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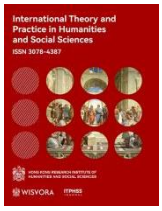

Share the Wisdom of Shanghai's Education Governance

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Abstract

In response to the joint statement of China and Indonesia based on deepening all-round strategic cooperation, high-quality education cooperation will be used to promote social development and support Indonesia's vision of "Golden Indonesia 2045" . The Shanghai Training and Exchange Program for Outstanding Indonesian Principals, held by the UNESCO Center for Teacher Education from November 2 to 7, 2024, shared Shanghai's exploratory and practical experience in education governance, teacher development, science education and other fields . By showcasing Shanghai's educational governance wisdom , this event hopes to help Indonesian principals gain inspiration and move towards a new realm of excellence in running schools, promote in-depth exchanges and cooperation in the field of education between China and Indonesia, and contribute to the construction of a community with a shared future for mankind under the framework of the "Belt and Road" initiative.

1. Introduction

In October 2023, China and the Republic of Indonesia issued a joint statement on deepening all-round strategic cooperation , emphasizing the consensus between China and Indonesia on deepening all-round cooperation on the basis of a comprehensive strategic partnership. The statement pointed out that as major developing countries and emerging market countries, the two countries are committed to people-centered development, the concept of win-win cooperation and similar national development stages, which makes China-Indonesia relations of great strategic significance. The two countries decided to further promote the implementation of the "China-Indonesia Action Plan for Strengthening Comprehensive Strategic Partnership (2022-2026)" . The statement mentioned that they will rely on the docking of the development strategies of the two countries to promote the social development of the two countries through high-quality educational cooperation and support Indonesia's "Golden Indonesia 2045" vision. China and Indonesia agree that mutual understanding between the peoples of the two countries can be enhanced by enhancing cultural exchanges, including promoting educational cooperation. Strengthening cooperation in studying abroad and talent training, especially in principal education, can improve the overall quality of education by improving the management ability and leadership

quality of principals.

The Belt and Road Initiative is an important platform for China to enhance its international influence. Strengthening educational exchanges and cooperation with countries along the route, such as Indonesia, and jointly facing global challenges and sharing development benefits are important connotations of China's leading efforts to build a community with a shared future for mankind. Since the beginning of this year, China has launched a number of cooperation activities with Indonesia in the field of education. In April 2024, the "China-Indonesia School-Enterprise Cooperation Summit" co-organized by the Vocational and Technical Education Department of the Ministry of Education, Culture, Research and Technology of Indonesia, Go Study and Indonesian Life Guide aims to promote cooperation between Chinese companies and Indonesian universities, and promote school-enterprise cooperation and talent training. In July 2024, the "China-ASEAN Education Exchange Week Indonesian Principal and Teacher Digital Education Training Course Project" hosted by the Secretariat of the China-ASEAN Education Exchange Week Organizing Committee and co-organized by the Guizhou Education International Exchange Association and Guizhou Vocational and Technical College of Economics and Trade promoted the improvement of the digital education capabilities of Indonesian principals and teachers. The UNESCO Centre for Teacher Education (hereinafter referred to as the "UNESCO Centre for Teacher Education") is rooted in Shanghai and has a global perspective. It is committed to promoting in-depth exchanges and cooperation in the field of education between China and Indonesia. In November 2024, it launched the "2024 Indonesian Outstanding Principals Shanghai Training and Exchange Project" to share the development process and experience of basic education in Shanghai and China with outstanding principals, education supervisors and education officials at all levels from Indonesia.

The United Nations Sustainable Development Goal 4 (SDG4) clearly puts forward the vision of "ensuring equitable, inclusive and quality education for all" , and the high-quality and balanced development of education has therefore become an important issue of common concern to governments and the international community. Against this background, education systems in various countries are constantly seeking new ways to improve the quality of education, narrow regional gaps, and promote the all-round development of students. As a pioneer in China's education reform, Shanghai's exploration and practice in the fields of education governance, teacher development, science education, interdisciplinary projects, and AI applications have become important cases for reference and learning in other parts of the world(Deng&Zhao,2014). Through in-depth observation and discussion of Shanghai's education model, this training activity aims to help Indonesian principals gain inspiration from Shanghai's successful experience, inject new vitality and wisdom into Indonesia's education reform, and help it move towards a new realm of excellence in running schools.

