Games approach based on fundamental movement pattern via android apps

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ABSTRAC

This study aims to see the effect of the implementation of a movement skills-based game approach via an android application on increasing motivation in learning student movement in the era of an independent curriculum. The research method used in this study is an experimental method with a pre-test post test one group design. The population in this study was all classes at Elementary School Merdeka Kota Bandung, as for the sampling technique chosen, namely the side random cluster so that the research sample used was students in grades 2E and 2 F totaling 39 students. For research instruments using student motivation questioners in learning motion. The selected data analysis was using simpled paired t-test analysis with the help of SPSS version 22. The results of this study were 5,462 with a t-count score of -11,211 with df = 38 and a value score or sig. (2-tailed) = 0.000 < 0.05 which means . From the results of this study, it is hoped that PJOK teachers can continue to increase student motivation in learning motion by implementing Games Approach Based on Fundamental Movement Pattern via this Android Application not only to grade 2 students but to other students, applying various Games Approach Based on Fundamental Movement Pattern and it is hoped that student motivation in learning motion will continue to be maintained and increased.

Keywords: games approach, fundamental movement pattern, android apps

INTRODUCTION

Physical education is one of the subjects that must be given at every level of formal schooling considering that physical education itself is an inseparable part of the whole education process (Ambardini, 2009). Physical education is learning that can have an impact on the development of various aspects of both physical and mental development (Zakaria, Hambali, Juditya, & Asmara, 2023), Physical education provides opportunities for students to develop their potential, ranging from physical, knowledge, social and emotional (Hambali et al., 2021), It can even have an impact on increasing student motivation to learn motion (Priyanto, 2013).

Regarding student motivation in learning motion has not shown a significant increase, conditions like this are the impact of the emergence of learning *loss* that occurs after the COVID-19 pandemic (Silvy Juditya, 2020), even in the current implementation of the Kurikulum Merdeka, students' learning motivation in studying physical education is still low

and they still show lack of focus and laziness and we know with the low motivation of students in learning movement has an impact on the low achievement of learning outcomes. *Learning loss* in the field of education, physical, sports and health studies, namely a decrease in motivation in learning movement still even in the era of the independent curriculum occurred until (Pier et al., 2021; Yoo & Kweon, 2019). Low motivation to move is caused by the absence of a positive outlook on physical activity that will be carried out so that in them they do not develop their identity as a lifelong mover (Kooiman & Sheehan, 2014).

Motivation to learn motion is the main capital that must be owned by students, considering that with motivation it will have an impact on the emergence of the desire to achieve, the desire to be able to achieve learning outcomes and try hard to do and even try every movement activity (Rusdi, Dlis, Lubis, Nata, & Whalsen, 2020). Increasing motivation to move can be done in various ways, including creating learning situations that emphasize varied learning mastery (Parish, L. E., & Treasure, 2003). In the form of modified motion learning activities, there is freedom to choose motion activities and there are challenges in every movement activity that will be carried out and the existence of motion activities that are adjusted to the students' movement abilities Even teachers can choose strategies in the form of game approaches that adjust to the potential, movement ability and characteristics and needs of students, especially students in alpha generation that is sufficient with technology (Hamzah, 2021).

Learning strategies that can be chosen by PJOK teachers to increase motivation in learning motion include implementing fundamentakl movement pattern games (Zakaria et al., 2023), The approach to play that is identical to sports implements the method of playing with more heterogeneous group members (Ovsyannikova, Tomilin, Tumasyan, Vasilkovskaya, & Malygina, 2021), Outdoor Based Play Approach (Bochaver, Korzun, & Polivanova, 2017; Leont'eva & Levchenkova, 2020), Even with the application of a playing approach that uses several digital media such as the use of an online/digital-based game approach (Hwang, Wu, & Chen, 2012; Papastergiou, 2009). Looking at several studies that have been done before, there has been no research that increases student motivation in learning motion through the application of a motion skills-based approach via an android application. So the purpose of this study is to increase student motivation in learning motion through the application of a motion skills-based approach via an android application, especially in this era of Kurikulum Merdeka and his research can provide information to Physical Education teachers in increasing students' motivation to learn movement, especially when implementing the Kurikulum Merdeka and help government in overcoming the low motivation of students in learning movement.

