



Team game tournaments to improve the enjoyment and basic technical of handball student-athletes: A randomized-controlled trial

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ABSTRACT

There has been an increase in the use of the TGT learning model in physical education, but the lack of TGT research which is associated with enjoyment and basic technical in handball is a gap in research. The objective of this study was to evaluate the effect of using TGT in improving student-athlete enjoyment and basic techniques. This study applied the true experiment method. The participants were student-athletes from junior high school 46 Palembang (n=30). Physical education classes was conducted in experimental group through TGT, while the control group received conventional PE. The results showed that there were no differences in the value of enjoyment and basic techniques in the experimental and control groups before the experiment, but there were differences after the experiment. Based on the Paired sample t-test it was proven that after teaching handball for 4 weeks through TGT, student-athlete enjoyment and basic techniques increased significantly, but the experimental group had a much larger mean value. Thus, it can be concluded that TGT was an effective method for physical education teacher to create enjoyment and improve basic techniques in handball. Future research needs to be carried out such as testing the effects of TGT using mixed methods research.

Keywords: Learning model; psychological performance; team sports; sports technique

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INTRODUCTION

Entering 2023, student athletes who are active in competitive sports such as handball at school and organizations must start to be trained and developed their performance which had declined during the COVID-19 pandemic crisis (Setiawan et al., 2020; Vasiliadis & Boka, 2021; Juliantine & Setiawan, 2022). Data showed that improving the performance of student athletes could support them in competition (Aguelo & Aquino, 2023), and had a higher opportunity in getting achievements in sports events which held at school or at the national level (Gani et al., 2023). Previous studies reported that many student athletes experienced a decline in performance related to psychology, such as stress, self-confidence, self-efficacy, grit or mood state (Alzwain, Bashatwa & Hamadneh, 2021; Malureanu, Panisoara & Lazar, 2021; Muzakki et al., 2022; Yuda et al., 2022), until

technique basic in playing handball (Juliantine & Setiawan, 2022). The main factors that cause a decline in student-athlete performance were inadequate training due to social distancing (Wong et al., 2020; Conde et al., 2021; Tjønndal, 2022), a lot of assignments from school, so student-athletes did not have time to carry out training and had difficulties in learning handball skill through online (Jumareng et al., 2021).

Enjoyment is one of psychological factors which hampered due to pandemic (Fin, Moreno-Murcia, León, Baretta & Júnior, 2019), and student athletes could not feel this during pandemic. Data reported that the enjoyment of student athletes in sports was gradually decrease, because they felt anxious and afraid when conducting exercise during the COVID-19 pandemic (Amalia et al., 2021). Enjoyment is an important factor to trigger fun and involvement in learning a particular sport (Moreno-Murcia & Hernández, 2019; Jooste, Rogerson, Hogg & Houghton, 2020; Berki & Tarjányi, 2022). According to Rodríguez-Macías, Robles & Fuentes-Guerra (2021), that enjoyment can be interpreted as a positive feeling towards sports activities. In other words, student athletes with a good level of enjoyment have high level of motivation and commitment to learn sports now and in the future (Evans et al., 2019; Oya & Ishihara, 2022). On the contrary, student athletes who have not experienced enjoyment in training activities, tend to stop their careers or get poor performance (Juliantine et al., 2022). Engels and Freund (2020), emphasized that student athletes who enjoyed the class training in physical education tended to involve sports when they were outside of school. Their status as student-athletes caused difficulties for them to enjoy training activities, because they got many obstacles in schools and sports organizations (Rodríguez-Macías, Robles & Fuentes-Guerra, 2021). Other studies reported the same results, the enjoyment of sports at school decreased significantly (Leisterer & Gramlich, 2021), so it was needed to increase the level of enjoyment among student athletes.

Basic techniques in handball include dribbling, passing and shooting, are important aspects (Nopianto et al., 2021), and need to be developed optimally (Font et al., 2021; de la Rubia et al., 2021). A good basic technique will support the performance of student athletes to win competition (Soares et al., 2020), and have great potential to obtain achievements in handball (Gouveia et al., 2019; Rios et al., 2023). Meanwhile, if not properly developed the basic techniques it will cause student athletes difficult to win. A study reported that the key to success in a sport is to have a good basic technique (Juliantine & Setiawan, 2022). Given the importance of the aspects of enjoyment and basic technique for student athletes to experience handball successfully, a fun teaching model is needed and has the potential to enhance these two aspects.

