

Original Research

# Stimulating game performance skills in students: experimental studies using net games

Eko Harianto<sup>1ACDE\*</sup>, Uray Gustian<sup>1CDE</sup>, Eka Supriatna<sup>1ADE</sup>, Mohammed Nader Shalaby<sup>2DE</sup>, Redha Taiar<sup>3BE</sup>

<sup>1</sup>Department of Sport Coaching Education, Tanjungpura University, Pontianak, Indonesia

<sup>2</sup>Department of Biological Sciences and Sports Health, Suez Canal University, Ismailia, Egypt

<sup>3</sup>Department of Physical and Sports Education, Reims University, Reims, France

\*Corresponding Author: [yogiboy@student.untan.ac.id](mailto:yogiboy@student.untan.ac.id)

## Authors' contribution:

A. Conception and design of the study; B. Acquisition of data; C. Analysis and interpretation of data; D. Manuscript preparation; E. Obtaining funding

**How Cite:** Harianto, 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>

**Copyright © 2023** Eko Harianto, Uray Gustian, Eka Supriatna, Mohammed Nader Shalaby, Redha Taiar

## Abstract

*Background and Study Aim.* Game performance is the quality and quantity of a person in carrying out the game that has been given in accordance with the responsibilities and results specified. But so far, it is still rare to find research that discusses games performance. This study aims to determine whether the stimulation of elementary school students' game performance ability through net games

*Material and Methods.* This research is a pre-experiment with a one-group pretest and posttest design. The sampling technique used purposive sampling so that 12 elementary school students could be obtained. In this study, students were given treatment in the form of net games. As for pretest and posttest data using instruments in the form of tests with rubrics, Data analysis uses Microsoft Excel 2019 and SPSS version 26 applications.

*Results.* The results showed a significance value of  $0.000 < 0.05$ , so the net game treatment had a significant effect on game performance. Furthermore, 16.7% were in effective performance, 58,3% were in moderately effective performance, and 25% were in weak performance. These results provide evidence that children are dominant and moderately effective.

*Conclusions.* Based on these results, this study proves that net games can be used to stimulate game performance.

## Article History

Received: 23.05.2023

Accepted: 27.07.2023

Published: 31.07.2023

## Keywords

Net Games\_1;

Games Performance \_2;

Elementary School \_3;

## Introduction

Physical education is a component of education that, as a whole, has been based on many circles (Mashud et al., 2023; Suryadi, Samodra, et al., 2023). Physical learning in elementary school is intended to improve movement abilities and skills (Hanief, Nanda & Sugito, 2015). The existence of physical education affects the development of students by improving their abilities and movement skills (Dwi et al., 2020). Furthermore, physical education plays an important role in an effort to provide opportunities to move students; therefore, this is the teacher's job so that students remain active in learning. Then physical learning can use command learning methods that make students

happy to play. So that it can encourage cognitive, affective, psychomotor, intellectual, verbal information, attitudes, and emotional development by modifying games (Lestari et al., 2019).

Game performance can be related to performance or appearance to show the extent to which individuals or groups interpret the performance of achievements or improvements obtained as relevant to certain goals. The point is that it is a form of achievement achieved by individuals based on the target to be achieved or the level of achievement of the workload that has been targeted at individuals. To achieve performance, a target is usually set for athletes. To achieve these targets, it is usually planned before the match starts (Rubiyatno et al., 2023; Suryadi et al., 2021; Suryadi, Suganda, et al., 2023). To achieve maximum performance, athletes and coaches need clear goals.

A process result is a person's degree of achievement or genuine outcomes that are calculated on a regular basis, both in terms of quality and quantity, based on set objectives and predetermined criteria. Furthermore, decision-making, skill execution, successful game performance, number of decisions made, number of game involvements, and intention to be physically active through play and apply knowledge in the game improved (Barquero-Ruiz et al., 2021; Levenberg et al., 2020; Morales-Belando & Arias-Estero, 2017; Thomas et al., 2013). The periodic efficacy of a game based on standards established from the start is referred to as game performance.

