



# On Foreign Language Smart Education Under the Situation of Educational Integration and Innovation

Guiyun Guan<sup>(✉)</sup>

School of Foreign Languages, Northwest Minzu University, Lanzhou 730030, China  
83970919@qq.com

**Abstract.** The rapid development of internet and information technology strongly requires the integration and innovation of smart education and traditional education, which is also the inevitable trend of education and teaching reform. Smart education of a foreign language, has gradually become one of the concerns of scholars. The problems of foreign language smart education include knowledge barrier, data island, low utilization rate of smart classroom, disconnection between curriculum and smart foreign language teaching, lack of adaptive learning ability of students, and so on. Based on these problems, programs such as strengthening the construction of new liberal arts, opening the source achievements, sharing resources, setting personalized teaching, multi-interaction, and optimized model of smart foreign language teaching are put forward so as to better and more effectively carry out foreign language smart teaching.

**Keywords:** Teaching innovation · foreign language smart education · problems · solutions

## 1 Introduction

With the vigorous development of Internet technology, the rapid development of information technology, and the wide application of smart phones in study, life and work, the teaching model has also produced earth-shaking changes. Adapting to the needs of the times and making full use of internet information and communication technology, smart education has gradually attracted the public's attention, and it has become the inevitable product of the integration and innovation of information technology and education. The 10-year Development Plan for Education Informatization (2011–2020) issued by the Ministry of Education pointed out that “smart teaching environment should be built”. In 2019, “Opinions on Deepening the Reform of Undergraduate Education and Teaching and Comprehensively Improving the Quality of Talent Training” published by the Ministry of Education pointed out that the new form of smart education should be actively explored to comprehensively improve the quality of curriculum construction. Foreign language teaching, as an important part of college teaching, faces great reform challenges in the era of information technology: foreign language teaching needs to actively use smart teaching to change the traditional teaching methods and teaching environment,

and cultivate innovative foreign language talents who integrate intelligence quotient (IQ), emotional quotient (EQ) and cultural quotient (CQ), which are required in the information age.

## 2 The Definition of Smart Education

“Smart Classroom” was first proposed by Ronald Recinho in 1988, but it didn’t attract much attention due to the restriction of technological development. It wasn’t until 2008 that IBM came up with the “Smart Earth”. In the same year, Wylie Wong thought that smart classrooms could be built that could provide various teaching tools for teachers’ teaching. Thus, smart education emerged. In recent years, smart teaching has also attracted the attention of scholars. According to Zhu Zhiting’s team, Qian Xuesen preciously proposed the idea of “wisdom of great success” as early as 1997, which has become a theoretical basis for smart education [1]. Although the term “wisdom education” was mentioned by scholars in the early 20th century [2, 3], but this wisdom education is not synonymous with the smart education in the current information age.

The Chinese literal translations of “smart education” and “wisdom education” are the same, but the connotations are different. Jing Guoping [4] believes that wisdom education has broad sense and narrow sense. The narrow sense of wisdom education is the “wisdom education” based on traditional pedagogy and psychological theories, while in a broad sense wisdom education refers to the wisdom education of rationality, values and practices based on the understanding of complete human nature and the cognition of comprehensive human development. With the continuous development of the network and the rapid advance of information technology, wisdom education has a new meaning. After analyzing the differences between “Smart” and “Wisdom”, Zhu Zhiting and He Bin [5] choose “Smart Education”, believing that smart education specifically refers to the education that promotes the development of students’ intelligence through man-machine synergism with the support of information technology. Guo Shaoqing and Hua Xiaoyu [6] hold that “Smart education is the education that uses intelligent technology to enable the innovative development of education. The innovation and development of smart education can better provide support and guarantee for the implementation of wisdom education. In comparison, smart education is a new education facing the smart society and fundamentally pointing to promoting people’s wisdom development.”

Therefore, smart education should be considered from two dimensions. One is the humanistic dimension. Smart education means that teachers need to use their own intelligence to fully and comprehensively mobilize students’ learning enthusiasm and initiative, and at the same time excavate students’ intelligence, so as to truly achieve smart education. The other aspect is the technical dimension. Smart education makes use of the internet, big data, AI, cloud computing, VR/AR/MR and other information technologies to create a smart environment, build a smart teaching platform, adopt smart teaching methods, and build a smart mode of talent cultivation, to foster knowledgeable, compound and innovative talents.

