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Manuscript Status Update On (ID: 19927930): Current Status - Under Peer Review- The Effect of Games Experience Learning Model and Fundamental Movement Skills on Improving Soccer Playing Skills in Youth Soccer Players

1 pesan

Chloe Crawford <preview.hrpub@gmail.com> 10 Juni 2022 pukul 16.18
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Revision after Peer Review (ID:19927930)-The Effect of Games Experience Learning Model and Fundamental Movement Skills on Improving Soccer Playing Skills in Youth Soccer Players

3 pesan

Anthony Robinson <revision.hrpub@gmail.com> 5 Juli 2022 pukul 10.31
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thank you very much

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Anthony Robinson <revision.hrpub@gmail.com> 5 Juli 2022 pukul 13.10
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The Effect of Games Experience Learning Model and Fundamental Movement Skills on Improving Soccer Playing Skills in Youth Soccer Players

This is an interesting paper. It is well written and edited. Some of the sentences are long, there are only a couple sentences that I highlighted that I think need reworded. There is one paragraph that was really awkward, the message is important and I think it would be best if it were broken down into a few sentences. The abstract is what needs the most work. I strongly recommend that the statistics are eliminated, and that parts of the paper's conclusion be used, literally copied, onto the abstract. Keep the abstract as simple to read as possible, it will increase your readership.
I recommend that after the minor changes, the manuscript be accepted for publication.

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Abstract Makes no sense, The purpose of this research was to examine the games experience learning (GEL) model and the technical approach to training 9-10 year-old players, including: (1) the difference in the effect of the GEL and the technical approach on soccer playing skills, (2) the different effects between students with high and low fundamental movement skills on soccer playing skills, (3) the interaction of the GEL model and the technical approach with high and low fundamental movement skillson soccer playing skills. The research method is a 2x2 factorial experiment that involved 48 soccer players aged 9-10 years. The research instrument consisted of the David Lee soccer test and TGMD-2. (The abstract is very difficult to read. This is what others are going to read first, so this needs to be short, to the point, to encourage your readers to read the entire paper. I recommend using most of your conclusion. Eliminate the statistics.

Keywords: Game Experience Learning, Fundamental Movement Skills, Soccer Playing Skills, Youth Soccer Players

1. Introduction

Football is a popular sport among the general public. Soccer has been played by over 260 million people, both amateur and professional [1]. Soccer's popularity is growing by the day, which naturally motivates players to aim for higher goals [2]. However, accomplishing these goals is not simple. According to Mills et al, becoming a trustworthy soccer player is not something that comes naturally, but must be developed over time [3]. A well-thought-out and disciplined training regimen are critical to obtaining optimum performance. Furthermore, the football player's greatest effort becomes the focal focus.

According to studies, being a dependable athlete takes at least 10 years of disciplined training and 10,000 hours of focused training [4]. Physiological, tactical, and technical components of football performance must all be understood [1]. The technical part of soccer is one of the most important aspects to improve [5]. To achieve top performance at the senior level, youth soccer players require good basic techniques. Based on the previous research, mastering good technique is a key prerequisite in soccer for things like outwitting opponents, scheming, passing and receiving the ball, and scoring goals in the opponent's goal [5].

At the age of 9-12, soccer players fall into the categories of the late foundation phase and early adolescent developmental phase [6]. The theory from Balyi adds that the age of 9-12 is a golden age where children develop

certain movement pattern skills that can become automatic movement patterns [7]. The development of soccer-playing skills at this stage of course must be fun so that a love for playing soccer is embedded.

Studies showed that young athletes who succeed in terms of performance mature early, but they are unable to maintain peak performance at the senior level due to a variety of factors [8]. Injury, reduced motivation, changes in life priorities, and early specialization, all of which produce extreme fatigue, are thought to impair athletes' achievement at a young age [9]. According to relevant studies, the optimal time to attain the maximum career sporting achievements is between the ages of 20 and 31 [10]. A coach's job is to devise training techniques for developing soccer playing skills following the player's chronological age [11]

When the coach does not recognize the value of a proper training method, this becomes a serious issue. As a result, to coach football success, one must have a mentality that prioritizes athletes over victories. The holistic development of soccer achievement at a young age is characterized by a comprehensive treatment approach in which the coach must include social and mental components. As a result, young athletes should participate in training activities that are both comfortable and enjoyable [12][13]. Previous research has suggested that the play model approach might develop a sense of enthusiasm and pleasure in learning [13]

