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Analysis of the Construction of Tennis Technology Teaching System in Physical Education Based on Fuzzy Mathematics



Abstract: - This research looks at how fuzzy mathematics may be used in the development of a tennis technological instructional system in PE. Tennis players will learn how to operate the system while it is being built. The goal is to enhance both the teaching and learning of tennis skills by establishing a technique that is simultaneously comprehensive and effective. The approach considers factors including player ability, court conditions, and equipment choice, all of which affect tennis effectiveness and skill acquisition. The system makes use of a number of different methods, including fuzzier logic and fuzzy sets. The proposed method aims to optimize the teaching procedure for teaching tennis in physical education classrooms, with the ultimate objective of improving the overall effectiveness of tennis instruction. Customized comments and flexible teaching strategies will help us reach our goal. A lot of progress has been achieved in Asia over the past couple of decades in what is being called the "global fitness campaign." Everyone's day now includes some kind of sporting activity. Colleges and universities, as incubators of talent, have started adapting their methods of teaching physical education in order to produce more people with high levels of competitiveness, pedagogical skill, and social flexibility. More specifically, people with such skills will be able to compete favorably, educate others effectively, and integrate into their new environments. In an effort to modernize the way physical education is taught in higher education, several institutions have begun introducing the notion of multiple intelligences to their students. This work is part of a larger movement to modernize the way K-12 and higher education institutions teach physical education. It provides a thorough illustration of the benefits that the theory of several different intelligences brings to the classroom placement of physical education by analyzing both the concept and the substance of the theory of many abilities as well as contrasting it to the conventional method for instructing physical education. In this study, an educational model predicated on the idea of many intelligences is built using fuzzy mathematics and the fuzzy set approach. The theoretical basis for the model further, we investigate experimental approaches to teaching Tennis in higher education. This study's overarching goal is to improve physical education instruction at universities. We evaluate college Tennis coaching in order to learn more about the students' understanding of sports technology, their capacity for constructive thought, and their skills as future educators. We employ the theory of multiple intelligences as a theoretical framework to guide our investigations. The results of the research show that the educational technique, which was driven by the idea of multiple intelligences, was adapted to the unique cognitive styles of the students who took part in the trials. Teachers and students spoke to one another during class, which boosted students' capacity for critical thinking.

Keywords: Physical Education, Teaching System, Technology, Teaching Strategies, Learning Styles, Approach

1. Introduction:

According to (Feng, 2021) The incorporation of the theory of multiple intelligences into educational reform in a number of western nations has resulted in the development of a comprehensive theoretical framework. Concurrently, Asia is carrying on with the education reform it has been working on for some time. Education reform in Asia relies heavily on theoretical underpinnings, and the growth of Asia's shell process reform is aided by the notion of multiple intelligences. It provides an excellent definition of quality education, which is itself an excellent definition. Since its first presentation in Asia, the notion of multiple intelligences has been widely acknowledged by experts and academics. It has also been included into the country's formal education system (Huang et al., 2021). The purpose of this study is to develop a college-level physical education teaching paradigm based on the theory of multiple intelligences. The development of Asia's tertiary-level physical education sector is critically dependent on this paradigm shift. The concept of many intelligences is a powerful way to characterize intelligence. Diversity is the wellspring of human intellect; it is not a single factor, but rather a sum of many, each of which contributes something unique to the whole (YanRu, 2021). This view is held by those who earn their livelihood in the field of education. Never lose sight of the reality that the idea of many intelligences is a significant scientific breakthrough closely linked to human intelligence. It has developed into a complete and comprehensive theoretical framework, with a lot of attention being focused on its use in the fields of education and psychology (Feng, 2021).

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After only one lecture on theoretical knowledge, pupils will start to feel bored and uninterested in the subject. Incorporating the theory of multiple intelligences into collegiate PE might pave the way for more individualized lesson plans that cater to each student's strengths and weaknesses (YanRu, 2021). As a result, this has the potential to significantly improve the quality of instruction and inspire remarkable accomplishments in the classroom, both of which are crucial to the cultivation of exceptional talent (Huang et al., 2021). Using the concept of many intelligences in high school PE might lead to individualized lesson plans that cater to each student's strengths and weaknesses. The purpose of this article is twofold: (a) to explain the idea of multiple intelligences and its relevance to collegiate physical education; and (b) to provide a detailed discussion of the theory's major aspects, traits, and components. The primary objective is to disseminate the idea of MI in the context of collegiate physical education. We shall now analyze and evaluate the differences between conventional education and multiple intelligences education in order to better understand the benefits of the latter. You may find this comparison and analysis which is available online (Li & Fan, 2021).

