

THE EFFECT OF THE INSIDE AND OUTSIDE THE CIRCLE STRATEGY ON PHYSICAL SELF AND THE LEARNING OF OVERHEAD PASSING AND DRIBBLING SKILLS IN HANDBALL FOR STUDENTS

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Abstract

Technical qualities as well as a sound body awareness are important for learning handball successfully. However, the common instructional method has tended to concentrate students' performance results rather than their self-perception and learning engagement. This study thus sought to alleviate this lack by focusing on the impacts of Inside-and-Outside-the-Circle Strategy over students' physical self-concept and their learning of overhead pass as well as dribbling skills in handball. The research used an experimental approach to 60, randomly sampled, 17-year-old high-school students who were assigned with a pretreatment posttest control group design. Inside-and-Outside-the-Circle Strategy on experimentation, and the common teaching method was used in the control group. These students (pre and post-tested) data analysis was done by SPSS to determine the significant at $p \leq 0.05$ for each variable. Participants in either condition showed positive outcomes, but those of the intervention group gained more (statistically significant improvement) in all variables. These findings indicate that the Inside and Outside the Circle Strategy places physical self and motor skill learning more effectively than does traditional approach. This method of training also provides a new way of encouraging self-efficacy and motivational involvement in handball learning. The findings add to physical education pedagogy by providing evidence that engaging students in movement-based interactive activities can be used as a tool for enhancing psychomotor and affective learning.

Keywords: circle strategy; physical self; overhead passing; dribbling skills; handball

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INTRODUCTION

A fast-paced, high-stakes team game, handball demands that its practitioners switch between offense and defense all the time. In other words, players should have strong physical capability in the sport form but also have high technical skills and tactical thinking (Haniyyah et al., 2025; Hussein, 2025; Yogi et al., 2023). Indeed, players have to execute fundamental skills such as passing, dribbling and shooting as well as motor tasks like feinting performing under optimal balance and coordination capacities when things get difficult (Fransen et al., 2020; Gromeier et al., 2022). Previous research has highlighted that achievement in handball does not depend only on physical characteristics, but also on psychic and emotional levels conditions; both of them effect athletes' ability to adjust to complicated or dynamic game tasks (Ardian et al., 2024; Yanti et al., 2024). As a result, it is relatively difficult to synchronously promote the development of technology and psychology in education and sports training schools.

It is obvious that handball technical skills are of prime concern, but the teaching process should not rely on traditional methodologies which centred the lessons around the teacher and students were to do almost all things repeatedly without movement, improvisation or creativity from them (Mahmoud Sha'lan, 2022). This strategy could render students less motivated, creative and confident about performing motor tasks. Forward-looking educational and teaching practices underline the need for more interactive, learner-centered narration of education integrating cognitive, emotional as well as physical domains of experience (Arsil et al., 2024; Mahmoud Sha'lan, 2022). These techniques allow students to learn from doing live and direct experience, getting feedback, as well as managing their time (Harianto et al., 2023; Mariati et al. oldemorttikrites24; Yusroni, 2024). In this educational transition, methods including controlled diversity work well if there is high repetition and peer support, resulting in improvement in learning per se and also in psychological development.

The Inside-and-Outside-the-Circle Strategy: A New Model for Teaching Paired with Physical Education Cite This Article A new teaching model, the Inside-and-Outside-the-Circle Strategy develops increased motor learning and active engagement within physical education classes (Calkins 2017). In this strategy, students will be asked to exchange their roles and position inside and out the circle. This keeps everyone loose, affords numerous repeats under a variety of circumstances, and fosters socializing among racers. This flexible organization facilitates motor adaptation Read More and better understand of movements patterns (Budi, Rakies&Karmilasari2018 (Budi et al., 2024). Confidence has shown to be developed through cooperative or competitive activities (Kusumadinata & Rukmono Kusumaningrum, 3513). Empirical study in physical education demonstrates that the rotating and interactive strategies bring about higher intrinsic motivation, lower performance anxiety, and better skill retention than traditional exercises (Mashud et al., 2023; Tantri et al., 2023).

The overhand pass and dribble are key elements of handball technique that allow teams to play together (Fleisig, 2010). Finally, crisp overhead passing speeds up the ball's movement, keeps the offense connected and creates cracks in the defense. Successful

dribbling allows players to maintain possession of the ball and proceed past defenders; also, it creates scoring opportunities (Hameed & Muhsin, 2025). Indeed, in handball game performance, the mastering of these two skills are shown to be Hugely associated with Total Performance Efficacy and Tactical Success (Jarraya et al., 2014; Merajuddin Faridi, 2022). But many high school kids don't have them, because they've gotten so little practice and feedback in conventional schooling. This observation illustrates just how critical it is for schools to devise a way to teach that is built on real-world experience and mental preparation when learning new skills.