One of the most common training strategies is small side games [14]. Small side games are a system that combines movement patterns for physical development with soccer skills [14]. Small side games are a training strategy for physical development, tactics, and strategies of playing soccer, according to previous studies [15]. However, earlier research has found that little side games are more important for advanced soccer players' physical conditioning and specific techniques [16]

GEL (games experience learning) training approaches have only recently been discovered. Sulistiyono et al [16] coined the term "games experience learning." Games-based learning has adapted Kolb's theory, which stresses students' active participation to enhance skills, knowledge, effectiveness, and creative thinking through direct experience [16] [17]. In the realm of education, experience-based learning can help students build team leadership, make decisions, and deal with uncertainty [18]. The gaming approach can develop physical talents and technical skills in achievement sports [17]. A study from Sulistiyono stated that games experience learning was able to significantly improve teamwork, respect attitude, physical ability, and soccer playing skills [16]. Similar research also revealed that game experience learning was able to optimize skills and strengthen the character of adolescent soccer players [19]. This fact has made a new concept for researchers to re-test youth soccer players considering that the application of empirical practice methods is not yet optimal.

This study differs from prior research, in which Sulistiyono et al used an experimental technique, with the intervention group receiving the gaming experiential learning method and the control group receiving the traditional way [16]. Nevertheless, there were no characteristic variables in their study that the researchers expected would influence the implementation of an exercise approach, such as high fundamental movement skills and low fundamental movement skills. This will be the first in the research that will be conducted. Based on the issues raised, the goal of this research is to put the games experience learning method to the test and compare it to a technical approach for improving soccer abilities in youth players.

2. Materials and Methods

This research method involved field testing to determine the cause and effect relationship [20][21]. The approach used is a 2x2 factorial experiment, involving two manipulated independent variables, one controlled attribute variable, and one dependent variable. The dependent variable is soccer skills. The independent variables that were manipulated were the games experience learning exercise model and the technical approach training model which held 24 meetings in 8 weeks.

The participants were 48 soccer players, aged 9-10 years with an average height and weight of 140.98 ± 7.25 centimeters and 35.26 ± 8.67 kilograms. The study's inclusion criteria were athletes willing to train for 24 meetings, athletes in good health, and athletes who were serious about exercising, whereas the exclusion criteria were those who did not match the inclusion requirements. 48 soccer players were recruited based on these criteria, and a basic movement skill test was conducted to assess high and low fundamental movement skills. The TGMD-2 [22] was utilized in the fundamental movement skill test instrument, whereas the David Lee soccer test [23] was used in the soccer skill test instrument. Table 1 displays the factorial design.

Table 1. The 2x2 Factorial Design

Exercise Model (A) / Fudamental Movement Skills	GEL Approach Exercise Model (A1)	Technical Approach Practice Model (A2)
High (B1)	A1B1	A2B1
Low (B2)	A1B2	A2B2

2.1. Testing Procedures

Group A consisted of 24 participants who carried out a game experience learning exercise program, while 24 participants in group B carried out an exercise program with a technical approach. Participants carried out the exercise program 24 times for 8 weeks with 3 exercises per week. Before carrying out the training program, soccer players were (this has already occurred, so the verbs should be past tense) given instructions regarding training procedures and guided to carry out further warm-up to core exercises before going to the cool-down stage. In this study, researchers were assisted by colleagues so that the given exercise program could run smoothly. The following is an explanation of the gel training program and the technical approach exercise program presented in tables 2 and 3 (reword, perhaps say, Table 2 and Table 3 explain the gel training program and…).

The data analysis technique was carried out using a two-way ANOVA analysis of variance [24] and continued by using the Tukey test. Normality and homogeneity tests were carried out before the data analysis stage above. The normality test was carried out using the Shapiro-Wilk test, while the homogeneity test was carried out using the Levene test. The level of significance was set at 0.05 where all the results obtained were presented in terms of minimum, maximum, mean, and standard deviation [20]. The data were analyzed using the SPSS version 23 application.

