schedules and reach learners beyond traditional classrooms using social networks. To continuously achieve this goal, educators need to go beyond a mere “digital transformation” and strive for transformational integration by consciously redesigning courses <sup>[21]</sup>.

### **2.2. Cultural dimensions theory and research trends in blended learning: culture as a dimension of a group**

Culture is the collective thinking program that distinguishes members of one group or society from another <sup>[22]</sup>. Culture exists essentially in people’s minds, but as a product of social institutions and tangible assets, the materialization of culture paradoxically reinforces people’s psychological programming. Without a deep understanding of people’s values, beliefs, and expressions, society becomes difficult to manage, and its cultural background becomes greatly limited <sup>[23]</sup>. The evolution of ideology, social systems, and history has shaped the unique cultures of many countries. Education is deeply influenced by culture because it is the primary means and way of human thinking programming. Although countries around the world emphasize the importance of education, social and cultural differences have led to different goals, content, methods, and results <sup>[24]</sup>.

Hofstede defined four basic elements of human society that are common to the cultural systems of various countries. They are power distance (PDI), which relates to different solutions to the basic problem of human inequality; uncertainty avoidance (UAI), which relates to the level of stress in uncertain future societies; masculinity and femininity (MAS), which relates to the distribution of social gender values and the division

of emotional roles; and individualism and collectivism (IDV), which relates to the degree of collective integration of individuals. Each country has specific answers <sup>[22]</sup>. Later, he added long-term orientation and short-term orientation (LTO) <sup>[23, 25]</sup>, which refers to the satisfaction of basic human needs, and control, indulgence, and restraint (IVR) <sup>[23]</sup>, which focuses on effort, for a total of six dimensions <sup>[26]</sup>. Among them, long-term orientation is one of the most important dimensions. It is closely related to educational achievement and has greater predictive value compared to other dimensions because it can be used to estimate geographical and cultural differences between the East and West of the world <sup>[27]</sup>.

Ng et al. reported that information technology has greatly changed the way universities teach and has conducted various model-based studies, such as the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Technology Acceptance Model (TAM). However, there is little literature on Hofstede's cultural dimensions antecedents of information technology usage intentions and behaviors in learning environments <sup>[7]</sup>.

Johannes C. Cronjé investigated how much Hofstede's static and quantitative research supports dynamic and qualitative interpretations, leading to a series of shifts from individualism to collectivism, which are mutually amplified in terms of power distance and uncertainty avoidance. They concluded that there are three factors for adapting to different cultures: reducing uncertainty in communication, establishing common meanings, and using appropriate technology. They also believed that more research is needed to explore cultural commonalities because emphasizing commonalities is more beneficial than overcoming differences <sup>[28]</sup>.

The purpose of creating a constructivist learning environment is to allow students to create. Clear instructions can lead to non-creative work. In the absence of clear instructions, it is necessary to establish cross-cultural trust relationships, which require a lot of corrective and encouraging feedback. Considering the value of multicultural experiences, the uncertainty of communication can be reduced by sharing meanings using the best technology. For example, language barriers make dissertations a challenging form of assessment, but digital technology with multimedia capabilities will be a richer and more useful integration tool than text <sup>[28]</sup>.

### 3. Research methods and analysis process

This study analyses global research trends and research patterns formed in Korea and China by using keyword analysis and visualisation techniques to analyse BL's officially published academic articles in academic journals from 1990 to 2022. First, in order to understand the cultural differences between the two countries, we refer to the data generated by <https://www.hofstede-insights.com>, which is based on Hofstede's theory of cultural dimensions.

First of all, the power distance index (out of 100) is relatively lower in Korea (60) than in China (80), indicating that Korean society is a relatively democratic culture. Individualism-Collectivism scores are lower in Korea (18) and China (20) because East Asian cultures value group goals over individual goals, cooperation, and teamwork. The difference between South Korea (39 points) and China (66 points) on the masculinity-femininity index shows that South Korea values empathy over competition. The large difference in the uncertainty index is due to the fact that South Korea (85) seeks a stable society and life rather than change, emphasising clear planning and execution. China (30), on the other hand, may be influenced by its exploratory environment as it has deepened its market economy since the 1980s, starting with the reform and opening-up policy. Due to the influence of the Yugai school of thought, both China and South Korea, which



respect tradition and value maintaining relationships, have high long-term orientation scores, with South Korea reaching a perfect score (100) compared to China (87). The Self-Control-Indulgence Index is lower in South Korea (29) and China (24), indicating a cultural tendency to respect social rules and restrain one's motivation.

Next, we analysed BL-related research published in representative databases of each country to find out the detailed differences between the two countries. We set the following research questions:

Research question 1. What are the main keywords that appear in academic research related to BL?

Research question 2. What are the main keywords of BL-related academic research in Korea and China, and what are the research patterns?

### **3.1. Publication status of WoS, KISS, and CNKI**

First, we collected data published in WoS (Web Of Science), which is considered to be an 'international-level academic journal', to understand the global BL research trends. This is a fee-based network database that allows users to search the citation index databases SCIE (Science Citation Index Expanded), A&HCI (Art & Humanities Citation Index), and SSCI (Social Sciences Citation Index) provided by Clarivate Analytics (formerly Thomson Reuters IP & Science) in the United States [30]. WoS may include articles published by researchers in Korea and China, but it is used as a reference for comparison with global research trends. In addition, this study collected and analysed research data published in KISS and CNKI, two representative academic research information databases in Korea and China, to observe the patterns of BL research in Korea and China.

KISS (Korean Studies Information Service System) was selected because BL is a field of education. KISS is an integrated search service that provides full-text and bibliographic information of Korean academic journals and provides a total of 3,000 types of academic information (e-Journals, Proceedings, e-Books) in all subject areas published by more than 1,400 institutions.

CNKI (China National Knowledge Infrastructure) is China's digital information and knowledge infrastructure.

Knowledge Infrastructure (CNKI) is an academic information platform established and operated by Tsinghua University and Tsinghua East, an IT and telecommunications company, since June 1999 with the support of the government to build a digital information system in China<sup>[31]</sup>.

As of 19 June 2022, the WoS, KISS, and CNKI academic databases collected 14,241, 550, and 1,685 academic articles, respectively, that were searched by the keyword 'blended learning' and published in order of relevance.

### **3.2. Analytical tools and research methods**

Among the BL-related articles retrieved from WoS, KISS, and CNKI academic databases, 12,161, 426, and 1,585 articles were finally purified after excluding duplicates and non-scholarly articles, respectively, and were subjected to co-occurrence analysis, keyword analysis, and visualisation using KH Coder. KH Coder is an open-source software programme developed for quantitative content analysis or text mining. It can be used to analyse keyword frequency. Each keyword cluster is scored and generally the higher the score, the higher the confidence<sup>[32]</sup>. One of the advantages of KH Coder is that it supports multilingual versions. In this study, we used this programme to compensate for the font breakage caused by multilingualism.

