STUDY ON THE INFLUENCE FACTORS OF DIGITAL TEACHING COMPETENCE ASSESSMENT OF MICRO-SPORTS CURRICULUM IN NANJING UNIVERSITIES

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AN INDEPENDENT STUDY SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE MASTER'S DEGREE OF BUSINESS ADMINISTRATION GRADUATE SCHOOL OF BUSINESS SIAM UNIVERSITY

2023

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This Independent Study has been Approved as a Partial Fulfillment of the Requirement of International Master of Business Administration in International Business Management

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ABSTRACT

This paper aimed to study the influence factors of digital teaching competence assessment of Micro-sports curriculum in Nanjing Universities, the objectives of this study were:1) To verify professional engagement has a direct impact to teachers' micro-sports digital curriculum design competence; 2) To verify digital resources has a direct impact to teachers' micro-sports digital curriculum design competence; 3) To verify teaching and learning has a direct impact to teachers' micro-sports digital curriculum design competence; 4) To verify assessment has a direct impact to teachers' micro-sports digital curriculum design competence; 5) To verify empowering students has a direct impact to teachers' micro-sports digital curriculum design competence; and 6) To verify facilitating students' sport competence has a direct impact to teachers' micro-sports digital curriculum design competence.

This paper adopted quantitative research methodology, the questionnaires were disturbed to 221 relevant professional sports personnel and full-time teachers from 26 universities in Nanjing Universities. The study found that: 1) Professional engagement has a direct impact to teachers' micro-sports digital curriculum design competence; 2) Digital resources has a direct impact to teachers' micro-sports digital curriculum design competence; 3) Teaching and learning has a direct impact to teachers' micro-sports digital curriculum design competence; 4) Assessment has a direct impact to teachers' micro-sports digital curriculum design competence; 5) Empowering students has a direct impact to teachers' micro-sports digital curriculum design competence; and 6) Facilitating students' sport competence has a direct impact to teachers' micro-sports digital curriculum design competence.

Keywords: micro-sports, curriculum digitization, teaching competence assessment

Acknowledgements

I would like to express my deepest gratitude to my advisor Dr.Jidapa Chollatharatanapong, for her invaluable guidance, support, and encouragement throughout my independent study. Her insightful comments and constructive criticism have significantly improved the quality of my work.

Additionally, I am grateful to Associate Professor Dr. Jomphong Mongkhonvanit, Dean, Graduate School of Business, for his support and encouragement throughout my studies. His dedication to the graduate program and commitment to excellence have inspired me to strive for academic excellence.

Finally, I would like to extend my appreciation to all the faculty members and staff of the Siam University who have contributed to my growth and development as a student. Their unwavering support and encouragement have been a source of inspiration and motivation to me.

HUANG   ZHWENYA

July 9, 2023

Declaration

I, HUANG ZHENYA, hereby certify that the work embodied in this independent study entitled *"Study on the Influence Factors of Digital Teaching Competence Assessment of Micro-sports Curriculum in Nanjing Universities"* is result of original research and has not been submitted for a higher degree to any other university or institution.

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July 9, 2023
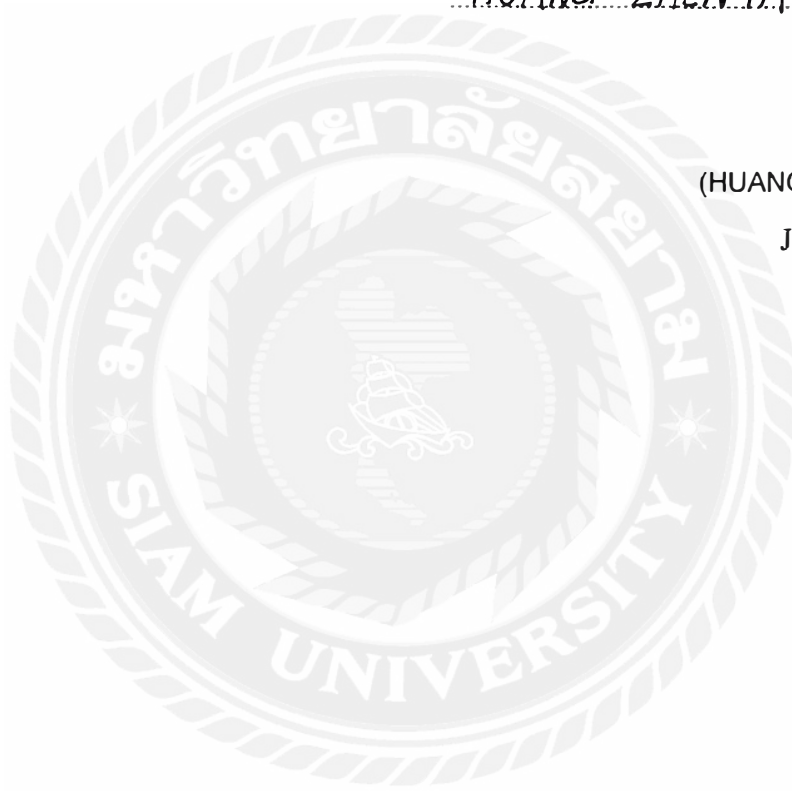
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Chapter 1　Introduction

1.1　Research Background

At present, there are very few studies on the digital teaching competence of micro-sports curriculum in universities, and the current situation needs to develop more convenient and efficient DTC evaluation methods. However, existing studies highlight the challenges for PE teachers in achieving a high level of proficiency in DTC and the lack of available standard assessment methods (Li,T et al,2000). Teacher assessment does not exist apart from other aspects of the education system and must be considered together with student development goals, curriculum goals, and professional development (National Education Association, 2018). Traditional evaluation methods rely on expert-determined weights to calculate power scores, but these weights are neither flexible nor dynamic (Du,J.Y, 2022). Furthermore, in teaching practice, weights in dimensions such as student differences and teaching environment need to be adjusted, which can be expensive when a separate expert decision is required for each adjustment.

The "micro-era" has come. "We-Chat", "WeiBo", "micro-film" and "micro-story" have brought convenience and speed to people's life, so that people can enjoy the "micro" life ". As early as October 20,2014, China's State Council has issued the State Council on speed up the development of the sports industry to promote sports consumption several opinions, the opinion specified "the national fitness rise to national strategy"　"to enhance people's physical fitness, improve the health level as the fundamental goal", which reflects the attention of the Chinese government to the national fitness, embodies the country to the use of scientific fitness means to promote health, improve people's quality and advocate(Song, 2012). Subsequently, on October 25,2016, the Chinese government including the CPC Central Committee and The State Council promulgated the Outline of the "Healthy China 2030" Plan, and "giving play to the positive role of national scientific fitness in health promotion, chronic disease prevention and rehabilitation" became the core content of the outline（Lai & Zhao, 2008).

Studies have shown that moderate intensity and above physical activity of at least 30 minutes per day, or 8-10 minutes each, with a total of at least 30 minutes per day, is sufficient to achieve physical activity. Another study also noted that a moderate amount of daily physical activity, such as walking or sweeping leaves slowly for 30 minutes, running for 15 minutes or playing volleyball for 45 minutes, helped promote physical health. They highlighted the role of moderate-intensity exercise in promoting health, with shorter sessions and chemically defined time: sporadic, short periods. Or interspersed with relatively fragmented, short time periods throughout the time period(Wang & Zhang, 2003).

Micro-sports is a simple and effective method suitable for daily life and physical

education classes. It not only helps to improve physical health, but also enhances motor skills and mental state(Zhang, 2002). Whether for long periods of work and study or physical activity, micro-sports can be a useful supplement to improve the overall quality of life(Li, 2015).

1.2   Research Problems

The problems existing in the evaluation of micro-sports digital teaching competence in universities in the big data environment mainly include the following three aspects:

First of all, the understanding level of micro-sports digital teaching competence assessment is relatively low. The low level of understanding of digital teaching competence may appear in educators and schools, which is manifested as the lack of understanding, application and value of digital teaching. Educators may lack experience with digital tools and technologies and thus lack the level of awareness in digital teaching. To address this issue, provide technical training and support to help educators familiarize themselves with relevant tools and platforms.