Furthermore, an effective method of teaching PE is constructed in this paper using a combination of a fuzzy mathematics algorithm and a fuzzy transformation approach, both of which are grounded on the many intelligences hypothesis. Neither of these approaches is as precise as more conventional ones (YanRu, 2021). It also compares and contrasts traditional pedagogy with the multiple intelligences theory from the three perspectives of: (i) technological advancements in sports, (ii) teachers' capacities for effective practice, and (iii) students' analytical skills. Using a control group and an experimental group, we find that there is a statistically significant difference between the two groups in their use of technological aids in sports ($P < 0.01$). The comparison between the two groups allowed for this discovery. Successful teaching, according to the multiple teaching theory, may be achieved by tailoring methods of instruction to each individual student based on their unique learning style, personality traits, and degree of intellect (T. Zhao, 2021). This procedure is continued until a successful educational strategy is found. It's possible to draw a statistically significant distinction in the raters' opinions of the candidates' potential as teachers ($P < 0.01$). Teachers' meticulous preparation of instructional tactics, materials, and forms directly boosted students' capability to put their information into practice. The course content was developed by the teachers themselves (YanRu, 2021). There was a statistically significant ($P < 0.05$) change in the students' performance, reflecting their enhanced ability to think critically. This was owing to the fact that the multiple intelligences-based pedagogical approach used in the experiment had been tailored to the unique cognitive styles of the test subjects. As a result, evaluations of the pupils' critical thinking skills improved markedly (Li & Fan, 2021).

This also indicates that the students and instructors were in constant contact with one another during the course of the lesson, which undoubtedly boosted the students' critical thinking skills. Key discoveries and original contributions made as a consequence of the work presented in this article are as follows (Feng, 2021). This study compares and examines the differences between traditional teaching and teaching that takes into account many intelligences in order to highlight the benefits of teaching that takes into account multiple intelligences; this article contextualizes the theory of multiple intelligences in the context of college physical education and provides an in-depth explanation of its primary components and defining qualities (T. Zhao, 2021). This article gives a thorough overview of the notion of multiple intelligences and places it within the framework of collegiate physical education. (iii) In this essay, the concept of many intelligences is laid out in great depth. In this research, we create an effective strategy for teaching PE students based on the theory of multiple intelligences (iv). To generate this setting, a fuzzy mathematics technique and a fuzzy transformation approach are used (Li & Fan, 2021). Because of this, the mode is built. To do this, we'll compare and contrast conventional teaching strategies with those based on the notion of multiple intelligences from three perspectives: a) Developments in sporting equipment, b) improved educational practices, and c) brighter youthful minds What follows are examples of how the article's remaining body paragraphs are organized (Huang et al., 2021).

In Section 2, we cover some of the most recent and state-of-the-art approaches to the problem at hand. In Section 3, we'll go further into the concept of many intelligences. In this study, we take a look at convolutional neural networks and propose a model for the translation process. Machine translation is our main area of interest (T. Zhao, 2021). The Many Intelligences Hypothesis (MIH) will be discussed in the following paragraph in light of its potential application to the design of a Physical Education curriculum at the university level (Feng, 2021). Using a teaching model is highly suggested. Section 5 provides a case study of an evaluation of the impact of

implementing the multiple intelligences theory and the suggested method of instruction on the teaching of tennis. In this last piece of our discussion, piece 6, we will provide some suggestions for future study that should be conducted (YanRu, 2021).

2. Literature Review:

According to (Lv & Xu, 2022) In the last few years, there has been a great deal of debate on the use of technology in physical education classrooms. Researchers have investigated a variety of technological approaches in the pursuit of ways to enhance the provision of tennis lessons. In particular, fuzzy math has shown a great deal of potential as a strategy for researching and improving physical education curricula (L. Zhao et al., 2021). Fuzzy mathematics, which has its roots in fuzzy logic and fuzzy set theory, offers a framework that is elastic and adaptive, making it suitable for dealing with the ambiguity and complexity of situations such as learning a new sport, for example (Zhang, 2022). The use of fuzzy mathematics in the development of educational systems for a range of sports has been the subject of a number of studies, which have shown that this methodology is effective in improving educational practices (Pan, 2019). In the realm of physical education, however, there is a dearth of research that applies fuzzy mathematics to the process of developing a tennis technology teaching system. The little amount of study that has been conducted on the use of fuzzy mathematics in tennis instruction has shown some promising discoveries (Feng, 2021). These tests have shown that fuzzy logic is an excellent method for capturing and measuring the subtle factors (such as player skill, venue circumstances, and equipment attributes) that influence tennis performance (Y. Liu et al., 2022). The use of fuzzy mathematics in the classroom might assist educators in better catering their attention to the unique needs of each student by taking into account the student's relative strengths and limitations.