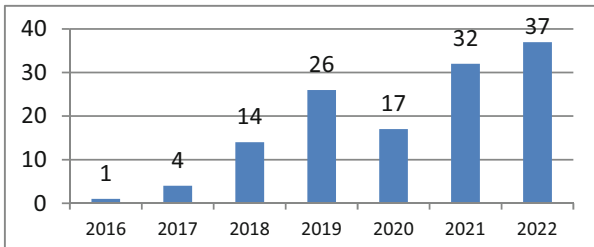


Fig. 1. Analysis of the Total Number of Related Published Papers

### 3 Overview of Foreign Language Smart Education Research

A search of the title of “Smart Education” on CNKI showed a total of 2,839 results till December 30, 2022. In order to make the search more comprehensive, 126 relevant papers appeared in the subject search with the keywords of “smart education” and “foreign language”. For the specific number and year of publication, please refer to Fig. 1.

As can be seen from Fig. 1, there are not many researches on foreign language smart education. In the initial stage (2016–2018), relevant researches mainly explored the foreign language wisdom model [7]. Among them, Zhou Yun’s paper “Research on Mobile Internet-oriented Smart Education Model for College English Teaching” builds a three-dimensional online and offline teaching closed loop integrating language knowledge learning, language skill training and development of autonomous learning ability, establishes the smart college English teaching model and explains it with teaching cases. Since then, foreign language smart teaching has attracted more and more attention from scholars [8]. Since 2019, foreign language smart teaching research has entered the development stage. Tan Yanju [9] proposed that the college English smart teaching model based on the theory of POA (Production-oriented Approach) could effectively improve students’ application ability. At the same time, there are also relevant studies on the teaching reform path of smart foreign language education. Zhong Fuqiang proposed that it was necessary to restructure the O2O curriculum system, strengthen the construction of online course resources, and carry out effective assessment reform to adapt to intelligent foreign language teaching [10]. After analyzing the characteristics of foreign language teaching in the 5G era, Gan Ronghui et al. built the application vision of intelligent foreign language teaching and put forward the cultivation paradigm of intelligent foreign language talents in an innovative and intelligent environment [11].

In general, the research on foreign language smart teaching has been on the rise in recent years, and it has gradually risen from theoretical description to teaching application.

### 4 The Components of Foreign Language Smart Education

Digital Darwinism dictates that we must adapt to the pace of cultural and technological change, or we will not survive. Foreign language education is a dynamic, non-linear and multi-variable long-term project, which needs modern educational technology to

support foreign language teaching. Foreign language teaching takes teachers and students as teaching subjects, so both teachers and students need to be highly involved. The object of foreign language teaching is actually a language tool, whose major use is to communicate, so it pays more attention to the cultivation of listening, speaking, reading, writing and cross-cultural ability. The foreign language teaching classroom requires higher interactivity, and the smart teaching environment can adapt to this requirement well. Foreign language teaching is no longer simply the imparts of language knowledge, but also carries the role of cultural transmission. Foreign language teachers need to teach students to tell Chinese stories, especially contemporary Chinese stories, in foreign languages, which is the sacred mission of Chinese foreign language speakers. Therefore, foreign language smart education is an inevitable choice to adapt to the requirements of cultural and technological development.

As is shown in Fig. 2, foreign language smart education should first establish objectives. The setting of teaching objectives should be oriented towards “what kind of person to cultivate”. Foreign language teaching objectives need to adapt to the changes of the age and make timely adjustments according to the needs of the society and the country. Students should be knowledge disseminators, cultural propagandists and mission bearers. Among them, the most important part of cultural propaganda and mission responsibility is to tell Chinese stories well, especially contemporary Chinese stories well, which is the historical mission that foreign language learners should undertake [12]. In addition, foreign language talents not only need the cultivation of IQ and EQ, but also need to have cultural quotient (CQ). The goal of foreign language smart education is to integrate the three innovative talents.