Table 2. Exercise Program of Games Experience Learning

Meeting	Material and Description	
1-3	Core Exercise 1	Fishing Game, Goal Goal Game, Go Back So Door Dribble Ball Game
	Core Exercise 2	Fishing Game, Goal Goal Game, Go Back So Door Dribble Ball Game, 3 vs 1 Game, 4 vs 2 Game, 3 vs 3 + 4 Player Neutral Game
	Core Exercise3	Game 7 vs 7
4-6	Core Exercise 1	Time Bomb Games, Precious Feet Game, Police Vs Criminal Games
	Core Exercise 2	3 vs 3 Game, (Cave Breaking), Obstacle Passing Game or 3 vs 1 (+2), Opponent's Fortress Split Game (5 vs 5)
	Core Exercise 3	Game 7 vs 7
7-9	Core Exercise 1	Games of Together We Can, Horse Soccer Games, Chain Ball Games
		Game of Neutral Player Create Space for Shooting, 3 vs 2 Game, Continue Finishing, 3 Vs 3 + 2 Neutral Game
		Game 7 vs 7
10-12	Core Exercise 1	Pair Two Soccer Games, Fair Play Games, Treasure Keeper Games
	Core Exercise 2	3 vs 2 Dribbling Game, 4 vs 4 In Restricted Area Game, 4 vs 4 + 4 Player Neutral Game
	Core Exercise 3	Game 7 vs 7
13-15	Core Exercise 1	Team Frog Jump Games, Villain Shooting Games, Fun Hard Games
	Core Exercise 2	Game 4 vs 2 Become 6 vs 4, Ball Control Game Create a Shooting Room, Treasure Keeper Game
	Core Exercise 3	Game 7 vs 7
16-18	Core Exercise 1	Fishing Game, Goal Goal Game Goal Go Back So Door Game, Dribble Ball
	Core Exercise 2	3 vs 1 Game, 4 vs 2 Game, 3 vs 3 + 4 Player Neutral Game
	Core Exercise 3	Game 7 vs 7
19-21	Core Exercise 1	Games of Together We Can, Horse Soccer Games, Chain Ball Games
	Core Exercise 2	Game of Neutral Player Create Space for Shooting, 3 vs 2 Game, Continue Finishing, 3 Vs 3 + 2 Neutral Game
	Core Exercise 3	Game 7 vs 7
22-24	Core Exercise 1	Games of Together We Can, Horse Soccer Games, Chain Ball Games
	Core Exercise 2	Game Neutral Players Create Space for Shooting. Game 3 vs 2, Continue Finishing, Game of 3 Vs 3 + 2 Neutral
	Core Exercise 3	Game 7 vs 7

Description:

□ Students can appropriately and correctly conduct receiving technique (receiving the ball).

□ Students can accurately dribble.

− Students can demonstrate a teamwork mentality in practice/competition situations as well as in everyday encounters.

□ Students can demonstrate respect for others in practice/competition scenarios as well as in everyday encounters.

□ Students can practice other disciplines in practice/competition situations and daily life interactions.

Table 3. Exercise Program of Technical Training Model

Meeting	Material and Description	
1 and 19	Core Exercise 1	Drill Passing
	Core Exercise 2	Game Relation Passing
	Core Exercise 3	Game 7 vs 7
2 and 20	Core Exercise 1	Drill Passing
	Core Exercise 2	Game Relation Passing
	Core Exercise 3	Game 7 vs 7
3 and 21	Core Exercise 1	Drill Receiving
	Core Exercise 2	Game Relation Receiving
	Core Exercise 3	Game 7 vs 7
4 and 22	Core Exercise 1	Drill Receiving
	Core Exercise 2	Game Relation Receiving
	Core Exercise 3	Game 7 vs 7
5 and 23	Core Exercise 1	Drill Dribbling
	Core Exercise 2	Game Relation Dribbling
	Core Exercise 3	Game 7 vs 7
6 and 24	Core Exercise 1	Drill Dribbling
	Core Exercise 2	Game Relation Dribbling
	Core Exercise 3	Game 7 vs 7
7 to 9	Core Exercise 1	Drill shooting
	Core Exercise 2	Games relation passing
	Core Exercise 3	Games 7x7
10 to 12	Core Exercise 1	Drill receiving
	Core Exercise 2	Games relation receiving
	Core Exercise 3	Games 7x7
13 to 15	Core Exercise 1	Drill dribbling, drill passing, drill shooting
	Core Exercise 2	Games relation dribbling, games relation shooting, games relation passing
	Core Exercise 3	Games 7x7
16 to 18	Core Exercise 1	Drill passing, drill shooting, drill receiving
	Core Exercise 2	Games relation shotting, games relation receiving, games relation passing

Description:

□ Students can perform receiving technique skills (receiving the ball) properly and correctly

□ Students can perform dribbling technique skills (dribbling) properly and correctly

□ Students can perform shooting technique skills (kicking the ball) properly and correctly