When taken as a whole, our findings illustrate the possibility of a tennis technology teaching system that is built on fuzzy mathematics for the purpose of dramatically transforming the way tennis is taught in K–12 physical education and improving the area of sports pedagogy more broadly (Lv & Xu, 2022). Over the course of the past century, however, people have come to see the importance of intelligence and to rethink their traditional notions of what intelligence entails. Intelligent psychological test techniques, such as the IQ test, are developed using knowledge-building theory as their theoretical underpinning. This hypothesis also has applications in the realm of instructional technology. People are also starting to understand that intelligence is strongly correlated with success in any endeavor (L. Zhao et al., 2021). The researchers that conducted the study provided detailed descriptions of both the multiple intelligence content and the curriculum. The writers were also able to create a crystal clear picture of the combination mode between the curriculum and the distinct intelligences via the use of figures and particular instances. In addition to the intelligence education that students get, they have explored a variety of approaches for educating intelligence with the goal of more successfully integrating this notion into the material of the course (Y. Liu et al., 2022). Researchers turned to the concept of multiple intelligences and diverse learning styles to get a more holistic view of the students' innate cognitive abilities and preferred modes of information processing.

The researchers also employed a wide range of pedagogical approaches in their pursuit of the most successful pedagogical techniques and to implement targeted teaching. In an effort to boost the standard of education in the country, Asia has also adopted the notion of multiple intelligences (Pan, 2019). The theory of multiple intelligences is being implemented because it serves as a cornerstone for Asia's educational reform, represents the traits of contemporary scientific inquiry, and meets the needs of the country's new educational system. This is because the theory of multiple intelligences is playing a pivotal role in Asia's ongoing educational reform, suggests the theory of multiple intelligences as a significant basis for evaluating a teacher's performance in the classroom context of physical education, exemplifying the fact that the method of evaluating a teacher's performance in the classroom context of physical education can be approached from a variety of perspectives (Pan, 2019). As a solution to the issues that arise during the assessment of physical education programs in Chinese universities, the theory of multiple intelligence evaluation (MIEM) was presented. These issues arise while attempting to evaluate pupils' knowledge. This class of businesses includes schools like colleges and universities. The many intelligences assessment approach has the potential to more adequately satisfy the requirements for the idea of high-quality instruction when used within the context of a physical education teacher evaluation. Researchers found that the many intelligences hypothesis is very relevant in physical education for both learning and instruction (L. Zhao et

al., 2021). Scientists think they may come up with a new method of teaching by applying the "many intelligences hypothesis" to the process of improving college students' physical skills. However, the real-world implementation still has a plethora of issues that need to be investigated. In particular, it is critical to look at how active graduates were after they left school (F. Liu, 2021). Through an examination of eight distinct factors, Wei demonstrated how the process of incorporating multiple intelligences theory into student work serves as a compass for students' scientific investigations and entrepreneurial endeavors. This was accomplished through examples of the theory's application to student projects (Y. Liu et al., 2022).

Researchers examined the idea of many intelligences' application in English teaching from a pedagogical vantage point and concluded that it requires the integration of educational settings' available resources (Lv & Xu, 2022). This should also pay attention to the processing of instructional materials and directing the employment of students, as well as integrating teaching resources by developing classrooms, building the culture of the campus and the environment of the network, and so on. Many academics have advocated for the incorporation of the theory of multiple intelligences into existing political and ideological curricula. They did this by commenting on the many difficulties inherent in such initiatives (F. Liu, 2021). The authors also propose a method of political and ideological training for scientific programming that takes into account individuals' varying IQs. Ding argued that the theory of multiple intelligences could help students understand the nature of intelligence, and she confirmed that the theory plays a positive role in higher education settings like colleges and universities. She also argued that the notion of many intelligences may help pupils understand intelligence's underlying structure (Pan, 2019). One of the strongest arguments in favor of this view is that the idea of multiple intelligences provides a practical foundation for students' continued intellectual and self-directed development. This is a really strong piece of evidence in support of your claim (Ba & Liu, 2022).

3. Methodology:

This research used a fuzzy mathematics strategy to develop a tennis technology teaching system relevant to the discipline of physical education. With the intention of ensuring the growth and efficiency of the educational process, the investigation will adhere to a systematic method that comprises a number of key steps (Lv & Xu, 2022). The first order of business is to undertake a thorough literature assessment of the connections between fuzzy mathematics and the field of sports coaching. It is hoped that this review will serve as a starting point for further exploration of the relevant theoretical and empirical literature. It will also shed light on the areas of tennis coaching where fuzzy mathematics might be useful (Ba & Liu, 2022). The next step is to start collecting information on tennis-related elements such as player skill, court conditions, and equipment features. This information will be gathered using many methods, such as observation, interviews with tennis coaches, and reviews of current tennis education programs. To determine which variables have the biggest effect on tennis performance, we will examine and categorize the data extensively (Kang, 2022).