There are so many illustrating educational wisdom in Shanghai. Such as the network governance in education. The culture of education policy making in Shanghai using the conceptual tool of a ‘global assemblage’ is another kind of wisdom(Liang et al., 2016).

2. Education system construction and quality improvement

2.1 Shanghai’s successful teacher training system and PISA performance

Teacher training is the top priority for the construction and quality improvement of the education system(Tan,2012).Establishing a systematic career development path will help improve the overall quality of teachers. Professor Zhang Minxuan, director of the Joint Education Center, pointed out that Shanghai's teacher training system is called the "trinity" system, which includes career development ladders, performance evaluation and rewards, and on-the-job training. This system provides teachers with a clear career development path. From junior to senior, teachers have the opportunity to be promoted continuously in their careers, which enhances their sense of belonging and stability in their careers. This systematic path design enables teachers to always

have new goals and challenges in their careers, thereby maintaining the vitality and motivation of teaching. Through performance evaluation and rewards, the Shanghai education system ensures the teaching quality and professional ethics of teachers. The multi-level performance evaluation and competition reward mechanism not only motivates teachers to continuously improve their teaching level, but also increases their enthusiasm for pursuing excellence in teaching. Coupled with mandatory on-the-job training, it ensures that teachers' knowledge and skills keep pace with the needs of modern education, effectively improving the professional quality of Shanghai's overall teaching team. After systematic training, the teaching ability of Shanghai teachers has been significantly improved. Data from 2023 showed that the classroom teaching satisfaction of teachers who participated in the training increased from 78% to 92%, and the rate of excellent student subject scores increased by 15 percentage points.

Through scientific career development ladders and performance reward mechanisms, Shanghai has formed an effective mechanism to encourage teachers to continuously improve their own standards(Tan,2019). This system meets the personal professional growth needs of teachers, and is also in line with the overall goal of improving education quality, making teachers more engaged in teaching, and the teaching effect is therefore more significant.

On-the-job training is an important part of Shanghai’s teacher training system. Shanghai places special emphasis on the need for teachers to improve their professional capabilities through various forms of on-the-job training. The training content covers teaching methods, classroom management, and the application of information technology. Through these trainings, teachers can not only learn the latest educational theories and technologies, but also apply these to actual teaching, effectively respond to the changing educational environment, and maintain the continuous improvement of educational quality.

Professor Zhang Minxuan also introduced Shanghai 's outstanding performance in international assessments . Since 2009, Shanghai students have been ranked among the top in the main subjects of PISA (reading, mathematics and science). These excellent results fully demonstrate the high quality of Shanghai's education system, especially the key role of teachers in the education process. The high scores achieved by Shanghai students in mathematics, science and reading reflect the success of Shanghai education in cultivating students' comprehensive abilities and problem-solving abilities , and demonstrate Shanghai's leading position in global education . Through scientific planning and continuous improvement of education quality, Shanghai has been ranked among the top in multiple PISA assessments, winning an international reputation for its education quality and being regarded by many countries as a model for improving education quality. Sorting out its experience, an important purpose of Shanghai's participation in PISA is to understand its position in the global education system through data-driven education reform, and to promptly identify shortcomings in education and improve them. PISA assessment not only provides Shanghai with a tool to measure students' academic performance, but also helps understand the key factors affecting education outcomes through questionnaires of students and schools, thereby guiding policy improvements. At the same time, PISA results show that teachers are an important factor affecting students' academic performance, second only to family background. Therefore, Shanghai attaches great importance to the training and development of teachers, and ensures that teachers' teaching concepts, methods and professional abilities are constantly improved through continuous professional training and benchmarking against international standards. This emphasis on teacher development is one of the important experiences that Shanghai has continuously achieved excellent results in PISA.

2.2 Promoting high-quality and balanced compulsory education: Exploration of education quality monitoring in Shanghai

The construction and quality improvement of the education system cannot be separated from a high-quality education quality monitoring system. Director Jiao Xiaofeng of the Education Supervision Office of the Shanghai Municipal Education Commission introduced a set of systematic education quality monitoring mechanisms that Shanghai has explored and constructed

in the process of promoting the high-quality and balanced development of compulsory education, and demonstrated how Shanghai promotes education equity and quality improvement through scientific monitoring methods. Quality monitoring plays a core role in Shanghai's compulsory education supervision system, providing objective judgments on education quality and providing reliable data support for education management and policy making.