The specific research process is as follows. The frequency of BL-related papers published in WoS, KISS, and CNKI from 1990 to June 2022 showed that the total number of BL papers published in both Korea and

China was about 15 from 1990 to 2002, but increased to more than 20 from 2004 and 2005, and the amount of research has been increasing rapidly since 2020 during the COVID-19 pandemic. We then conducted keyword analysis and visualisation analysis to analyse BL patterns in Korea and China. KH Coder's co-occurrence feature connects closely related words with lines and groups words that define search criteria. A network of words closely related to a particular keyword can be drawn <sup>[32]</sup>.

Co-occurrence networks have recently been used in various fields as a way to analyse trends in a discipline. It shows not only the association between words but also the association between words and titles. With KH Coder, you can set the value of Jaccard, Euclid, Cosine coefficient, etc. according to the number of keywords or mass data analysis. Word clusters can easily reveal the structure of subgroups <sup>[32]</sup>. Cluster analysis, where words that are close to each other are classified into the same cluster, is a structured concept that can be used to develop conceptual structures, and is also mentioned in Trochim's concept mapping. It provides an important structure for understanding the problem and allows for a rational representation of shapes and contours <sup>[33]</sup>.

The visualisation shows that the larger the node, the higher the frequency of the word, and if the link between two words is thicker than other words, it means that the probability of co-occurrence is higher. In addition, the word-word network diagram provided by KH coder allows you to set the colour coding of words (nodes), indicating the role of each centrality in social network analysis. The circles representing the nodes reflect the centrality in ascending order from light blue to white to pink <sup>[32]</sup>.

## 4. Analysis results

Firstly, **Table 1** lists the top 25 keywords from various academic databases to identify similarities and differences in general. The keyword "BL" and education-related research topics (such as learning, teaching, classroom, and students) occupy prominent positions on the list. The main similarity is that there is a generally similar interest in language education research, and research related to design is also active. Among the papers listed in WoS, there are many studies related to cooperation, social issues, environmental improvement, and virtual reality. Korean scholars' research mainly focuses on improving students' abilities and learning outcomes through problem-based learning. In China, the development of courses and systems that incorporate new technologies such as the internet and algorithms is the focus.

**Table 1.** Frequency comparison of the top 25 words in WoS, KISS, and CNKI

Rank	WoS (Web of Science)		KISS (South Korea)		CNKI (China)	
1	learning	12528	learning	754	learning	1578
2	blended	5476	blended	493	blended	1168
3	education	4640	education	292	teaching	830
4	online	1492	online/e-learning/remote/cyber	264	model	367
5	teaching	1490	learning	240	education	356
6	e-learning	1540	lecture/class	142	internet	242
7	technology	1176	professor	132	algorithm	180
8	student	1170	Korean	66	Courses	155
9	design	876	model/mock-up	65	university	154

**Table 1 (Continued)**

Rank	WoS (Web of Science)		KISS (South Korea)		CNKI (China)	
10	higher	841	English	57	Technology	134
11	classroom	611	problem	53	design	123
12	system	610	multidisciplinary/design	51	neurology	122
13	flip	607	languages	49	English	112
14	training	602	self	44	class	110
15	model	601	course	36	teacher	99
16	teacher	595	student	35	depth	77
17	collaborative	591	competency	34	mooc	77
18	distance	573	Web	33	systems	71
19	management	570	co-operation	33	strategy	69
20	language	569	contents	32	analysing	68
21	social	522	flipped	32	flip	64
22	course	516	PBL	32	Research	63
23	virtual	505	analytics	31	information	60
24	development	484	offline	29	platform	59
25	environment	462	effective	28	smart	57

The frequent occurrence of keywords related to BL applications in KISS and CNKI indicates a long-term orientation towards exploring the applicability of BL beyond academic research in both countries. Apart from the common reasons for curriculum setting in formal systems, a tendency to avoid uncertainty can also be inferred. Additionally, while WoS has many studies on the environment and experience, KISS and CNKI seem to have relatively few. This may be due to the long-term orientation and restraint of the two countries in respecting and adhering to traditions, rather than a tendency to actively improve the environment and experience. However, with the rapid development of science and technology and the demand for new types of talent, curricula and educational experiences must constantly be challenged and explored.

Among the common keywords in WoS, KISS, and CNKI, besides design, CNKI has more research related to technology, models, and systems, while keywords such as problem-solving, content, analysis, and effectiveness in KISS reflect a feminine cultural characteristic, emphasizing the value of consideration over male competition.

The surge in publications from CNKI since 2015 aligns with the fact that China has experienced various forms of online teaching over the past seven years. We found that flexibility in uncertain environments, rather than avoidance, is consistent with low uncertainty avoidance in risk-taking.

Subsequently, we conducted a co-occurrence analysis of paper topics and publication years using KH Coder. For WoS, we set the FilterEdge to a cosine value of up to 240 and the bubble plot to 2,000 units, ranging from 2,000 to 8,000, to achieve visualization. Then, we only included keywords belonging to nouns in KISS and CNKI and set other keywords to the same value. Due to space limitations, we cannot display all visualization results but only the necessary ones. The analysis shows that, firstly, general keywords such as students, education, and learning appeared in WoS in 2015, followed by BL-related research in 2018 and 2021.

After the COVID-19 pandemic broke out in 2019, the pandemic and learning methods began to form a distinct cluster: health, technology, digital, motivation, self-regulation, and culture. Starting in 2020, online learning, literacy, practice, and curriculum, as well as online, education evaluation, platform, healthcare, organization, computer, transition, policy, self-regulation, change, and video began to show a more refined research trend from 2021-2022.

KISS first recorded research related to BL in 1984, and it was said to be used in foreign language education. The study found that in 2004 and 2011, there was a large proportion of research on teaching methods using BL, especially in the field of engineering education in 2011. From 2009 to 2010, there was an increase in the number of studies related to improving learning skills, especially language skills. Among them, English education has the most research (30 out of 550 studies), but the number of studies has decreased since 2015. On the other hand, from 2017 to 2020, research in the field of Korean education began to emerge. This can be attributed to the popularity of Korean culture and content exports. Around 2010, basic education research in universities was common, but since the outbreak of COVID-19 in 2020, basic education-related research has no longer been conducted in universities but has been actively carried out in primary schools. Based on this, it can be inferred that strategies, design, and system construction before the outbreak of COVID-19 can be stabilized in a short period, laying a solid foundation for response measures and a solid foundation during the pandemic through various studies related to network infrastructure. Additionally, the basic law research carried out since 2019, focusing on society, teachers, abilities, and competencies, demonstrates a strong long-term orientation towards preparing for the future.

The study found that 2016-2019 was the most important period for CNKI to conduct BL-related research, followed by 2004-2006. Due to COVID-19, it was discussed along with online education in 2020. In addition, research based on algorithms, systems, neural networks, functions, and reasoning began in the late 1990s and early 2000s. MOOCs and micro-courses, which received attention simultaneously in 2014, are also important discoveries. Among them, learning, teaching, networking with neural networks, reasoning, and bold lines are closely related. This is another manifestation of long-term orientation, which can be said to be in line with the payment for knowledge content (knowledge consumption) that began in 2016.