A person's attitude about her physical abilities and comfort with her body is key to success in learning sports. A positive body image enables students to persevere, experience less fear of failure and are more intrinsically motivated (Fransen et al., 2020; Heppe & Zentgraf, 2019). As research in sports psychology finds, autonomy-promoting, socially involving and positive performance experiences move students' body self-perception in the right direction (Gromeier et al., 2017). The Inside-and-Outside-the-Circle Strategy Just as students work together outside the circle, the inside-outside-the-circle strategy can create a safe space both for skill building and self-concept enhancement in that all performance can be focused on.

Practically speaking, initial findings in the classroom demonstrated that students had poor abilities to perform passes above their heads and dribbling whilst playing school handball. In the second, add some students who lacked enough control, coordination, accuracy and other skills to make the team ineffective and less fun to play for kids. These problems appear to have been caused by the fact that students usually repeat those teacher-led drills, and they lack variety and do not allow for differentiation of learning styles. Thus, there is a clear need to investigate other pedagogical methods such as student active engagement (practice diversity and cognitive engagement) in order to alleviate such educational outcomes (Larsen et al., 2021).

The novelty of the present study is that by utilizing active learning theory, it applies the Inside-and-Outside-the-Circle Strategy to enhance handball skills for people. By this, you both take a technical and psychological factor into account. Prior research has focused on discrete teaching methods or components of the skills, however, minimal research has investigated how such strategies impact students' physical self-concept and motor skill learning concepts in handball (Juliantine & Setiawan, 2022; Zourbanos et al., 2013). The present study provides a novel perspective to the field of physical education pedagogy by considering both attributes in an experimental design. It also features ways teachers and coaches can implement contemporary, interactive teaching approaches that will help students perform better, enjoy themselves doing so, and believe in themselves.

The purpose of this study is to examine the effects of IOTCS toward physical self-concept and the acquisition in overhead passing and dribbling skills in high school students. More specifically, it will analyze the differences in performance of experimental and control groups at pre- and post-tests, as well as compare the effectiveness of this approach with traditional teaching. The anticipated results seek to serve as a scientific foundation in the

integration of guidance involving active learning methods within handball training and to reinforce the theoretical interconnection between skill development and self-concept improvement in youth sports pedagogy.

METHOD

Research Methodology

The researcher has adopted the experimental method as it is well suited for the nature of the problem under investigation and has used two-equivalent-groups design. This type of design is noted for its ability to control variables and obtaining equivalence between groups. The experiment is regarded as one of the most significant for scientific research to test hypotheses.

Participant

Description the definition of the study population is one of the most important methodological issues in a scientific investigation as part of accepting to the extent that it is statistically possible, an adequate sample, and doing so in such a way that makes it clear how closely the features and scientific control related to our research problem allow us reaching with accuracy towards its purpose. The study population comprised of Grade (12) science students at Al-Riyada High School for Outstanding Students under the supervision of Education Directorate in Wasit Governorate for academic year 2023/2024 which ammunition to (101) students divided into 3 classes (A, B, C). In order to satisfy the scientific needs of the research, two classes (B and C) were selected as research sample based on a simple random sampling method (lottery technique), with 66 students chosen (65% of the population). After elimination of (6) students for administrative or procedural reasons, the total sample became (60) students; (30) in each class.

According to the experimental design, the sample was divided into two groups: an experimental group (Class B) and a control group (Class C). The experimental group underwent an educational program using the Inside-and-Outside-the-Circle strategy, which included the development of physical self-concept in addition to teaching the overhead passing and dribbling skills in handball. In contrast, the control group received the same skills program but through the standard ministry curriculum.

Class A, comprising (35) students, was used to select a pilot sample of (15) students for the purpose of conducting a preliminary trial, which aimed to verify the validity of the tools, procedures, and the assisting team before the actual implementation of the main experiment.

Table 1. Homogeneity of the Research Sample Individuals

No.	Variables	Unit of Measurement	Mean (\bar{X})	Median	Standard Deviation (SD)	Skewness
1	Age	Years	17.4	17	0.49	0.32
2	Height	cm	172.6	173	5.3	-0.15
3	Weight	kg	66.8	67	5.9	0.10

Table 2. Shows That The Skewness Values Ranged Between ± 1

No.	Variables	Measurement	Control Group		Experimental Group		t-value	Significance Level	Statistical Significance
			M	SD	M	SD			
1	Physical Self	Score	32.674	6.586	31.569	5.970	0.876	0.157	Not Significant
2	Overhead Passing	Score	3.496	0.782	3.156	0.745	0.597	0.927	Not Significant
3	Dribbling Skills	Score	11.796	3.597	12.047	2.483	0.486	0.190	Not Significant

The table (2) shows that, due to the purposive selection and to ensure that all participants of the sample started from the same baseline, the researcher conducted an equivalence test between the two research groups in the pre-tests of the study variables. The results indicated no significant differences, which suggests that any variations are minor and do not affect the outcomes of the two groups.

Research Tools and Equipment

Resources: These included (Arabic and foreign scientific references, the World Wide Web (Internet), expert and specialist opinion survey forms, the measurement scale form, and data collection and extraction forms). **Tools and Equipment:** These included (a DELL laptop, 6 handballs, a 3-meter measuring tape, a whistle, an electronic stopwatch, chalk, colored adhesive tape, and markers).