Shanghai's education quality monitoring covers the comprehensive evaluation of students' all-round development in terms of morality, intelligence, physical fitness, aesthetics, and labor, with special emphasis on the comprehensive cultivation of academic level, physical and mental health, aesthetic literacy, labor literacy, and innovation literacy. Through the green indicator evaluation system, Shanghai has conducted a comprehensive evaluation of the differences in education quality between regions, urban and rural areas, and schools to ensure the balanced development of compulsory education. Green indicators not only focus on academic performance, but also involve comprehensive qualities in social emotions, physical and mental health, etc., aiming to promote the all-round development of students through multi-dimensional evaluation. The green indicator evaluation system focuses on the optimization of a number of key areas. For example, the newly added labor literacy assessment focuses on the development of students' labor concepts, labor capabilities, and labor spirits; aesthetic literacy is upgraded on the basis of the original artistic literacy, cultivating students' artistic perception ability with higher standards. In addition, the "growth atmosphere" indicator also evaluates teacher-student relationships, peer relationships, and parent-child relationships, focusing on students' mental health and emotional management, thereby creating a more positive growth environment.

Shanghai has also established an analysis and sharing mechanism for education quality monitoring data, and promoted the continuous improvement of education quality through the three-level evaluation platforms of the city, district and school. The monitoring results are not only used to evaluate the performance of the government and schools in education, but also become an important basis for improving the level of education governance and improving teaching. For example, the evaluation results of green indicators are included in the performance assessment of education responsibilities of each district government, and the relevant departments at the city and district levels provide guidance to relatively weak regions and schools by establishing a training community, so as to gradually improve the education quality of the whole city.

Shanghai's education quality monitoring pays special attention to "value-added development", that is, paying attention to the quality improvement of regions and schools across years. Through in-depth analysis of the monitoring results, schools can formulate improvement plans in a targeted manner and promote their implementation. The monitoring cycle has also been shortened from the original three years to two years, so as to track changes in education quality more frequently and ensure that policies and measures can be responded to and adjusted quickly. The establishment of an education quality assurance mechanism has prompted schools to be more conscious and standardized in teaching improvements. As the first person in charge, the principal leads all departments of the school to participate in quality improvement work and systematically implement a "school-based" quality assurance mechanism.

Through education quality monitoring and green indicator evaluation systems, Shanghai has promoted the effective implementation of high-quality and balanced development of compulsory education. These measures not only strengthen the fairness of education, but also improve the overall quality of education, providing a scientific monitoring and improvement path for achieving high-quality and balanced development. Shanghai's exploration has provided valuable experience for other regions, showing how to achieve fair and high-quality development of education through systematic and scientific monitoring methods.

3. Innovation-driven and scientific literacy training

The continuous progress of education also depends on innovation-driven and in-depth cultivation of scientific literacy. On the basis of system optimization, further deepening the connotation of education through innovation-driven means can effectively meet the needs of

modern education for comprehensive ability training.

3.1 Deepening the improvement of scientific literacy: Library-school cooperation promotes innovative education

Song Xian, deputy director of the Science Communication and Development Research Center of the Shanghai Science and Technology Museum, pointed out that Shanghai has actively promoted the improvement of scientific literacy through museum-school cooperation and built an innovative education model based on multi-subject collaboration, resource integration and interdisciplinary learning. Museum-school cooperation not only enriches educational resources, but also provides students with a new way to improve their scientific literacy. Through in-depth cooperation with museums, science and technology museums, scientific research institutions and enterprises, scientific education is closer to social practice and life situations.

In science education, Shanghai attaches importance to the transformation from knowledge-based to thinking-based training, especially the cultivation of higher-order thinking. To this end, Shanghai promotes the comprehensive development of students' analysis, evaluation and innovation capabilities through specific practical activities. First, Shanghai has incorporated more exploratory learning and problem-solving activities into science courses to address the limitations of mechanical memory teaching. The traditional question-answering model tends to solidify students' thinking and is difficult to flexibly adapt to the needs of future innovation. Based on this, Shanghai's science education emphasizes the use of scientific inquiry and project-based learning to enable students to gradually develop higher-order thinking abilities in analyzing and solving practical problems.