METHOD

Referring to the purpose of this study, which is to see the influence of the application of the student's movement skill-based play approach via an android application on student motivation in learning motion in the era of an independent curriculum, the research method that is considered appropriate and suitable for the purpose of this study is an experimental research method with a pre-test post test one group design. The experimental method itself is a research method that aims to see the causal relationship between the variables (Silvy Juditya, 2018).

Before being given treatment related to the fundamental movement pattern-based play approach via the android application, all students were given a questioner at the first meeting with the aim of wanting to find out how much the level of student motivation in learning motion in the era of the independent curriculum then after that they were given treatment of various games based on fundamental movement patterns in the android application, finished the treatment period continued again with giving the same questioner as the questioner at the first meeting before they get treatment.

Participant

The population in this study is all grade 2 at Elementary School Merdeka Kota Bandung, while the number of grade 2 at Elementary School Merdeka Kota Bandung is as many as six classes. The sampling technique chosen is cluster random sampling, where the selection of this sample is in groups so that the sample in this study is students from grades 2 E and F with a total number of students as many as 39 students.

As for the background of choosing the location of the school at Elementary School Merdeka Bandung City, the school is one of the schools that implements the independent curriculum with the status of Merdeka Change, besides that the school is located at the center of Bandung. Grade 2 students are selected as the population considering that they learn by referring to Learning Outcomes in the final Phase A.

Data Collection

In this study, the data collection method used questioners related to motivation in learning motion (Nur, Suherman, & Subarjah, 2019). This questionnaire contains 37 questions from 5 indicators of student learning in learning motion, the five aspects are Perseverance in learning, Tenacious in facing difficulties, Interest and Sharpness of attention in learning, Achievement in Learning and Independent in learning. The instrument has previously been tested for validity and reliability. The results of the validity test obtained 10 valid question items and 4 invalid

questions for questions from the Perseverance in Learning indicator, 6 valid question items and 2 invalid for the Tenacious indicator in facing difficulties, 8 valid question items and 0 invalid question items for the Interest and Sharpness of attention in learning indicator, 6 valid question items and 2 invalid question items for the Achievement in Learning indicator and 7 valid question items and 1 question invalid for the Independent in learning indicator. In the questioner there are two alternative answers that refer to the guttman scale (Yes / No). Following are the validity and reliability scores from the student motivation questionnaire in learning movement:

Table 1. Validity of Student Motivation Questionnaire in Learning Motion

Indicator	Number of Valid Items	r_{count}	Score of Validity
1. Perseverance in Learning	10	0.291	0.294 – 0.652
2. Tenacious in the Face of Adversity	6	0.291	0.309 – 0.475
3. Interest and Attention Sharpness in Learning	8	0.291	0.371 – 0.598
4. Performing in Learning	6	0.291	0.494 – 0.587
5. Independent in Learning	7	0.291	0.296 – 0.735
Number of Valid Question Items	**37**		

Table 2. Realiability Questionnaire Motivation in Learning Motion

Cronbach's Alpha	N of Item
.896	37

The process of filling out this questioner is guided by the PJOK teacher, where the PJOK teacher rereads each question aims to strengthen the understanding of students and make it easier for them to choose answers / alternative answers that suit what they feel, this is done considering the ability of students' understanding in the questions is still diverse.

Procedures and Data Analysis

The procedure carried out is to carry out treatment of various games based on fundamental movement patterns via the application as many as 8 meetings consisting of 1 meeting for the initial test, 6 meetings for treatment and 1 meeting for the final test. Each game is held for 10 minutes so that in one meeting, students are given treatment for 30 minutes. The data analysis technique used is using percentage analysis with the help of Microsoft excel and using simple paired t-test analysis with the help of SPSS version 25.

