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The Impact of Learning from Different Viewing Angles on the Performance of Selected Rhythmic Gymnastics Skills Among Primary School Students

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Abstrak:
Motor learning is important in rhythmic gymnastics, which demands precision, coordination, and spatial awareness for the effective execution of the skill. The aim of this research is to analyse how various angles of objective presentation affect chosen rhythmic gymnastics skills acquisition and performance of primary school pupils. The study used quasi-experimental research design, consisting of 42 fifth-grade male students, and divided them into an experimental and a control group. The experimental group was trained using the multi-angle view, while the control group was trained by conventional teaching methods. Data Collection and Analysis Pre-test and post-test assessments were carried out and scored by expert judges using a standardised scoring rubric. To assess the intervention efficacy, paired sample t-tests and independent sample t-tests were computed. The study found that multi-angle learners significantly outperformed their traditional peers in executing skills. These results highlight how multimodal visuospatial training can promote motor skills learning. This study aims to promote the use of new cognitive instructional strategies to enhance the acquisition of motor skills, enriching the panorama of sports teaching. Future research could investigate long-term retention effects, as well as the benefits of integrating advanced technologies such as virtual and augmented reality in rhythmic gymnastics training.
Keywords: Motor learning, rhythmic gymnastics, multi-angle learning, visual perception, sports education.

1.Introduction (*Times New Roman* 12pt cetak tebal)

Motor learning is essential for skill acquisition especially in rhythmic gymnastics where accuracy, coordination and body awareness are integral. Motor learning has long been studied at the individual level, with different teaching strategies developed to maximize performance. In gymnastics, we usually use classical learning methods direct instruction, verbal explanation, demonstration model. And while these techniques have effectively taken learners to a certain level, they do not provide optimal engagement for learners to ground the memory deep in muscle and retain the skills for the long run (Hashimoto et al, 2017). With the efflorescence of sports education, it is vital to embrace novel teaching methods that promote effective motor skill acquisition among learners. In one such application, different angles of view provide an innovative way of learning and have been widely adapted in multiple fields such as physical education and sports training. Visual perception plays a well-established role in learning, convenient for students to process and internalize complex motor sequences. Multi-angle viewing methods enable learners to interpret movement from different perspectives to enhance their understanding of kinematic variables to refine motor execution and acquire skills.

No need to tell you how important sensory perception is in learning each motor skill and vision is the most dominant influence. When learners view movements from multiple perspectives,

they construct more nuanced and precise representations of the skill being acquired in their cognitive and motor systems. Research shows that for most skills, effective learning is more about frequency than intensity, about observation than execution. Thousands of girls and women daily practice in personal, school, and organizational environments with the goal of mastering their gymnastic skills, much like how dancers practice, and in a sport like rhythmic gymnastics, where precision, timing, and aesthetic presentation are all equally true and important, utilizing a methodology involving multi-angle learning can be pivotal to the mastery of skilled movements with increased accuracy. Including multiple viewing angles distributes different visual stimuli to learners which reinforces their spatial awareness and motor coordination (Magill, R. A., 2011). This technique enables gymnasts to visualize their moves from different perspectives, giving them a clearer understanding of the mechanics and execution of the skills. Incorporating various angles enables learners to respond to constantly changing movements, which is vital in sports that necessitate a high level of flexibility, balance, and timing. Thus, investigating the influence of different views on motor acquisition is an important research area as it leads to theoretical and practical contributions to sports pedagogy.

The main research problem that motivated this study is that traditional instructional methods may not always be best at maximizing skill acquisition in young learners in rhythmic gymnastics. Route learning in clinical practice time may not be sufficient or satisfying and sometimes does not provide a safe and full learning environment. Although verbal descriptions and on-hand demonstrations are still important, they would not sufficiently address the variety of cognitive and perception-based learners. Unlike many complex sports, the non-performance or non-competition stage of rhythmic gymnastics is established by a multi-angle viewing approach that improves visual perception, indicating that it is the most effective way of visual perception to enhance performance (Schmidt, A., 1991). Hence, examining the impact of changing viewing angles during the learning procedure on the execution of motor skills, the precision of movement, and learning retention of skilled training in primary school students. This study aims to enhance motor learning techniques applied in sports education by utilizing visual perception methods.