Through the cooperation between the museum and the school, Shanghai has established a system of vice-principals for science, inviting experts and scholars to serve as vice-principals for science in schools, helping schools to better connect with off-campus scientific resources and improve the quality of science education. This innovation has enhanced the professionalism and operability of science education. At the same time, the Shanghai Science and Technology Museum and the school have jointly developed interdisciplinary education courses, such as dinosaurs, insects and ecological protection, to allow students to understand scientific knowledge in real scenes through interactive content. These courses not only expand students' scientific horizons, but also enhance their understanding of scientific issues through practical activities.

In order to improve students' scientific literacy, Shanghai has launched the "Youth Science Interpreter" project, which allows students to serve as interpreters in museums to cultivate their communication and expression skills. Through the "Intern Researcher" project, students can gain an in-depth understanding of the scientific research process and participate in practical aspects such as specimen preparation. In addition, Shanghai has also established a "Citizen Science Program" to allow students to work with scientists to participate in research on topics such as the ocean, environment, animals and plants. These practical activities place students in real social problem situations, cultivate critical thinking and innovative spirit, and make them no longer just passive recipients of knowledge, but truly become part of scientific education.

Shanghai provides students with real scientific exploration experience through diversified scientific education cooperation models. Relying on the "museum-school-research-enterprise" cooperation network covering 16 districts in the city, Shanghai has incorporated social resources such as museums, enterprises, and scientific research institutions into the education system, forming a rich and diverse science and technology innovation education resource. These cooperation models not only include courses such as "Museum Night" and "One Square Meter Museum", but also cover cooperation with high-tech enterprises such as BASF and 3M to provide young people with cutting-edge scientific interactive experience. This kind of cooperation has greatly expanded the students' scientific learning scenarios, so that scientific education is no longer limited to school classrooms, but can be practiced in a wider social environment. Through interdisciplinary cooperation and hands-on learning, students deeply participate in scientific practice in real social situations, and cultivate the spirit of exploration and innovative thinking of

scientific phenomena.

In summary, Shanghai has effectively improved students' scientific literacy through the cooperation between libraries and schools, the integration of scientific education resources, and the innovation of education models. These explorations have not only promoted the development of students' scientific knowledge and abilities, but also cultivated their sense of responsibility and participation as scientific citizens, forming the "Shanghai Path" of scientific education innovation and providing experience that can be used as a reference for global science education. These initiatives have laid a solid foundation for the cultivation of innovative talents with an international perspective and demonstrated the important role of science education in the cultivation of future talents. Crosssectoral cooperation is essential to promote effective and inclusive education reform.

3.2 Design and implementation of interdisciplinary projects: promoting the cultivation of innovative young talents

Zhu Naimei, a Shanghai education hero and principal of Xunyang Road Primary School in Putuo District, introduced how Shanghai has actively promoted the cultivation of innovative young talents through the design and implementation of interdisciplinary projects in recent years, and built an education system with project-based learning as the core. Shanghai has effectively integrated knowledge from multiple disciplines by introducing an interdisciplinary project-based learning model, creating an educational environment based on real situations that emphasizes creativity and practice, aiming to stimulate students' innovation and critical thinking abilities.

In the implementation of interdisciplinary projects, Shanghai has closely integrated science education with real life through graded design for different grades, gradually deepening from lower grades to higher grades, and forming a systematic framework of "thematic learning - modular learning - interdisciplinary project-based learning". For example, the "I and Nature" project for lower grades adopts transdisciplinary thematic learning, breaking the boundaries of disciplines and using life-oriented themes to help students understand the relationship between man and nature; the "Science Seed Camp" for middle grades integrates subject knowledge and guides students to explore scientific phenomena and social issues through propositional problem solving; the "Science and Creation" interdisciplinary project for higher grades provides learning opportunities based on interest. Students can choose different modules such as scientific exploration, artistic creation, and dramatic expression, and independently discover and raise valuable questions in a real and open environment, thereby gradually developing innovative capabilities. After the implementation of interdisciplinary projects, the number of student innovative achievements has increased significantly. In the 2024 Shanghai Youth Science and Technology Innovation Competition, entries based on interdisciplinary projects accounted for 67%, an increase of 52 percentage points from 2015.