## 5. Conclusion and limitations

Since the COVID-19 pandemic, there has been an increase in research on BL around the world and a growing demand for new educational paradigms. BL is considered to be one of the most popular methods to promote active learning and enhance student learning. The impact of the emergence of monetisation of knowledge content and the improvement of marketised education services on the existing education system is expected to be a change that cannot be ignored. To this end, it is necessary to prepare for new challenges by continuously identifying global trends from a multifaceted perspective.

Social network analysis is a highly effective method for observing cross-national relationships<sup>[34]</sup>, and this study utilised keyword analysis and visualisation techniques in network analysis.

This study analysed the key thematic words and semantic network structures that appeared in academic papers from the beginning of BL to the recent corona period. In the process, it examined the discourse produced by Korean and Chinese researchers on BL from a comparative cultural perspective. Although it was not possible to strictly apply cultural dimension theory to interpret the results, the study was able to find important implications. As summarised in the literature review, there are clear cultural differences between

China and Korea along the dimensions of uncertainty avoidance, masculinity orientation, and power distance. The findings show that the prevalence of themes focusing on the use, effects, and examples of BL in Korean papers indicates a tendency towards uncertainty avoidance. On the other hand, the frequent occurrence of models, practices, algorithms, and knowledge consumption in Chinese papers may be due to cultural factors such as male orientation. As Korean researchers in the field of BL have concerns and expectations about the success of BL as a new technique, they tend to conduct a lot of research and analysis on the learning effects and best practices of BL classes. In particular, through the know-how and experience gained based on COVID-19, it is expected that in the future, more effective educational environment improvement, system construction, programme development, and soft aspects such as educational ideology and methods will be improved <sup>[9]</sup>. On the other hand, China has a stronger centralised system than Korea, so there may be some confusion or concern about the change from analogue to digital learning environment, but there is more interest in practical models and technologies to overcome the problems. The recent expansion of non-face-to-face learning due to the coronavirus requires a new paradigm for education. Korea and China have historically had similar cultures, but their social development since modern times has been different. Based on the results of this paper, the changes in teaching methods and knowledge consumption in China and Korea after the introduction of BL are compared through academic publications. It is necessary for education and policy makers in both countries to reflect the results of this study in the overall improvement of BL, and to approach it from a comparative cultural perspective in the process of implementing full-scale AI-based BL.

In terms of the selection of databases, one of the limitations of this study is that it did not cross-search various databases such as Google Scholar, Microsoft Academic Search, DBPIA, and Web of Science, so it will be supplemented in future studies.

In addition, this study can observe the overall trend of the two countries' research based on keyword analysis, but there may be some individual differences. In the future, more intuitive visualisation tools can provide rich research implications, and by collecting and analysing more samples from countries with diverse cultural backgrounds, it is meaningful to identify overall research trends and suggest more effective academic research directions.

## Disclosure statement

The authors declare no conflict of interest.

## References

- [1] Ashraf M. A., Yang M. J., Zhang Y. R., Denden M., Tlili A., Liu J. Y., Huang R. H., and Burgos D., 2021, 'A Systematic Review of Systematic Reviews on Blended Learning: Trends, Gaps and Future Directions,' *J. of Psychology Research and Behaviour Management*, Vol.14, 1525-1541.
- [2] Tulasi B. and Suchithra R., 2019, "Personalised Learning Environment in Higher Education through Big Data and Blended Learning Analytics," *J. of International Journal of Recent Technology and Engineering*, Vol.8, No.3, 6236-6239.
- [3] UNESCO and ILO, 2020, *Supporting Teachers in Back-to-school Efforts - Guidance for Policy-makers*, International Task Force on Teachers for Education 2030.
- [4] Ashraf M. A., Yang M. J., Zhang Y. F., Denden M., Tlili A., Liu J. Y., Huang R. H., and Burgos D., 2021, 'A

- Systematic Review of Systematic Reviews on Blended Learning: Trends, Gaps and Future Directions,' J. of Psychology Research and Behaviour Management, Vol.14, 1525-41.
- [5] Picciano A. G., 2014, "Big Data and Learning Analytics in Blended Learning Environments: Benefits and Concerns," J. of International Journal of Interactive Multimedia and Artificial Intelligence, Vol. 2, No.7, 35-43.
  - [6] Zhang D. S. and J. F., 2003, Nunamaker, 'Powering E-learning in the New Millennium: An Overview of E-learning and Enabling Technology,' J. of Information Systems Frontiers, Vol.5, No.2, 207 -218.
  - [7] Ng K. K., Luk C. H., and Lam W. M., 2018, 'The Influence of Culture on the Use of Information Technology in Learning in Hong Kong's Higher Education,' J. of Lecture Notes in Computer Science, Vol. 10949, 126-135.
  - [8] Cho KR, Kim CH, 2016, 'Exploring the Knowledge Structure and Characteristics of the Korean Educational Engineering Academic Community: Focusing on the Comparison of "Educational Engineering Research" and "Educational Information and Media Research" through Network Text Analysis,' Educational Engineering Research, Vol. 32, No. 3, 571-609.
  - [9] Park H, Kim H, and Park H, 2020, 'COVID-19 pandemic and online school opening: A Twitter discourse analysis,' Journal of the Korean Data Analysis Society, Volume 22, Number 6, 2535-2549.
  - [10] Alhasan K., Chen L. M., and Chen F., 2018, Mining Learning Styles for Personalised eLearning, IEEE Smart World.
  - [11] Cantabella M., Raquel M. E., Belén A., Juan A. Y., and Andrés M., 2019, 'Analysis of Student Behavior in Learning Management Systems through a Big Data Framework,' J. of Future Generation Computer Systems, Vol.90, 262-272.
  - [12] Grant R. M., 1996, 'Toward a Knowledge-based Theory of the Firm,' J. of Strategic Management, Vol.17, 109 –122.
  - [13] Wit H, 2002, Internationalization of Higher Education in the United State of America and Europe: A Historical, Comparative, and Conceptual Analysis, Greenwood Press.
  - [14] Park J, 2019, 'A Study on Future Job Preparation for Generation Z through Digital Literacy,' Formative Media Studies, Vol. 22, No. 3, 288-296.
  - [15] Shao P. and Cui X., 2021, 'Analysis of the Research Situation and Frontier Evolution in the Field of International Cooperation in Higher Education,' J. of Nanchang Normal University, Vol.42, No.4, 107-112.
  - [16] Graham C. R., 2006, Blended Learning Systems: Definition, Current Trends, and Future Directions, Handbook of Blended Learning: Global Perspectives, Local Designs, Pfeiffer Publishing.
  - [17] Rooney J. E., 2003, 'Knowledge infusion: Blending Learning Opportunities to Enhance Educational Programming and Meetings,' J. of Management Association, Vol. 55, No.5, 26-32.
  - [18] Nam J, 2008, Blended: Lesson Design Strategies, Korea Academic Information Publishing House.
  - [19] R. T. 2003, Osguthorpe and C. R. Graham, 'Blended Learning Environments: Definitions and Directions,' Quarterly Review of Distance Education, Vol.4, No.3, 227-233.
  - [20] Hong HJ, Lee JK, 2016, 'Derivation of teaching competencies of university instructors for blended learning,' Korean Journal of Educational Technology, Vol. 32, No. 2, 391-425.
  - [21] Stein J. and C. R., 2014, Graham, Essentials for Blended Learning: A Standards-based Guide, Routledge Taylor & Francis Group.
  - [22] Hofstede G., 1984, 'Cultural Dimensions in Management and Planning,' J. of Asia Pacific Journal of Management, Vol.1, No.2, 81-99.
  - [23] Hofstede G., 2011, 'Dimensionalising Cultures: The Hofstede Model in Context,' J. of Online Readings in Psychology and Culture, Vol.2, No.1.
  - [24] Kang J. Q. and Yu N., 2021, 'Hofstede's View of Chinese Education from the Perspective of Cultural Dimension