Table 4. Pretest-posttest Data on Soccer Playing Skills

Group	***Minimum***	***Maximum***	***Mean***	***Std. Deviation***
Pretest A1B1	35,00	57,00	49,17	7,04
Posttest A1B1	30,00	48,00	40,08	6,04
Pretest A2B1	35,00	61,00	50,58	8,53
Posttest A2B1	32,00	55,00	45,83	8,45
Pretest A1B2	62,00	78,00	70,00	5,20
Posttest A1B2	57,00	73,00	65,25	5,34
Pretest A2B2	62,00	77,00	70,08	4,96
Posttest A2B2	58,00	71,00	64,75	4,71

Table 5. Data Normality Test

Group	Significance	Status
Pretest A1B1	0,155	Normal
Posttest A1B1	0,581	Normal
Pretest A2B1	0,293	Normal
Posttest A2B1	0,101	Normal
Pretest A1B2	0,330	Normal
Posttest A1B2	0,243	Normal
Pretest A2B2	0,292	Normal
Posttest A2B2	0,140	Normal

Based on the normality test that has been carried out using the Shapiro-Wilk test in Table 5 above, shows that all pretest and post-test data on football playing skills can be said to be normal because the significance value of p> 0.05.

Table 6. Homogeneity Test

Variable	F	df1	df2	Sig.
Soccer Playing Skills	1.525	3	44	0,221

Based on the homogeneity test that has been carried out using the Levene test Wilk, a significance value of 0.05 is obtained. Thus, it can be said that the data group is homogeneous

Table 7. GEL Model ANOVA Test and Technical Approach

Source	Type III Sum of Squares	Df	Mean Square	F	Sig
Exercise Model	42.187	1	42.187	20.158	0.000

Based on the ANOVA test above, the F value is 20.158 and the significance value is 0.000 <0.05. In other words, it can be said that there is a significant difference between the games experience learning model and the technical training model on soccer playing skills

Table 8. Differences in Players with High and Low Fundamental Movement Skills based on the Anova Test

Source	Type III Sum of Squares	df	Mean Square	F	Sig
Fundamental Movement Skills	42.188	1	42.188	20.158	0.000

Based on the ANOVA test above, it was obtained that the F value is 20,158 and a significance value is 0.000 <0.05. Thus, it can be said that there is a significant difference between soccer players who have high fundamental movement skills and low fundamental movement skills on soccer playing skills.

Table 9. Interaction of GEL and Technical Approach to High and Low Fundamental Movement Skills

Source	Type III Sum of Squares	df	Mean Square	F	Sig
Training Model*Fundamental Movement Skills	72.521	1	72.521	34.652	0.000

Based on the ANOVA test, an F value of 34,652 was obtained and a significance value of 0.000 < 0.05 which means that there is a significant interaction between the games experience learning exercise model and the technical approach training model with high and low fundamental movement skills.

Table 10. Tukey Test Results

Group	Interaction	Mean Difference	Std. Error	sig
A1B1	A2B1	4.3333*	.59059	.000
	A1B2	4.3333*	.59059	.000
	A2B2	3.7500*	.59059	.000
A2B1	A1B1	-4.3333*	.59059	.000
	A1B2	.0000	.59059	1.000
	A2B2	-.5833	.59059	.757
A1B2	A1B1	-4.3333*	.59059	.000
	A2B1	.0000	.59059	1.000
	A2B2	-.5833	.59059	.757
A2B2	A1B1	-3.7500*	.59059	.000
	A2B1	.5833	.59059	.757
	A1B2	.5833	.59059	.757

Based on the Tukey test on the asterisk sign (*), it is explained that the pairs that have interactions are: (1) A1B1-A2B1, (2) A1B1-A1B2, (3) A1B1-A2B2, while the other pairs are declared to have no difference The effects are: (1) A2B1-A1B2, (2) A2B1-A2B2, and (3) A1B2-A2B2

3. Discussion

The use of the appropriate exercise model is a necessary condition for achieving optimal results. Soccer players at a young age require a training program with complicated aspects. According to the study, the construction of training models must be done in a continuous, extended process with continual improvement following evolving science [25]. At the senior level, the training strategy for developing soccer-playing skills is critical to developing the best technique and performance. Furthermore, the age range of 9 to 12 years is critical for optimizing skills in some sports [7]. In this phase. training models need to be varied to increase passion for playing soccer. Complex training methods and models to optimize soccer playing skills have been found, one of which is the games experience learning (GEL) method [16].