Team game tournaments (TGT) is a type of teaching model that can be used in physical education classes to encourage student athletes much more active in learning (Novion, 2018; Irwanto & Setyaningsih, 2020). The TGT model can be interpreted as a learning model that promotes student athletes to learn all the basic techniques in handball through a tournament. TGT is a learning that requires student athletes to form a small team consisting of 4 to 5 people of different genders and abilities. TGT has learning characteristics that hold a game in a tournament, which means that each team must compete against another team to become the champion team. According to recent studies, learning filled with games could support students more enthusiastic, so that learning outcomes will be increase (Wibowo, 2018; Dimiyati et al., 2023). Previous studies had documented the benefits of using TGT, such as increase motivation, movement abilities (Luo et al., 2020), creativity, cooperation (Sembiring et al., 2020), problem solving skills, so that in the end it can improve student-athlete learning outcomes (Hasmyati & Suwardi, 2018).

Previous studies had well documented TGT in physical education (Luo et al., 2020; Rubiyatno et al., 2023), but there was still limited research about the effect of TGT on increasing enjoyment. In addition, the basic techniques of student-athletes in handball was a gap in this study. This study presented a novelty in terms of testing the effect of TGT to increase enjoyment and basic techniques through an experimental study with a randomized controlled trial. Therefore, the purpose of our study was to examine the effect of the TGT model on increasing enjoyment and basic technique.

METHOD

Participants

This study involved 30 male athlete students and 5 female athlete students from junior high school 46 Palembang (Indonesia). The selection criteria were student athletes enrolled in handball extracurricular sports. Exclusion criteria were students who did not want to participate. The recruiting process is shown in Figure 1.