Secondly, the quantification of the digital teaching competence evaluation of micro-sports curriculum is insufficient. The assessment of the competence to digitize teaching in micro-sports curriculum may indeed have challenges in quantification, as digital teaching involves multiple dimensions and variables.

Finally, the evaluation system of the digital teaching competence of micro-sports in colleges and universities is outdated. At present, the digital teaching competence evaluation system in Chinese universities is facing many problems. If schools do not have a clear digital teaching evaluation and feedback mechanism, educators may not understand their level of digital teaching ability. Establish an effective evaluation system to provide feedback and improvement suggestions for educators.

1.3   Objectives of the Study

1. To verify professional engagement has a direct impact to teachers' micro-sports digital curriculum design competence;

2. To verify digital resources has a direct impact to teachers' micro-sports digital curriculum design competence;

3. To verify teaching and learning has a direct impact to teachers' micro-sports digital curriculum design competence;

4. To verify assessment has a direct impact to teachers' micro-sports digital curriculum design competence;

5. To verify empowering students has a direct impact to teachers' micro-sports digital curriculum design competence;

6. To verify facilitating students' sport competence has a direct impact to teachers' micro-sports digital curriculum design competence.

1.4   Scope of the study

This paper adopts the digital competence framework of European educators as the theoretical basis, and the research object is professional education personnel and full-time teachers in 26 universities in Nanjing. The information of digital teaching competence assessment was obtained through the questionnaire star. A total of 232 questionnaires were distributed, 221 were collected, and 221 were valid questionnaires, with an effective rate of   95%.

1.5   Research Significance

The research significance of this paper is to effectively enrich the theoretical experience of micro-sports curriculum in colleges and universities, and explore the method of digital teaching competence evaluation combined with micro-sports curriculum in big data environment background, so as to provide certain reference for other researchers, and further promote the development of digital teaching competence evaluation of micro-sports curriculum in Nanjing.

The evaluation system of digital teaching competence based on micro-sports curriculum has not been fully established. At the same time, it cannot be accurately quantified through scientific and multi-dimensional data indicators, and it is still in the fact that it relies on the result data. This study analyzes the relevant literature and policy documents, draw lessons from the existing evaluation index system at home and abroad, combining the local concept of industry experts, combined with the Nanjing university micro-sports education management to build the micro-sports curriculum digital teaching competence assessment, for Nanjing university micro-sports curriculum digital teaching competence evaluation to provide theoretical guidance and support(Li, S,2015).

This study is based on the proposed micro-sports curriculum digital teaching competence evaluation six factors, 22 items is classified, and gives a related evaluation model, effectively improve the quantitative process of the project, at the same time, through data collection and evaluation, the model can store micro-sports   for many

years in the development of digital teaching in Nanjing, and can effectively point out the developing weaknesses and should pay attention to related matters.

In addition, the new digital model of this study accurately finds the development path of each of the 22 items, combines the guidance and training policies of relevant talents, and effectively provides suggestions and decision support for digital teaching of micro-sports curriculum; it is also data-driven.

Chapter 2 Literature Reviews

2.1 Digital Teaching Competence

Digital teaching competence (DTC) is derived from digital competence (DC), which focuses on the acquisition of digital competence in the context of tools and technologies rather than a pedagogical model (George, D. , & Mallery, P. ,2003). DTC refers to the skills, competencies, and knowledge that teachers should master and develop to improve their teaching quality and efficiency in the classroom. In general, DTC can be defined as a set of knowledge, skills, or strategies teathers use to address educational issues and challenges posed by society in the information age (Kakeeto,D.,&Bisaso,R.,2020) defines DTC as "the teacher proficiency in using information and communications technology (ICT) in a professional context with good pedagogic-didactic judgment and awareness of its implications for learning strategies and the digital Bildung of pupils and research is primarily concerned with investigating the factors that influence DTC to improve it for teachers." Age, gender, teaching experience, and level of education are among these factors (Francisco-Ignacio ,et al. 2022). Other studies have focused on influencing factors such as teachers'perspectives on technology and ethical safety (García-Vandewalle et al. 2021). Furthermore, teachers'characteristics, particularly motivation and self-efficacy, have received much attention (Du, 2007).

However, most current research is disconnected from the study's context and focuses on a specific teacher competency while ignoring the impact of the larger environment (Lai, 2017). Changes in education caused by AI have resulted in the growth of online distance learning, particularly in foreign language teaching. It is,therefore,essential to investigate teachers' DTC. As technology advances, concepts around teaching competencies continually evolve, making it imperative to prioritize the development of technologies and solutions that fully support the education industry and thus lead to widespread improvements in education (Li et al. ,2009). Research is increasingly exploring the relationship between technology and teachers, highlighting the need for more real-time support from AI mentors to determine when students require human assistance, assess the impact of their help, and manage student motivation (Feng, et al. 2002). emphasizes the importance of preparing the next generation of teachers for the integration of technology into education. Therefore, the evaluation of DTC should consider a variety of technological aspects. However, how to apply new technologies, particularly AI, in education remains a grey area (Lin 2012), requiring teachers to be prepared to introduce advanced technology into instruction. Hence, teacher education is critical in preparing teachers for the future (Ma,2015).

2.2 Assessment of Digital Teaching Competence

Teachers'self-assessment provides the majority of feedback on teacher competence (Fernández-Batanero 2020), and the current DTC assessment is based on several frameworks. The European Framework for Digital Competence of Educators (DigCompEdu) is the most commonly used assessment method, with many empirical studies demonstrating its reliability. Currently, the majority of DTC research in language teaching focuses on quantitative studies, employing instruments such as questionnaires for self-assessment or expert judgments. However, self-assessment is frequently regarded as less accurate (Song, 2012), and expert-based rubrics can be time-consuming. Although various frameworks have been used to assess teachers' DTC, their use in language teaching research has been limited (Lucas 2021). According to Chinese scholars' research, there was no research framework on DTC for international Chinese teachers, and most scholars focused solely on theoretical aspects. (Xu , 2002), for example, previously discussed the meaning, evaluation system, and cultivation of digital competence for teachers in a CFL context, primarily focusing on theoretical aspects with little attention paid to DTC in teaching practice. (Lin, 2012) developed a DTC assessment system for international Chinese teachers at various levels of competence based on the Belt and Road initiative. Furthermore, Liu proposed an assessment index for international Chinese teachers' DTC based on a survey of 205 working Chinese teachers. Moreover, the proliferation of online teaching in Chinese language education has necessitated stricter DTC requirements (Yang 2011). The framework has made theoretical contributions to evaluating international Chinese teachers' DTC, but further empirical research support or promotion is needed.

In previous studies, algorithms have been utilized to assess teacher competence. Fuzzy clustering algorithms have emerged as a more scientific, reasonable, and straightforward teaching evaluation method. However, the accuracy of these methods depends on the sensitivity of the initial data, and the clusters produced may not always be meaningful or accurate (Zhang et al. ,2022). Bayesian algorithms, on the other hand, are faster, but have lower accuracy and cannot effectively apply their findings to new datasets. Decision trees are advantageous because they provide interpretability and can effectively handle high-dimensional data. However, they are susceptible to overfitting and may not generalize to new data. Random forests, by contrast, can avoid overfitting, process quickly, and handle high-dimensional data, but have poor interpretability and may not always yield the most accurate predictions (Ma, 2015).