Identification of Research Variables

Every sport or physical activity possesses unique characteristics that distinguish it from others, based on the physical, motor, psychological, and functional abilities it requires, in addition to bodily measurements. Each sport has its own priorities and requirements according to its nature. Handball, as a competitive team sport, requires a diverse set of high-level physical and motor abilities, enabling athletes to achieve optimal performance.

Determination of the Physical Self-Concept Scale

Those are a Psychological tool and technique known as Physical Self-Concept Scale introduced by Muhammad Hasan Alawi, Timur Ahmad Raghieb and Issam Al-Hadali which is used to measure physical attributes of individuals through assessing his or her perception about its strengths and characteristics including weaknesses that personal level to cope with such skills. The researcher based on the version done by Sarab Shaker Suhail (2006).(4) and used it in Iraqi context after revising it to be suitable for students environment in Iraq, and modifying its items as reliant on cultural & physical attribute of Iraqi student.

The scale consists of several domains covering fundamental physical attributes, distributed as follows:

1. A group of traits including four items for each of speed, agility, and power distinguished by speed.
2. A group of traits including three items for each of strength endurance and cardiovascular endurance.
3. A group of abilities represented by two items for each of flexibility, balance, and reaction speed.
4. Traits represented by a single item, namely muscular strength and movement speed.

Thus, the scale comprises 26 items, with responses given on a five-point Likert scale (Never, Rarely, Sometimes, Often, Always), suitable for both genders from age 15 onward of the 26 items, 15 are positively worded and 11 are negatively worded, distributed across the following item numbers: 2, 3, 4, 7, 9, 12, 15, 18, 20, 23, 24. The scoring for positive items is as follows: Always = 5, Often = 4, Sometimes = 3, Rarely = 2, Never = 1. For negative items, the scoring is reversed: Never = 5, Rarely = 4, Sometimes = 3, Often = 2, Always = 1.

The total score of the scale is calculated by summing the scores of all positive and negative items, with a maximum possible score of 130. Approaching this maximum indicates a high level of awareness and positive self-perception regarding one's physical self.

Determination of Skills and Their Tests

Once the two target skills—Overhead Passing and Dribbling—had been established, Figure 1, the researcher then endeavoured to discover which tests best assessed these skills consistently. A search of scientific literature in handball was carried out to ascertain the use of reliable and valid instruments. As a result of this review, two standard tests were chosen: the Overhead Passing Accuracy Test from Head Level to Interlocking Rectangles and Dribbling Skill-Level Test. The two screenings have already been applied and validated by Iraqi specialist in research studies, they are therefore relevant and have scientific validity for this study.

The Overhead Passing Accuracy Test to the Interlocking Rectangles tries to test how well a player can make an overhead pass from head level in handball. To do the test, you need five handballs, a measuring tape, some sticky tape, and a flat wall with two interlocking rectangles drawn on it. The first rectangle should be 160 cm by 180 cm, and the second should be 100 cm by 90 cm. The rectangles should be 80 cm off the ground. The person stands behind a line that is nine meters from the wall and throws the ball over their head toward the inner rectangle. There are tight rules for the performance: only five tries are allowed, passes must be made from behind the line, crossing the line makes the try invalid, the preferred hand must be used, and the ball must not touch the ground before reaching the rectangles. You receive points for accuracy: two points for hitting the inner rectangle completely, one point for striking the outer rectangle (or its border lines), and zero points if the ball lands outside the rectangles or touches the ground.

Note: The total score for the test is 10 points.

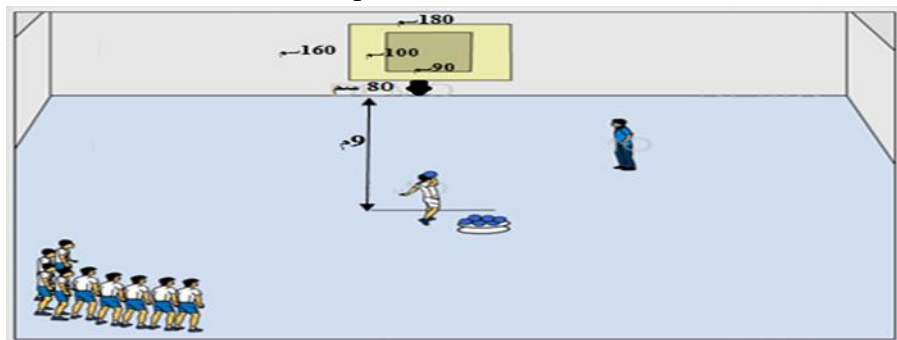


Figure 1. Illustrates the Overhead Passing Accuracy Test

The Dribbling Skill Assessment Test (Sinan Abbas Ali, 2005, p. 74) is meant to see how proficient a player is at dribbling. You will need five markers, two electronic stopwatches, and a handball to do this. The five markers need to be placed up in a straight line, with the first one three meters from the starting line and three meters between each of the other marks. Figure (2) shows that the participant starts behind the line, and when they hear the signal, they dribble the ball in a zigzag pattern between the markers. They then go to the end line and back to the start. A stopwatch is used to keep track of the entire time it takes to accomplish the course, which is the player's dribbling performance score. These two standardized exams together provide an objective and valid way to measure basic handball skills, making sure that the evaluation procedure follows recognized scientific and methodological norms.