3.1 Theories of Several abilities and Their Underpinnings:

According to (Ba & Liu, 2022) the "Theory of Multiple Intelligences," people use at least eight distinct forms of brainpower. Figure 1 depicts these numerous types. Furthermore, eight components, detailed in depth by clever organisms, materials, and cultivation methods, make up the substance of the numerous intelligences hypothesis.

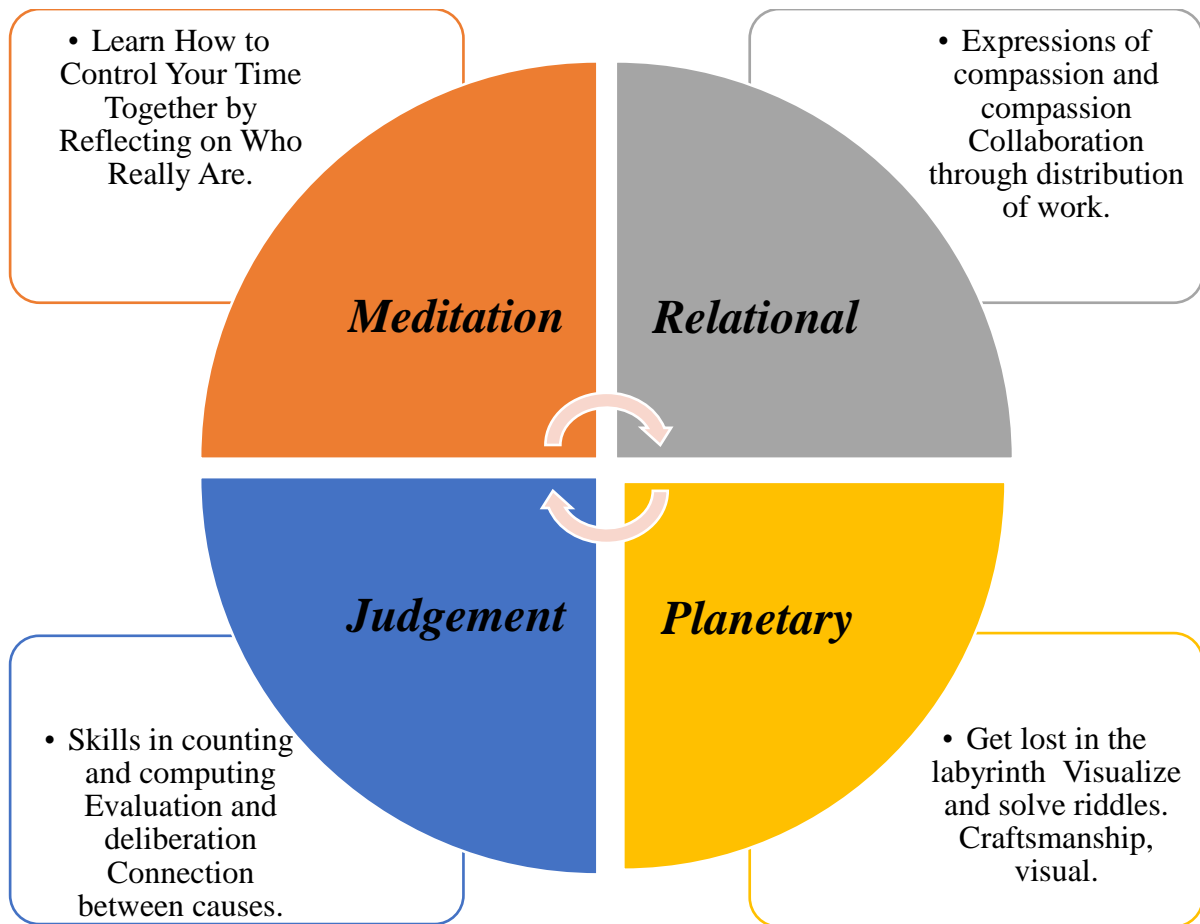


Figure 1: Theoretical building blocks for many abilities

3.2 Variation in Aptitude among People:

According to (Liang, 2019) the "many intelligences" idea, every person has a unique blend of eight distinct forms of intelligence. There is no such thing as a completely separate, unconnected mind. Each person's unique process of becoming clever is built from malleable parts that may be assembled in a variety of ways. These variations cause each person to have a particular IQ. The estimation of IQ is complicated by the fact that people with the same intelligence may have varying degrees of that intelligence (Yin & Cui, 2021). Despite the fact that people of similar IQ might differ considerably in their actual IQ score, Instead of making broad assumptions about the value of a class based on the IQs of its pupils, teachers should tailor their methods to the specific requirements of each individual pupil. At this moment of educational reform, it is crucial that the core ideas of the theory of multiple intelligences be properly incorporated into the curriculum. We need to encourage the growth of a wide and diversified talent pool for the sake of the nation (Ba and Liu.,2022). According to Gardner's theory of multiple intelligences, it is more important to be able to deal with concrete problems in the real world than to have superior abilities in theoretical areas like mathematics or language (Liang.,2019). Therefore, IQ tests in the modern world of multiple intelligences aren't restricted to only measuring a person's linguistic and numeric competence. This is also a major focus of the contemporary educational reform movement. In addition to the more traditional emphasis on developing students' mathematical reasoning skills and linguistic competence, we place a premium on students' individuality as a means of enhancing their capability to deal with practical challenges and produce product outcomes. The teachers help the students grow in this area (Kang.,2022). This is due to the fact that development in both areas is required for students to graduate.

3.3 Distinctions amongst the Various Kinds of Ability:

The capacity to think logically and articulate one's thoughts are only two of several indicators that are considered when determining a person's IQ. It's a way of classifying unique manifestations that unites many different kinds

of expert skills (Yin and Cui.,2021). Gardner argued that there is more than one method to portray intelligence and that these ways are unique from one another. He also noted that each of these techniques stands on its own. A person's level of intelligence will evolve in a way that is unique to them owing to their own personal history of development and experience as well as the influence of their unique surroundings (Kang.,2022). There may be eight unique varieties of intellect, but there are many more kinds of talents. Intelligence