And then a foreign language smart education environment should be built. Smart teaching environment mainly includes physical environment, technical environment and emotional environment [13]. The physical and technical environment of foreign

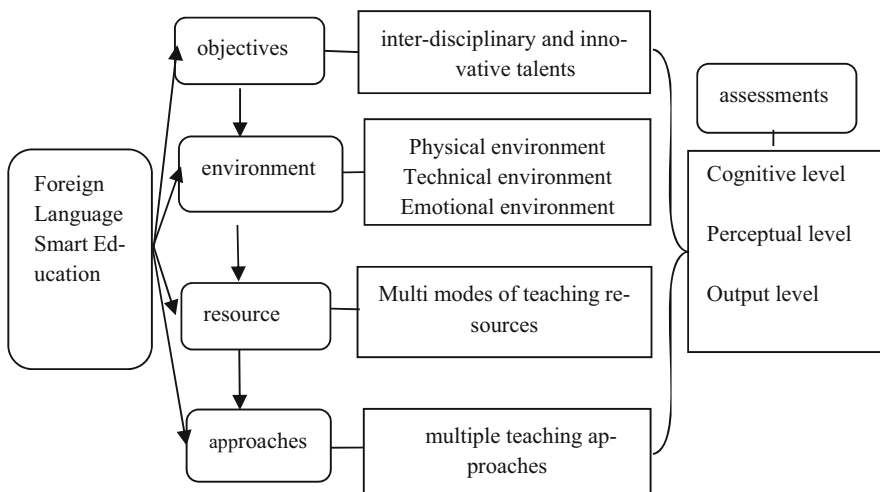


Fig. 2. Components of Smart Education

language smart education includes smart interpretation laboratory, smart listening laboratory, smart language room, smart classroom, smart education cloud and so on, which can be provided by smart education platform. These physical and technological environments can provide students with good learning experience, enhance learning interest, deepen learning experience, strengthen learning interaction, and enhance teaching satisfaction. Emotional environment refers to the environment in which students feel relaxed, enthusiastic and interested in what they are learning.

Foreign language smart education resources are actually part of the smart teaching environment, including multi modes of teaching resources. Such as selected micro-course resources, high-quality audio and video courseware, construction of high-quality question bank, excellent teaching cases, high-quality MOOC, foreign language teaching digital resources, etc. With the continuous development of foreign language smart education, related resources will continue to increase, which will provide more possibilities for foreign language smart education. With the continuous innovation of technology, more new teaching techniques will be more widely used in foreign language teaching.

Many teaching methods have been applied to language teaching. Zhou Yun proposed the establishment of a college English smart education model that conforms to the characteristics of the mobile Internet era and closed-loop online and offline teaching [8]. Tan Yanju proposed the design of smart college English teaching model based on the Production-oriented Approach [9]. At present, multiple-intelligence teaching is widely used in foreign language teaching. Differentiated teaching and personalized teaching based on multiple-intelligence teaching have become the leading ideas in foreign language teaching. The resulting multiple interactive teaching has also become the main characteristics of foreign language smart education.

Evaluation of foreign language smart education is a very important part. It evaluates foreign language smart education from three aspects: cognition level, perception level and output level. The cognitive aspects include students' acquisition of foreign language knowledge, knowledge memorization and knowledge application. The perceptual level includes auditory and visual perception, participation level, emotional perception, interest enhancement and independent learning. The output level includes output results, foreign language teaching effect, achievement judgment and students' communicative competence. The output level can be evaluated from students' performance evaluation, achievement display, skill improvement, knowledge accumulation, improvement of 3 Qs and so on. This link can well test the effect of foreign language smart education, help teachers and students find problems in a timely manner, and feedback the evaluation results to teachers and students in a timely manner, so as to make timely adjustment according to the evaluation results, so as to promote foreign language smart education to achieve better results.

## **5 Problems and Solutions in Foreign Language Smart Education in Colleges and Universities**

According to modern science and technology, many scholars have put forward a good vision for smart education of foreign languages in colleges and universities, but there are many practical problems.

1. Discipline barrier is difficult to break, and smart education becomes an empty talk. In the traditional foreign language teaching model and traditional concept for a long time, many teachers pay more attention to grammar, but ignore the communicative function and cultural transmission function. Some foreign language teachers have relatively narrow knowledge, and are not familiar with modern information technology, teaching software and equipment, so it is difficult to break the discipline barrier. Only a few foreign language teachers with a strong sense of reform are willing to break the rules.

“Data island” occurs frequently, and resources are kept exclusive. In many universities, the teaching platform and teaching management platform are not consistent, so the data is not shared, which makes it difficult for teachers to call teaching resources in the process of teaching. Moreover, many teaching platforms can’t provide enough resources to meet students’ adaptive learning. In addition, there are still many foreign language resources that are not open. MOOC and micro-course resources in many universities are limited to the campus.