- Theory-Analysis Based on the Game Chinese Parents,' J. of Education and Teaching Research, Vol.35, No.11.
- [25] Minkov M., 2009, 'Predictors of Differences in Subjective Well-Being Across 97 Nations,' J. of Cross-Cultural Research, Vol.43, No.2, 152-179.
  - [26] Jeong S, 2021, 'A Study of the Relationship between Muslim Tourists' Values and Long-Term Orientation Based on Hofstede's Cultural Dimension Theory: Focusing on the moderating effect of experience economy theory (4Es),' Korean Journal of MICE Tourism, Vol. 21, No. 1, 135-156.
  - [27] Minkov M., Bond M. H., Dutt P., Schachner M., Morales O., Sanchez C., Jandosova J., Khassenbekov Y., and Mudd B., 2017, 'A Reconsideration of Hofstede's Fifth Dimension: New Flexibility Versus Monumentalism Data From 54 Countries,' J. of Cross-Cultural Research, Vol.52, No.3, 309-333.
  - [28] Cronje J. C., 2011, 'Using Hofstede's Cultural Dimensions to Interpret Cross-cultural Blended Teaching and Learning,' J. of Computers & Education, Vol.56, No.3, 596-603.
  - [29] <https://www.hofstede-insights.com/>, 2021.06.07
  - [30] Kim S, 2011, 'A Study on the Extension of OpenURL's Academic Service Type Metatag for Research Data,' J. of Information Management, Vol.42, No.4, pp.39-58.
  - [31] <https://slidesplayer.org/slide/11042444/>, 2021.06.07.
  - [32] Koichi H., 2017, KH Coder 3 Reference Manual.
  - [33] Trochim W. M. K., 1989, 'An Introduction to Concept Mapping for Planning and Evaluation,' J. of Evaluation and Programme Planning, Vol.12, No.1, 1-16.
  - [34] Zhu Y. P., H. J. Park, and H. W. Park, 2020, 'Sino-Globalization Network of Chinese Migrants, Students, and Travellers,' J. of the Korea Academia-Industrial Cooperation Society, Vol.21, No.9, 509-517.

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# The Possibility of Social-cultural Creativity Education: A Case Study of “Imaginative Innovator” at H University

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**Abstract:** As the fourth industrial revolution accelerates, universities have made great efforts to develop and reform creative convergence courses for improving the students’ creative convergence capabilities. Although various subjects such as “Capstone” and “Design Thinking” to the improvement of students’ creative convergence competences, many courses focus on creativity education in the direction of creating new products or outputs such as engineering, design, and art, so there is still a lack of systematic education and subjects on creative convergence capabilities from a humanities and sociological perspective. In order to overcome their limitations of creative courses, “H” University developed a ‘Imaginative Innovators’ class with the purpose of solving creative problems on social issues related to sciences, culture, politics, economics, and so on. In this study, we introduced the purpose, methodology, students’ best practices etc. of the “Imaginative innovator” course. In addition, we discussed the limitations and complements as well as the advantages and possibilities of the course. These findings are expected to contribute to the development and expansion of creativity education.

**Keywords:** Creative General Education; Social Issues; Creative Problem Solving; Problem based Learning

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## 1. Introduction

As the discussion of the 4th Industrial Revolution becomes more active, universities are making great efforts to develop and reorganize creative convergence education under the framework of creative convergence capabilities. Various courses such as creativity education, capstone, and design thinking are being offered in various forms to contribute to the improvement of students’ creative convergence capabilities<sup>[1]</sup>, but there are still areas that need to be developed. Despite the importance of creativity education, satisfaction levels are still low<sup>[2]</sup>, and it has been noted that current university creativity curricula do not reflect the needs of the times and society<sup>[3]</sup>. For example, many subjects focus on output-oriented creativity education such as engineering and design<sup>[4-5]</sup>, and social creativity education that addresses social and cultural impacts is still lacking<sup>[6]</sup>.

In response, creativity education researchers have proposed various directions for the future of creativity



education. Based on a multi-year analysis of the current situation and content analysis of creativity education, Hwasun Lee and Insoo Choi emphasize the need for “creativity education as character education,” which emphasizes morality and ethics in the creative process, and “creativity in the Korean context,” which refers to the characteristics of creativity that are evaluated differently depending on the time and culture <sup>[7]</sup>. In a study of university students’ perceptions of creativity and creativity education, Park showed that students perceive that they need a more supportive environment from their professors in order to develop their creativity <sup>[8]</sup>. Hyunwoo Kim also suggested that future creativity education should be organized to help students find the core of problems through communication and sharing in an uncertain and ambiguous reality so that they can solve them creatively and contribute to society <sup>[9]</sup>.

Taken together, their opinions suggest that future creativity education should be able to cultivate ethics and humanity, and to do so, it should include reflection and consideration on how to contribute and live as a member of society. Therefore, this study aims to explore the direction of social and cultural creativity education proposed by the researchers through the case of the ‘Imagination Innovator’ course at H University. To this end, this study introduces the purpose, operation method, and student cases of the ‘Imagination Innovator’ course, and discusses the advantages and possibilities of the course, as well as its limitations and complementary points, to examine how this course proposes a new creativity education.

## **2. Theoretical background**

### **2.1. Purpose of imagination innovator course development**

This course, ‘Imagination Innovator’, was planned and developed to realize the core competency of University H, ‘Creative Convergence Competency’. In particular, since University H aims to foster ‘creative talents that pursue the common good’, the development of this course was well aligned with the direction of ‘social and cultural creativity education based on character and morality’. The research was developed in three phases. In the first stage, a research team consisting of three full-time professors and two lecturers was formed, and regular meetings were held for about a year. In the second stage, textbooks were developed based on the regular meetings, and efforts were made to secure the validity and reliability of the course proposal through two lecturer meetings and summer and winter workshops organized by the College of Liberal Arts. Finally, the syllabus was finally agreed upon through textbook development and instructor workshops.

### **2.2. ‘Imagination innovator’ course purpose explained through the course name**

‘Imagination Innovator’ aims to become an ‘innovator’ who discovers various social issues such as politics, economy, society, management, education, and culture, including scientific issues of the 4th industrial revolution, based on sociological ‘imagination’ and proposes solutions to social issues through divergent and convergent PBL (project based learning) activities.