Sulistiyono [8] created the game experience learning technique. Because this technique comprises stages of playing experience, reflection, concept understanding, and execution, it is necessary to employ the games experience learning exercise model [8]. The play experience stage is a genuine game built on learning via experience. In other words, the game is an important component of the experience that young football players must-have. The delivery of ethical knowledge to a young football player begins with the reflection stage. This is a question and guidance that soccer coaches provide to their players. As a result, this reflection might be considered an important aspect of acquiring moral ideals, respect, and success skills in later life. The next stage is that soccer players are expected to be able to understand, find, and conclude the concepts that have been given through guidance from the coach. After going through these 3 stages, it is hoped that after going through the last stage, football players can realize it well [8].

The game experience learning model contains 5-10 minutes of warm-up content and information, according to experts. For 20-30 minutes, Core Exercise 1 aims to promote character values and perform activities that apply to soccer skills. Core workout 2 consists of 20-30 minutes of technical skill development games. The core exercise consists of 7 vs 7 matches played in line with the Indonesian Football Association (PSSI) regulations for 20-30 minutes, followed by a 5-10 minute cool down [16][19]. Previous research has found that the games experience learning model improves teamwork, respect, passing, dribbling, speed, endurance, and power [8], As a result, given the numerous issues, researchers are interested in adopting the games experience learning approach in the practice area.

Based on a preliminary study conducted by researchers in the form of observations at the practice site, it was found that there were problems specifically related to soccer playing skills which included dribbling, passing, and receiving a weak ball. In addition, the passion for practice is also not optimal because the training approach given is still conventional. Based on interviews with five soccer coaches, it is known that the coaches have implemented training models that are games, but the results obtained are still not optimal. This finding is an impetus for researchers to conduct research using a games experience learning exercise model that aims to improve soccer playing skills in young soccer players. (can this be reworded? It is not bad, but the entire paragraph is difficult to read.)

The first hypothesis in this study was "there is an effect of the games experience learning exercise model and the technical approach training model on soccer playing skills". The results of the analysis found that the training model group GEL with an average difference of 10.08 seconds is stated to give better results than the technical training model with an average difference of 13.38 seconds. This finding indicates that there is a significant positive effect from the application of the GEL training model, in which the games experience learning training model group obtains better results.

The second hypothesis was "there is a significant difference in the effect between students with high and low fundamental movement skillson soccer playing skills". Based on the results of the analysis, students who have high fundamental movement skillsachieve better results with an average difference of 6.92 seconds than those with low fundamental movement skillswith an average difference of 5.04. Based on these results, it can be said that there is a significant effect, and the high basic skills group is better.

The third hypothesis of the research was "there is a significant interaction between the games experience learning model and the technical approach exercise with high and low fundamental movement skills on soccer playing skills". The ANOVA test supports that there was a significant interaction between the games experience learning exercise model and the technical approach with high and low fundamental movement skills on soccer playing skills.

The results of the Tukey test indicate that the pair (of what?) have significant interactions or there are significant differences, namely: games experience learning exercise model with high fundamental movement skills- technical approach training model with high fundamental movement skills (AIBI-A2B1), model games experience learning exercise with high fundamental movement skills-game experience learning model with low fundamental movement skills (A1B1-A1B2), games experience learning exercise model with high fundamental movement skills- technical approach training model with low fundamental movement skills (A1B1-A2B2). (This entire paragraph is confusing and unreadable. Rewrite. Break it down into multiple sentences, and focus on the discussion, not the full statistics, which are discussed in the previous section.)

(What finding?) is reinforced by another study which revealed that the experience learning method can provide free space for students to learn theoretical and practical science that helps athletes gain different and new experiences [26]. The experience learning strategy can help students improve their achievement [[13]. Sports-based experiential learning can improve technical skills and physical performance [27]. Therefore, the application of game experience learning that is applied provides facts that prove that this method has succeeded in improving playing skills in soccer at a young age. For this reason, the researcher recommends the games experience learning model not only to train soccer playing skills but also to develop respect, cooperation, and psychosocial attitudes

4. Conclusions

Based on the findings and discussion, it was determined that (a) there is a significant difference between the games experience learning training model on soccer playing skills where the games experience learning training model group is better than the technical approach training model, (b) there is a significant difference in the effect between soccer players that has high and low fundamental movement skills on soccer playing skills where students with high fundamental movement skills are better than those with low fundamental movement skills, (c) there is a significant interaction between the games experience learning exercise model and the technical approach training model with fundamental movement skills high and low on soccer playing skills. Based on these findings, it is concluded that the games experience learning training model is capable of improving soccer playing skills in young soccer players, given that the games experience learning training model is an ideal model for training better basic techniques according to soccer players' chronological age which is basically at the stage of playing while practicing. Since this study primarily focuses on developing soccer skills, it is recommended that future studies include all components to obtain better research results.