There are not enough smart classrooms, which makes foreign language smart education remain at the theoretical level. Due to the large number of students and concentrated class time, only a small number of students can really take classes in the smart classroom. The application of VR in foreign language teaching is indeed full of sense of reality and technology, but only some smart teaching platforms have provided such a kind of teaching. In addition, many foreign language teachers have not completely changed the traditional teaching concepts and have not fully mastered the corresponding information technology. The use of smart classrooms in foreign language teaching is not high, so that the smart education of foreign language, which has been widely advocated but difficult to implement, remains at the theoretical level.

4. Disconnection between foreign language curriculum and foreign language smart education objectives. In most colleges, most foreign language teaching methods are limited to PPT, MOOCs, multimedia, etc., which are too simple in form and fail to make active use of computer language synthesis function in smart education, and fail to achieve human-computer interaction in the true sense. In fact, foreign language teaching fails to connect with the development of language intelligence, which is inconsistent with the teaching goal of cultivating compound and innovative intelligent foreign language talents to meet the needs of the times.

5. Many college students lack initiative and don’t have self-adaptive learning ability. Students should also be subjects in classes and so their participation, learning efficiency, learning effect directly reflect the effect of foreign language smart education. In fact, many college students are accustomed to the traditional “teacher-oriented” foreign language classroom and lack of learning initiative. The foreign language learning environment in schools is not strong, which to a large extent leads to students’ low enthusiasm and lack of motivation in adaptive foreign language learning. In fact, this greatly reduces the expected effect of foreign language smart education.

For these problems, the following solutions are available.

1. Strengthen the construction of new liberal arts. What the new liberal arts advocates is to break the discipline barrier and grasp modern information technology actively. We should strengthen innovation and integration among disciplines. To cultivate the teaching reform consciousness of foreign language teachers, it is necessary to keep in

mind that the role of teachers has changed from the traditional one of “preach, receive and solve puzzles” to “knowledge builder” and “reflective practitioner”. Teachers should have “advanced concepts of smart education, attach importance to developing students’ thinking quality, have good data literacy and excellent lifelong learning ability” [14].

2. Open-source teaching and resource sharing. Strengthen inter-university cooperation, give full play to their advantages, jointly fund the development of free foreign language intelligent teaching platforms of “Internet + education” and “content + technology”, jointly contribute to the development of foreign language intelligent teaching resources, promote colleges and universities to produce more original and open-source achievements, and actively use smart teaching environment to share resources. Colleges and universities should allocate special funds to build more smart classrooms so that teachers can utilize smart resources, optimize teaching content, improve teaching efficiency, and present more satisfactory foreign language teaching to students, so as to enhance their own sense of achievement in teaching.

3. Foreign language curriculum should be connected with foreign language smart education. The development of foreign language smart education brings a series of chain reactions, which requires the traditional foreign language curriculum should meet the development requirements of foreign language smart education. For example, translation technology, experimental phonetics, computer linguistics and other courses are the best choices in the development of foreign language smart education. Foreign language smart education should cultivate innovative talents not only with solid basic foreign language knowledge, but with outstanding cross-cultural critical thinking ability, and outstanding foreign language communication ability. Teachers also need to actively take advantage of the intelligent environment, organically integrate curriculum ideology and politics with foreign language teaching, cultivate students’ “four self-confidences”, and help students establish correct outlook on life, world view, and values.

4. Encourage students to conduct personalized study and improve their adaptive foreign language learning ability. According to their own characteristics, students make use of foreign language resources and choose personalized learning content to form personalized study. By creating a foreign language learning atmosphere, encouraging students to participate in activities, designing foreign language games, watching foreign affairs, using foreign language debates and other activities, students can realize the importance of foreign language learning. To improve students’ adaptive foreign language learning ability, some peer pressure is given by rewarding adaptive foreign language learning role models.

5. Strengthen cooperation between schools and enterprises. The school should break the single dimension of talent training, and move towards multi-leveled and multi-typed training. Enterprises have advantages in practical operation, and schools have advantages in talent education. The combination of schools and enterprises can complement each other. Both schools and enterprises can exchange resources through school-enterprise joint exchange. In this way, it can continue to promote the deep integration of information technology and foreign language teaching, and better cultivate students’ practical ability. For example, foreign language translation (including oral and written translation) and staff foreign language training can be jointly conducted with foreign language talent training institutions in colleges and universities, which is actually mutually beneficial and win-win.