The problem in this study is based on the results of observations and interviews with sports teachers, which found that students are still not active in PE learning. In addition, the sports teacher's understanding factor related to performance games also affects success. This statement is reinforced by Gustian et al., (2022) lack of understanding of sports teachers about physical learning in elementary schools. Furthermore, there are still few games that can improve performance in students (Farias et al., 2018), and the lack of sports practice hours in schools is related to performance (Praça et al., 2015).

The solution offered in this study is to apply net games, where net games have a significant effect on student movements (Rifai & Dwi Intani, 2020). Net games training has an effect on throwing, hull, jumping, and stepping movements (Kusumawati, 2017). These results are supported by Setiawan, (2019) net games consist of four categories of games in the TGFU approach: invasion games, fielding games, net games, and wall games. However, this study only focuses on online games. Net games can be played individually or in teams to score by hitting the ball in the field area using strength and accuracy. Where it is intended that the opponent cannot return before the ball falls with one bounce, like a volleyball.

Then it is also explained that in net games, the same game characteristics can be modified provided that the concepts and motion activities contained in the game are the same as in net games. Furthermore, the implementation of PE learning must be able to make students happy and fun and be carried out consistently (Domville et al., 2019). The practical game model is effective in improving the basic movements of elementary school students (Hasan et al., 2015). Physical education learning for students is to facilitate students in playing games. According to Rizki Burstiando et al., (2017) from the explanation above, game performance is one of the components that is the purpose of implementing PE learning at school. Facilitating practical tools so that learning can run smoothly and assessment is carried out continuously (Kovar, 2012).

There are principles of application that are carried out and components of learning for students to make it simpler to play net games. The modified net game makes it simpler for students to have strong movement abilities; therefore, it is used to help students reach their goals. However, in this study, students designed net games using a new game model as a result of modifications in the bounce media. As a result, this becomes the benefit and significance of the research to be conducted. Based on this description, the researcher wants to undertake research titled "stimulating elementary school students' game performance skills through net games."

## Materials and Methods

### *Participants.*

Subjects in the study were male students of the public elementary school 06 Batu Ampar Kuburaya Regency. Where in determining the sample using purposive sampling, a sample of 12 students was obtained.

### Research Design.

This research includes quantitative research with an experimental approach, namely a one-group pretest and posttest design. As for this study to see the results of the ability of games performance in students after being given net games treatment, Before treatment is given to the sample, first conduct a pretest using the net games instrument, and then give a posttest after treatment to the sample. The measurement instrument uses the Game Performance Assessment Instrument (GPAI) to get the results of the game's performance ability.

**Table 1.** GPAI Assessment

Decision making			Skill execution		
Name	A	IA	E	IE	
Score	20	0	0	20	
Indeks (%)	DMI = $A/(A + IA)$ DMI = $20/(20 + 0) = 1,0$ (100%)		SEI = $A/(A+IA)$ SEI = $0/(0+20)= 0,00$ (0%)		
GP John (%)	GP = $DMI + SEI/2$ GP = $(1 + 0)/2 = 0,5$ (50%)				
GI John	GI = sum of all appropriate and inappropriate behaviors (i.e., appropriate decisions made (20) + inappropriate decisions made (0) + appropriate skills execution (0) + inappropriate skills execution (20)). GI = $20 + 0 + 0 + 20 = 40$				

### Statistical analysis.

The data analysis in this study used descriptive percentages. This aims to determine game performance in elementary school male students. Furthermore, the calculations in this study were assisted by the Microsoft Excel 2019 application and SPSS version 26.

## Results

The data is described with descriptive and statistical data; this is intended to make it easier to understand the final results by clarifying the research results. Based on table 2 above, descriptive statistics show that the value of game performance is 6.16, so it can be said to be quite good. Furthermore, in Table 3, the results show that the value of game performance in students is a minimum of 56, a maximum of 66, and a mean of 6200. Where these results are classified as quite good values.