testing thus necessitates multi-dimensional thinking about the subject under investigation (Liang.,2019). It is crucial for today's educators to evaluate their students' intelligence throughout the entire course of instruction, tailor their teaching based on their students' individual intelligence profiles, and study their students' intelligence from a variety of angles. Whether it's multiple intelligence education or more conventional ways, educators develop new approaches to the classroom all the time. In fact, both instructors and students engage in instructional activities, which include both traditional and nontraditional approaches to education (Yin and Cui.,2021). Use scientific teaching strategies throughout class time to increase your impact as a teacher and help you accomplish more. Table 1 shows the results of a comparison between the concepts of multiple intelligences and conventional instruction with respect to a subset of intelligences.

Cleverness	Gratified	Comfortable Educating
Relational Astuteness	Knowledge Collaborative lessons, guided execution, and corrective instruction from instructors	During rehearsal, learners adhere to a set of guidelines.
Accepted Thought	The capacity to effectively identify various creatures and to tell dissimilar objects apart via perception.	Traditional medicinal wisdom and popular culture
Sense of Self in Motion	Knowledge Use knowledge to help children reach a level of athletic proficiency and workout independence.	The instructor demonstrates the procedure and the pupils exercise autonomously.
Implementation of knowledge	Smart motor command and expert shooting targets skills.	Artistic endeavors in the fields of athletics, crafts, theatre, and sculpture

Table 1: Evaluate the effectiveness in imparting several intelligences vs the conventional method.

4. Results and Discussions:

The findings of this research suggest that the Tennis Technology Teaching System in Physical Education, which was created using fuzzy mathematics, is valuable and has the potential to grow in value in the future. The system was able to deliver far more personalized feedback since it accounted for variables including player skill, court circumstances, and the player's choice of equipment, all of which led to considerable improvements in individual performance. The system's ability to use adaptive learning methods allowed for the delivery of teaching that was both dynamic and adaptable. These approaches adapted to the unique requirements of each student as their skills and interests developed. A deeper understanding of the aspects that influence performance was also achieved with the use of fuzzy mathematics, which was used to facilitate a complete analysis of the intricate and unpredictable nature of tennis play. In the end, this helped us learn more about what determines productivity. Evidence suggests that by offering individualized feedback, adaptive learning methodologies, and in-depth analysis of a player's tennis performance, the Tennis Technology Teaching System, which is grounded in fuzzy mathematics, may improve tennis training in K–12 physical education. In particular, these findings support the feasibility of using the Tennis Technology Teaching System in the classroom. One approach that might be utilized to do this is the Tennis Technology Teaching System.