6. Optimize the foreign language wisdom teaching model. At present, many scholars have put forward the intelligent foreign language teaching model. On the basis of previous studies, combined with the popular OMO (Online Merge Offline) online and offline mixed teaching, this paper proposes an OMO Double Subjects English Teaching Model (Fig. 3) as a model for other language teaching.

Taking one class of American literature history as an example, this paper gives a detailed explanation of the OMO Double Subjects English Teaching Model.

In the pre-class stage, teachers put course information online on the smart teaching platform, inform the content to be taught in advance, and send relevant MOOC in the MOOC platform of Chinese universities to students. After accepting the task, students need to search for relevant materials through the internet in advance, preview the content and watch MOOC. They should organize the content according to their search, and make their own learning videos to upload the intelligent teaching platform. In the in-class stage, teachers firstly guide students to discuss America and its cultural background before and after the WWI, guide students to understand Roaring Twenties, Great Depression, and the Lost generation, and share English videos of these backgrounds with network resources on the smart education platform. At the same time, the teacher guides the students to compare the situations of China in the same period and enables the students to discuss and combine the knowledge they have collected to reach the sublimation of their thoughts. The final aim is to make students realize the significance of the Party and then cultivate patriotism and “four self-confidences”. In the post-class process, the

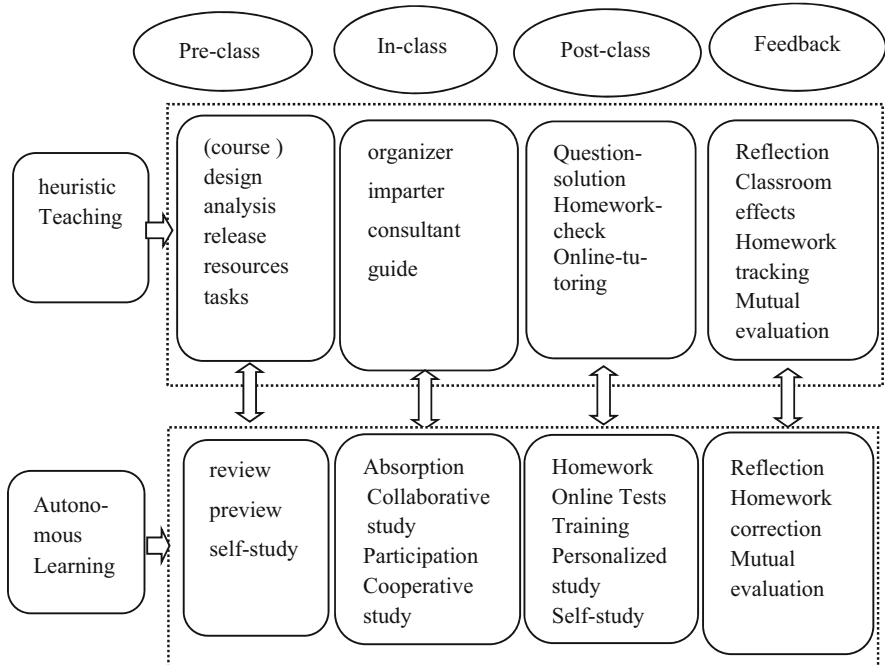


Fig. 3. OMO Double Subjects English Teaching Model



teachers should fully mobilize students' subjective initiative and collaborative ability, and let students shoot short videos of English role play in groups based on class content to consolidate classroom knowledge. This process has been practiced in my classroom teaching, through which students have greatly enhanced their collaborative ability and enhanced their interest in American literature history courses. This part is essential to cultivate students' 3Qs. In addition, students need to take up personalized learning, and strengthen the trainings on the intelligent teaching platform. The learning platform will send students' learning time and scores to teachers and give feedback on students' self-study based on these data. In the feedback link, it is a synthesis of man-machine feedback, teacher-student feedback, teacher-student feedback and teacher-teacher feedback. Teachers can examine their own class effect and students' class status in a timely manner, and adjust the unsatisfactory links or contents. Meanwhile, students can also understand their own class effect and put forward their own ideas.

According to the model, teachers play a guiding role in the process of English teaching, and students should not only study by themselves to utilize related resources on line but also cooperate and collaborate with each other to study actively during classes. With the model, teachers can make full use of online resources to present the process of language teaching, and students can actively participate in the pre-class, in-class, post-class and feedback parts to be the true subjects of a language learning.