‘Imagination’ in this course refers to sociological imagination. ‘Sociological imagination’ is a concept proposed by sociologist Mills and refers to the application of ‘imagination’ to social phenomena, which can be defined as ‘the power of picturing in the mind about phenomena or things that have not been experienced in reality’ (National Language Institute of Korea Standard Korean Dictionary, 2020). Sociological imagination is defined as “the ability to move from one point of view to another, from the political to the psychological, from seminary to the military, from discussions of the oil industry to the study of contemporary poetry, and the ability to encompass distant topics and see the relationships between them. The sociological imagination

allows me to see how social phenomena, issues, and problems that I have not paid attention to are related to each other and how they affect me, and furthermore, to imagine how I can solve these problems, which is the agency and motivational aspect of creative problem solving.

Next, ‘innovator’ means an actor who has creative problem-solving skills for social issues. Based on ‘creativity’, students will learn how to apply the existing concept of creativity to social issues by learning the definition and concept of creativity for solving social issues, creative problem solving methods, and creative examples of successful social issues. After learning the theory of creativity, students will actively utilize PBL exercises to apply it in practice. The key to creative competency education is for learners to actively set their own challenges and experience the process of finding their own answers to problems, rather than finding standardized answers. PBL has already been recognized as an effective learning method for this purpose. In this class, PBL was utilized as a creative problem-solving learning method for social issues. What is important about the use of PBL is not that it is applied to the class, but how it is implemented to enhance students’ creativity.

## 2.3. Contents and best practices for each lesson topic

‘Imagination Innovator’ is organized into four parts, which are divided into 15 weeks by topic, with the goal of creative problem solving for social issues. The four parts are as follows [Table 1].

**Table 1.** Key topics and components of an Imagination Innovator lesson

Order	Topics	Key takeaways
Orientation (1 week)	Introduction to classroom operations and assessment methods	Introduction to Imagination Innovator course features and objectives Introduction to flipped learning, PBL (introduction to evaluation methods)
Topic 1 (2-3 weeks)	Major issues in our world : 4th industrial revolution, changing times and the spirit of the times	Learning about the 1st-4th industrial revolutions4th industrial revolution and social change <Social issues in the world we live in> Mind map drawing
Topic 2 (4-5 weeks)	Creativity in Social Issues Concept and Methodology of Creativity for Convergent Problem Solving	Learning the definition of creativity and the concept of 4Ps of creative solution to social issues and application of socio-cultural issues
Topic 3 (6-8 weeks)	PBL topic selection and implementation methodology: learning through PBL best practices	Topic 1: Example PBL on social issue problem selection and solution (fast fashion, development and problems of YouTube, etc.) Topic 2: Creative figures who solved social problems 4P PBL (Submit a plan to finalize a PBL topic such as Gambridge, Amuse Travel, Director Bong Joon-ho, etc.)
Topic 4 (10~14 weeks)	PBL Practice and Presentation	Week 10 Individualized feedback on PBL topic selection
		Week 11 PBL topic table of contents organization and content feedback
		Week 12 Finalize PBL presentation PPT
		Weeks 13-14 Team presentation evaluation, feedback
Final Assessment (Week 15)	PBL Evaluation	Submit individual PBL activity report Finalization

### 2.3.1. Orientation

Before the class begins, a detailed orientation is given to the class. As the Imagination Innovator is a semester-long class where students are expected to be active and self-directed by choosing their own topics, the motivational aspect of the class is important. Therefore, the orientation provides a general picture and detailed explanation of the purpose of the class and how it will be conducted to motivate students to be interested in

social issues and to solve them creatively.

Another important aspect is to provide quality information about the textbooks and references that may be utilized in the class. With the development of the Internet and telecommunications, the ability to search for quality information is a necessary skill in this age of information overload and fake information. By providing students with basic information on what information to look for when they need it and how to search for it, we have laid the foundation for them to actively approach the subject.

To this end, the Imagination Innovator curriculum development researchers developed a textbook for PBL activities for creative problem-solving on social issues before the curriculum was fully operationalized and helped them to utilize it in the classroom. The table of contents and contents of the textbook are organized into four parts in the same order as the classroom.

### **2.3.2. Topic 1: Major issues in our society**

In Topic 1 of this course, students are asked to think about the social issues that are happening in the society we live in. There are three specific areas of focus in Topic 1. First, you will learn why we, as individuals, should care about social issues; second, you will learn about the impact of the industrial revolution on society and the major issues it has created through history by looking at the first, second, and third industrial revolutions before looking at the specific issues of the current Fourth Industrial Revolution. Third, we will discuss the characteristics of the fourth industrial revolution that we are currently facing and the social issues that are emerging along with it, and based on this, we will identify how many social issues exist through a group mind map.

#### **(1) Learning the relationship between individuals and society**

The main theory for learning about the relationship between individuals and society is Prosenbrenner's human ecological system model <sup>[10]</sup>. Recognizing the relationship between the individual and society is important in order to learn why we need to know and change society in an age where the value of our own lives has become paramount. Prosenbrenner categorizes human ecosystems into micro, meso, external, macro, and temporal systems, and emphasizes that we need to understand the relationships between them because they affect and are affected by each other. In particular, it is important to understand how the Industrial Revolution, which is the key to a time system with global implications, has affected humanity and why it affects us and me in our time. This emphasizes the importance of social issues and creative problem-solving lessons, as students learn how many of the problems and issues in our society today are relevant to them.

#### **(2) The first through Third Industrial Revolutions and social issues**

Students will study the social and cultural impact of social change in the first through third industrial revolutions. For example, examine the Luddite Movement, the Red Flag Laws, and the Enclosure Movement, and discuss the shadows that emerged with the development of machinery and how they can be analogized to phenomena in our own society through the sociological imagination.

This has the following implications First, students will learn that the industrial revolution, which they have been learning by rote, is related to many social issues beyond just scientific and industrial revolutions, and will be able to imagine the social phenomena brought about by the fourth industrial revolution. Second, students learn that it is necessary to look at social phenomena from multiple perspectives, including positive and negative aspects, by discussing various perspectives. Third, they will see how past history is relevant to the current industrial revolution, and learn from the past to think about current and future solutions.

The course is taught through lectures and discussions over the course of two to three weeks, and the

students' response to the course has been very positive.

"Recently, I've been hearing about various social issues that are constantly emerging every day and wondering, 'Why do I need to hear and think about these news,' but I was reminded that the reason is that we live in a society and the relationship between society and human beings is a mutual relationship. It seems to be a simple but not so easy reason. It was very good to be able to reflect and organize my thoughts after a long time away from the instructional education."