Interdisciplinary project-based learning not only focuses on the transfer of knowledge, but also emphasizes students’ application and creation in actual situations. In the "Xunyang Interdisciplinary Project", students participated in a large number of creative practice activities through story creation, script writing, prop production, etc., cultivating hands-on ability and teamwork spirit. In addition, activities such as "Creative Manhole Cover Painting" and "Playground Operation" in the project allow students to display project results in the community, closely integrating learning results with social life, and enhancing students' sense of social responsibility and participation. Data show that after the implementation of interdisciplinary projects, the participation rate of students and teachers has increased significantly: from two projects in 2015 to 56 projects in 2024, the student participation rate has increased from 15.9% to 100%, and the teacher participation rate has increased from 15.9% to 100%. 3% increased to 71%. This change not only reflects the widespread recognition of interdisciplinary project-based learning among teachers and students, but also reflects the remarkable effectiveness of this educational model in cultivating innovative talents.

3.3 Build a “3+1” science and technology education system to help high school students cultivate innovative literacy

He Yonghong, vice principal of Shanghai Minhang Middle School, actively promoted the cultivation of high school students' innovative literacy by building a "3+1" scientific and innovative education system, forming an innovative education system that combines scientific inquiry with practical activities. The "3+1" system includes national courses, elective courses, comprehensive practical activity courses, and student club activities, helping students to comprehensively improve their innovative ability and scientific literacy through systematic and diversified learning experiences.

The system is based on the national curriculum, attaches importance to situational inquiry and experimental teaching in science courses such as chemistry and biology, consolidates students' subject foundation, and cultivates scientific literacy and experimental skills. At the same time, the school has developed a wealth of school-based elective courses in science and technology to provide students with diverse learning options to help them deeply understand the connection between science and technology. Through research-based learning and small-scale research projects, the comprehensive practical activity courses guide students to explore scientific problems in real situations through social investigations, scientific explorations, and other methods, and develop critical thinking and practical skills. In the research project, students experience the complete scientific research process from raising questions, designing experiments to verification and attribution reasoning, and cultivate the ability to think independently and solve complex problems.

In addition, student clubs also play an important role in science and innovation education. Through student clubs such as the "Weiming Science Club", Minhang Middle School provides students with a platform for independent exploration and innovation. Students have achieved many innovative results by participating in science and technology projects and competitions. For example, the topics designed by students, such as "Shared Bicycle Safety Status Detection and Prompt Device" and "Application of Plant Growth Regulators in the Germination and Growth Period of Household Vegetables", not only demonstrate students' attention to practical problems, but also enhance their hands-on ability and scientific research literacy.

In the process of implementing the "3+1" science and innovation education system, Minhang Middle School focuses on integrating resources inside and outside the school to create an integrated learning environment. The school cooperates with the School of Electronic Information of Shanghai Jiao Tong University, the Texas Instruments Joint Technology Center of Shanghai University, and other institutions to invite experts and scholars to provide professional guidance and project incubation support for students. These collaborations provide technical support and professional resources for students' innovative projects, and promote students to produce innovative results in collaborative learning inside and outside the school. In addition, the establishment of the Innovation Incubation Fund also provides resource support for students' independent projects, encouraging them to carry out more creative practices.

Shanghai Minhang Middle School has systematically cultivated students' scientific literacy and innovation ability by building a "3+1" science and innovation education system based on the national curriculum, combined with elective courses, comprehensive practice and club activities. The collaborative cooperation and innovation incubation mechanism inside and outside the school not only helps students accumulate rich knowledge and skills in scientific exploration, but also cultivates their innovative spirit and social responsibility, laying a solid foundation for the comprehensive improvement of high school students' innovative literacy.

4. Modern exploration of smart governance and teacher development

In the context of globalization, education innovation and governance must not only rely on the improvement of scientific literacy, but also be combined with the concept of smart governance

to promote the process of education modernization. As the forefront of China's education reform and development, Shanghai's education governance model and teacher development experience have an important demonstration role in international education exchanges. In particular, Shanghai's education innovation and governance wisdom have become an important resource for global education development.