RESULTS AND DISCUSSION

Result

Based on the results of measurements in the field, it is obtained in the form of preliminary test results and final tests carried out on research subjects, which can be seen in the following table 1:

**Table 1.** Calculation Results Description of Research Data

Test Period	N	Min	Max	Sum	Mean	Std. Deviation
Pretest	39	12	26	916	23.49	2.864
Posttest	39	25	32	1129	28.95	1.835
Valid N (listwise)	39					

Based on the data in the table above, it can be seen that the pretest results with a minimum score of 12 and a maximum score of 26 have an average score of 23.49 and a standard deviation of 2,864, while for posttest results with a minimum score of 25 and a maximum score of 32, the average score is 28.95 and the standard deviation is 1,835.

Table 2. Paired Sample Test Calculation Results

		Paired Samples Test							
			Paired Differences						
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Pretest - Posttest	-5.462	3.042	.487	-6.448	-4.475	-11.211	38	.000

Based on the results of the analysis shown in the table above, it can be seen that the difference in the mean value between the pretest and posttest scores is -5.462 with a t-count score of -11.211 with df = 38 and a value or sig score. (2-tailed) = 0.000 < 0.05, meaning that there is an influence of the implementation of Games approach based on fundamental movement patterm via android applications on student motivation in learning movement in the era of independent curriculum.
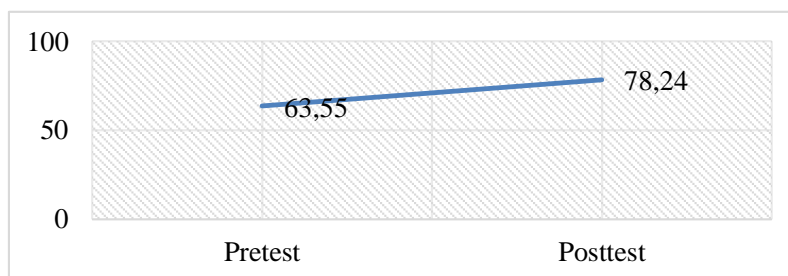
Figure 1. Results of Student Motivation in Learning Motion

Figure 1 shows the results of the percentage achievement between the pretest and posttest data, where in the pretest data the achievement of student motivation results in learning movements in the era of the independent curriculum reached 63.55% and after being given treatment in the form of an Android application-based Games Approach, results were obtained of 78.24%. This indicates an increase in student motivation achievement in learning motion by ± 15%.

Discussion

Based on the findings referring to the results of data analysis, it was obtained that student motivation in learning motion, especially in the era of the independent curriculum, can increase through the application of a fundamental movement pattern-based play approach via an android application. Android apps provide new learning experiences for students that will keep students motivated to learn them (Putra, Wijayati, & Mahatmanti, 2017; Rizkiyansyah, Khery, & ..., 2018). The learning process that is integrated with digital devices will make it easier for students to access teaching materials, so that they get information faster and take longer to learn it (Hambali et al., 2022), Using Android application devices in the learning process as a teaching medium has a positive impact and can increase motivation for students (Kurnia, Haryanto, Sanova, & Dewi, 2022; Suarmika, Hidayat, & Safitri, 2023), The use of digital media in the form of applications on smartphones makes it easier for students to do learning independently besides that it can increase student motivation in learning (Ricky, Hudah, & Widiyatmoko, 2021; Kudiasanti, 2017; Nopiyanto & Ibrahim, 2021).

Motivation is a reflection of involvement in a behavior that has a purpose that is relevant to the behavior shown (Deci, E. L., & Ryan, 2000). With the motivation in a person, it will indirectly have an impact on the growth of behavior to take an active role in every movement activity in physical education (Haerens, L., Kirk, D., Cardon, G., De Bourdeaudhuij, I., & Vansteenkiste, 2010) and will have its own satisfaction in doing motion activities. Increased student motivation in learning this movement can arise because of the learning situation created by the teacher (S Juditya, Rusmana, & Zakaria, 2021), The achievement of student learning outcomes from the existence of student motivation shown in physical education learning depends on planning and choosing learning strategies (Chatzipanteli, Digelidis, Karatzoglidis, & Dean, 2016). Student motivation in learning motion, especially in physical education learning, can be influenced by two factors, namely intrinsic and extrinsic factors, the role of teachers in creating learning or choosing learning media is one of the extrinsic factors that can

increase student motivation in learning motion (Pratiwi, Artanayasa, & Satyawan, 2023; Khoir, S., Usra, M., & Destriana, 2022).