### (3)The Fourth Industrial Revolution and social issues

In the Fourth Industrial Revolution, mind mapping activities are key to understanding the main features of the Fourth Industrial Revolution and the social issues it generates. There are several things to consider when creating mind maps. The first is that many students have difficulty identifying issues, which is surprising given the amount of time and access to the internet and smartphones they have. In the activity of writing down as many issues as possible, students who are used to always looking for the right answer may have doubts about whether the issue they wrote down is really an issue and may not be bold enough. Therefore, you should help them think about many issues in different ways, emphasizing that there is no single right answer and that they can think about many different things. To help students create mind maps, you can encourage them to create mind maps in a number of ways, such as listing the issues under the higher-level concepts of politics, society, economics, education, culture, and so on, showing them a demonstration, or outlining existing student work.

The second important aspect of mind mapping is to see how many and varied issues there are by sharing your own ideas, those of your teammates, and those between teams. This is why working in a PBL classroom with a whiteboard on every wall is so effective. Individuals work on paper, teams work on one wall, and then the instructor acts as a facilitator to share each team's issues and organize them all together to facilitate divergent thinking about many issues.

What's important about the third mind map is that it reminds them that they are doing PBL this semester on one of these issues. You don't have to make a decision right away, but you can help motivate yourself to PBL by identifying which topics you are interested in and which other students are interested in.

## **2.3.3. Topic 2: Concepts and methodologies of creativity for creative problem solving in social issues**

In Topic 2, you will learn theories and concepts of "creativity" as a springboard for creative problem solving for social issues. Although the emphasis of creativity education varies depending on the instructor and the purpose of the course, it usually includes the following content categories: creative product, creative person, creative thinking, creative process, and creative place, which are the core 4Ps of creativity theory and creativity concepts <sup>[4,11]</sup>. What distinguishes this course from traditional creativity education is that it focuses on how the concepts and theories of creativity can be applied to social issues.

The definition of creativity varies from scholar to scholar and from academic background to academic background, but it is generally defined as "something new and useful" In this case, many students often consider only new objects, goods, designs, works, etc. that have not existed before as creative products, so they will learn what creativity is from the humanities and social sciences perspective of connecting phenomena, recognizing problems, and analyzing causes and solutions from multiple angles with a sociological imagination. Topic 2 consists of two parts: the definition of creativity and the content of the 4Ps of creativity, and takes about two weeks.

### (1)Defining creativity

If you ask students the question, "What is creativity?", there isn't a single student who doesn't know the

definition. However, they are often unclear about the many controversies and misconceptions surrounding the definition of creativity. Depending on the academic background of the instructors teaching creativity classes, there are many questions and debates, starting from ‘can creativity be defined or not’ to ‘can creativity be learned’. In particular, since this course emphasizes learning about social issues and creativity, we emphasize the following two points. First, you will practice sociological imagination through divergent and convergent thinking. For example, when you hear the word “food,” your sociological imagination might go something like this

Through the word food, we can discover social problems, issues, and various phenomena, and the process of associating many things with a single word is intriguing to students.

Second, there is an emphasis on “usefulness,” which is based on being a force for good and having a social impact. It emphasizes that creativity is not only about being new and original, but also about solving needs and problems that exist in society. In other words, new and original ways to meet problems and needs are important, and it shows that we can propose ideas from different perspectives and viewpoints on various social problems around us. In particular, it introduces examples of people and organizations that have creatively addressed social problems, including their perceptions of the problem and their solutions, which helps students realize the importance of having a perspective on solving a social problem that they have always thought of as a problem or need, and helps them be more specific in choosing a PBL topic.

Examples covered in this lesson include: “Amuse Travel,” an organization that developed and implemented travel products and services for people with disabilities, based on the phonetic memory of people with disabilities saying “travel” when asked what they most wanted to do; and “discarded gum,” which can be transformed into a work of art instead of being dirty and messy. A case of reverse thinking about discarded gum that proposes a way to collect and recycle discarded gum, and Gambridge Studio, a social enterprise that creates online games about helping and rescuing others by turning international social problems into games, will be introduced to show how creativity is being used to solve social issues.

## (2) The 4Ps of creativity as learning issues

The 4Ps, the components of creativity proposed by Rodes, are important concepts in creativity education because they provide a theoretical basis for how creativity research has been categorized and what leads to creative output. Learning the 4Ps serves three purposes <sup>[12]</sup>.

First, the 4Ps have many implications not only in terms of theory but also in terms of one’s own creative output. The 4Ps are creative people, creative process, creative process, and creative place, including creative products. It theorizes that all three elements are necessary to produce a creative product, so students can understand the interrelationships and complexities of how creative products are produced and examine what it takes to be a creative person.

Secondly, each element of the 4Ps is studied in detail, so that students can see which elements have strengths and weaknesses. For example, “expertise” is mentioned as a common trait of creative people. You’ll learn that creativity in creative people doesn’t just come from open-mindedness and divergent thinking, but from years of practice and training. This gives them the confidence that creativity is not something that only special people have, but that anyone can be creative.

Third, the theoretical concepts of the 4Ps are the basis for PBL, where creative people are selected and analyzed. What distinguishes personal development knowledge from university studies is that it has a theoretical and conceptual foundation based on academic disciplines. Analyzing the case of a creative person within the theoretical framework of the 4Ps can be an important element of creativity education through an academic approach.



### **2.3.4. Topic 3: PBL topic selection and implementation methodology**

Theme 3 aims to make a final decision on which topic to do PBL on. For this purpose, it takes three weeks: in week 6, students will study examples of social issues and creative problem-solving PBL, in week 7, they will practice an example of creative water 4P analysis PBL to solve social issues, and in week 8, they will select a PBL topic in groups and write and submit a plan.

#### **(1) Social issues and Creative Problem Solving PBL**

Social Issues and Creative Problem Solving PBL involves selecting a social issue and undertaking a task to solve it. In social issue PBL, it is not the outcome of the creative problem solving that is important, but the process that leads to the creative problem solving. To this end, use class time to conduct a simple exercise in teams. It is very helpful for students to practice one of the topics included in the textbook, including various issues such as “How to resolve the conflict between generations” and “Can I try the sharing economy?” and finally show how previous students solved the problem, drew results, and presented them.

#### **(2) 4P analysis PBL of creative figures with social impact**

The 4Ps analysis of a creative person requires a significant amount of time to collect data, so it is not practical to do the PBL with students. Instead, by looking at previous students' creative figures and their best practices, I get second-hand experience on how to analyze a creative figure that I am familiar with but have never analyzed in detail. For example, you will analyze what aspects of creative people such as chef Paik Jong-won, director Bong Joon-ho, etc. are through the 4P analysis, which is an analysis of creative people, and discuss what efforts you should make to imitate them.

#### **(3) Choose a topic and submit your plan**

In week 8, give the group enough time to discuss the topic and how they will divide the roles in choosing the topic. In week 8, they will submit a plan based on the examples they have studied before.

### **2.3.5. Topic 4: PBL practice and presentation**

The real PBL activity begins in week 9 with the lab. Theme 4 consists of PBL labs and presentations. The PBL lab will last for two weeks, from weeks 10 to 12, and the presentation will take place in weeks 13 to 14.

#### **(1) PBL Labs**

How to organize the lab is probably the most important question for every PBL instructor. Given the pace of the group, individualized coaching is an effective method.