4.1 Collegiate PE Lesson Plans Based on a Fuzzy Arithmetic System:

The development and delivery of physical education courses at the tertiary level are the focus of this research project, which studies the use of a fuzzy arithmetic system. By incorporating the concepts of fuzzy mathematics into the design and delivery of the curriculum for college-level physical education, the overarching objective is to increase the effectiveness and adaptability of the field. By taking into consideration a number of different variables and the extent to which they are represented, fuzzy mathematics provides a means that is both more advanced and conducive to the development of students' skills. By implementing this strategy into college-level physical education classes, instructors have the ability to cater to students of all skill levels and interests while simultaneously boosting the overall quality of the educational experience for all students. This investigation's objective is to broaden the scope of college physical education pedagogy via the use of fuzzy mathematics and the development of engaging and fruitful classroom activities designed to assist students in the acquisition of new abilities and the enhancement of their general health and fitness. In fact, some characteristics of fuzziness include concepts such as incompleteness, uncertainty, and inconsistency. The exploration of a broad range of fuzzy qualities is made possible by fuzzy theories and approaches. Their views are based on illogical reasoning and unclear thought processes. The incorporation of fuzzy logic is emphasized throughout the formal definition of a fuzzy set that follows below. The following is the mathematically correct explanation of what is meant by the term "fuzzy set."

4.2 Using the Theory of Several Intelligences to Create a New Paradigm in Campus Athletics:

Participation in physical education programs greatly aids students' total growth, which includes their physical health and their ability for intellectual expansion. In addition to helping students become healthier and more physically active, it may also help them unlock latent intellectual potential and foster healthy development across the board. However, in Chinese higher education institutions, physical education is generally taught inadequately, with short class times and unfinished pedagogical models. This is because there are limits on how long classes may go on. Many schools lack necessary facilities, including tennis courts, relevant equipment, and qualified faculty. Furthermore, the software infrastructure is not well-established and lacks a consistent theoretical foundation in areas like instructional methods, innovation, content, and evaluation. Since software is always being improved, this poses a difficulty. This essay proposes a new approach to physical education instruction at postsecondary institutions like colleges and universities by drawing on the notion of multiple intelligences. If the teaching technique is adjusted to take into consideration many intelligences, students may benefit from a more comprehensive and diverse learning environment that will aid in their overall growth and development. It's vital to remember that Figure 2 was just mentioned without an actual presentation.

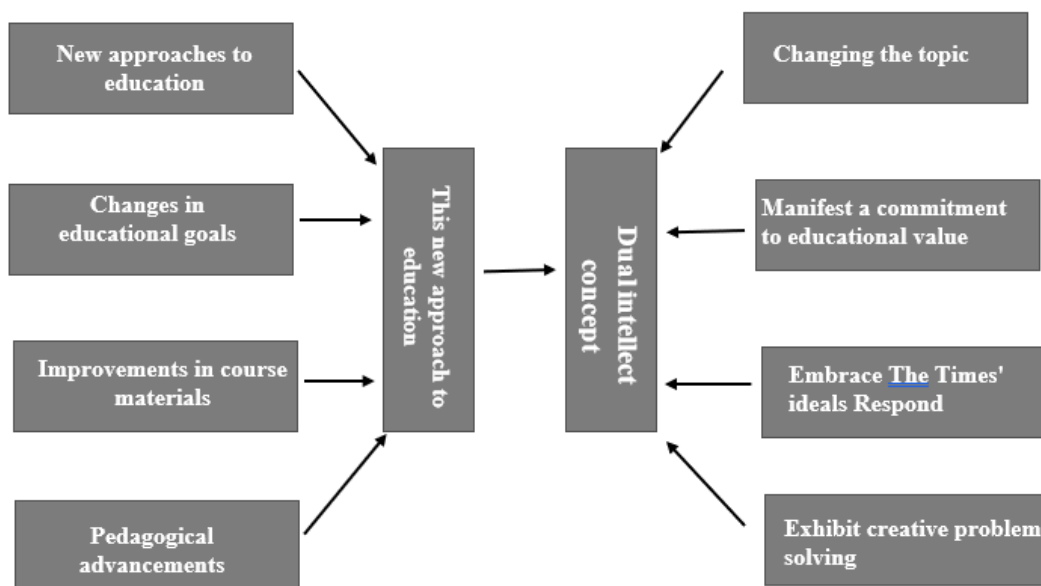


FIGURE 2: The application of the idea of several intelligences to the field of collegiate sport instruction.

4.3 Using the Theory of Multiple Intellecets to Create a New Paradigm in College Gymnastics:

The theory of multiple intelligences is often used in higher education classes as the basis for creating an all-encompassing instructional framework. This strategy places an emphasis on "observation" as an essential part of a task-based learning environment for the purpose of collecting comprehensive learning data. If teachers' pay close attention to their students' classroom performance, they may get insight into the students' development across many intelligences. With this data-driven approach, teachers may design exams and other types of assessment that reveal students' true levels of mastery. At this point, we reflect on what we've seen and provide our students with useful feedback for future progress. The three processes of thinking (cognition), seeing (observation), and understanding (interpretation) together constitute a closed cycle that supports the never-ending pursuit of excellence in education. Figure 3 illustrates this method of education, shedding light on the natural relationship and mutual support between these components and highlighting the importance of these factors in promoting students' overall growth and knowledge acquisition. Institutions of higher education may benefit from adopting this approach to teaching, which is founded on the theory of multiple intelligences, in order to better cater to their students' diverse skillsets and ways of learning.