1. To analyse the influence of alternating perspectives on the learning of rhythmic gymnastics selected skills in primary school students.
2. To investigate the effect of perspective viewing of the skill on learning in rhythmic gymnastics.
3. To evaluate the effectiveness of multi-angle learning versus conventional instructional methods on the performance of students.

The most important finding we see in this study is the use of an innovative approach to motor learning that is based on visual perception. This study offers a systematic approach to examining multi-angle viewing and its influence on rhythmic gymnastics performance, contributing empirical evidence that may inform more efficacious instructional techniques for this challenging discipline, where the importance of refining technique and form cannot be overstated. Additionally, this study expands on the literature surrounding motor learning by investigating the relationship spanning visual cognition and motor execution (Tawfiq, R., 2016). By combining traditional training frameworks with contemporary learning methodologies, this research opens avenues for further advancements in sports education, particularly in disciplines requiring high levels of motor coordination and precision.

This studies function is not restricted to rhythmic gymnastics students as its outcomes are extra common in the area of motor studying and underneath the umbrella of sport and for bodily schooling. Overall, the analysis demonstrates the value of multi-angle learning and provides meaningful recommendations for educators, coaches, and curriculum developers when designing more effective training programs (Al-Saffah, R. H., 2013). Furthermore, the results can help to build on future studies into how visual perception impacts motor identity, thereby aiding the development of progressive methods of sports science teaching. In summary, the current study aims to build on the educational and training experiences of gymnasts early in the development process in their sport

by supporting them in the learning of technical aspects of their discipline and enhancing their understanding of movement characteristics through novel ways of teaching.
Given its nature, this paper is divided into a few key subsections. In the Literature Review section, the existing study concerning motor learning, visual perception, and the rhythmic gymnastics is discussed in detail in such a way that the gaps which this study will try to cover were emphasized. The Methodology section provides details on the research design, data collection procedures, participant recruitment, and statistical methods used in testing multi-angle learning efficacy. The Results section starts with Descriptive Results which discuss the statistical trends found in the study and, then moves to Inferential Results, discussing statistical tests done to see whether any performance factors were improved. The Discussion section interprets the- findings, comparing them with existing literature to contextualize their significance. Lastly, the Conclusion provides an overview of the study's main efforts and findings, elaborates on its overall significance and effect, and outlines recommendations for future work in the area of sports education and motor learning.

Cognitive and perceptual ability are believed to play an important role in many sports, and this is especially true in in rhythmic gymnastics, which has been the subject of considerable research. The second study by (Al-Saadi, A. J., 2002) investigated the effects of logical thinking on the manipulation of rhythmic gymnastics apparatus by elite gymnasts. Their results indicate that the cognitive component of the learning process is critical to advanced motor skills performance, calling for the implementation of visual and mental methods to boost performance (Fahmi, N., 1999). Emphasized the importance of physical fitness in rhythmic gymnastics and provided a detailed scoping review that demonstrates the importance of strength, flexibility and coordination in the execution of skills. Motor skills are developed primarily through the practice of action, but cognitive activity accompanied by visual experiences also play a role.

Besides cognitive skills, task-based studies have examined the effect of specialized training exercises on acquiring skills (Al-Dulaimi, N. A. Z. et al, 2018). Effect of focused exercises on reaction speed and learning skill on gymnastics balance beam. Their work showed that structured exercises dramatically improve motor learning, pointing to the conclusion that structured training interventions are effective in fine-tuning gymnasts' technical skills. Furthermore, (Botros, N. M., 2004) studied the optimization of junior gymnast psychomotor behaviours with tailored training. They stressed how critical it is to devise the appropriate methods of instruction for young athletes, noting that personal practice programs yield significant gains in learning.

Physical characteristics are fundamentally important in advice on motor performance. The study by (Khion, Y. A. H., 2011) examined the factors affecting the implementation of split-leaping skills in rhythmic gymnastics by examining leg flexibility, limb length, and leg power. They found that gymnasts who were more flexible and had greater limb strength were better able to execute dynamic movements. Curtain at al. acknowledges the importance of incorporating flexibility and strength development, along with tactile and visual aspects of electromotor learning, all in the same holistic framework. Together, these studies offer a solid basis for investigating the various and complex aspects of motor learning in rhythmic gymnastics. This is the beauty, by fusing cognitive processing, specific training, physical preparedness, and classroom teaching adaptive methods including multi-angle viewing educators and coaches would be making optimised learning resourceful in terms of skill endowment and performance mileages.