At present, sentiment recognition and prediction models based on deep learning have achieved performance beyond existing algorithms, as reported by Fan et al. (2016). Zhou et al. (2021) proposed a deep learning-based approach for analyzing interactive classrooms and assessing teaching effectiveness. This offers a faster and more accurate recognition of teacher behaviors and assessment of teaching outcomes, resulting in improved efficiency. This highlights the significant potential of deep learning in online

teaching assessment and personalized recommendations. Additionally(Xiao,2001) researched the relationship between behavior and cognition, revealing that deep learning algorithms consistently outperformed other methods, yielding an enhancement in classification accuracy ranging from 2% to 7%. The study by (George, D et al. ,2022) demonstrated the broad applicability of deep understanding algorithms in performance prediction, adaptive learning, and automation, showcasing their exceptional performance. Notably, deep learning can leverage deep neural networks to construct highly accurate prediction models using large volumes of unlabelled and unstructured data, surpassing the limitations of traditional approaches and effectively improving feature learning capabilities (Xu, 2017).

In summary, most studies in this field have centered on assessing the DTC of EFL instructors, with little attention paid to CFL teachers. Moreover, it is worth mentioning that only a few articles have employed artificial intelligence algorithms to evaluate teacher DTC, and existing research has certain limitations. Many scholars have highlighted the difficulties that teachers encounter when attempting to enhance DTC. One major obstacle is the disconnect between technology and teaching methods (Shi 2008). This underscores the necessity for further exploration and investigation in this particular area. As a result, it is crucial to conduct more in-depth studies into DTC evaluations for international Chinese teachers.

2.3   Micro-sports
1. The concept of the micro-sports
The emergence and proposal of micro-sports is considered to be the inevitable product of the development of technology in the information age, and it is an emerging way of exercise and fitness in the global micro-era. It makes full use of modern means, not only can not be limited by time and space, but also can enhance the physical quality, and relieve fatigue. The concept of micro-sports is not unified at home and abroad, and there is no current accurate definition. Micro-sports refers to a passive person for a long time, in an office with limited space through simple physical activity or a"penalty station" to relieve fatigue, and physical fitness as a way of exercise. Pan Haoyun proposed that micro-sports originated from the office "sedentary people," with progressive anti-group training as the main content of unarmed or using simple equipment fitness activities. Wang Ning proposed and created a set of indoor fitness exercises, to provide a reference for the practice during the work.

With the deepening of the basic concept of modern health, the content of micro-sports is constantly enriched. The micro-sports of this study were based on the Brain Breaks concept developed at Oregon State University, USA. Since its development in 2014, it has been popular among teenagers and children worldwide. In particular, HOP Sports has compiled and participated in implementing micro-sports in more than 40 countries. There are various types of micro-sports, including indoor activities, sports

skills learning, physical fitness exercises, art performance, puzzle projects , and ethnic characteristics . Global Health Community Foundation (The Foundation For Global Community Health), micro-sports refers to a school, community , and related institutions in sports activities, generally to 3-5 minutes diversified video as the carrier, based on game design, video recording , and associated resources links, focusing on solving some of the classroom teaching, mainly to effectively improve the effect of classroom teaching, enhance the consciousness of students' sports fitness . Ferrer, and Michelle point out that compared with regular physical education and health teaching, micro-sports is a way that is not limited to the classroom environment, does not need additional preparation time or planning, and can drive students to do short time of exercise and stimulate students' interest in learning. Shi Wenwen proposed that micro-sports refers to a kind of simple, easy to operate, easy to use, time and situation setting for students, aiming to promote physical and mental health, regulate students' attention, regulate destructive emotions, and cultivate the exercise habit of indoor exercise.

Based on the above view, this study will be defined as: 3-5 minutes ,no space constraints, without additional preparation before class, letting students follow a variety of videos or live imitations for a short time of physical activity, simple and easy, aims to develop students 'cognitive ability, sports ability, stimulate students' learning enthusiasm of a way of movement.

2. Characteristics of the micro-sports
With the continuous exchange of global sports culture, micro-sports began to be introduced into China and warmly welcomed. It can not only meet the change in students' learning styles, but also improve the enthusiasm of students to participate in sports activities, enhance their sports ability, and promote their physical and mental development. Compared with the traditional physical education and health teaching, micro

2.4   The EU digital competency framework for educators
Digital Teaching Competence originates from digital ability (Digital Competence, DC), focusing on acquiring digital competence in the context of tools and technology, rather than a teaching model. DTC refers to the skills, abilities , and knowledge teachers should master and develop to improve the quality and efficiency of classroom teaching. Generally, DTC can be defined as a range of knowledge, skills ,or strategies that teachers use to address the educational problems and challenges posed in the information-age society defined DTC as "teachers skilled in using information and communication technology (ICT) in a professional background, with good teaching judgment and aware of its impact on learning strategies and students 'digital education. The research investigates factors affecting DTC to improve teachers' DTC skills."These factors include age, gender, teaching experience, and level of education . Other studies have focused on influencing factors such as faculty perceptions of technology and

ethical safety (Garcia-Vandewalle et al., 2022). In addition, the personal characteristics of teachers, especially their motivation and self-efficacy, have also received much attention (Hatlevik, 2021).

Faculty self-assessment provides most feedback about faculty competence (Fernandez-Batanero, 2020), and the current DTC assessment is based on multiple frameworks, as detailed in Figure 1. The European Educators Digital Capacity Framework (DigCompEdu) is the most commonly used assessment method, with numerous empirical studies demonstrating its reliability (Caena & Redecker.,2019). Currently, most DTC studies in language teaching focus on quantitative research, using tools such as questionnaires for self-assessment or expert judgment.

Figure 1. The Digital Capacity Framework for European Educators

2.4.1 Professional engagement

Professional engagement field means that educators can use different digital technologies to communicate and cooperate, and can promote their teacher professional development. Organized communication. Based on the guidance of specific communication strategies, educators use digital technology to improve the competence of organized communication, including the competence to communicate with learners, parents , and third parties. The following activities can be carried out: using digital technology to enrich the information and learning resources of learners (parents); and using digital technology to conduct efficient communication with internal and external personnel. Professional cooperation. Use digital technology to cooperate with other educators and share knowledge and experience, as well as work together to carry out educational reform and innovation. The following activities can be carried out: sharing knowledge, resources , and experiences with digital colleagues, and using professional collaborative networks to explore and reflect on new educational practices and methods. Reflect on practice. Educators can actively and critically reflect on their use of digital technology to develop academic and teaching practices independently or in cooperation. The following activities can be carried out: critically reflecting on your digital teaching and educational practices; and proactively seeking help from others in improving your digital competence continuous digital professional development. Use various digital

resources to promote their sustainable professional development. The following activities can be carried out: obtaining various opportunities and training programs suitable for your professional development through the Internet; and being able to promote my professional development by exchanging resources in the digital community.

2.4.2 Digital resources

At present, educators live in an era of data explosion, filled with all kinds of information. In the face of abundant information resources, educators can effectively distinguish and screen out the digital resources and information suitable for their teaching and students to learn, to improve their education and teaching level. At the same time, educators need to be aware of how to use and manage digital resources responsibly, respect intellectual property, and protect sensitive information when using, modifying , and sharing this information.

Educators can accurately and efficiently screen out the digital resources suitable for their teaching and learners 'learning, including the setting of teaching objectives, the selection of background materials, the selection of educators' teaching methods, and the determination of students' learning methods. The following activities can be carried out: to select suitable digital resources based on students' learning situation, learning environment, and specific teaching objectives; to critically evaluate the credibility and reliability of digital resources.

All kinds of legal resources available on the network, can be adjusted and recreated according to the needs of education and teaching. The activities that can be conducted are as follows: to integrate the existing digital resources after obtaining the relevant permission, and, ; to appropriately adapt the digital learning resources according to the specific needs of educators and students.

Educators can rationally organize digital resources better to serve learners, parents, and other educators. At the same time, educators should be able to protect special and sensitive resources and respect the intellectual property rights of digital resources. The following activities can be carried out: competence to share resources on online platforms or individual and school websites; competence to properly share school management data and data related to learners with colleagues, students and parents.

2.4.3 Teaching and learning

The field is probably one of the most important areas in the whole framework, in which educators are able to design, plan, and adopt different digital technologies at different stages of learners 'learning to promote teacher teaching and students' learning.