The results in Table 4 show that there are 16.7% in effective performance, 583% in moderately effective performance, and 25% in weak performance. These results provide evidence that children are predominantly moderately effective.

**Table 2.** Categories of Game Performance in Students

No	Student's Name	Basic Techniques			Decision-making			Cover			Games Performance
		E	TE	SEI	T	TT	DMI	T	TT	CI	GP
1	Nabil	9	8	0,52	12	8	0,6	13	7	0,56	0,56
2	Hardi	5	7	0,41	6	8	0,42	7	10	0,41	0,39
3	Akbar	4	8	0,33	5	6	0,45	6	10	0,37	0,38
4	Riski	5	8	0,38	6	8	0,42	4	7	0,36	0,38
5	Fatan	8	6	0,57	12	6	0,66	12	5	0,7	0,63

6	Faith	7	9	0,43	8	11	0,42	7	11	0,38	0,41
7	Ismail	9	8	0,52	9	5	0,64	9	4	0,69	0,61
8	Aldo	9	6	0,6	13	10	0,56	12	8	0,6	0,58
9	Fadli	10	8	0,55	11	8	0,57	10	7	0,58	0,56
10	Vian	11	9	0,55	10	9	0,52	10	6	0,62	0,56
11	Rabuan	9	8	0,52	10	8	0,55	8	6	0,57	0,54
12	Gunawan	12	10	0,54	11	8	0,57	12	9	0,57	0,56
Total											6,16

**Tabel 3.** Descriptive Statistics

Result	N	Minimum	Maximum	Mean	Std Deviation
Posttest Games Performance	12	.56	.66	.6200	.02558

**Table 4.** Games Performance Results

Games Performance Score	Absolute	Relative %	Deskriptive Rating
0,80-1,00	0	0%	Very Efektive Performance
0,60-0,79	2	16,7%	Efektive Performance
0,40-0,59	7	58,3%	Moderately Efektive
0,20-0,39	3	25%	Weak Performance
0,00-0,19	0	0%	Very Weak Performance

**Table 5.** One-Sample Kolmogorov-Smirnov Test

Result	Unstandardized Residual
N	12
Normal Parameters <sup>a,b</sup>	
Mean	.0000000
Std. Deviation	.02526327
Most Extreme Differences	
Absolute	.236
Positive	.181
Negative	-.236
Test Statistic	.236
Asymp. Sig. (2-tailed)	.064 <sup>c</sup>

**Table 6.** Homogeneity Test

Result	Levene Statistic	df1	df2	Sig.	
Games Performance	Based on Mean	4.748	1	22	.140

**Table 7.** Paired Sample T Test

Pair 1	Result	t	df.	Sig.(2 tailed)
	Pretest Games Performance - Posttest Games Performance	7.516	11	.000

Based on the results of the normality test with Kolmogorov-Smirnov, it is known that the significance value is  $0.64 > 0.05$ , so it can be concluded that the residual value shows a normal distribution. Thus, the data in this study continued with the t test. The results can be seen in Table 5. The results of the homogeneity test in Table 6 show that the significance value is  $0.140 > 0.05$ , so it can be concluded that the value is homogeneous. It is known that with a significance value of  $0.000 < 0.05$ , which means smaller, it can be concluded that net games have a significant effect on game performance. Based on these results, this study proves that net games can be used to stimulate game performance.

## Discussion

This study aims to prove the stimulation of elementary school students' game performance abilities through net games. The results of this study indicate that net games have an effect on providing stimulus for game performance. In addition, net game treatment provides an increase in posttest game performance results, where there are 7 students in the moderately effective category, 2 students in the effective performance category, and 3 people in weak performance. Previous research results have proven that net games given to students have a significant effect on their basic movements (Rifai & Dwi Intani, 2020).

Further research obtained the results that throwing, hull, jumping, and stepping movements were influenced by net games (Kusumawati, 2017). These results are supported by Setiawan, (2019) finding that there is an increase in basic movements through net games. By playing online games, it can make learning easier and help improve student skills. Net games can also be played individually or in teams to score by hitting the ball in the field area using strength and accuracy so that the opponent cannot return before the ball falls (Doolittle, 1995).