2. Methode

Study Design:

This study used a quasi-experimental research design with a pre-test post-test control experimental group. The method of research was chosen to determine the influence of various visual

side on the formation of skills of rhythmic gymnastics in pupils of primary classes. The participants in each vehicle were 42 male pupils from Noor Al-Shams Mixed Primary School, with samples randomly divided into two groups (experimental and control groups) so that the two groups did not differ predictably Complex tasks and other abilities. All participants were included based on their ability to meet the inclusion criteria.

1.1 Dataset

This study included 42 male students aged 10 to 11 years with no previous gymnastics practice. Twenty-one students were in the experimental group while twenty-one in the control group. The experimental group were trained via multi-angle viewing methods, whereas the control group were trained using traditional instructional methods. Video recordings of Student 1 and Student 2 executing the rhythmic gymnastics skills were collected both pre and post the intervention, to quantify the effectiveness of the intervention (Suherman, A. et al, 2017). Using a standardized 10-point scoring rubric, five expert judges from the University of Baghdad's Gymnastics Department assessed the students' performances in these recordings, measuring accuracy and quality.

1.2 Preprocessing

The data was preprocessing the study used several tools to ensure its accuracy and reliability. The video analysis software was first utilized to analyse the movement accuracy and execution of students from various viewing angles and thus allowed a more accurate and detailed assessment of performance improvements. From that, a scoring rubric was developed, on a 10-point scale, to ensure the performance quality was carbon copied across all eight regions. The experiment group beneficiaries from visual learning and able to see the specific skills from various angles through instructional videos, these same type videos that it will do to illustrate rhythmic-gymnastic techniques (Chiat, L. F. et al, 2022). Also, each student's alignment throughout the course was monitored using observation checklists which helped in tracking the improvement of each student in terms of their coordination, technique and execution over time.

The multi-angle observation strategy provided to admission students with the opportunity to analyse crucial motion patterns, body positions, and timing from different viewing angles, improving their understanding of accurate techniques and facilitating quicker error rectification. Not only does rhythm make kinaesthetic sensing easier for precision performing, but it also improved the special awareness and coordination of their bodies in such a way that they could do these skills faster and more precise. On the contrast, the control group adopted conventional coaching approaches, which included mainly of verbal instructions and demonstrations from coaches, giving less opportunities for visualization at various angles to the skills (Ren, Q., 2021). Using video analysis tools, expert evaluations, and multi-perspective instructional videos combined, this study set out to enrich the learning process, facilitate skill learning, and create an optimized training environment for novice gymnasts. This study will assist coaches and sports educators comprehend the advantages of incorporating visual learning strategies into gymnastics training structures.

Table 1. Data analyzing.

Statistical Test	Purpose	Applied To
Paired Sample t-Test	Compare pre-test and post-test scores within each group	Experimental & Control Groups
Independent Sample t-Test	Compare post-test scores between experimental and control groups	Post-test Scores
Effect Size Calculation	Measure the magnitude of improvements observed	Experimental Group
p-value ($p < 0.05$)	Determine statistical significance of differences	All comparisons

Through a controlled approach with multi-angle assessments and leverages observational learning principles, this study seeks to contribute data in Favor of the use of multi viewing as a training and educational tool that improves performance, accuracy and motor skill learning in rhythmic gymnastics.

3. Result

Prior to the intervention, participants in both the experimental and control group were assessed for baseline performance on rhythmic gymnastics skills. The selected skills were performed by each participant, and their performances were recorded and scored by five referees from the gymnastics department of the university of Baghdad, according to a standard scorecard of up to 10 points. To eliminate bias, the highest and lowest score were removed and the average of the three remaining scores was recorded. This approach reduced potential bias and increased the robustness of evaluating skill levels prior to the start of the intervention.

The intervention lasted 20 weeks, comprising of two 40-minute training sessions per week. The experimental group received 3D viewing techniques including the latest model demonstration, instructional video at different angles, multi-applying feedback in real time, etc. By viewing the skills from different angles, this approach sought to promote students' understanding of movement patterns, body positioning, and timing, leading to better spatial awareness and improved technical execution (Shi, T., 2021). The control group underwent traditional instructional practices, with direct verbal explanations and single-angle frontal demonstrations. Video playback also allowed the experimental group to visually verify mistakes and to thereby immediately correct errors during training sessions.