In the teaching process, educators can use digital equipment and resources to improve the effectiveness of teaching and promote the use of digital resources in the teaching process, and try to use new digital resources for teaching innovation. The activities that can be carried out are as follows: use various digital resources in the classroom to support teaching, including electronic whiteboard, mobile devices, and reasonably manage teaching and various interactive activities in the digital resource environment.

In learning inside and outside the school, digital technology and services are used to improve the interaction between educators and learners, as well as learners. Educators can use digital technology to provide timely and effective guidance and help according to specific educational goals. The following activities can be carried out: using digital technology to timely feedback learners 'problems and questions in learners' learning; using digital technology to monitor learners' learning behavior in the classroom and timely help. Educators use digital technology to strengthen and enhance the competence of learners to cooperate, and encourage learners to take the initiative to use digital technology to carry out cooperative learning, in this process to improve their competence of communication, cooperation and knowledge creation. The following activities can be carried out: conducting cooperative learning activities using digital equipment, resources, strategies, using digital technology to conduct peer evaluation and help them conduct self-management and peer learning in cooperative learning.autonomic learning. Using digital technology to promote the development of autonomous learning, including using digital technology to plan, monitor and reflect on their own learning process, share their own views, and propose creative solutions. The following activities can be carried out: learners can plan the learning process with digital technology; learners can use digital technology to record their learning process and collect relevant information.

2.4.4 Assessment

Ability of information technology application in primary and secondary school teachers. In 2014, the Ministry of Education issued the Information Technology Application Competence Standard for Primary and Secondary School Teachers (Trial), which put forward requirements for primary and secondary school teachers from the five dimensions of technical literacy, planning and preparation, organization and management, evaluation and diagnosis, and learning and development. The information technology application competence of primary and secondary school teachers is also the lower concept of the digital competency of educators. The digital competency of educators includes not only primary and secondary school teachers, but also teachers in preschool education, higher education and vocational education. Meanwhile, digital competency includes not only technical application ability, but also more diverse elements such as knowledge and attitude.

Normal university students' information teaching ability. In 2018, the Ministry of Education-mobile "normal informatization teaching competence standard and training mode empirical research" group released research "normal student information teaching competence standard", think students should have basic technical literacy, technical support learning, technical support teaching competence of three dimensions, each dimension is divided into three dimensions .

2.4.5 Empowering students

One of the biggest advantages of digital technology is the potential to promote the reform of "learner-centered" educational strategies, and to encourage learners to become more actively integrated into the learning process and become self-directed learners. At the same time, digital technology can promote the further realization of differentiated classroom teaching, and can provide personalized learning according to the individual differences of learners. However, care should be taken to prevent the intensification of inequality and to ensure that every learner (including those with special educational needs) has access to digital technology.

One is accessibility and integration. Ensure that all learners, including those with special educational needs, have access to teaching resources and participate in teaching activities. When using digital technology, educators can fully consider the learners' digital learning expectations, competence level, cognitive misunderstanding, the use of domestic and foreign environment constraints and other issues. The activities that can be conducted are as follows: providing all students with the opportunity to conduct activities fairly using digital technology; in screening, adjusting and creating digital resources, considering the potential problems of learners, and providing alternative or compensatory strategies.

Second, differentiation and individualization. Digital technology is used to meet the different needs of learners, such as arranging different learning processes of different learners, and setting learning goals in line with individual needs. The following activities can be carried out: use digital technology to meet the special requirements of students with special education needs; design, screen and implement digital learning activities according to the different learning requirements and levels of learners.

Third, the degree of active participation. Educators use various digital technologies to enhance learners' enthusiasm to participate in various learning activities, and to enable them to develop deep thinking and creative expression in the process of using digital technology. The following activities can be carried out: using digital technology to interpret and visualize new concepts to enhance students' learning motivation; creating a digital learning environment to attract and encourage learners to participate, etc.

2.4.6 Facilitating students' sport competence

Promote students' movement competence is the concept of connotation and denotation is extremely rich, and "help learners development" is one of the most important elements, specifically refers to the education workers to help learners creative and responsible use of digital technology to obtain information, sports training, create resources, improve movement effect and the competence to solve problems.

This field also includes the following five sub-fields:

First, information and media literacy. Educators are able to incorporate information literacy requirements into learning activities, tasks and evaluations; able to access information and resources in a digital environment; and able to organize, process, analyze and interpret information.

Second, communication and cooperation. Educators organize various learning activities and use digital technology for efficient and responsible communication and cooperation.

The third is the repeated interaction in the content and the training process. Educators create multiple learning activities for learners, enabling them to use digital technology to create or transform diverse digital content. Educators help learners to understand the relationship between training and teaching content.

Fourth, the subjectivity of responsibility. Educators should ensure that the physical, psychological and social interactions are normal and good. At the same time, educators need to enable learners to use digital technology safely and responsibly, and to cope with various risks.

Fifth, the competence to solve new problems. Educators are able to create various learning activities that enable learners to identify and solve problems between theories and training, and to transfer this competence to solve other problems.

2.5 Concept Framework
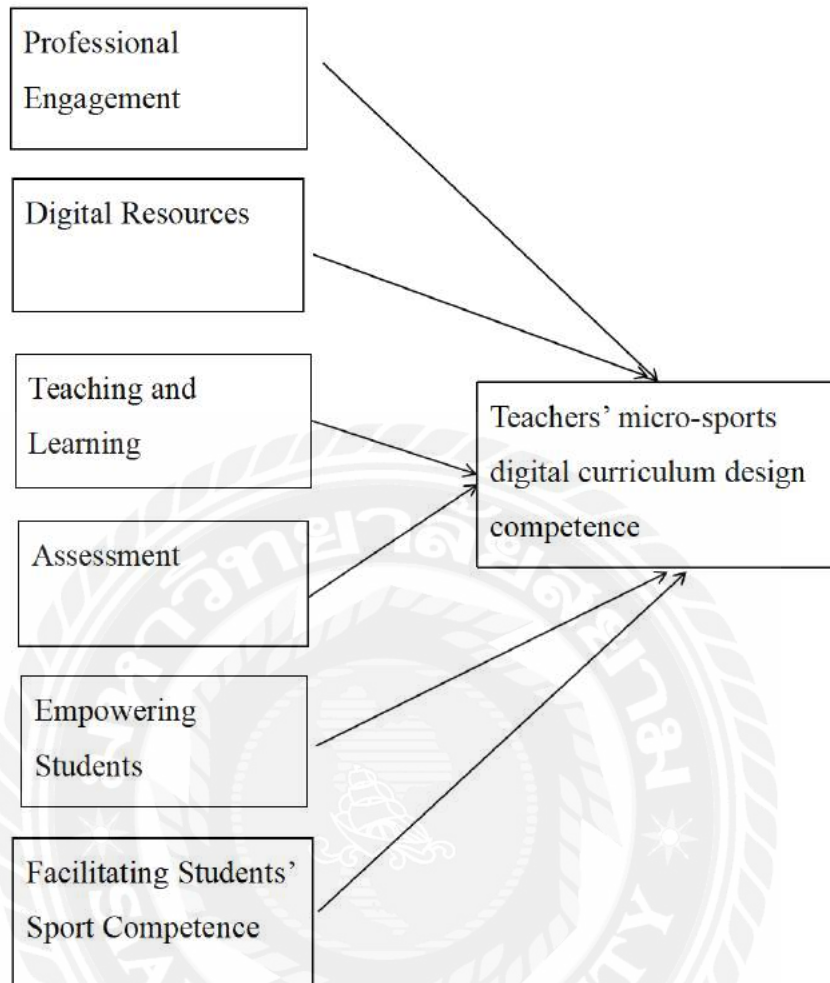
Chapter 3　Research Methodology

3.1　Introduction

In this study, the teachers engaged in micro-sports in 8 districts, including Gulou District, Jianye District, and Qinhuai District, Nanjing City, Jiangsu Province. To avoid their subjectivity and enhance the objectivity and scientificity of the research, this study also investigated the middle-level leaders and relevant leaders in charge of the school.