4.1 From educational balance to excellence: Shanghai’s school governance model

Xu Shiqiang, director of the General Education Research Institute of the Shanghai Academy of Educational Sciences, pointed out that Shanghai has promoted the diversified development of school education by promoting the construction of featured high schools, thereby better meeting the personalized growth needs of students. The core of this exploration is to provide schools with differentiated educational services, encourage schools to develop unique courses based on their own resources and student characteristics, and create a personalized campus culture. Shanghai also focuses on adopting an integrated construction model, organically combining curriculum design, classroom teaching, student evaluation, community activities, teacher training, and resource construction to promote the diversified development of schools. This model not only breaks the traditional "one school, one size fits all" situation, but also provides students with more choices, enriching their learning experience and growth path.

In terms of improving the quality of weak schools, Shanghai has implemented education reforms through the "New Quality School Promotion Project". The project does not focus on selecting students, concentrating superior resources or competing for rankings, but promotes the high-quality development of schools through scientific school-running models and innovative educational practices. The core of the project is to help schools break free from the constraints of traditional exam-oriented education, return to the fundamentals of educating people, and emphasize the comprehensive development and personalized growth of students. At the same time, Shanghai's education policy also supports the coordinated development of urban and rural schools, is committed to narrowing the urban-rural education gap, and helps weak schools gradually reach the standards of quality education.

In addition, Shanghai has promoted the further development of high-quality schools by building experimental and demonstrative high schools. These schools not only undertake the task of improving their own education quality, but also lead the reform process of other schools in the region by conducting educational experiments and innovative practices. Experimental and demonstrative high schools have accumulated and summarized the experience of education reform, formed a mature teaching model, and promoted it throughout the city. This "experimental-demonstration" model not only improves the education level of high-quality schools, but also plays its demonstration and radiation role in the education system, thereby promoting the improvement of the education quality of schools in the entire region.

Using the multi-center governance framework in education governance theory, Shanghai introduced social resources to participate in the transformation of weak schools through the "New Quality School Promotion Project", forming a pattern of collaborative governance among the government, schools, and society, and effectively narrowing the urban-rural education gap.

4.2 AI empowers teacher development: two-way promotion of innovative teaching models and burden-reducing mechanisms

Zhou Zhihua, CEO of Shanghai Alton Information and Technology Company, introduced that in the context of the deepening of the digital transformation of education, Shanghai has adopted a new model to promote teacher development through the application of artificial intelligence (AI) technology, which not only promotes teaching innovation, but also effectively reduces the burden on teachers. workload, forming a significant effect of two-way empowerment.

Through in-depth exploration of teaching scenarios, AI not only helps teachers innovate teaching methods, but also plays a key role in reducing burdens, freeing up teachers' valuable time and energy, thereby promoting the improvement of their professional capabilities.

First of all, AI-enabled teaching model innovation has achieved remarkable results in many fields. AI technology makes the teaching process more intelligent and flexible by assisting instructional design, promoting interdisciplinary integration and supporting project-based learning. For example, generative artificial intelligence (AIGC) can generate relevant multimedia content based on teaching topics, helping teachers to concretize abstract teaching concepts, thereby improving the interest of the class and students' understanding. In addition, the AI system can generate personalized teaching plans based on student data, providing support for teachers to implement project-based learning and interdisciplinary teaching, thereby improving students' critical thinking and innovation abilities. For example, in the teaching of ancient poetry, AI is used to generate images related to the artistic conception of the poetry. Students can more easily understand and remember the content of the poetry through visual learning methods, thereby significantly improving the classroom effect and student participation.

AI technology also plays an important role in reducing the workload of teachers' routine work. AI tools can automatically handle tedious tasks such as essay correction, home-school communication, and courseware production, significantly reducing teachers' non-teaching burden. Taking composition correction as an example, the AI composition correction system can not only quickly complete the correction work of students' compositions, but also provide detailed feedback and modification suggestions, which greatly saves teachers' time on correcting homework and allows them to focus more on teaching design. and classroom innovation. In addition, AI can also generate student learning reports to help teachers understand students' learning progress and needs in real time, so as to accurately adjust teaching strategies. These technological applications allow teachers to no longer be troubled by complicated matters and can focus more on the core content of education and teaching.