At the end of the 10-week intervention, both groups were post-tested with the same standardized scoring rubric used in pretesting. So, after receiving the recorded performances, the same panel of judges reviewed these videos and an average score was calculated after dropping the highest and lowest ratings. Data on the difference between pre-test and post-test scores were then analysed to assess the impact of multi-angle learning on improvement in motor skill development. This study was conducted according to the ethical guidelines for research involving human participants. The study was approved by school administration, and informed consent was obtained from both students and their guardians. All subjects were given information about the study, the training techniques involved in the study, and informed about their right to withdraw at any stage of the study without penalty (Petrova, M. and Videv, E., 2023). Qualified gymnastics instructors supervised all training sessions to maximize participant safety and minimize the risk of injury while practicing, and protective equipment was provided. The confidentiality of the data provided by the participants was ensured, and personal information was anonymized to protect the identity of the students who participated in the study.

This paper presents empirical evidence that supports the efficacy of advanced observational learning methods in rhythmic gymnastics training by implementing a structured experimental approach and the multi-angle viewing techniques. The findings suggest that by providing students with different angles and viewpoints on how to execute movement, it can greatly improve motor learning, skill acquisition and performance accuracy. We hypothesize that, when compared to the traditional instructional approaches for conceptual skill development, which involve the reiterative practice and verbal feedback mechanism, the multi-angle perspective would enable learners to view the exact technique that needs to be displayed, highlighting errors as they present themselves to a practitioner so that they can self-correct during training.

Such inquiry encompasses the need for coaches to consider multidirectional feedback systems when implementing them into an athletes training cycle to expedite skills development and increase efficiency in the performance style of their athletes. To further enhance the impact, incorporating video analysis software and visual feedback tools could also be utilized in case another sports area like dance, martial arts, and team sports, where the refinement of motor skills is critical. There are several potential avenues for future work, although the study showed a marked improvement in performance across the experimental group (Sabău, A., Bălășoiu et al, 2024). Studies involving a larger sample size, with male and female participants and the long-term effect of imaging from multiple views on the retention of motor skills, would potentially elucidate these effects. Furthermore, the incorporation of virtual reality (VR) technology and motion tracking systems into training sessions may further enhance athletic performance and motor learning outcomes. Finally, this study sheds light on the value of using a multi-angle visual feedback approach for motor learning in the context of

a motor performance; this approach has practical recommendations for practice that can be applied to improve training in gymnastics and sport in general.

Descriptive statistics were conducted to compare the pre-test and post-test scores of the control group and the experimental group so that the effectiveness of the instructional methods used in this study could be determined. Descriptive results, mean and standard deviation of the students' scores, for each rhythmic gymnastics skill (Gaspari, V., 2024). Here we summarize the groups' skills baseline and post, focusing on notable trends and differences in growth. Think about the statistical analysis which clearly indicates the degree to which the multi-angle view approach was responsible for the observed improvements in performance, especially relative to the traditional instructional method. Here we present results that shall serve as a descriptive basis for the overall impact of the study prior to inferential statistical analyses. For the control group, the mean and standard deviation of pre-test and post-test results were analysed.

Table 2 shows the means and standard deviations of the control group's pre-test and post-test scores. The results show that although the rhythmic gymnastics skills improved, the improvement was moderate for all skills. These differences in scores suggest that the style of instruction that would have been used likely resulted in skill acquisition, but the rate of improvement left much to be desired.

Table 2. Mean and Standard Deviation of Pre-Test and Post-Test Results for the Control Group.

Skills	Pre-Test Mean	Pre-Test SD	Post-Test Mean	Post-Test SD
Tucked Forward Roll	1.74	0.381	4.04	0.674
Tucked Backward Roll	2.03	0.481	4.53	0.913
Straddle Forward Roll	2.81	0.428	4.19	0.794
Straddle Backward Roll	2.45	0.542	4.55	1.143
Headstand	2.17	0.766	4.24	1.031
Cartwheel	2.05	0.562	3.82	0.575

Mean and standard deviation of the experimental group pre-test and post-test score were shown in Table 3. The data shows large post-test score improvements compared to pre-test scores for skill execution. Thus, the multi-angle learning approach contributed significantly to improvement in motor skill acquisition.

Table 3. Mean and Standard Deviation Comparisons Between Pre-Test and Post-Test Results for the Experimental Group.