One way to increase student motivation in learning motion is through physical education learning programs that prioritize games. Even with the application of the play approach, students will try hard to follow every movement activity (Harvey & Jarrett, 2014), The students will feel happy in learning if the learning process is packaged into simplified or modified game situations and game rules (Hambali & Sutiswo, 2019). The play approach is one of the important things to be applied in physical education learning in order to have an impact on student involvement in every movement activity carried out (Harvey, S., Jarrett, 2014), has an impact on student excitement that encourages the emergence of a sense of desire to be fully involved in every motion learning activity (Gouveia et al., 2019; Gray, S., 2011; Mitchel S.A., Oslin L.J., 2013).

CONCLUSION

The conclusion obtained from the results of data analysis is that Android application-based Games Approach can increase student motivation in learning motion in the era of independent curriculum. That way the results of this conclusion provide a little picture that smartphones can be used in the learning process, so it not only has a negative impact but also has a positive impact if used wisely and guided by teachers. Therefore, teachers can provide teaching materials through smartphone media through android applications or digital-based. It is hoped that in the future other researchers can review or re-examine the influence or impact of the use of technological media on student learning outcomes, both in cognitive, affective and psychomotor aspects.

REFERENCES

Ambardini, R. L. (2009). Pendidikan Jasmani Dan Prestasi Akademik : Tinjauan Neurosains. *Jurnal Pendidikan Jasmani Indonesia*, *6*(April), 46–52. Retrieved from http://staff.uny.ac.id/sites/default/files/132256204/Pendidikan Jasmani-Otak.pdf

Bochaver, A. A., Korzun, A. N., & Polivanova, K. N. (2017). Outdoor Pastimes of Children and Teenagers. *Psychology, Journal of the Higher School of Economics*, *14*(3), 470–490. https://doi.org/10.17323/1813-8918-2017-3-470-490

Chatzipanteli, A., Digelidis, N., Karatzoglidis, C., & Dean, R. (2016). A tactical-game approach and enhancement of metacognitive behaviour in elementary school students. *Physical Education and Sport Pedagogy*, *21*(2), 169–184. https://doi.org/10.1080/17408989.2014.931366

Deci, E. L., & Ryan, R. M. (2000). The 'what' and 'why' of goal pursuits: Human need and the self-determination of behavior. *Psychological Inquiry*, *11*, 227–268.

Gouveia, É. R., Gouveia, B. R., Marques, A., Kliegel, M., Rodrigues, A. J., Prudente, J., … Ihle, A. (2019). The effectiveness of a tactical games approach in the teaching of invasion games. *Journal of Physical Education and Sport*, *19*(3), 962–970. https://doi.org/10.7752/jpes.2019.s3139

Gray, S., & S. J. (2011). Developing pupils' performance in team invasion games. *Physical Education & Sport Pedagogy*, *16*(1), 15–32.

Haerens, L., Kirk, D., Cardon, G., De Bourdeaudhuij, I., & Vansteenkiste, M. (2010). Motivational profiles for secondary school physical education and its relationship to the adoption of a physically active lifestyle among university students. *European Physical Education Review*, *16*, 117–139.