In the process of promoting teacher development, Shanghai has achieved two-way empowerment of teaching model innovation and teacher burden reduction through AI technology. AI not only enhances teachers' teaching innovation capabilities, but also significantly improves teaching efficiency and quality by reducing non-teaching burdens. These experiences provide valuable reference for the future digital transformation of education, fully demonstrating the huge potential of AI in the field of education as a teacher's ability amplifier, rather than just a replacement tool for traditional teaching.

Based on the theory of teacher professional development stages, AI technology provides personalized support for teachers: novice teachers can quickly master teaching skills through AI-assisted teaching design tools, while mature teachers use AI data analysis to optimize teaching strategies, promoting the transformation of teachers from "experience-based" to "research-based".

4.3 Teaching observation and model discussion: the practice of Shanghai school governance wisdom

During his visit to Dongchang Middle School Affiliated to East China Normal University, Principal Xue Zhiming introduced in detail the school’s educational philosophy and teaching model, especially how to cultivate students’ comprehensive qualities through diversified courses and innovative teaching practices. During this teaching observation, project participants watched multiple courses covering the two major fields of humanities and science, which fully demonstrated Dongchang Middle School’s profound accumulation in curriculum diversification and teaching innovation.

Among them, Wang Nan's course "Traditions for Sale" takes cultural diversity as the starting point and leads students to discuss and analyze the relationship between traditional culture and modern commercialization. Through rich case analysis and interactive discussion, teachers cultivate students' critical thinking and stimulate their strong interest in global cultural

phenomena. Cheng Yili's course "Vocabulary - What Lies Beneath" focuses on helping students understand the cultural and historical significance behind words through in-depth analysis of vocabulary. In class, teachers encourage students to deeply analyze the usage scenarios and contexts of vocabulary in an inquiry-based learning manner, and improve students' language comprehension and expression skills through group cooperation and discussion. Dai Wenjin's experimental course "Purification of crude salt and electrolysis of saturated salt water" allows students to master the principles of crude salt purification and the electrolysis process through experimental operations. During the experiment, teachers encourage students to actively raise questions and verify hypotheses, prompting students to deeply understand scientific principles in hands-on practice and enhance their scientific inquiry ability. Yuan Changquan's experimental course "Measuring the resistivity of metal wire" enables students to personally measure and calculate the resistivity of metal wire through practical operations. Through scientific experiments and data analysis, students not only master important concepts in physics, but also develop logical reasoning and careful observation abilities in the process of experimental design and data processing.

These courses fully reflect the teaching model of Dongchang Middle School that focuses on inquiry, interactivity and practice, and demonstrate Shanghai's continuous innovation and deep cultivation in educational balance and quality education. Through this observation and discussion, the Indonesian principals have a more intuitive understanding of Shanghai's advanced experience in cultivating students' critical thinking, inquiry ability and hands-on practice.

5. Conclusion

In this training activity, the UNESCO Teacher Education Center brought together resources from the Shanghai Municipal Education Commission, the Institute of Educational Sciences, the Science and Technology Museum, universities, primary and secondary schools, and kindergartens to demonstrate the governance wisdom of Shanghai education to outstanding principals, education supervisors, and education officials in Indonesia. Rita Dewi Suspalupi, principal, supervisor, and director of the Education Personnel Bureau of the Indonesian Ministry of Basic and Secondary Education, praised Shanghai's educational achievements for attracting worldwide attention, especially in the management and innovation of basic and secondary education(Qi,2017), which is very worthy of Indonesia's reference and learning. This training not only demonstrated the diversity and successful experience of China's education model to Indonesia, but also provided a case for enhancing China's voice in global education governance and promoting the internationalization of education(Huang,2022).

The UNESCO Center for Teacher Education is a specialized agency established by UNESCO to improve the quality and efficiency of teacher education worldwide. It helps countries, especially developing countries, to improve teacher training and professional development by providing educational policy recommendations, conducting teacher training, and promoting educational research results. In the future, the Center will continue to be committed to spreading China's educational governance wisdom, promoting global educational development, and jointly writing a new chapter of educational cooperation and innovation.

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