In the process of research, keywords such as "micro-sports," "physical education curriculum," and "digital ability" were used to search for relevant literature to understand the research status and related research theories comprehensively . Applying literature research methods has laid an excellent ellent theoretical foundation for this research. In this study, the quantitative research method was used with measurement as the research tool, analyzing the raw data from the survey, and calculating the statistics to obtain the questionnaire results, including the reliability value as construct validity before the confidential statistics, and determining the data mining system, security guarantee system, resource implication, higher education information system and higher education information management through regression analysis. All these variables must ensure that the reliability values meet the standardized criteria. Based on the proposed six factors of digital teaching competence evaluation of micro-sports curriculum, 22 sub-items are classified, and a related evaluation model is in presented.

H6: Facilitating students' sport competence has a direct impact to teachers' micro-sports digital curriculum design competence.

3.2　Sampling and sample size

In this study, teachers in Nanjing, Jiangsu province were randomly selected as respondents, 232 questionnaires were distributed, and 221 valid questionnaires were collected, with an effective rate of 95%. Specific information on the respondents is given in Table 1.

The participants in this study came from 26 universities, a total of 221 students, including 163 (73.8%) from ordinary universities and 58 (26.2%) from physical education colleges. Among them, 35 were female teachers (15.84%), and 186 male teachers (84.16%) were employed.206 (93.2%) had a bachelor's degree in physical education; 10 (4.5%) had a bachelor's degree in management, and 5 (2.3%) had an other bachelor's degree.

Table 1. Sampling characteristics

Age	2 5 - 35 (25.8%) 36 -4 5 (41.6%) 46 -55 (30.3%)>56 (2.2%)
Universities	Universities (73.8%) Sports Universities (26.2%)
Gender	Male (84.16%) Female (15.84%)
Education Background	Doctor (19.46%) Master (65.61%) Bachelor (14.48%) other (0.45%)
Profession	Physical education (73.8%) Sports training (15.8%) Rehabilitation training (5.9%) Administration (3.6%) Other (0.9%)
Years of Teaching	1-3 (57.01%) 3-5 (14.48%) 5-10 (17.19%) 10-20 (9.95%) >20 (1.36%)

This study uses the research paradigm of combining quantitative research with qualitative research to comprehensively analyze and process the collected data by compiling questionnaires. At the same time, this study is also combined with the interview method and the case analysis method for in-depth analysis and discussion.

3.3 Questionnaire Design

In this study, appropriate maturity scale with basic knowledge of information problems were selected to design the questionnaire. In order to investigate the present situation of Nanjing micro-sports teaching teacher, this study on the basis of literature review and literature analysis, combined with the relevant teachers and management interview at the same time, compiled a 22 question questionnaire the Nanjing micro-sports curriculum digital teaching competence assessment status investigation, the questionnaire is divided into six parts, using five lekert scale (1= very don't agree, 5= very agree). In this study, five relevant experts were consulted regarding the quality of the questionnaire. After receiving feedback from experts, the questionnaire was revised and tested tested.

3.4 Data Collection

The collection of data. This includes identifying and recruiting potential participants, who are teachers who are teaching (in service) and have used digital teaching tools during the teaching process. With the help of experts, I prepared an electronic questionnaire based on DigCompEdu with good reliability and validity (Cronbach's $\alpha = 0.972$, KMO = 0.976). A total of 232 teachers were selected who agreed to participate and were sent electronically through the questionnaire star (a web user survey tool for data collection). To comply with the GDPR guidelines, the questionnaire was made in an anonymous form. After careful screening by experts and considering the data collection environment and the enthusiasm of the participants, the authors selected 221 sets of high-quality data. The questionnaire recovery rate was 95%, ensuring the validity of the study.

3.5 Hypotheses

H1: Professional engagement has a direct impact to teachers' micro-sports digital curriculum design competence.

H2: Digital resources has a direct impact to teachers' micro-sports digital curriculum design competence.

H3: Teaching and learning has a direct impact to teachers' micro-sports digital curriculum design competence.

H4: Assessment has a direct impact to teachers' micro-sports digital curriculum design competence.

H5: Empowering students has a direct impact to teachers' micro-sports digital curriculum design competence.

3.6 Data Analysis

Finally, SPSS was used to statistically and analyze the collected data, and the data were tested for many times. This questionnaire had good reliability and validity, and can be used for formal investigation, and LISREL software and SPSS software were used to statistically analyze the recovered data.

Data mining attitude, security support system, resource significance, information system, higher education information management and other aspects are selected for analysis. The purpose is to have a deep understanding of the current situation and influence of information management in higher education.

Fully understand the current status of teachers' micro-sports digital curriculum design ability. Descriptive statistics were performed for the six dimensions of numerical power (Table2), then for 22 specific items. The results of the specific analysis are shown in Table Table2.

Table 2　Teachers' micro-sports digital curriculum design competence in each dimension

variables	Max	Min	Mean	SD	Md
Professional Engagement	5	2.25	4.817	0.854	5
Digital Resources	5	2	4.668	0.904	4.667
Teaching and Learning	5	2.25	4.632	0.851	4.75
Assessment	5	1	4.478	0.935	4.667
Empowering Students	5	1.333	4.407	0.946	4.333
Facilitating Students' Sport Competence	5	1	4.502	0.895	4.6

By examining these specific aspects, this study aims to identify areas of improvement that contribute to the sustainability of micro-sports. Strengthening these six areas can bring far-reaching benefits, promoting efficient data mining practices, ensuring strong security support systems, optimizing resource allocation and utilization, and strengthening the overall information system infrastructure. At the same time, the questionnaire form was divided into Table 3.

Table 3 Questionnaire information

Professional Engagement	Evaluation of organizational communication skills
	Evaluation of professional collaboration skills
	Evaluation of reflective practice skills
	Evaluation of the ability to digitize continuous professional development
Digital Resources	Ability to select relevant resources
	Ability to create and modify
	Ability to manage, protect and share
Teaching and Learning	Evaluation of teaching and learning
	Evaluation of instructional competencies
	Evaluation of collaborative learning skills
	Evaluation of self-regulated learning skills
Assessment	Evaluation of strategic competencies
	Analyzing Evidence
	Feedback and planning skills
Empowering Students	Accessibility and Inclusion Skills
	Ability to deal with differentiation and individualization
	Ability to engage students in active participation
Facilitating Students' Sport Competence	Evaluation of static sitting categories
	Evaluation of static standing posture categories
	Evaluation of the Fluid Variation Posture category
	Assessment in the category of manipulative work
	Assessment of special posture categories

The results of this study provide invaluable insights into the current landscape of information management in higher education and highlight the importance of focusing on these four areas for future development. By addressing the identified areas of improvement, universities can make significant progress in the effective informatization of education management, and ultimately promote sustainable growth and progress in the field of higher education in China.

3.7   Reliability and validity Tests

3.7.1 Reliability Test

In this study, the reliability test of the current questionnaire of Nanjing Micro-sports Digital Teaching Digital Competence Assessment was conducted, and the internal consistency of the questionnaire was mainly evaluated by the Cronbach a coefficient, in which the value of the α coefficient was between 0 and 1. The α coefficient of the questionnaire was 0. 972, indicating that the reliability is very good. The α coefficient of many dimensions is greater than 0.60, which exceeds the standard value (the internal stability and consistency of the questionnaire are also very good) as shown in Table 4.

Table 4 The reliability coefficient of the status status of digital ability assessment of Nanjing micro-sports digital teaching

factor	A coefficient of reliability	S-B by half-coefficient
Professional Engagement	0.859	0.855
Teaching and Learning	0.945	0.931
Digital Resources	0.941	0.939
Assessment	0.972	0.946
Empowering Students	0.975	0.953
Facilitating Students	0.932	0.928

3.7.2 Validity Test

1. Structure Validity

This study examined the construct validity of the questionnaire. The dimensions are very significant and positively correlated, so there is a good independence between the dimensions. In addition, there are ratios between each dimension and the total score （Li, Can, & Xin, Ling. 2008）

Higher degree of correlation. Therefore, it is believed that the questionnaire of kindergarten safety prevention has good structural validity.