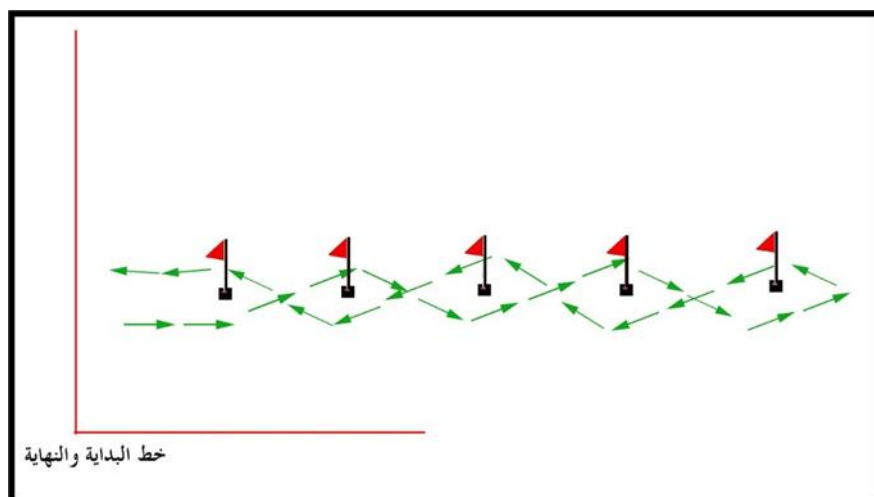


Figure 2. Illustrates the Dribbling Skill Assessment Test.

Pilot Study

After selecting the tests relevant to the research topic, the researcher conducted a pilot study, which serves as a small-scale preliminary investigation aimed at examining the practical and procedural aspects of the field research. This pilot study acted as a preparatory

step for the main experiment, allowing the researcher to identify potential challenges and obstacles that could affect the accuracy and smooth flow of the study. The purpose of conducting a pilot study is to test the methodology on a smaller scale, identify possible obstacles, and refine the design before launching the main study.

The pilot study aimed to achieve the following objectives:

1. Identify potential obstacles that could hinder the practical implementation of the study to avoid them in the main study.
2. Determine the precise time required to conduct the tests.
3. Verify the ability of the sample members to perform the tests and assess the suitability of the tests for their capabilities.
4. Evaluate the readiness of the assistant team in terms of competence in using equipment, conducting the tests, and documenting data in the designated forms.
5. Ensure the appropriateness of the venue or field used for conducting the tests.

Pre-Tests

The pre-tests were administered to the experiment group which consisted of scientific 4th grade students (60 - 30 students in each section B and C). A physical SAT scale was administered on a Sunday (25/2/2024) with forward, skill tests following on a Tuesday, Wednesday and Thursday (27–29/2/2024). The researcher has controlled all the Test-Administration's conditions and caveats (Time, place, equipment devices, tools stuffs, assisting team) in order to standardize for post tests conduction.

Implementation of the Educational Program

The investigator conducted the pre-tests on the experimental and control groups in the study concerning skills by training, then he started to apply the educational units chapter of fourth-grade scientific students of section B as an experimental group. The program was divided into two 6 educational units, each time concentrating on one of the targeted skills and consuming 45 min separated into three parts of a daily lesson plan: preparatory, main, and ending.

The preparatory phase contained of a lecture introduction, warm-up and general physical exercise. The primary component emphasized an educational component in which the instructor explained the skill and then demonstrated. In this section, we described the application of Inside-and-Outside-the-Circle strategy: students were organized by three groups, two circles (an inner and an outer circle). Each circle had 5 students, who faced each other inside (so the 5 in outer circle were opposite the five on the inner one). For each educational module a set of pre-prepared cards were used (5 cards) which included questions on the skill being taught along with model answers.

Students around the outside with the cards and 1 minute to answer each question for the students on the inside. When the time was called the instructor blew the whistle and students in the outer circle moved clockwise to pose the question to a different student in the inner circle. We then repeated this cycle until the five questions were all roving around.

Afterwards, they switched the placement of students in both circles and did the activity again.

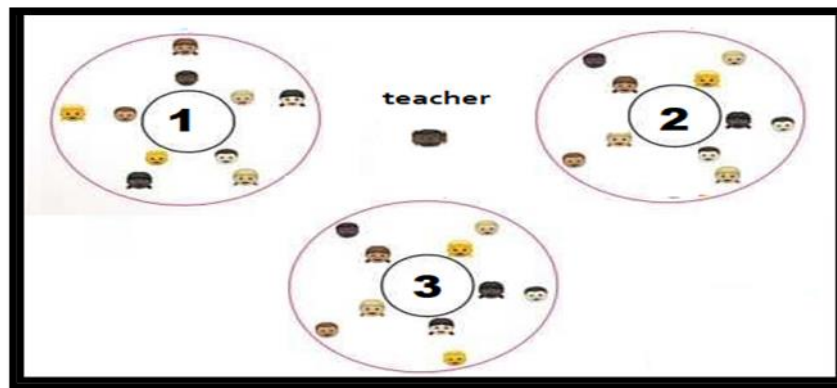


Figure 3. Illustrates the Inside-and-Outside-the-Circle Strategy.