Hambali, S., Akbaruddin, A., Bustomi, D., Rifai, A., Iskandar, T., Ridlo, A. F., … Tyas, R. A. (2021). The effectiveness learning of physical education on pandemic covid-19. *International Journal of Human Movement and Sports Sciences*, *9*(2), 219–223. https://doi.org/10.13189/saj.2021.090208

Hambali, S., Hanif, A. S., Widiastuti, Dlis, F., Samsudin, & Sobarna, A. (2022). The Effectiveness of Learning Passing Volleyball for Student on Website-Based. *International Journal of Human Movement and Sports Sciences*, *10*(2), 324–330. https://doi.org/10.13189/saj.2022.100224

Hambali, S., & Sutiswo. (2019). PENGARUH METODE BERMAIN TERHADAP HASIL BELAJAR PASSING BAWAH BOLA VOLI DI SEKOLAH DASAR. *PERSPEKTIF Ilmu Pendidikan*, *33*(1), 27–32. https://doi.org/doi.org/PIP.331.3 Volume

Hamzah. (2021). Pelaksanaan Pembelajaran Penjas di SD Negeri Se-kelurahan Benteng Kecamatan Sungai Batang Kabupaten Indragiri Hilir. *Jurnal Pendidikan Edukasi*, *9*(1), 42–56.

Harvey, S., & Jarrett, K. (2014). A review of the game-centred approaches to teaching and coaching literature since 2006. *Physical Education and Sport Pedagogy*, *19*(3), 278–300. https://doi.org/10.1080/17408989.2012.754005

Hwang, G. J., Wu, P. H., & Chen, C. C. (2012). An online game approach for improving students' learning performance in web-based problem-solving activities. *Computers and Education*, *59*(4), 1246–1256. https://doi.org/10.1016/j.compedu.2012.05.009

Juditya, S, Rusmana, R., & Zakaria, D. A. (2021). Pendidikan Jasmani Di Tengah Tuntutan dan Perubahan Pembelajaran Abad 21. *Maroones: Jurnal …*, *1*(01), 23–31. Retrieved from https://journal.unsika.ac.id/index.php/maroones/article/view/5480%0Ahttps://journal.un sika.ac.id/index.php/maroones/article/download/5480/3096

Juditya, Silvy. (2018). *GERAK DASAR LAY UP SHOOT PADA SISWA MELALUI PENERAPAN MODEL PSI (PERSONALIZED SYSTEM INTRACTION) Penelitian ini bertujuan untuk mengetahui pengaruh sebelum dan sesudah diterapkannya Model Personalized System Intraction dengan menggunakan modul bergambar*. *2*(November), 71–80.

Juditya, Silvy. (2020). *Pembelajaran Penjas di Era Covid-19*.

Khoir, S., Usra, M., & Destriana, D. (2022). The Effectiveness of Limited Face-to-Face Physical Education Learning in the New Normal Era. *Prosidding Seminar Nasional Pendidikan Jasmani Dan Kesehatan*, *1*(1), 421–434.

Kooiman, B. J., & Sheehan, D. P. (2014). Motivation to Move with Exergaming in Online Physical Education. *International Journal of Physical Education, Fitness and Sports*, *3*(2), 01–24. https://doi.org/10.26524/1421

Kudiasanti, R. T. A. (2017). *Pengembangan Aplikasi Edukatif Berbasis Android dan Dekstop (Universitas Negeri yogyakarta)*. Retrieved from https://eprints.uny.ac.id/47615/

Kurnia, M. R. A., Haryanto, H., Sanova, A., & Dewi, C. A. (2022). Studi Respon Siswa Terhadap Pengembangan Multimedia Interaktif Berbasis Chemo-Entrepreneurship Berbentuk Aplikasi Android. *Hydrogen: Jurnal Kependidikan Kimia*, *10*(1), 10. https://doi.org/10.33394/hjkk.v10i1.4954

Leont'eva, M., & Levchenkova, T. (2020). Folk-based outdoor games as means to improve the physical activity and emotional well-being of pre-school children. In *Outdoor Recreation-Physiological and Psychological Effects on Health*. IntechOpen.

Mitchel S.A., Oslin L.J., & G. L. L. (2013). *Teaching sport concepts and skills. A tactical games approach for ages 7 to 18. Champaign*. IL: Human Kinetics.

Nopiyanto, Y. E., & Ibrahim, I. (2021). Tanggapan mahasiswa pendidikan jasmani terhadap pembelajaran online. *Altius: Jurnal Ilmu Olahraga Dan Kesehatan*, *10*(2), 169–180. https://doi.org/10.36706/altius.v10i2.15287

Nur, L., Suherman, A., & Subarjah, H. (2019). The use of global positioning system (GPS) polars to determine motion intensity. *Journal of Engineering Science and Technology*, *14*(4), 2132–2139.