2. Content Validity

For the content of the questionnaire validity, through the expert evaluation method to test, invited five Nanjing qinhuai district university sports college dean, eight duty teachers, Nanjing thus area 2 university sports college dean, seven teachers, jiang Nanjing gulou 2 university sports college dean, eight teachers, three physical education professional master, 1 preschool education and 1 doctor, judge and reviewed the Nanjing micro-sports digital teaching competence assessment questionnaire structure,

content and accuracy, validity and expression, etc., to a certain extent, to ensure that the influence factors of the content of the questionnaire validity.

3. KMO test and Bartlett spherical test

The questionnaire data were evaluated using the KMO test and the Bartlett spherical test. Analysis of results: KMO is the sampling appropriateness number of Kaiser-Meyer-0 lkin. In the above table, the KMO value is 0.976, the larger the KMO value, the less the correlation between variables, the more suitable for factor analysis, greater than 0.9, indicating that the result is suitable for factor analysis research. The Bartlett sphericity test probability of Bartlett is 0.000, which is less than the significance level, so the null hypothesis of Bartlett sphericity test is rejected and there is a correlation between the original variables. Explain yanyu data transactivation factor analysis.

Table 5 Analysis of the results of the initial questionnaire KMO and Bartlett test

Kaiser-Meyer-olkin sampling appropriateness measure		0.976
Bartlett Spherical test	Approximate chi-square distribution	16850.274
	degree of freedom	1225
	conspicuousness	0

Chapter 4   Finding

This paper reviews the literature on six independent variables: data mining, professional engagement, teaching and learning, digital resources, evaluation, empowering students, and promoting students' motor competence to meet the research objectives. In this paper, quantitative research was used and analyzed using SPSS.

4.1   Correlation Analysis

This study used Pearson correlation analysis to validate the relationship between the six measurements of teachers' micro-sports digital curriculum design competence, with higher numbers indicating stronger correlations. According to the data analysis, all six dimensions were positively correlated. The six dimensions had a significant impact on teachers' micro-sports digital curriculum design competence. Based on this, the author investigated the relationship between the assessment dimensions and the other dimensions further. As shown in Table 8, the correlation coefficients were: Empowering Students (0.835) > Teaching and Learning (0.809) > Facilitating Students' Sport Competence (0.804) > Digital Resources (0.717) > Professional Engagement (0.713), and the results indicated that the assessment of curriculum design competence was most correlated with empowering students followed by teaching and learning. This showed that curriculum design competence assessment and students' perspective had a specific impact on teaching effectiveness.

Table Correlation analysis of teachers' micro-sports digital curriculum design competence in each dimension

	Professional Engagement	Teaching and Learning	Digital Resources	Assessment	Empowering Students	Facilitating Students' Sport Competence
Professional Engagement	1	.656**	.701**	.713**	.658**	.640**
Teaching and Learning	.656**	1	.770**	.809**	.740**	.753**
Digital Resources	.701**	.770**	1	.717**	.656**	.673**
Assessment	**.713****	**.809****	**.717****	1	**.835****	**.804****
Empowering Students	.658**	.740**	.656**	.835**	1	.871**
Facilitating Students' Sport Competence	.640**	.753**	.673**	.804**	.871**	1

**. At level 0.01 (2-tailed), the correlation was significant.

4.2   Data Quality Analysis

Figure 3 illustrates the results of feature distribution for several data categories after feature reduction scaling and related operations. Internally, different colors represent five preset categories, the distance between points indicates changes in features, and other regions show the distribution of several types. They barely overlap,

and their respective divisions are pretty small. It demonstrates the accuracy and value of the data collection process used in the study.
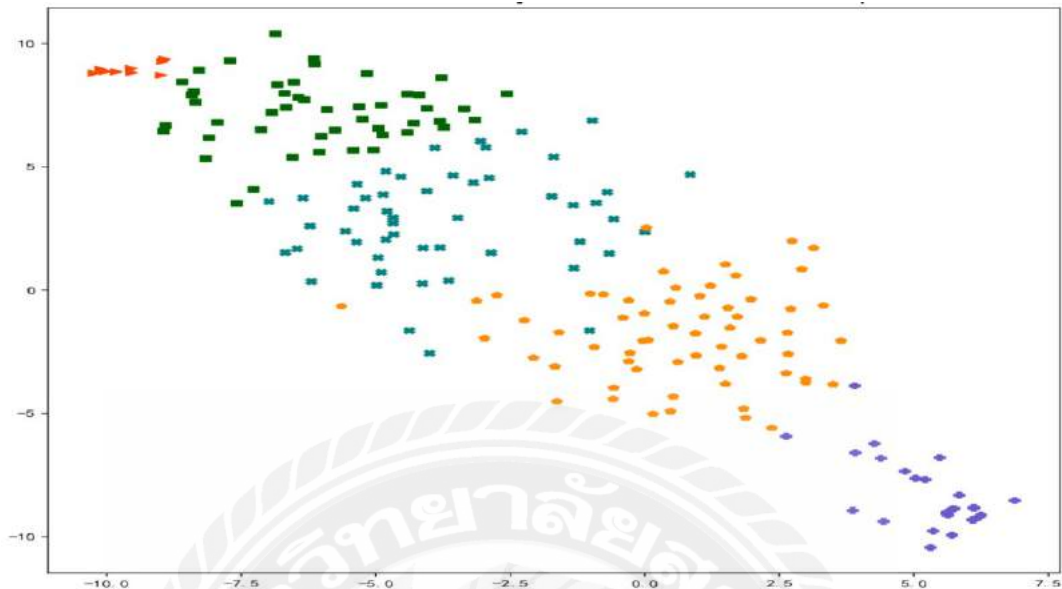

Figure 2. Data dimensionality reduction feature map

4.3 Current situation of teachers' micro-sports digital Curriculum design competence

4.3.1 Data analysis

The descriptive analysis method is adopted to fully understand the current situation of teachers' micro-sports digital curriculum design ability. Descriptive statistics were performed for the six dimensions of numerical power, then 22 particular items. The results of the specific analysis are shown in Table 7.

Table 7 Teachers' micro-sports digital curriculum design competence in each dimension

variables	Max	Min	Mean	SD	Md
Facilitating Students' Sport Competence	5	1	4.502	0.895	4.6
Empowering Students	5	1.333	4.407	0.946	4.333
Assessment	5	1	4.478	0.935	4.667
Teaching and Learning	5	2.25	4.632	0.851	4.75
Digital Resources	5	2	4.668	0.904	4.667
Professional Engagement	5	2.25	4.817	0.854	5

Table 8　Questionnaire information

Professional Engagement	Organisational communication	4.83
	Professional collaboration	4.8
	Reflective practice	4.63
	Digital CPD	4.8
Digital Resources	Selecting	4.71
	Creating and modifying	4.61
	Managing, and, protecting, and sharing	4.69
Teaching and Learning	Teaching	4.73
	Guidance	4.7
	Collaborative learning	4.59
	Self-regulated learning	4.51
Assessment	Assessment strategies	4.4
	Analysing evidence	4.46
	Feedback and Planning	4.58
Empowering Students	accessibility and inclusion	4.32
	Differentiation and personalization	4.48
	Actively engaging students	4.42
Facilitating Students' Sport Competence	Static sitting posture category	4.53
	Static standing posture category	4.63
	Flow change posture category	4.22
	Works operation category	4.6
	Special posture category	4.52

The highest and lowest scores, mean scores, standard deviation (SD), and median of the five dimensions of curriculum design competence, as well as 22 specific competence scores, are shown in table 3&4. The scores for all six sizes ranged from 4.4 to 4.9, indicating that teachers scored in the middle of the scale and that teachers had a high level of overall micro-sports digital curriculum design competence. The standard deviation for each dimension, however, is relatively high, around 0.9, indicating that there are significant differences in scores among teachers.