With a typical semester enrollment of about 40 students, there are about eight groups with five students per group. The practical week consists of about three weeks, and the group activities are carried out in the following order: ① selecting a topic after meeting with the professor, ② organizing the table of contents, ③ dividing roles according to the table of contents, ④ collecting information, ⑤ writing a PPT, and ⑥ completing the PPT. At this time, the instructor will have about two mandatory group meetings. The first meeting is the topic selection meeting. In week 8, students will propose a social issue that they would like to creatively address in their group and select two topics centered on that issue. The main purpose of the first meeting is for the professor to confirm this with the groups. The first meeting is mainly for the professor to confirm the topic with the group, and the group will discuss how to proceed, how to divide the roles, etc.

The second meeting is organized when the PPT is initially finalized. This is to double-check that nothing has been left out and that there are no aspects of creative problem solving that have not been thought of. In particular, it is recommended that the creative problem solvers distinguish between the existing creative problem solving and the creative problem solving proposed by their group, and also think about the limitations

and directions of the creative problem solving so that it can be included in the PPT.

During the three weeks of the lab, the other groups will have three weeks of group meetings in class, based on the order in which the other groups are working and the order in which the groups are progressing. Emphasize that in addition to the mandatory individual meetings, students can interact with you at any time with questions.

Each week, students will be asked to keep an individual journal to address the various challenges of group work. These will be checked by the instructor to provide individualized feedback and action to help foster collaborative, ongoing teamwork. Remind students that the weekly journal entries will be submitted as part of the final report in Week 15, so it will be advantageous for the final report to have a detailed record of their activities each week, and emphasize that they should be honest and sincere in their weekly entries.

## (2)PBL presentation

For the form of presentation, various formats such as video production and theater are suggested, but students tend to prefer a standardized format, so it is usually a PPT presentation. It is suggested that there is no specific format in terms of number of presenters, order, etc. Usually, the team members are divided into groups, and they prefer to read from a script, even though it is important to know the script and speak in their own words. We recommend that students present in their own way because rigor is not the goal of the class, but we also recognize the limitations of suggesting many formats in a creative problem-solving class. The presentations are organized as follows: instructor introduces the topic → presentation (15 minutes) → Q&A (15 minutes) → 4 teams present, and at the end of the presentation, each team writes an evaluation [Table 2] of the other teams' presentations, including any comments. Feedback papers for each team will be given to the presenting team, who will then incorporate the feedback and submit a final presentation in Week 15.

For questions and answers about the presentations, an incentive system will be introduced to award half a point to those who ask questions. After introducing the incentive system, the participation level improved considerably, but it is worth discussing whether it is voluntary.

Since implementing PBL is one of the main goals of this class, it is important to emphasize that this is a class where absolute evaluation is guaranteed, so students are encouraged not to devalue the evaluation of other teams in order to evaluate their own team. In addition, the instructor should lead by example and help create an atmosphere of encouragement and praise for all attempts and comments. Therefore, the important thing about feedback to other teams is that they share what they liked, what they learned, and what it made them think about, and that they share their questions so that they can encourage and praise each other for the work they have done throughout the semester.

**Table 2.** PBL assessment items

Social Issue Task		Creative Character Analysis Task	
Select a topic	Is the topic relatable?	Selecting people	Is the person relatable?
	Is the topic fresh?		Is the person new?
	Is the topic useful		Is the person useful?
	Is the topic consistently important?		Will they continue to be helpful?
Cause	Is the cause well understood?	4P	Was the 4Ps fulfilled?
	Is the root cause investigation multifaceted?		Was the analysis done from multiple angles?
Solution	Is a creative solution proposed?	Lessons learned	Did I learn about creativity from the character?
	Is the solution convincing?		Is the analysis of the character compelling?



### 2.3.6. Imagination innovator assessment items and scoring

#### (1) Absolute evaluation items and scores

Many researchers in creativity education have emphasized an evaluation system that allows free expression and suggestion without being bound by evaluation. Imagination Innovator is organized as an absolute assessment to realize this. The criteria for absolute grading varies from instructor to instructor, but in this class, we decided that an A was worth 90 out of 100 points, and we informed students in advance that all students would receive an A if they scored above 90 points.

However, absolute grading does not mean that you can get away with not doing your work, so it is important to have clear guidelines for grading to ensure that learning takes place and that there is both team and individual grading. The problem with many team-based classes is that there is a problem of free riding, and to prevent this, the weight of individual assessments should be increased and relative evaluations within the team should be made. Therefore, as shown in [Table 3], the evaluation was divided into individual evaluation, relative evaluation within the team, and team evaluation, and among them, the weight of individual evaluation was the highest to prevent free riding.

**Table 3.** Imagination Innovator course assessment items

Individual Evaluation	Team peer evaluation	Team Evaluation
Attendance (20%)	Team member evaluation (10%)	Team presentation (20%)
Midterm Paper (25%)	Team activity participation (10%)	
Final report submission (15%)		
60%	20%	20%

#### (2) Student feedback

The main purpose of this course was to promote creative problem solving for social and cultural issues and problems. When looking at the students' impressions of the course, first, they said that they learned about the problems of people with disabilities and marginalized groups that they had not thought about before, and second, they rethought their creativity by coming up with solutions to social problems from different perspectives and ideas.

## 3. Conclusion

### 3.1. Contribution as a creative subject

Imagination Innovator has contributions as a creative convergence course in the following three aspects.

First, it is significant in that it goes beyond the existing creativity education centered on creative products and attempts to solve creative problems for social issues. This is an effort that is in line with recent practical and research directions in creativity education. Companies are measuring creativity competencies to find creative talents, and there are various ways to measure them<sup>[13]</sup>. In recent years, the measurement of creative competence has gone from the problem method of presenting a problem situation and seeing how original and useful ideas are generated, to the recent method of measuring the extent to which people can look at issues that are actually appearing in society and propose solutions. For example, in 2019, the following questions were

asked in interviews for Samsung Group's wireless division:

(1) Governments and companies want to increase the share of renewable energy. Despite the preconceived notion of environmental benefits, there are ancillary environmental issues that come with it.

(2) A new solar panel compression technology is invented by a company's R&D department.

(3) Propose a solution to minimize the environmental impact and maximize the efficiency of renewable energy in this situation.

The creative problem-solving class through social issues can satisfy students' understanding of their society as well as the instrumental aspect of preparing for employment, and this type of creativity education needs to be further expanded, as the problems are presented from a problem-solving perspective based on society and basic knowledge rather than problems using simplified creative techniques. Second, it is important to note that this class endeavored to implement the directions that have been proposed in creativity education in the past. In this study, students were able to learn about creativity in an interdisciplinary, interpersonal, and socio-cultural context by proposing solutions to social problems that exist in society by dealing with issues such as discrimination and marginalization, technological revolution, and morality, and they were able to learn that the solution of social problems is not far from them, and they tried to implement self-actualizing and motivational creativity education by learning.