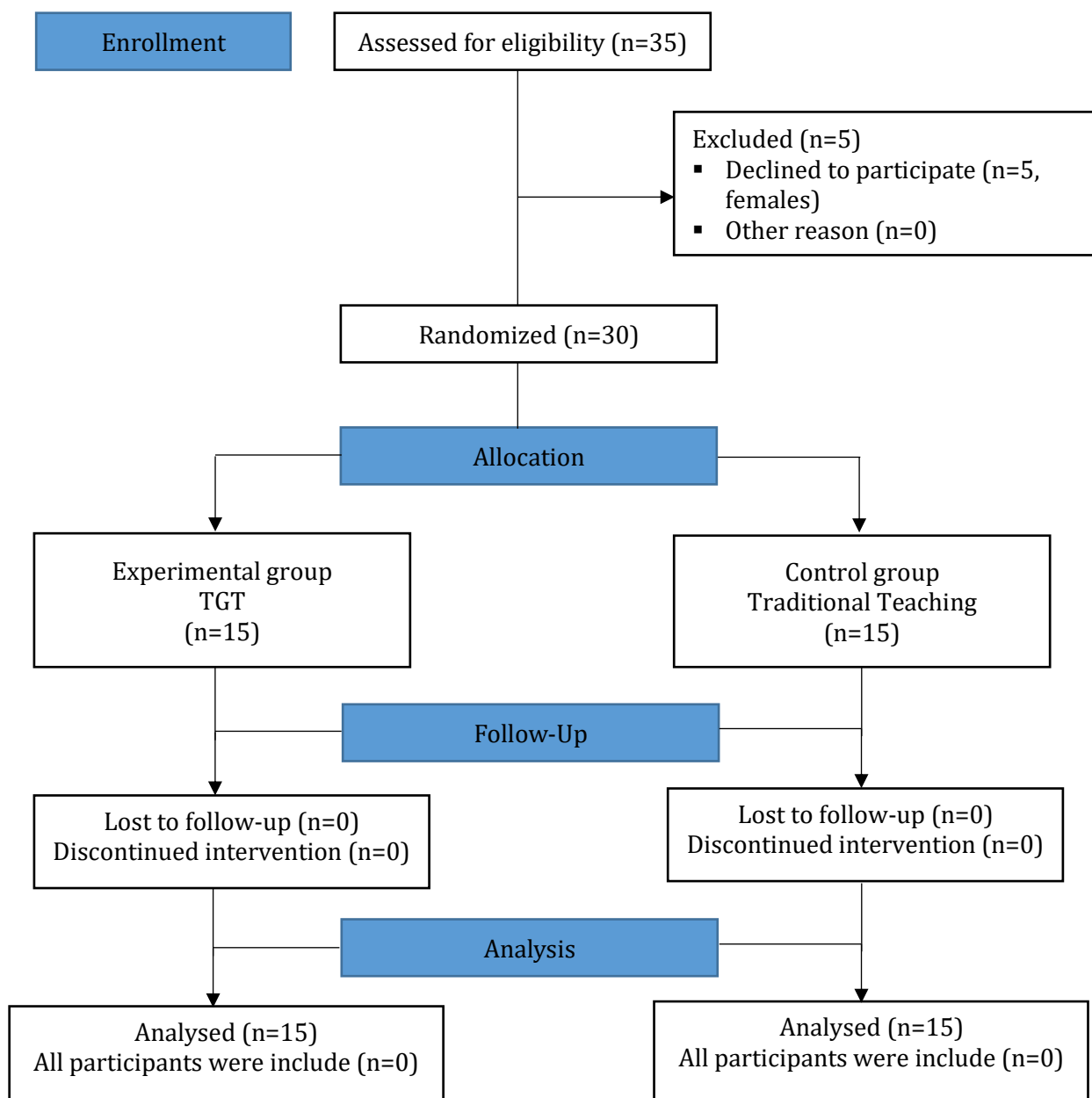


Figure 1. Participant selection process flow

Table 1. Demographic characteristics of the participants (Mean±SD)

Variable	Experimental group (n=15)	Control group (n=15)
Age (y)	21.90(0.55)	22.15(0.61)
Height (cm)	171.78(8.78)	169.62(8.03)
Weight (kg)	63.81(14.31)	64.18(15.51)
BMI (kg/m ²)	20.36 (3.51)	21.33 (4.17)

Instrument

Enjoyment. The instrument used to measure the enjoyment level of student-athletes adopted from Juliantine et al (2022), namely the Physical Education Curriculum Enjoyment Scale (PECES). This instrument consists of 5 question items, but it was modified to adapt to junior high school level athletes. Example questions: (1) "I like this teaching", (2) "This teaching is more interesting than previous", (3) "I don't want to miss this class", (4) "This teaching help me more motivated in learning", and (5) "This teaching is not boring". All of these questions were answered with a Likert scale from 1=disagree to 5=strongly agree. This instrument had been tested and got a validity value of 0.89 and a reliability value of 0.7.

Basic Technical. To measure the basic technical level of student athletes, it can be adopted from previous studies (Saavedra et al., 2020; Juliantine & Setiawan, 2022; Metan & Küçük, 2022), with following details:

Shooting Test. Participants shot towards the goal with a distance of 9 meters. If the ball entered the upper left corner (zone 1), the upper right corner (zone 2), then the score was 2 points. Meanwhile, if the ball entered zones 3 and 4, then the score was 3 points. The subject is given 12 opportunities.

Passing Test. Participants stood behind the boundary line at a distance of 1 meter from the wall while holding the ball in front of their chests, then participants threw the ball to the wall and then caught it again. This activity was carried out for 30 seconds. The score was calculated from the total passing score for 30 seconds.

Dribbling Test. Participants dribble the ball over the cone. The score was calculated by counting the number of cones that had been passed in 30 seconds.

Procedure

This research was approved by the Research Ethics Committee of Sriwijaya (no: 345/04/2023) and junior high school 46 Palembang (15/04/2023). The research was carried out in the sport field of junior high school 46 Palembang from 08.00-10.00 in the morning. At the first meeting (01 April 2023), all participants carried out the initial test, namely filling in the enjoyment questionnaire and basic technical test. At the second meeting (02 April, 2023), participants carried out the TGT program activities, and it lasted until the eleventh meeting (23 April, 2023). Last meeting (April 26, 2023), participants carried out the final test by filling in the enjoyment questionnaire and basic technical test.

Statistical Analysis

Data was analyzed with IBM SPSS 25.0. Normality test using Shpauro-Wilk ($P > 0.05$). Independent sample t-test was used to test differences in enjoyment and basic technical values between the experimental and control groups before and after the experiment. Meanwhile, the Paired sample t-test was used to test the effect of the TGT and control groups ($p < 0.05$).