With a mean of 4.817 and a standard deviation of 0.854, the Professional Engagement dimension received the highest score. Teaching and Learning and Digital Resources also scored highly, with means of 4.632 and 4.668, respectively, indicating that teachers are adept at acquiring teaching resources to support teaching students' sports competence by corresponding teaching needs. Empowering Students, Assessment, and Facilitating Students' Sport Competence all scored lower, at 4.407, 4.478, and 4.502, respectively, indicating that teachers generally focus on self-development in their teaching practice while ignoring differentiated and personalized teaching, as well as awareness of sport competence assessment.

Among the 22 items, organizational communication received the highest score (4.83). In contrast, content creation received the lowest (4.22), followed by accessibility and inclusion (4.32), indicating that teachers' instruction is teacher-centered rather than taking into account students' individual factors. Overall, teachers are well-equipped in terms of Professional Engagement and Digital Resources, but Assessment, Teaching and Learning may need to be improved.

4.3.2 Multiple regression analysis

Peirson analyse:

	Mean	Standard deviation	h1	h2	h3	h4	h5	h6	DTC
h1	4246.42	4464.491	1						
h2	70735.888	5327.3	0.023	1					
h3	4435.8	614.47	0.208	0.363**	1				
h4	1.17	0.61	0.108	0.077	−0.437**	1			
h5	53.108	8.077	−0.098	0.334*	0.620**	−0.657**	1		
h6	104.46	51.981	−0.332*	0.059	0.226	−0.672**	0.367**	1	
DTc	7.378	3.692	0.344*	0.228	−0.23	0.703**	−0.488**	−0.539**	1

**The correlation is significant at the 0.01 level (2 tails).

The linear correlation coefficients of each variable are shown in Figure 2. Each parameter of H1-H6 has a linear correlation (all P-value <0.05), which is our key research object.

	B	Standard	Beta	t	p	VIF	R2	Adjustment R2	F
Constant	9.525	5.53	→	1.722	0.092				
H1	0	0	0.247	2.259	0.029*	1.341			
H2	0	0	0.281	2.365	0.023*	1.584			
H3	0	0.001	0 041	−0 307	0.76	1.988	0.618	0.564	F (6,43)=11.585 , p=0.000
H4	2.625	1.129	0.434	2.325	0.025*	3.911			
H5	−0.097	0.075	−0.212	−1.295	0.202	3.017			
H6	−0 007	0.01	−0 095	−0 661	0.512	2.334			

Dependent variable: Nanjing micro-sports DTC; D-W value: 2.129; * p <0.05 * * p <0.01

Ependent variable: Nanjing micro-sports DTC; D-W value: 2.129; * p <0.05 * * p <0.01

Stepwise regression analysis coefficient, VIF, and ANOVA results table

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1. Only the effects of H 1 to H6 retained in the final model is statistically significant (t=2.808, p=0.007; t=6.978, p <0.01); according to the standardized regression coefficient, the effect of H2 and H 6 is relatively important.

2. Regression model: Hat Y = 1.652 + 0.00022 * H2 + 4.081 * H6; the regression model was overall statistically significant (F=30.75, P <0.01).

3. The adjusted R square of the model =0.548, that is, the regression model can explain 54.8% of the DTC changes in Nanjing, and the explanatory ability of the model is slightly insufficient.

Chapter 5 Conclusion and recommendation

5.1 Conclusion

This study deeply explores the current situation of the digital teaching competence of micro-sports curriculum in Nanjing, and further improves the relevance and accuracy of the evaluation through the model. The results of this study will help to place in-service teacher evaluation indicators in an interrelated integrated perspective from the perspective of teacher development in micro-sports curriculum education in Nanjing. The results show that this study can effectively quantify the relevant values of the micro-sports industry.

However, this is only the beginning of the long march. Future studies should continue to innovate theories and related algorithms to integrate the latest technology into the evaluation model. Empirical research can be conducted to facilitate the implementation and application of the model. With the deepening of research, the model is expected to be more applied and expanded in other physical education research, and finally point out the way for teacher professional development in the technical era and provide corresponding reference for related work in related universities.

To achieve these goals, a survey of 221 people from universities in Nanjing was conducted. Analysis of the collected data using SPSS shows that the 6 + 22 assessment model has significant impact and interdependence, and is a tool for effectively evaluating industry personnel.

According to the Pearson correlation analysis of data mining, the variables of professional engagement, digital resources, teaching and learning, assessment, empowering students and facilitating students' sport competence are all at 0.05.

5.1.1 Professional engagement has a direct impact to teachers' micro-sports digital curriculum design competence

The correlation between the professional engagement and the digital teaching competence assessment on micro-sports curriculum in Nanjing universities was 0.713, with a positive correlation (accepted hypothesis H1).

The correlation between professional commitment and digital teaching competence is mutually reinforcing. By being more deeply involved in teaching, educators can better apply digital technologies, and improving digital teaching capabilities can become part of professional investment, creating a virtuous cycle.

5.1.2 Digital resources has a direct impact to teachers' micro-sports digital curriculum design competence

The correlation between digital resources and the digital teaching competence assessment on micro-sports curriculum in Nanjing universities was 0.717, with a positive correlation (accepted hypothesis H2).

The richness and diversity of digital resources provide teachers with a more flexible and personalized course design space, which directly promotes the

improvement of micro-motion digital course design capabilities. As technology continues to develop, teachers need to continue to learn and adapt to make better use of digital resources and improve their teaching standards.

5.1.3 Teaching and learning has a direct impact to teachers' micro-sports digital curriculum design competence

The correlation between teaching and learning and the digital teaching competence assessment on micro-sports curriculum in Nanjing universities was 0.809, with a positive correlation (accepted hypothesis H3).

Teaching and learning complement each other and directly shape teachers' ability to design micro-motion digital courses. Teachers need to constantly pay attention to students' learning status, flexibly adjust teaching strategies, and use digital teaching resources to improve the quality and effect of course design.

5.1.4 Assessment has a direct impact to teachers' micro-sports digital curriculum design competence

The correlation between the assessment and the digital teaching competence assessment on micro-sports curriculum in Nanjing universities was 0.804, with a positive correlation (accepted hypothesis H4).

The assessment system has promoted the improvement of teachers' micro-movement digital course design capabilities to a certain extent. By clarifying standards and providing incentives and innovation power, teachers have paid more attention to and worked hard to improve their digital teaching levels.

5.1.5 Empowering students has a direct impact to teachers' micro-sports digital curriculum design competence

The correlation between empowering students and the digital teaching competence assessment on micro-sports curriculum in Nanjing universities was 0.835, showing a positive correlation (accepted hypothesis H5).

Empowering students directly improves their initiative and autonomy in the learning process, which has a positive impact on teachers' micro-motion digital course design capabilities. Teachers pay more attention to students' actual needs and use digital teaching methods more flexibly to provide a more effective educational experience that is closer to students' actual situations.

5.1.6 Facilitating students' sport competence has a direct impact to teachers' micro-sports digital curriculum design competence

The correlation between facilitating students' sport competence and the digital teaching competence assessment on micro-sports curriculum in Nanjing universities was 0.804, with a positive correlation (accepted hypothesis H6).

Promoting students' sports abilities directly promotes teachers' development in micro-sports digital course design. Teachers need to use digital tools to better meet

students' sports needs, and at the same time flexibly use these resources in micro-sports to provide more creative and effective digital teaching.

Therefore, the results of this study explain the impact of digital teaching competence assessment on micro-sports curriculum in Nanjing universities, and this strategy is related to other factors related to the necessary data from Nanjing University. Micro-sports curriculum in Nanjing universities can be connected with six dimensions: professional engagement, digital resources, teaching and learning, assessment, empowering students and facilitating students' sport competence.