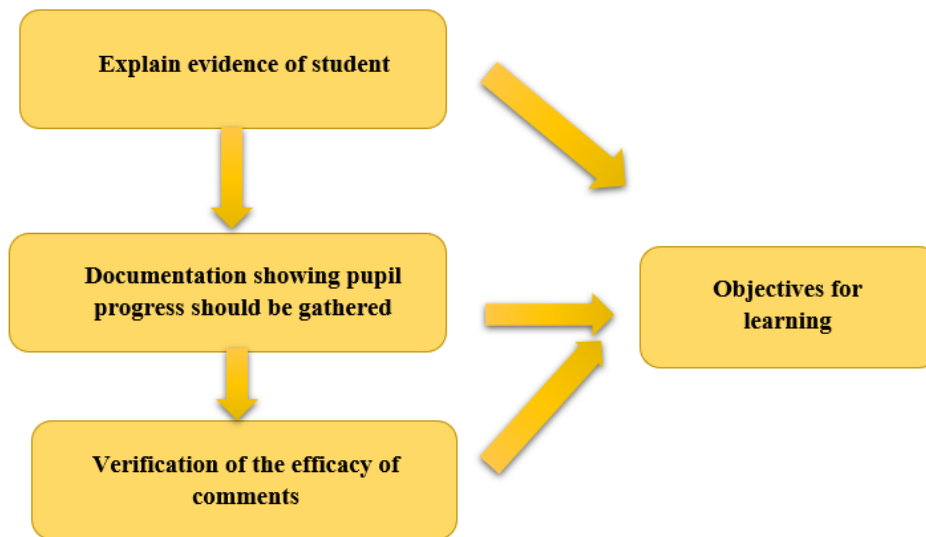


FIGURE 3: Framework for education that utilizes the concept of "multiple intelligences"

In this research, we examine how the concept of multiple intelligences may be included into the design of a collegiate (Feng, 2021) coaching curriculum. Here, we understand by "sports technology" the methodical application of players' physiologies to the execution of a broad variety of tennis talents, and by "sports skill" the acquisition of such approaches. College tennis coaches benefit greatly from using sports technology in their classrooms. Therefore, the purpose of this study is to use the concept of multiple intelligences as a lens through which to analyze the theory's role in tennis coaching, particularly as it pertains to sports technology. The magnitude of the impact was measured by comparing the technical test scores of students in the control and experimental groups. The many intelligences hypothesis is effective in enhancing the technical level of collegiate tennis training, as seen in Figure 4, where the experimental group's scores on learning technology are much higher than those of the control group. This is due to the fact that a student's individual strengths and learning styles may be emphasized via a tennis curriculum based on the principle of many intelligences. Students benefit from learning how to apply action structures, comprehend essential technical components, and make connections to their own experiences and viewpoints when they are taught using techniques that allow for their many intelligences.



Figure 4: Comparison of two undergraduate groups' technological performance in a controlled classroom setting.

The use of this method has been shown to boost students' levels of confidence, curiosity, and engagement. Tennis exercises are a fantastic tool for testing the efficacy of various instructional strategies and encouraging original thought. Teachers' daily routines take on a variety of forms as they use a wide range of strategies to meet the needs of their pupils. In order to examine the effect of multiple intelligences theory on the efficiency of college tennis training, student performance is assessed in terms of demonstration skills, explanation skills, and organization teaching. Students' classroom instruction was enhanced after being exposed to the multiple intelligences theory, as seen in Figure 5 and Table 4. Paraphrasing: This study investigates how the concept of many intelligences may be implemented into a tennis-based curriculum for use in college-level physical education courses. "Sports skill" refers to a player's command of specific techniques for executing a variety of tennis moves, while "sports technology" refers to the effective application of such techniques. The college tennis coaching community has fully incorporated sports technology into all facets of the game. The idea of multiple intelligences is used as a lens through which to examine the impact that it has had on tennis pedagogy, particularly in the area of sports technology. Significant differences were seen between the control group and the experimental group on technical tests administered to students.