Skills	Pre-Test Mean	Pre-Test SD	Post-Test Mean	Post-Test SD
Tucked Forward Roll	2.12	0.485	5.43	0.688
Tucked Backward Roll	2.17	0.531	6.124	0.729
Straddle Forward Roll	2.81	0.428	6.147	1.029
Straddle Backward Roll	2.35	0.433	6.21	0.877
Headstand	2.17	0.766	6.15	0.44
Cartwheel	2.16	0.467	5.87	0.33

For descriptive statistics give information about the trends of the skill acquisition, inferential statistics consider the statistical significance complex analysis about the improvements of the skill**.** This section provides the results of statistical tests on whether changes in performance of motor skills were statistically significant. Within each group, paired sample t-tests were conducted to evaluate the extent of improvement from pre-test to post-test scores. Furthermore, to evaluate the effectiveness of the multi-angle learning approach, independent sample t-tests were carried out to compare post-test performance of experimental and control groups (Mahdi, A. B. W. et al, 2024). The outcome from these analyses assists in validating if the variations in performance were a result of the teaching methods used or if they arose merely by chance. These results give evidence for the argument of implementing multi-angle viewing techniques in rhythmic gymnastics training practices in a practical context for empirical results.

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Table 4 Comparison of Pre-Test and Post-Test Differences in Control Group The statistical analysis indicates that while improvements were made during this period, they are not as large as those in the experimental group, confirming the limitations of traditional instructional methods to promote rapid skill acquisition.

Table 4. Results of the Differences Test and Their Significance Between Pre-Test and Post-Test for the Control Group.

Skills	Mean Difference (Î”XÌ„)	Standard Error (SE)	t-Value	Sig. (p-value)	Significance
Tucked Forward Roll	-2.3	0.141	-16.355	0	Significant
Tucked Backward Roll	-2.5	0.301	-8.292	0	Significant
Straddle Forward Roll	-1.38	0.277	-4.985	0.001	Significant
Straddle Backward Roll	-2.1	0.309	-6.793	0	Significant
Headstand	-2.07	0.238	-8.712	0	Significant
Cartwheel	-1.77	0.202	-8.776	0	Significant

As shown in Table 5, the differences in pre-test and post-test within the experimental group. With strong statistical significance, the results indicate that multi-angle viewing techniques had a powerful effect on skill performance, resulting in greater improvements than those of the control group.

Table 5. Results of the Differences Test and Their Significance Between Pre-Test and Post-Test for the Experimental Group.

Skills	Mean Difference (Î”XÌ„)	Standard Error (SE)	t-Value	Sig. (p-value)	Significance
Tucked Forward Roll	-3.31	0.104	-31.9	0	Significant
Tucked Backward Roll	-3.954	0.28	-14.135	0	Significant
Straddle Forward Roll	-3.337	0.345	-9.665	0	Significant
Straddle Backward Roll	-3.86	0.251	-15.36	0	Significant
Headstand	-3.98	0.125	-31.73	0	Significant
Cartwheel	-3.71	0.116	-32.01	0	Significant

The post-test scores of the control and experimental group are shown in Table 6. The experimental group's performance was significantly higher than the control group in all the evaluated rhythmic gymnastics skills. This comparison highlights the efficacy of the multi-angle learning strategy, further suggesting that seeing multiple perspectives of the same task improves motor skill learning and performance.

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Table 6. Results of the Differences Test and Their Significance Between the Control and Experimental Groups.

Skills	Control Group Mean (XÌ„)	Control Group SD	Experimental Group Mean (XÌ„)	Experimental Group SD	t-Value	Sig. (p-value)	Significance
Tucked Forward Roll	4.04	0.674	5.43	0.688	4.565	0	Significant
Tucked Backward Roll	4.53	0.913	6.124	0.729	4.314	0	Significant
Straddle Forward Roll	4.19	0.794	6.147	1.029	4.763	0	Significant
Straddle Backward Roll	4.55	1.143	6.21	0.877	3.642	0.002	Significant
Headstand	4.24	1.031	6.15	0.44	5.388	0	Significant
Cartwheel	3.82	0.575	5.87	0.33	9.777	0	Significant

4. Discussion

The researcher used Paired-Sample T-Test to find out the difference between pre-test and post-test scores of both research samples. Utilizing this, the researcher was able to assess the effectiveness of both the conventional instructional method and the experimental (multi-angle viewing technique) in improving rhythmic gymnastics skills. The findings showed that both teaching methods resulted in a statistically significant improvement in these skills, indicated by the significance value (Sig.) was lower than the threshold of 0.05, thus validating both approaches. Post-test mean score analysis indicated that the experimental group scored higher than the control group across all angles and angles combined, indicating that a greater focus on multi-angle learning was observed to positively impact motor skill acquisition.