RESULTS AND DISCUSSION

In this study normality was assumed to be normal ($p > 0.05$). Table 2 shows the descriptive statistical values of the two groups. Table 3 shows that there is no difference in the enjoyment and basic technical values between the experimental and control groups before the experiment ($p > 0.05$), but there is a difference in the values after the experiment ($p < 0.05$). Paired sample t-tests proved that the experimental and control groups had an effect on increasing enjoyment and basic skills ($p < 0.05$), but based on the average value of the experimental group had a greater effect (Table 5).

Table 2. Statistical descriptive value

Teaching Model	Enjoyment		Basic Technical	
	Before (M±SD)	After (M±SD)	Before (M±SD)	After (M±SD)
TGT	22.07 (1.58)	24.47(1.64)	38.53(4.95)	41.27(4.48)
Conventional	21.80(1,32)	22.73(1.83)	36.60(3.33)	37.60(2.23)

Table 3. Differences in enjoyment and basic technical values between the experimental and control groups before the experiment

Teaching Model	Enjoyment			Basic Technical		
	(M±SD)	t	p	(M±SD)	t	p
TGT	22.07(1.58)			38.53(4.95)		
Conventional	21.80(1.32)	0.502	0.620	36.60(3.33)	1.254	0.220

Table 4. Differences in enjoyment and basic technical values between the experimental and control groups after the experiment

Teaching Model	Enjoyment			Basic Technical		
	(M±SD)	t	p	(M±SD)	t	p
TGT	24.47(1.64)			41.27(4.48)		
Conventional	22.73(1.83)	2.730	0.011	37.60(2.23)	2.838	0.008

Table 5. Paired sample t-test

Teaching Model	Enjoyment			Basic Technical		
	Before-After (M±SD)	T	p	Before-After (M±SD)	t	p
TGT	2.40(2.32)	4.000	0.001	2.73(5.67)	1.865	0.010
Conventional	9.33(1.71)	2.114	0.050	1.12(2.64)	1.464	0.018

Our research aims to evaluate the effect of the TGT model on increasing enjoyment and basic techniques. This study has several important findings. First, the teaching through TGT was proven to be able to increase the level of enjoyment among student athletes. Considering that TGT focused on presenting interesting games for student athletes, so that they felt motivation and enjoy with all classes (Rohmansyah, Marwati & Hiruntrakul, 2022; Usra et al., 2023). This is also in accordance with the opinion of Elumalai et al. (2022), providing game activities to student athletes could increase their enthusiasm and

enjoyment rather than conventional teaching. The result of this study is in line with previous studies which reported that teaching method with games could increase the ability of student athletes (Dimiyati et al., 2023). Basically, teaching models with game elements had proven to be far more effective than conventional teaching in an effort to change the interest of students from boring to enjoy and active in learning (Zulfikar & Budiana, 2019). In addition, Jumareng et al. (2022), explained that teaching method with games was starting to be used frequently by physical education teachers, because it was proven had a strength to trigger student athletes to be happier and focus on learning. On the other hand, Luo et al. (2020), reported similar results, teaching by promoting interesting games could attract student athletes to enjoy all learning class.

Second, TGT was effective in improving the basic techniques of student athletes in handball. The tournament which was conducted in teaching TGT could be considered as a method to teach basic techniques with fun (Engels & Freund, 2020). This is in line with (Ramadhan, 2019), TGT was able to improve student-athlete long jump skills. In teaching TGT, student athletes were required to conduct training with their respective teams before carrying out tournaments. Team training activities could help them to improve playing skills to be better than before. Other research reported that game-based teaching was effectively improve basic technical skills in soccer (Putra et al., 2021). Dewi and Verawati (2021), reported the same results, teaching physical education with various forms of games was an effective way to improve movement skills. Thus, the uniqueness and novelty of this study, namely teaching through TGT, was proven to have the potential to create a sense of enjoyment and improve the basic techniques possessed by student athletes in handball.

CONCLUSION

After conducting TGT teaching for 4 weeks, it can be concluded that this method was effective to increase the level of enjoyment and basic techniques of student athletes. However, there were several limitations in terms of limited number of participants (student-athletes) and only concentrated in one school in the city of Palembang (Indonesia). Thus, it is recommended that future research should involve a greater number of participants and cover several junior high schools in Indonesia. This research contributes in providing information and guidance for physical education teachers in creating interesting teaching through TGT, so that in the future student athletes can always enjoy physical education teaching to obtain satisfactory achievements.

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CONFLICT OF INTEREST

The authors state that this research does not have a conflict of interest with any party.

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