In the applied component for practical classes, students of each circular formation were divided in order to carry out skill exercises according to the sample characteristics and type of handball skills, with every module having 5 skill exercise sessions. A brief giving small game and feedback to pupils on their performance was followed by organized return to the classrooms. The curriculum started with the skill of long passes as a target skill I introduction one on Sunday an another Wednesday every week. Unit 1 was launched on 3/3/2024 and the trial ended on Sunday, April 17th, 2024.

Concurrently, the control group practiced through their instructor's training program, with 2 units per skill per week using a similar SVM format on exactly the same SVOT days (Sundays and Wednesdays) to facilitate direct application.

Post-Tests

The research sample's post-tests took place on the school-grounds between Monday and Wednesday, 18–20 April 2024. The researcher maintained all pre-testing procedures (i.e., time of day, location, instruments used in measurement and manner of test administration) integrating this with the research assistants.

Precautions were taken to minimize extraneous variables that would affect the data recording both objectively and reliably. The purpose of these post-tests was to evaluate the improvement in performance within students resulting from participating [in] exercises proposed for this group relative to the control, which continued with its school=s historical program.

Statistical Tools

The Statistical Package for Social Sciences (SPSS) software was used to analyze the data. Statistical Analysis Descriptive statistics including percentages, means, standard deviation and skewness were used for the analysis as well as the Pearson correlation

coefficient and paired-sample t-test to assess significant differences. It was also used formula of Cronbach's Alpha to determine the reliability of instruments.

RESULTS AND DISCUSSION

Results

Table 3. Results of calculated t-values for the pre-tests and post-tests of the experimental and control groups

Group	Variable	Pre-Test		Post-Test		Calculated t	Significance Level	Statistical Significance
		Mean	SD	Mean	SD			
Experimental	Physical Self	31.569	5.970	56.491	4.549	15.569	0.000	Significant
	Overhead Passing	3.156	0.745	7.486	2.196	6.578	0.000	Significant
	Dribbling	12.047	2.483	9.496	2.496	5.569	0.000	Significant
Control	Physical Self	32.674	6.586	43.496	5.596	12.586	0.000	Significant
	Overhead Passing	3.496	0.782	5.597	1.496	3.597	0.006	Significant
	Dribbling	11.796	3.597	10.486	2.395	4.485	0.001	Significant

Significance is considered at $p \leq 0.05$, with degrees of freedom = 58.

The results shown in Table (3) indicate that the experimental group had a higher mean in the post-test compared to the pre-test, which reflects significant differences between the two tests in favor of the post-test, based on the calculated tt values and the significance level, which was less than 0.05 for all study variables. As for the control group, their post-test means were also higher than their pre-test means across all variables, indicating the presence of significant differences, as evidenced by the tt values and the significance level, which was less than 0.05.

Table 4. Results of calculated calculated t values for the post-tests of the experimental and control groups.

Test	Experimental		Control		t-value	Significance Level	Significance Type
	mean	SD	mean	SD			
Physical Self	56.491	4.549	43.496	5.596	8.486	0.000	Significant
Overhead Passing	7.486	2.196	5.597	1.496	4.596	0.001	Significant
Dribbling	9.496	2.496	10.486	2.395	4.156	0.002	Significant

Significance is considered at $p \leq 0.05$, with degrees of freedom = 58.

Table (4) shows the means, standard deviations, and the calculated t-values for the post-test results of the Physical Self Scale, overhead passing, and dribbling skills in handball for the experimental and control groups. The results indicate that the significance level was

less than 0.05, which points to the existence of statistically significant differences between the post-test results, with these differences favoring the experimental group.

Discussion

The purpose of this study is to fill in this gap and determine the impact of the IOCS on handball physical self-concept. The findings reveal that there are clear progress in the experimental and control groups for the physical self-concept as well as learning new upper passing and dribbling skills on handball. Such an improvement, in both the differences that favored the experimental group, can be as much attributed to various aspects which contributed significantly to increase learning. The most significant factors were the methodical repetition of skill execution activities selected based on students' physical and motor self-characteristics, and allocation of sufficient time for realization of the educational program. Consequently all these factors led to a slow and natural progression shown in the testing outcomes, which brought about statistical differences between both groups. These discrepancies can be considered as a consequence of the active teaching system used.

According to this approach the efficiency of teaching/learning depends on well-organized and relevant exercises chosen according to scientific criteria adapted to the level and content of contents as well as motivational triggers (practical problems with structured involvement). This is in accordance with the findings of Rismanto et al., 2024) which he asserts that the curriculum is a fundamental and essential part in educational process, and an effective technique to reach sports education objectives through short time means (minimum effort; minimal cost).