The research results show that the digital teaching level of micro-sports curriculum in Nanjing is relatively high, with an average score of more than 4.4 points. It is worth noting that the lower scores of "Assessment" (4.478) and "Promoting student mobility" (4.407) highlight the importance of these two dimensions and the need for future development.

In addition, it changes and develops with increasing age (standard deviation greater than 0.8). These results support the view that teachers have generally low numerical competence . These observations can be attributed to changing competency criteria and inadequate training and self-assessment (Zhou, 2021; Wang, 2020). With technological advances, teaching methods have also become more diverse and complex, shifting from traditional face-to-face teaching to mixed learning. This rapid transition poses great challenges for teachers, as they need to improve the relevant data in a limited time frame (Guo, 2021). Previous studies have focused on specific factors such as age and teaching experience when evaluating faculty DTC, ignoring the complexity of teaching practice and the dynamics of teacher competence.

The results also show that the attention to DTC is not enough, which reflects the problems in the training methods, thinking and development of digital teaching of micro-sports curriculum in Nanjing, as well as the need for training curriculum to address the shortcomings of DTC and improve the overall quality of teacher training (Li, 2021). Teachers' DTC assessments can also help them improve their teaching skills, detect deficiencies in practice and training, and ultimately promote their professional development.

Teachers should reflect on the practice, pay attention to the needs of students, conduct differentiated teaching appropriately, use digital technology responsibly, and improve the student-centered teaching effect. Furthermore, through focus group discussions and interviews with ten participants in the initial questionnaire, participants affirmed the effectiveness of the proposed model in assessing digital teaching capacity and providing improvement strategies. It promotes both self-improvement and

professional development. This study comprehensively examines the current situation of teachers' digital teaching competence, and proposes the improvement path.

At present, the evaluation methods of teachers' digital teaching competence often mainly rely on self-assessment or framework-based evaluation, which are vulnerable to subjective factors and have limited and inconsistent evaluation results. In addition, in the teaching process, there is now more emphasis on general teaching skills rather than digital technology. From a teaching perspective, an algorithmic DTC assessment model incorporating self-report and other important measures ensures convenience and effectiveness (Zhang, X.D,2016). Future implementation of the model will be possible to apply and generalize to teachers from other backgrounds.

According to the comprehensive analysis, the six factors of professional engagement, digital resources, teaching and learning, assessment, empowering students and facilitating students' sport competence have a direct and significant impact on the micro-sports curriculum in Nanjing universities. These factors play a crucial role in designing the effectiveness and efficiency of micro-sports curriculum in Nanjing universities.

5.2 Recommendation

For the analyzed problems, the corresponding suggestions are put forward, mainly including six aspects:

1. The government establishes an open data platform for regular evaluation.

2. Each school provides the assessment methods and work performance of each school according to local conditions.

3. Analyze students' participation and feedback in digital teaching, understand their satisfaction and trouble with online learning, and take corresponding measures to improve teaching.

4. Assess whether the curriculum makes full use of digital means, such as recording course videos, designing online interactive activities, and assigning online homework, to improve students' learning experience and effectiveness.

5. Using advanced technology, such as some game peripherals, to provide interactive experience for the course arrangement and increase the course effect.

6. A cloud platform is responsible for collecting the data collected by all parties, regularly updating, storing, analyzing, and further issuing guidance based on the real-time situation and national policies.

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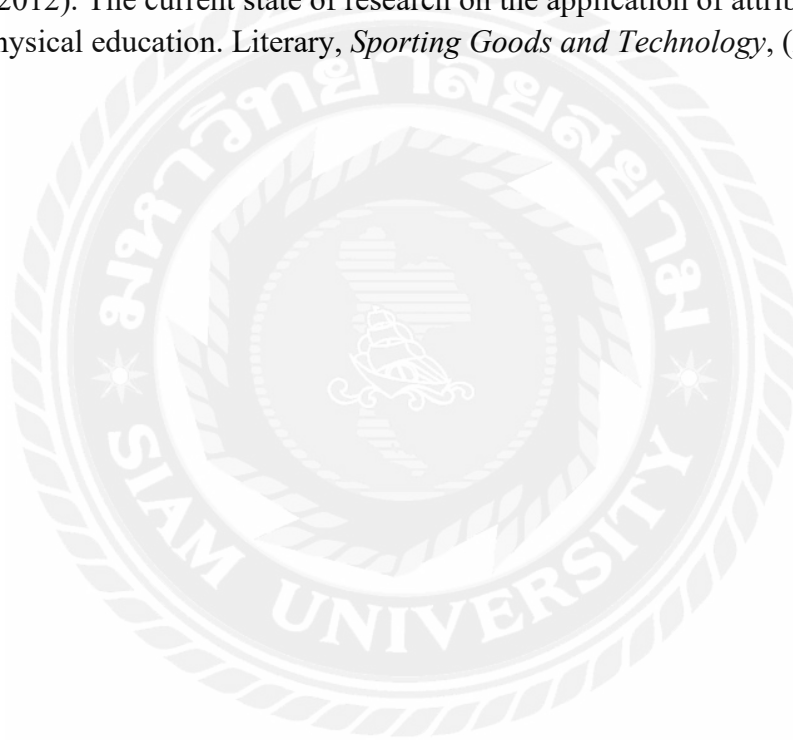
Appendix

The Nanjing micro-sports digital curriculum competence assessment questionnaire

Dear teacher:

shalom!

Thank you for taking the time out of your busy work to cooperate with our investigation. This questionnaire is mainly used to understand the competence assessment of Nanjing micro-sports digital course. This questionnaire consists of two parts. The first part is personal basic information, and the second part is the competence assessment survey of Nanjing micro-sports digital course. The questionnaire is anonymous. The information collected is only for research purposes and does not involve personal privacy. Please rest assured to answer. Thank you for your active participation and support.

base situation

1. Gender:
A. male   B. female

2. Your education background:
A. BA   B. Master   C. PhD

3. Your current major is:
A.Physical education   B.Sports training   C.Rehabilitation training
D.Administration   E.Other

4. Are you from a university majoring in sports?
A. Yes   B. No

5. How old are you engaged in physical education teaching?
A.1-3   B.3-5   C.5-10   D.10-20   E.>20

Please read the topic carefully and type " √ " on the corresponding number that matches your personal opinion.

1= very inconsistent; 2= very inconsistent; 3= uncertain; 4= more consistent; 5= very consistent

number	subject	item	option				
1	Professional Engagement	Evaluation of organizational communication skills	1	2	3	4	5
2		Evaluation of professional collaboration skills	1	2	3	4	5
3		Evaluation of reflective practice skills	1	2	3	4	5
4		Evaluation of the ability to digitize continuous professional development	1	2	3	4	5
5	Digital Resources	Ability to select relevant resources	1	2	3	4	5
6		Ability to create and modify	1	2	3	4	5
7		Ability to manage, protect and share	1	2	3	4	5
8	Teaching and Learning	Evaluation of teaching and learning	1	2	3	4	5
9		Evaluation of instructional competencies	1	2	3	4	5
10		Evaluation of collaborative learning skills	1	2	3	4	5
11		Evaluation of self-regulated learning skills	1	2	3	4	5
12	Assessment	Evaluation of strategic competencies	1	2	3	4	5
13		Analyzing Evidence	1	2	3	4	5
14		Feedback and planning skills	1	2	3	4	5
15	Empowering Students	Accessibility and Inclusion Skills	1	2	3	4	5
16		Ability to deal with differentiation and individualization	1	2	3	4	5
17		Ability to engage students in active participation	1	2	3	4	5
18	Facilitating Students' Sport Competence	Evaluation of static sitting categories	1	2	3	4	5
19		Evaluation of static standing posture categories	1	2	3	4	5
20		Evaluation of the Fluid Variation Posture category	1	2	3	4	5
21		Assessment in the category of manipulative work	1	2	3	4	5
22		Assessment of special posture categories	1	2	3	4	5