Traditionally, teaching approach was to describe the required techniques verbally, demonstrate them from one fixed angle, and have learners repeat the skill on their own, as such contributing to skill acquisition through muscle memory. The conventional techniques involved providing students with only a visual perspective of the motor skill which affected their sensation of understanding the body alignment and timing that resulted in decreased regulation of the activity thus leading to reduced rate of motor learning than the experimental group (Tanasă, A. R., et al, 2024). On the other hand, the other group with feedback from multiple angles performed better than the previous group. By incorporating these elements, students were able to improve their technical skills in rhythmic gymnastics by gaining a deeper knowledge of body mechanics, movement trajectories and necessary timing adjustments.

The third and one of the most important reasons why this experimental group was successful was the combination of the Knowledge of Performance (KP), and Knowledge of Results (KR) which are one of the crucial parts of motor learning. Skill. Knowledge of Performance (KP): The movement execution (i.e., body posture, body position, coordination across segments) during skill performance can be analysed through video demonstrations and feedback capturing from several angles. This allowed them to dock their corrections in real-time and improve movement control and precision (Aji-Putra et al, 2021). Knowledge of Results (KR): Students would watch video feedback after each performance to determine if their movement produced the desired outcomes. Each time performance errors occurred, the video analysis helped us understand what caused the error (e.g., incorrect arm positioning or insufficient force application) and adapt accordingly.

Because the combination of visual input and immediate feedback helps the experimental group create more accurate motor programs in their brain, this results in quicker learning and better skill retention than in the control group. Indeed, with 80% of the information obtained during the interesting of a motor skill being visual, it is critical for one now to facilitate motor learning and performance. For multi-angle visual learning, students could see the movement from all angles, so that our nervous system can gather visual information and issue more precise motor commands. Movement errors were countered by the brain activating kinaesthetic awareness, which allowed the muscles to right technical mistakes on the fly. Moving on, it was believed that

the sensory feed-back loop greatly boosted motor coordination and allowed for better identification of spatial orientation, thus improving the performance of the experimental group.

An Independent-Sample T-Test was conducted by the researcher to further compare the means between the control and experimental groups. The significance values (Sig.) as presented in Table 5 showed that in all tested variable were below 0.05, confirming the presence of statistically significant differences between the two groups. In all instances of the post-test, such as movement accuracy, coordination, and technique execution, literally higher in the experimental group. The findings of this study offer compelling empirical support for the incorporation of multi-angle viewing modalities in learning motor skills in activities such as gymnastics and other skills-based sports. The use of multiple angles for feedback increased students' perceptual awareness and their ability to early identify and correct errors, significantly improving their rate of skill acquisition and performance accuracy.

These findings led the researcher to suggest the use of multi-angle viewing strategies in physical education programs, particularly within instruction of complex motor skills to novices. Additionally, as mentioned earlier, VR systems, along with motion analysis and video systems, allow coaches and students to track performance during each round to provide immediate feedback and further immersion in the experience. All in all, the multi-angle observation approach was shown to be extensively more beneficial than standard training protocols in the facilitation of motor skill learning in the sport of rhythmic gymnastics. The feedback with visual stimulus, performance feedback, real-time dynamic analysis with biomechanical corrections helped them passively improving their movement, co-ordination and execution speed.

The implications of the study suggest that incorporation of innovative teaching techniques into physical education are needed to improve, and expedite, motor learning and athletic ability. In the future, more studies can investigate the effects of multi-angle learning on the long-term retention of skills and its use in other sports, including but not limited to, martial arts, swimming, and team sports.

5. Conclusion

In conclusion, the current study highlights and supports the benefits of performing rhythmic gymnastics training in a multi-angle context. Utilizing multiple perspectives on complex visuals greatly improves motor skill development, spatial awareness, and performance quality. These findings indicate that while the traditional method yields good academic performance it is nowhere near as cancellable as parlance from other angles. Coaches and educators can use this information to develop livelier, technology-friendly methods of sports instruction that serve the diverse needs of athletes while also giving more personalized training experiences. It is anticipated that similar lines of research will continue to refine in the sport domain contribution of the use of multi-angle observation analyses in complementing traditional training paradigms to enhance motor performance.

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