The researcher credits the limited impact that was made in the case of the control group to ineffectual educational practices by secondary schools based on enhancing students' physical self-concept. An individual's self-concept and impression of how they view themselves as perceived by others is an important topic that affects one's performance, behaviour, social role and social interaction. It also makes a big influence on student's personality, competitive aptitude and ambition, what finally influences successes and/or failures. (Antonio 2023). Physical self-concept is directly related to sport performance, due to the fact that physical exercise seems to offer abstract and concrete possibilities for acting effectively in terms of skill execution, or mastering a specific physical challenge (Cardozo et al., 2023). Positive sport experiences, therefore, provide strong support for the development of positive physical self-concept in young people. Furthermore, physical self-concept has been identified as a significant dimension of multidimensional self-concept and is an essential factor to support high level of confidence in participation sport (Boato et al., 2020; Jumareng & Setiawan, 2021; Nopiyanto et al., 2022).

The significant differences in skills performance of overhead passing and dribbling were derived due to the effectiveness of the "Inside-and-Outside-the Circle" strategy with regard to engagement and provide excitement which positively contributed towards its influence on student learning motivation. It was done through the exercises and pre-prepared mobilization of questions that addressed the experimental group, helping students to be self-

aware of their abilities, find weakness, strengths miststw part off as well them physically in such a way they can burn themselves at full its potential (Alghafary, 2021). This is in line with the findings of Nash, (2016), who points to the adoption of modern methods in teaching and training that considers individual differences and enhance learners' motivation to learn; e.g., interesting questions followed by group discussions and allowing learners discover their abilities as well as helping them contribute to enhancing performance through self-actualization, personal assessment of capabilities.

These findings demonstrate the greater effectiveness of the experimental group compared to the control group in physical self-concept, passing and dribbling skills in handball. It is concluded that this superiority results from the high effectiveness of a strategy used during the implementation of the instructional materials called “Inside-and-Outside-the-Circle.” This approach is successful because it involves learners, catches their interest and directs their cognitive and motor processes for the production of aspects of performance relative to motor skills involved. By requiring students to respond to presented concepts in a manner consistent with the teaching context, this strategy boosts autonomous motivation and activates what drive learners have to complete learning tasks and transfer the abilities they’ve gained into new situations where such skills are called for.

Additionally, the tact aims to influence physical self-concept through skill based tasks that are crucial in contributing particular dimensions of physical characteristics on students. Better students have more confidence to reach their goals quickly view themselves in a positive light, and are motivated to get things done more. On the other end, students that are less confident may have difficulty in making decisions on their own and exhibit indecisiveness or fear, thus affecting skill performance. Dahham (2025) unveils that teaching methods those promote active learning in the learners toward the instruction content will improve attention and concentration which is believed to have a positive impact on skill acquisition and performance. He invokes the role of intrinsic motivation and self-efficacy to explain these ideas, suggesting an individual's sense of competence as an indicator that motivates him or her to develop productive insights which make achieving learning goals easier and efficient, whereas being so lacking in confidence can lead one down the road to hesitancy and fear – namely effecting performance negatively.

CONCLUSION

The results of this study indicated that the Inside-and-Outside-the-Circle strategy had a significant positive effect on the physical self-concept and improvement in passing higher or above and dribbling skills in handball among students. Students in the experimental group performed sufficiently higher than those in the control group in both psychological self-perception and the therapeutic skill learning. This implies that the strategy is a valid teaching method for stimulating intellectual and motor growth in physical education. Additionally, the Inside-and-Outside-the-Circle approach makes learners in charge of their learning process and fosters active participation, cooperation and engagement during the training activities. It creates a supportive learning environment that provides extra confidence, motivation and

overall performance for the students. A number of implications can be made from these findings. Firstly, when teaching handball (in high school level, also improves both aspects for practising the subject) the use of Inside-and-Outside-the-Circle should be considered in order to increase physical self-concept and skill learning. Second, it also would be recommendable to apply this approach into other handball methods or even in team sports since its interactive nature can contribute to learning and motivation and teamwork. Third, it is recommended that the Physical Self-Concept Scale which exhibited high reliability and validity on psychological factors associated with physical performance) should be used in future studies. Professional development programs for physical education teachers in the use of the Inside-and-Outside-the-Circle strategy are recommended to enhance student motivation, engagement and skill mastery in PE lessons

AUTHOR'S STATEMENT

This manuscript is the author's original work and has not been published in any journal.