Based on this review, it can be concluded that net games are games that use barriers between one team and another and can train discipline and good cooperation. In addition, net games can be used to stimulate game performance. As we can see from the results of the t test: 16.7% Effective performance, 58.3% Moderately effective performance, and 25% weak performance, it proves that there is an increase (Setiawan, 2019). In playing net games, there are principles of application that are carried out and aspects of learning for students to make it easier to play net games. The modified net game makes it easier for students to have good movement skills, so it is implemented to help students achieve predetermined goals (Kovar, 2012).

Then game performance can be improved through modified net games (Jensen et al., 2018). In addition, this study aims to determine the index of net games to stimulate game performance and improve children's movement skills (Karisman et al., 2020). Further research by Doolittle, (1995) proves that net games are able to stimulate game performance in children. Based on these results, this reinforces the evidence that net games can be used as learning designed in the form of games to improve game performance.

Another study found that game performance in water polo games can be improved by using shuttle swimming exercises (Sarimanah & Mulyana, 2020). Furthermore, in basketball games, it turns out that modifying Hybrid SE-IGCM learning can be used as a method to improve game performance (Agustan et al., 2020). The results of the review illustrate that applying various exercises related to physical activity can affect game performance.

## Conclusion

Based on the results of the analysis and discussion, it has provided a strong basis for understanding game performance in students. The results provide information that shows that after treatment, net games have a positive impact on game performance. This is evidenced by the results in the moderately effective category. The results also showed that stimulating game performance skills were successfully improved by using net games. Where the significant results have a significant value. These results have certainly added new references related to improving game performance among elementary school students. So that net games can be applied by sports practitioners and teachers to stimulate game performance. Further research recommendations can provide additional variables that can affect the results of this study.

## Acknowledgments

The author would like to thank the State Elementary School 06 Batu Ampar, Kuburaya Regency. Especially to sports teachers and students who are willing to participate in this research until it is completed.

## Conflict of Interest And Funding

There is no conflict of interest.