## 6 Conclusion

Sternberg, a famous American psychologist, believes that people can use wisdom to balance various interests, and can adapt to the environment, transform the environment, and even choose a new environment [15]. As one of the two subjects of smart education, teachers should make effective and comprehensive use of the internet and mainstream smart technologies used in education, such as big data and learning analysis, cognitive computing and emotion recognition, smart classroom, media content and virtual reality, etc., and integrate quantitative and decentralized digital teaching resources [1]. Students should quickly adapt to the smart environment, work out personalized smart learning plans, innovate educational resources and go on with extracurricular autonomous learning.

College foreign language teaching, as an important part of college teaching, is actually the touchstone of smart education. In the field of pedagogy, the application of smart education in foreign language teaching in colleges and universities is still a relatively new research hot issue in our country. But it has brought great innovation space for education scholars. People are full of infinite imagination about wisdom education. Foreign language smart education in colleges and universities will surely usher in continuous innovation.

**Acknowledgments.** This study was financially supported by the Fundamental Research Funds for the Central Universities (Grant No. 31920220125), 2022 Higher Education Teaching Achievement Cultivation Project of Gansu Province (Grant No. 2022GSJXCGPY-07), NWMU Curriculum Ideology and Politics Model Course and First-class Course on Campus (2022YLKC-13 and 2022YLKC-15) and NWMU Innovation and Entrepreneurship Education Reform Project (XJCXCYJGXM10).

## References

1. Zhu, Zhiting., Luo, Hongwei., Wang, Chengqian., Hu, Jiao. Digital Transformation and Integrative Innovations of Foreign Language Education [J]. *Technology Enhanced Foreign Languages*. 2022, 206(4): 7–17.
2. Guan, Jiangan. The Source of Wisdom Teaching [J]. *SHIDAO*, 2003, 4: 36.
3. Yu, Guoqing. Wisdom education makes math classroom lively [J], *Jilin Education*, 2009, 1: 68.
4. Jing, Guoping. From the Literal to the General Wisdom Education [J]. *Journal of Heibei Normal University (Educational Science Edition)*, 2003, 5(3): 48-53.
5. Zhu, Zhiting & He, Bin. Intelligent Education: A new realm of educational informatization [J]. *E-education Research*, 2012(12): 5–13.
6. Guo, Shaoqing & Hua, Xiaoyu. On the Relationship Between Wisdom Education and Smart Education [J]. *Journal of Northwest Normal University (Social Sciences)*, 2022, 59(6): 139-147.
7. Lin, Xiaoqing. Research on the Smart Teaching Model for College Japanese at the Age of “Internet+” [J]. *Journal of Journal of Jiamusi Vocational Institute*, 2018, 189(8): 337-338.
8. Zhou, Yun. Research on Mobile Internet-oriented Smart Education Model for College English Teaching [J]. *Modern Educational Technology*, 2016, 26(12): 79-85.
9. Tan, Yanju. Research on Smart Education-oriented Effective Teaching Model for College English [J]. *Journal of Beijing City University*, 2019, 150(2): 84-90.
10. Zhong, Fuqiang. Construction of Intelligent Foreign Language Education System: An Approach to Teaching Reform [J]. *Technology Enhanced Foreign Languages*, 2021, 197(1): 85-91.
11. Gan, Ronghui & He, Gaoda. Exploring Smart Education Routine for Foreign Language Teaching in 5G Era [J]. *Technology Enhanced Foreign Languages*, 2021, 198(2): 45-51.
12. Sun, Youzhong. The Historical Orientation and Reform Path of Foreign Language Majors in Colleges and Universities [R]. *Foreign Language Teaching Research Branch of China Association for Higher Education 2022 Annual Conference*.
13. Bao, Naiyuan. Study on the Construction of the Practice Model of Smart Teaching in the Universities [D]. *Northeast Normal University*, 2022.
14. Zhu, Zhiting & Wei, Fei. The Path of Teacher Development and Innovation for Intelligent Education [J]. *Journal of The Chinese Society of Education*, 2017(9): 21–28.
15. Sternberg, R.J. Reznitskaya, A., & Jarvin, L. Teaching for Wisdom: What Matters Is Not Just What Students Know, But How They Use It [J]. *London Review of Education*, 2007, 5(2): 143-158.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter’s Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter’s Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