Ovsyannikova, I. N., Tomilin, K. G., Tumasyan, Y. A., Vasilkovskaya, Y. A., & Malygina, L. V. (2021). Game method to increase students' motivation to engage in elective disciplines in physical culture and sports. *Physical Education of Students*, *25*(3), 197–204. https://doi.org/10.15561/20755279.2021.0308

Papastergiou, M. (2009). Digital Game-Based Learning in high school Computer Science education: Impact on educational effectiveness and student motivation. *Computers and Education*, *52*(1), 1–12. https://doi.org/10.1016/j.compedu.2008.06.004

Parish, L. E., & Treasure, D. C. (2003). Physical activity and situational motivation in physical education: Influence of the motivational climate and perceived ability. *Research Quarterly for Exercise and Sport*, *74*(2), 173–182.

Pier, L., Hough, H. J., Christian, M., Bookman, N., Wilkenfeld, B., & Miller, R. (2021). Covid-19 and the educational equity crisis: Evidence on learning loss from the CORE data collaborative. *Policy Analysis for California Education*.

Pratiwi, L. S., Artanayasa, I. W., & Satyawan, I. M. (2023). *Motivation to learn physical education through face-to-face learning in the COVID-19 pandemic*. *12*(1), 178–187.

Priyanto, A. (2013). Peningkatan motivasi belajar gerak dasar lari melalui pendekatan bermain

dalam pembelajaran Penjas siswa kelas SD I Donotirto Kretek Bantul. *Jurnal Pendidikan Jasmani Indonesia*, *9*(1), 1–6.

Putra, R. S., Wijayati, N., & Mahatmanti, F. W. (2017). Pengaruh Penggunaan Media Pembelajaran Berbasis Aplikasi Android Terhadap Hasil Belajar Siswa. *Jurnal Inovasi Pendidikan Kimia*, *11*(2), 2009–2018. https://doi.org/https://doi.org/10.15294/jipk.v11i2.10628

Ricky, E. N., Hudah, M., & Widiyatmoko, F. A. (2021). Pengembangan aplikasi pembelajaran pencak silat berbasis multimedia. *Altius: Jurnal Ilmu Olahraga Dan Kesehatan*, *10*(1), 40–52. https://doi.org/10.36706/altius.v10i1.13990

Rizkiyansyah, N., Khery, Y., & ... (2018). Pengaruh model pembelajaran CTL berbantuan media aplikasi android terhadap motivasi dan hasil belajar siswa pada materi sistem periodik unsur. *... Dan Pendidikan ...*, (September), 550–557. https://doi.org/http://dx.doi.org/10.1234/.v0i0.879

Rusdi, R., Dlis, F., Lubis, J., Nata, A. D., & Whalsen, W. (2020). The Effect of Teaching Style Pratice, Reciprocity, Inclusion and Learning Motivation on Butterfly Swimming Skills. *Kinestetik : Jurnal Ilmiah Pendidikan Jasmani*, *4*(2), 63–69. https://doi.org/10.33369/jk.v4i2.12574

Suarmika, P. E., Hidayat, N., & Safitri. (2023). Systematic Literature Review: Pemanfaatan Media Aplikasi Android Sebagai Bahan Ajar Interaktif. *Jurnal IKA: Ikatan Alumni PGSD UNARS*, *13*(1), 278–292. https://doi.org/https://doi.org/10.36841/pgsdunars.v13i1.3154

Yoo, D., & Kweon, I. S. (2019). Learning loss for active learning. *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition*, *2019-June*, 93–102. https://doi.org/10.1109/CVPR.2019.00018

Zakaria, D. A., Hambali, S., Juditya, S., & Asmara, H. (2023). *Kinestetik : Jurnal Ilmiah Pendidikan Jasmani The Impact of Technology Media Applications on Aspects of Student Responsibility on Physical Education Learning*. 7(1), 258–264.