## References

- Agustan, B., Kusmaedi, N., Hendrayana, Y., Abduljabar, B., & Ginanjar, A. (2020). Modifikasi pembelajaran: hybrid sport education-invasion games competence model terhadap performa permainan bola basket. *Jurnal SPORTIF : Jurnal Penelitian Pembelajaran*, 6(1). [https://doi.org/10.29407/js\\_unpgri.v6i1.14005](https://doi.org/10.29407/js_unpgri.v6i1.14005)
- Barquero-Ruiz, C., Morales-Belando, M. T., & Arias-Estero, J. L. (2021). A Teaching Games for Understanding Program to Deal With Reasons for Dropout in Under-11 Football. *Research Quarterly for Exercise and Sport*, 92(4), 618–629. <https://doi.org/10.1080/02701367.2020.1759767>
- Domville, M., Watson, P. M., Richardson, D., & Graves, L. E. F. (2019). Children's perceptions of factors that influence PE enjoyment: a qualitative investigation. *Physical Education and Sport Pedagogy*, 24(3), 207–219. <https://doi.org/10.1080/17408989.2018.1561836>
- Doolittle, S. (1995). Teaching Net Games to Skilled Students: A Teaching for Understanding Approach. *Journal of Physical Education, Recreation & Dance*, 66(7). <https://doi.org/10.1080/07303084.1995.10607112>
- Dwi, I., Wati, P., & Jaenudin, M. A. (2020). Pengaruh permainan kasti terhadap kemampuan gerak dasar siswa sekolah dasar kelas bawah. *Jurnal Ilmu Keolahragaan Undiksha*, 8.
- Farias, C., Valério, C., & Mesquita, I. (2018). Sport education as a curriculum approach to student learning of invasion games: Effects on game performance and game involvement. *Journal of Sports Science and Medicine*, 17(1), 56. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5844209/>
- Gustian, U., Samodra, T. J., & Pranata, R. (2022). The integration of games and physical activities to stimulate cognitive abilities of elementary school students. *Jurnal Pendidikan Jasmani Dan Olahraga*, 7(1), 104–109. <https://doi.org/10.17509/jpjo.v7i1.42886>
- Hanief, Nanda, Y., & Sugito. (2015). Membentuk Gerak Dasar Pada Siswa Sekolah Dasar Melalui Permainan Tradisional. *Jurnal SPORTIF : Jurnal Penelitian Pembelajaran*, 1(1), 60–73.
- Hasan, S., Winarno, M. E., & Tomi, A. (2015). Pengembangan Model Permainan Gerak Dasar Lempar Untuk Siswa Kelas V Sdn Tawangargo 4 Karangploso Malang. *Jurnal Pendidikan Olahraga*, 4(2).
- Jensen, P. G., Larsen, K. G., & Srba, J. (2018). Discrete and continuous strategies for timed-arc Petri net games. *International Journal on Software Tools for Technology Transfer*, 20(5). <https://doi.org/10.1007/s10009-017-0473-2>
- Karisman, V. A., Supriadi, D., & Tangkudung, J. (2020). *The Effect of Striking and Fielding Games on Fundamental Movement Skills*. <https://doi.org/10.2991/ahsr.k.200214.029>
- Kovar, S. K. (2012). *Elementary classroom teachers as movement educators*. McGraw-Hill Companies.
- Kusumawati, O. (2017). Pengaruh Permainan Tradisional Terhadap Peningkatan Kemampuan Gerak Dasar Siswa Sekolah Dasar Kelas Bawah. *Jurnal Pendidikan Dan Pembelajaran Dasar*, 4.
- Lestari, R. B., Nindiasari, H., & Fatah, A. (2019). Penerapan pendekatan metakognitif untuk meningkatkan kemampuan berpikir kritis matematis siswa sma ditinjau dari tahap perkembangan kognitif. *Prima: Jurnal Pendidikan Matematika*, 3(2), 134–145. <https://doi.org/10.31000/prima.v3i2.1209>
- Levenberg, M. G., Armstrong, T., & Johnson, I. L. (2020). Teaching Dance for Understanding: Reconceptualizing Dance in Physical Education. *Journal of Physical Education, Recreation & Dance*, 91(6), 3–7. <https://doi.org/10.1080/07303084.2020.1770519>
- 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>
- Morales-Belando, M. T., & Arias-Estero, J. L. (2017). Effect of Teaching Races for Understanding in Youth Sailing on Performance, Knowledge, and Adherence. *Research Quarterly for Exercise and Sport*, 88(4), 513–523. <https://doi.org/10.1080/02701367.2017.1376032>
- Praça, G. M., Soares, V. V., Matias, C. J. A. da S., Teoldo, I., & Greco, P. J. (2015). Relationship between tactical and technical performance in youth soccer players. *Revista Brasileira de Cineantropometria & Desempenho Humano*, 17, 136–144. <https://doi.org/10.5007/1980-0037.2015v17n2p136>
- Rifai, A., & Dwi Intani, A. (2020). Pengaruh Permainan Tradisional Terhadap Kemampuan Gerak Dasar Siswa Sekolah Dasar. *Jurnal Master Penjas & Olahraga*, 1(2). <https://doi.org/10.37742/jmpo.v1i2.19>
- Rizki Burstiando dan Moh. Nur Kholis. (2017). Permainan Invasi dan Permainan Netting untuk Meningkatkan Keterampilan Gerak Dasar Fundamental Siswa SD Negeri Se Kecamatan Mojoroto Kota Kediri. *Sportif*, 3(2), 177. [https://doi.org/10.29407/js\\_unpgri.v3i2.11892](https://doi.org/10.29407/js_unpgri.v3i2.11892)
- Rubiyatno, Perdana, R. P., Fallo, I. S., Arifin, Z., Nusri, A., Suryadi, D., Suganda, M. A., & Fauziah, E. (2023). Analysis of differences in physical fitness levels of extracurricular futsal students: Survey studies on urban and rural environments. *Pedagogy of Physical Culture and Sports*, 27(3), 208–214. <https://doi.org/10.15561/26649837.2023.0304>
- Sarimanah, U., & Mulyana, D. (2020). Pengaruh Latihan Shuttle Swimming Terhadap Peningkatan Performa Permainan Polo Air. *Jurnal Kepelatihan Olahraga*, 12(1). <https://doi.org/10.17509/jko-upi.v12i1.24014>
- Setiawan, W. (2019). Tingkat keterampilan gerak dasar dengan permainan tradisional ball. *Altius: Jurnal Ilmu Olahraga Dan Kesehatan*, 8(2). <https://doi.org/10.36706/altius.v8i2.8671>
- Suryadi, D., Samodra, Y. T. J., Gustian, U., Yosika, G. F., B, P. S., Dewintha, R., & Saputra, E. (2023). Problem-based learning model: Can it improve learning outcomes for long serve in badminton. *Edu Sportivo: Indonesian Journal of Physical Education*, 4(1), 29–36. [https://doi.org/10.25299/es:ijope.2023.vol4\(1\).10987](https://doi.org/10.25299/es:ijope.2023.vol4(1).10987)
- Suryadi, D., Samodra, Y. T. J., & Purnomo, E. (2021). Efektivitas latihan weight training terhadap kebugaran jasmani. *Journal Respects Research Physical Education and Sports*, 3(2), 9–19. <https://doi.org/10.31949/respects.v3i2.1029>
- Suryadi, D., Suganda, M. A., Sacko, M., Samodra, Y. T. J., Rubiyatno, R., Supriatna, E., Wati, I. D. P., & Okilanda, A. (2023). Comparative Analysis of Soccer and Futsal Extracurriculars: A Survey Study of Physical Fitness Profiles. *Physical Education and Sports: Studies and Research*, 2(1), 59–71. <https://doi.org/10.56003/pessr.v2i1.182>
- Thomas, G., Morgan, K., & Mesquita, I. (2013). Examining the implementation of a Teaching Games for Understanding approach in junior rugby using a reflective practice design. *Sports Coaching Review*, 2(1), 49–60. <https://doi.org/10.1080/21640629.2013.855000>