Third, by exploring various issues such as science and technology issues (e.g., artificial intelligence, gene editing, GMOs, etc.), education issues (e.g., creativity education), socio-cultural issues (e.g., discrimination, prejudice, etc.), and environmental issues (e.g., plastic waste, etc.), and sociological imagination and solutions for each issue, we attempted to create a convergent education that is not limited to one field but spreads to various fields. By applying the concept of sociological imagination that can be discussed across disciplines, students were able to learn to look at society through various approaches and attempts instead of only looking for the right answers, and that solutions can be achieved through convergent and integrated attempts.

### **3.2. Future directions**

Despite the above contributions, there are also directions for improvement that should be considered for the further development of creativity education that combines social issues and creative problem solving.

First, as PBL exercises are conducted in non-face-to-face situations due to the impact of COVID-19, it is necessary to prepare measures on how to conduct discussions and PBL. There are some aspects that are easier than PBL that requires direct product production or design, such as searching for news or newspapers online to discuss social issues, but it is still difficult to form a rapport and interact smoothly due to the awkwardness of non-face-to-face situations.

I would like to suggest three things to facilitate interaction. First, it is more difficult to form a rapport in advance of a discussion activity in a virtual class than in an offline class. Therefore, it is necessary to organize groups from the beginning of the semester and have them meet several times after the midterm exams and before the full-scale PBL to identify and get to know each other. Second, Zoom provides a way for group discussions and activities to be shared so that work done in the online live class can be shared with everyone. This can be a way to demonstrate efficiency in a virtual class rather than a face-to-face class. A final alternative is to enable bulletin board discussions. Bulletin board discussions are often more effective in a virtual setting because they allow students to take time to organize their thoughts, see what their peers are saying, and offer their own reasoning. However, there is also a negative aspect that students may find it difficult to present different opinions due to the fact that their posts are left in the discussion, and they may

become homogeneous. It seems that it is necessary to prepare a plan for this.

Second, there is an attempt at team teaching with experts. The disadvantage is that one instructor may not be able to provide a deep approach because he/she is dealing with issues in multiple fields. It is true that specialized knowledge is needed to discuss various perspectives and views on an issue <sup>[14]</sup>. Therefore, it is necessary to consider team teaching methods that can efficiently run multiple classes by organizing faculty members with expertise in each issue. It is true that one of the limitations of the existing team teaching is that each instructor teaches separately, resulting in a lack of connection and different teaching methods that do not produce synergy, but if you organize one topic into three weeks, covering four issues and using the same method for each week, you can show your expertise in unity. This would require a policy decision by the school authorities to recognize credit. Once these conditions are in place, it is believed that the participation of experts will be facilitated.

Third, it is necessary to consider the points that should be considered when applying the method in other schools. For example, this lesson was an absolute assessment because it was a creativity education centered on PBL. However, depending on the school environment, absolute assessment may not be possible. If the assessment is relative rather than absolute, this may not be a problem for items where individual accountability is important, such as attendance, midterms, and individual reports. However, in the case of inter-team evaluations, it may be difficult to use the relative evaluation as a basis for the absolute evaluation if fairness is not ensured. Therefore, in this case, it is necessary to listen to team presentations, fill out a questionnaire that asks students to evaluate other teams apart from their own, and show the results in a transparent way to reach a consensus on the relative evaluation.

Lastly, it seems that it is necessary to set goals according to the students' eyesight and motivation level in order to achieve successful PBL practice <sup>[15-16]</sup>. PBL is being tried in various ways in various subjects to foster initiative and proactive skills. However, no matter how good the purpose and goals are, if it is only accepted as a task-oriented learning that is burdensome for the students who accept it, and if the PBL results are not good enough to share together, the collective intelligence-centered participatory learning method may show the opposite effect. It seems that PBL class activities should reflect the level and opinions of students, such as dividing the stages of PBL by week, providing active support using TAs, and opening a window for coaching and mentoring with professors in various ways.

## Disclosure statement

The author declares no conflict of interest.

## References

- [1] Jung Y, 2018, "A Study on the Operation of Creative Learning Courses Based on Self-Directed Learning. Focusing on the case of creativity challenge and self-development," *Liberal Arts Education Research*, Vol. 12, No. 6, 95-114.
- [2] Lee K, Yoo KH, and Kim EK, 2010, "University students' perceptions of creativity education," *Educational Psychology Research*, Vol. 24, No. 2, 327-346.
- [3] Min CK, 2019, "Instructional practices and improvement directions for fostering college students' creativity," *Liberal Arts Education Research*, Vol. 13, No. 4, 121-142.
- [4] Lee H, 2017, "Development of a University Creativity Education Program with a Liberal Education Approach,"

Liberal Education Research, Vol. 11, No. 6, 333-358.

- [5] Choi IS, Lee HS, Lee EH, 2012, and Kim SJ, “An Analysis of the Current Status and Content of Creativity Courses in Korean Universities: Focusing on Top 30 Universities,” Curriculum Research, Vol. 30, No. 2, 179-199.
- [6] Kim JY, Tae JM, 2017, “Comparison and Analysis of Differences in College Students’ Creative Convergence Competencies for Developing Creative Convergence Courses,” Journal of Integrated Curriculum, Vol. 11, No. 4, 145-164.
- [7] Lee HS, Choi IS, 2014, “The direction of creativity education in university liberal arts education,” Creativity Education Research, Vol. 14, No. 2, 1-17.
- [8] Park SH, 2019, “A Study of College Students’ Perceptions of Creativity and Creativity Education,” Journal of Research Methods, Vol. 4, No. 3, 33-62.
- [9] Kim H, 2018, “Design and operation of liberal arts courses to enhance college students’ creativity,” Creativity Education Research, Vol. 18, No. 4, 91-114.
- [10] U. Bronfenbrenner, 1994, “Ecological models of human development,” Readings on the Development of Children, Vol.2, No.1, 37-43.
- [11] Montgomery D., Bull K. S., and Baloch L., 1992, “College level creativity course content,” Journal of Creative Behavior, Vol.26, No.4, 228-234.
- [12] Rhodes M., 1961, “An Analysis of Creativity,” The Phi Delta Kappan, Vol.42, No.7, 305-310.
- [13] Jang JY, Park JY, 2007, The Psychology of Creativity Under My Hat, Gasan Publishing House.
- [14] Lim J, 2020, “Exploring the Applicability of Team Teaching Method for Revitalizing University Convergence Education,” Educational Innovation Research, Vol. 30, No. 3, 23-51.
- [15] Ajares F. and Miller M. D., 1994, “Role of self-efficacy and self-concept beliefs in mathematical problem solving: A path analysis,” Journal of Educational Psychology, Vol.86, No.2, 193-203.
- [16] Jung MH, Neu S, 2004, “Effects of project class on improving creative thinking, creative disposition, and problem-solving ability of college students,” Educational Psychology Research, Vol. 18, No. 3, 287-301.

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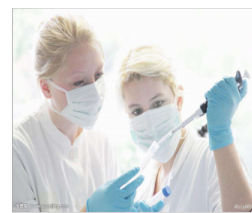
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