REFERENCE

- Alghafary, N. A. (2021). The effectiveness of using self-questioning strategy on improving some basketball skills among seventh grade students in Amman, Jordan. *International Journal of Human Movement and Sports Sciences*. <https://doi.org/10.13189/saj.2021.090313>
- Antonio, J. (2023). Psychological Factors Affecting Athletes' Motivation and Performance in Competitive Sports in Mexico. *International Journal of Physical Education, Recreation and Sports*. <https://doi.org/10.47604/ijpers.2141>
- Ardian, R., Prasetyo, Y., Sulistiyono, S., Arjuna, F., Suryadi, D., Dewantara, J., Septianto, I., & Subarjo, S. (2024). Application of Circuit Training Methods to Improve VO₂max Physical Condition: An Experimental Study on Handball Athletes. *Retos*, 54(SE-Artículos de carácter científico: trabajos de investigaciones básicas y/o aplicadas), 660–666. <https://doi.org/10.47197/retos.v54.103377>
- Arsil, A., Okilanda, A., Antoni, D., Fakhur Rozi, M., Saputra, M., L Mortejo, A., Anggara Suganda, M., & Suryadi, D. (2024). Effectiveness of teaching methods and motor abilities: an experimental study on football passing ability. *Retos*, 54(SE-Artículos de carácter científico: trabajos de investigaciones básicas y/o aplicadas), 625–632. <https://doi.org/10.47197/retos.v54.104407>
- Boato, E. M., Albuquerque, A. P., Nascimento, E. F., Rodrigues, G. M., Melo, G. L. R., & Moita, M. C. (2020). The physical education and the Infantile Systemic Hyalinosis: A case report. *Heliyon*, 6(7), e04411. <https://doi.org/https://doi.org/10.1016/j.heliyon.2020.e04411>
- Calkins, N. D. (2017). Self-Regulation Strategy Development as an Instructional Approach for Motor Skill Acquisition: Column Editor: Anthony Parish. *Strategies*. <https://doi.org/10.1080/08924562.2017.1345262>
- Cardozo, L. A., Reina-Monroy, J. L., Florez-Escobar, W., Pena-Ibagon, J. C., Castillo-Daza, C. A., & Bonilla, D. A. (2023). Physical self-concept in university students: Generating profiles with hierarchical classification on principal components. *Retos*.

- <https://doi.org/10.47197/retos.v48.95076>
- Dahham, N. A. (2025). The influence of the karen and appleton educational methodologies on the acquisition of certain shooting techniques in handball. *Journal Olahraga Rekat (Rekreasi Masyarakat)*, 4(1 SE-Articles), 95–113. <https://journal.unj.ac.id/unj/index.php/jor/article/view/58791>
- Fleisig, G. (2010). XXVIII International Symposium of Biomechanics in Sports July 2010. *Biomechanics*.
- Fransen, K., McEwan, D., & Sarkar, M. (2020). The impact of identity leadership on team functioning and well-being in team sport: Is psychological safety the missing link? *Psychology of Sport and Exercise*, 51. <https://doi.org/10.1016/j.psychsport.2020.101763>
- Gromeier, M., Koester, D., & Schack, T. (2017). Gender differences in motor skills of the overarm throw. *Frontiers in Psychology*, 8(FEB). <https://doi.org/10.3389/fpsyg.2017.00212>
- Gromeier, M., Schack, T., & Koester, D. (2022). Effects of Age and Expertise on Mental Representation of the Throwing Movement Among 6- to 16-Year-Olds. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.799316>
- Hameed, F. F., & Muhsin, R. A. (2025). The relationship between certain anthropometric measurements and the speed and feasibility of performing the overhead pass skill among junior volleyball players. *Journal Olahraga Rekat (Rekreasi Masyarakat)*, 4(1 SE-Articles), 166–176. <https://journal.unj.ac.id/unj/index.php/jor/article/view/59311>
- Haniyyah, N., Suhartini, B., & Salacup, V. L. D. (2025). How does medicine ball pull over pass and resistance band training affect passing and shooting ability? a systematic review on the sport of handball. *Tanjungpura Journal of Coaching Research*, 3(1), 67–75. <https://doi.org/10.26418/tajor.v3i2.89702>
- Hariato, E., Gustian, U., Supriatna, E., Shalaby, M. N., & Taiar, R. (2023). Stimulating game performance skills in students: experimental studies using net games. *Tanjungpura Journal of Coaching Research*, 1(2), 63–70. <https://doi.org/10.26418/tajor.v1i2.65009>
- Heppe, H., & Zentgraf, K. (2019). Hand and foot response inhibition of team handball experts and recreational athletes. *Frontiers in Psychology*, 10(APR). <https://doi.org/10.3389/fpsyg.2019.00971>
- Hussein, A. R. A. (2025). The effect of the Ayas model to learning individual fast attack and high-order thinking skills of handball for students. *Tanjungpura Journal of Coaching Research*, 3(1), 56–66. <https://doi.org/10.26418/tajor.v3i1.89153>
- Jarraya, S., Jarraya, M., Chtourou, H., & Souissi, N. (2014). Effect of time of day and partial sleep deprivation on the reaction time and the attentional capacities of the handball goalkeeper. *Biological Rhythm Research*, 45(2), 183–191. <https://doi.org/10.1080/09291016.2013.787685>
- Juliantine, T., & Setiawan, E. (2022). Effect of Tactical Game Models on Formation of Basic Techniques in Handball Players: Mixed Method. *Physical Education Theory and Methodology*. <https://doi.org/10.17309/tmfv.2022.3.11>
- Jumareng, H., & Setiawan, E. (2021). Self-esteem, adversity quotient and self-handicapping: Which aspects are correlated with achievement goals? *Cakrawala Pendidikan*. <https://doi.org/10.21831/cp.v40i1.37685>
- Larsen, M. N., Madsen, M., Cyril, R., Madsen, E. E., Lind, R. R., Ryom, K., Christiansen, S. R., Elbe, A. M., & Krstrup, P. (2021). Well-being, physical fitness and health profile