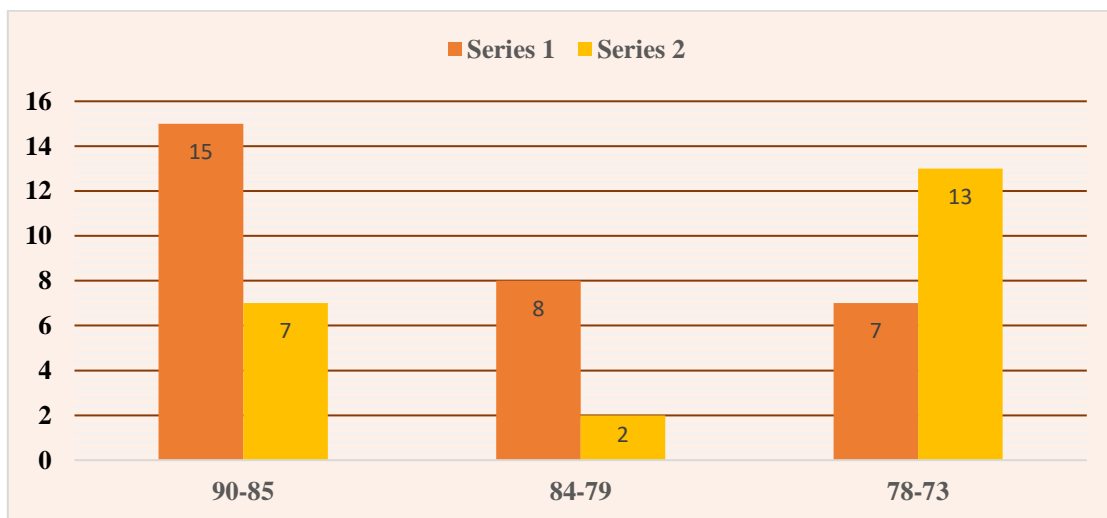


Figure 5: Pie chart showing how well kids distributed classroom practice following an instructional attempt.

This data implies that incorporating the concept of many intelligences into the training of collegiate tennis players may help them sharpen their technical abilities. This is due to the fact that recognizing each student's unique

abilities and ways of learning is highlighted by implementing the notion of multiple intelligences into tennis teaching. Teachers who are sensitive to their students' varied levels of intellect may better address their needs. This allows students to get an understanding of the activity and its requisite abilities from the ground up. Students' confidence, interest, and participation all grow as a result of this strategy. Instructional exercises should provide chances for real-world application and skill testing. As the major medium via which teaching is delivered, instructors' organizational tactics are crucial to the success of any classroom. Students' growth in three areas demonstrable competence, explanatory competence, and pedagogical organization is used to examine the usefulness of the multiple intelligences hypothesis in collegiate tennis coaching. The findings from this experiment with preservice teachers suggest that exposure to the concept of multiple intelligences improves their teaching abilities.

5. Conclusion:

In conclusion, our research shows that fuzzy mathematics has to be included in the development of a college-level physical education-based tennis technology teaching system. Educators may raise the bar for learning and student success in postsecondary PE by developing individualized lesson plans that include the theory of multiple intelligences. The use of fuzzy mathematics in collegiate tennis instruction provides a fresh perspective that accounts for students' varying levels of knowledge, experience, and enthusiasm for the sport. This approach goes beyond the conventional emphasis on theoretical understanding, allowing for a more personalized and engaging educational experience. The use of fuzzy mathematics allows the instructional system to account for the unpredictability and complexity of sports technology, practical skills, and mental abilities. This makes the method more adaptable to the requirements of tennis coaching. The results of the evaluations show that it is beneficial to include fuzzy mathematics in the teaching strategies. Students and teachers both benefit from increased communication, collaboration, and flexibility when instruction is tailored to each individual's unique set of intelligences, as proposed by the theory of multiple intelligences. Future advancements might be made by combining state-of-the-art algorithms with fuzzy mathematics to provide a more efficient and precise instructional model. In spite of the challenges posed by the time and resources required by deep learning algorithms, training and prediction times may be reduced by the use of techniques like aggregation.

Fuzzy mathematics provides a framework in which researchers may explore potential successors to CNN, such as graph convolutional networks (GCN), long-short-term memory, recurrent neural networks, and attention networks. In addition, studying how different activation functions, network depths, kernel sizes, and filter counts affect learning outcomes may provide useful insights for enhancing the proposed instructional model. By adding fuzzy mathematics into the development of a tennis technology teaching system, schools of physical education may provide students with a comprehensive and flexible technique for learning the technology behind the sport. Students' initiative, curiosity, and interest in tennis studies, as well as their overall intellectual development, are all boosted by this method. Fuzzy mathematics may aid in the study of novel pedagogical methods and the improvement of pedagogical practices in the field of college physical education.

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