---

#### Information about the authors:

**Eko Hariyanto;** [ekohariyanto@student.untan.ac.id](mailto:ekohariyanto@student.untan.ac.id); Department of Sports Science, Faculty of Teacher Training and Education, Tanjungpura University; Pontianak, Indonesia

**Uray Gustian;** <https://orcid.org/0000-0001-9354-5082>; [uray.gustian@fkip.untan.ac.id](mailto:uray.gustian@fkip.untan.ac.id); Department of Sports Science, Faculty of Teacher Training and Education, Tanjungpura University; Pontianak, Indonesia

**Eka Supriatna;** <https://orcid.org/0000-0001-9354-5082>; [eka.supriatna@fkip.untan.ac.id](mailto:eka.supriatna@fkip.untan.ac.id); Department of Sports Science, Faculty of Teacher Training and Education, Tanjungpura University; Pontianak, Indonesia

**Mohammed Nader Shalaby;** <https://orcid.org/0000-0002-0228-3003>; [dr.m.nader@suez.edu.eg](mailto:dr.m.nader@suez.edu.eg); Department of Biological Sciences and Sports Health, Faculty of Physical Education, Suez Canal University; Ismailia, Egypt

**Redha Taiar**; <https://orcid.org/0000-0002-0227-3884>; [redha.taiar@univ-reims.fr](mailto:redha.taiar@univ-reims.fr); Department of Physical and Sports Education, Reims University; Reims, France

---

This is an Open Access article distributed under the terms of the Creative Commons Attribution License. Tanjungpura Journal of Coaching Research by <https://jurnal.untan.ac.id/index.php/TAJOR/index> is licensed under a Creative Commons Attribution 4.0 International License (<https://creativecommons.org/licenses/by/4.0/>)