- of 10-12 years old boys in relation to leisure-time sports club activities: A cross-sectional study. *BMJ Open*. <https://doi.org/10.1136/bmjopen-2021-050194>
- Mahmoud Sha'lan, M. A. (2022). The impact of using small-sided games on teaching basic handball skills to students of the College of Sports Sciences at Mu'tah University. *Sport TK*, 11(3), 1–15. <https://doi.org/10.6018/sportk.539091>
- Mariati, D. S., Sumaryanti, S., Nugroho, S., Yassin, A., & Budayati, E. S. (2024). Movement reinforcement factors related to children's motor skills: a review study in sports education. *Tanjungpura Journal of Coaching Research*, 2(1), 37–45. <https://doi.org/10.26418/tajor.v2i1.74751>
- Mashud, Arifin, S., Kristiyandaru, A., Samodra, Y. T. J., Santika, I. G. P. N. A., & Suryadi, D. (2023). Integration of project based learning models with interactive multimedia: Innovative efforts to improve student breaststroke swimming skills. *Physical Education of Students*, 27(3), 118–125. <https://doi.org/10.15561/20755279.2023.0304>
- Merajuddin Faridi, S. A. J. (2022). Understanding the Difference of Social Intelligence Among the Handball and Kabaddi Players in Iraq. *International Journal For Multidisciplinary Research*, 4(6). <https://doi.org/10.36948/ijfmr.2022.v04i06.1193>
- Nash, J. (2016). New curriculum design and teaching methods to enhance course performance and increase motivation of Saudi Arabian college students. *Learning and Teaching in Higher Education: Gulf Perspectives*. <https://doi.org/10.18538/lthe.v13.n2.235>
- Nopiyanto, Y. E., Raibowo, S., Prabowo, A., Defliyanto, D., & Ibrahim, I. (2022). Self-efficacy of physical education students in sports psychology learning. *Multilateral: Jurnal Pendidikan Jasmani Dan Olahraga*. <https://doi.org/10.20527/multilateral.v21i3.13870>
- Rismanto, R., Rihatno, T., Samsudin, S., Suryadi, D., Samodra, Y. T. J., & Suganda, M. A. (2024). Implementation of physical fitness learning model through play approach: how does it impact on Islamic school students of Madrasah Tsanawiyah? *Retos*, 58(SE-Artículos de carácter científico: trabajos de investigaciones básicas y/o aplicadas), 1087–1096. <https://doi.org/10.47197/retos.v58.108143>
- Suryadi, D., Nasrulloh, A., Yanti, N., Ramli, R., Fauzan, L. A., Kushartanti, B. W., Sumaryanti, S., Suhartini, B., Budayati, E. S., Arovah, N. I., Mashud, M., Suganda, M. A., Sumaryanto, S., Sutapa, P., Abdullah, N. M. bin, & Fauziah, E. (2024). Stimulation of motor skills through game models in early childhood and elementary school students: systematic review in Indonesia. *Retos*, 51, 1255–1261. <https://doi.org/10.47197/retos.v51.101743>
- Tantri, A., Aprial, B., Mashud, M., Kristiyandaru, A., Basuki, S., Samodra, Y. T. J., Warni, H., Arifin, S., Wati, I. D. P., Thamrin, L., & Suryadi, D. (2023). Modification of interactive multimedia with the ARA MODEL: study of development of football learning models in pandemic times. *Retos*, 50, 1289–1298. <https://doi.org/10.47197/retos.v50.100587>
- Yanti, N., Selviani, I., Supriatna, E., Nofrizal, D., Purba, P. H., Lubis, H. Y., Nurbait, S., Putro, D. E., Ismoko, A. P., Wahyuni, D., Suryadi, D., & Suganda, M. A. (2024). Effectiveness of plyometric training in handball: impact on throwing power and speed. *Retos*, 58(SE-Artículos de carácter científico: trabajos de investigaciones básicas y/o aplicadas), 643–649. <https://doi.org/10.47197/retos.v58.103521>
- Yogi, Y., Perdana, R. P., Supriatna, E., & Haïdara, Y. (2023). Modification of hand muscle strength training equipment: study of the development of a ball stick for handball



- shooting. *Tanjungpura Journal of Coaching Research*, 1(2), 31–38. <https://doi.org/10.26418/tajor.v1i2.64819>
- Yusroni, M. (2024). Game model to improve motor skills through traditional sports: Development study on elementary school students. *Tanjungpura Journal of Coaching Research*, 2(2), 71–79. <https://doi.org/10.26418/tajor.v2i2.79872>
- Zourbanos, N., Hatzigeorgiadis, A., Bardas, D., & Theodorakis, Y. (2013). The effects of self-talk on dominant and nondominant arm performance on a handball task in primary physical education students. *Sport Psychologist*. <https://doi.org/10.1123/tsp.27.2.171>