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The Effect of Games Experience Learning Model and Fundamental Movement Skills on Improving Soccer Playing Skills in Youth Soccer Players

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Abstract GEL stands for games experience learning and is an exercise model for improving soccer skills. GEL testing, on the other hand, is still negligible. Furthermore, there are issues in the field of soccer players who are 9-10 years old and do not have adequate soccer playing skills. The purpose of this research was to examine the GEL model and the technical approach, including: (1) the difference in the effect of the GEL and the technical approach on soccer playing skills, (2) the different effects between students with high and low fundamental movement skills on soccer playing skills, (3) the interaction of the GEL model and the technical approach with high and low fundamental movement skillson soccer playing skills. The research method is a 2x2 factorial experiment where the participants consist of 48 soccer players aged 9-10 years. The research instrument consisted of the David Lee soccer test and TGMD-2. Data were collected using tests and measurements and analyzed using two-way Anova with the help of SPSS 23. This study found that (1) there was a significant difference between GEL and technical approach to soccer playing skills with F 20.158 and sig 0.00<0.05. In other words, GEL is better than the engineering approach as evidenced by the mean values of 10.08 and 13.38 seconds. (2) there is a significant difference between high and low fundamental movement skills on soccer playing skills with F 20.105 and sig 0.00 <0.05. This finding indicates that high fundamental movement skills are better than low skills with an average value of 5.04 and 6.92 seconds. (3) there is a significant interaction between GEL and technical approach with high and low fundamental movement skills on soccer playing skills with F 34,652, sig 0.000 < 0.05. In conclusion, the GEL model is found to be better than the technical approach in terms of enhancing soccer-playing skills in youth players

Keywords: Game Experience Learning, Fundamental Movement Skills, Soccer Playing Skills, Youth Soccer Players

1. Introduction

Football is a popular sport among the general public. Soccer has been played by over 260 million people, both amateur and professional [1]. Soccer's popularity is growing by the day, which naturally motivates players to aim for higher goals [2]. However, accomplishing these goals is not as simple as twisting the palm. According to Mills et al, becoming a trustworthy soccer player is not something that comes naturally, but must be developed over time [3]. A well-thought-out and disciplined training regimen are critical to obtaining optimum performance. Furthermore, the football player's greatest effort becomes the focal focus.

According to studies, being a dependable athlete takes at least 10 years of disciplined training and 10,000 hours of focused training [4]. Physiological, tactical, and technical components of football performance must all be understood [1]. The technical part of soccer is one of the most important aspects to improve [5]. To achieve top performance at the senior level, youth soccer players require good basic techniques. Based on the previous research, mastering good technique is a key prerequisite in soccer for things like outwitting opponents, scheming, passing and receiving the ball, and scoring goals in the opponent's goal [5].

At the age of 9-12, soccer players fall into the categories of the late foundation phase and early adolescent developmental phase [6]. The theory from Balyi adds that the age of 9-12 is a golden age where children develop

certain movement pattern skills that can become automatic movement patterns [7]. The development of soccer-playing skills at this stage of course must be fun so that a love for playing soccer is embedded.

Studies showed that young athletes who succeed in terms of performance mature early, but they are unable to maintain peak performance at the senior level due to a variety of factors [8]. Injury, reduced motivation, changes in life priorities, and early specialization, all of which produce extreme fatigue, are thought to impair athletes' achievement at a young age [9]. According to relevant studies, the optimal time to attain the maximum career sporting achievements is between the ages of 20 and 31 [10]. A coach's job is to devise training techniques for developing soccer playing skills following the player's chronological age [11]

When the coach does not recognize the value of a proper training method, this becomes a serious issue. As a result, to coach football success, one must have a mentality that prioritizes athletes over victories. The holistic development of soccer achievement at a young age is characterized by a comprehensive treatment approach in which the coach must include social and mental components. As a result, young athletes should participate in training activities that are both comfortable and enjoyable [12][13]. Previous research has suggested that the play model approach might develop a sense of enthusiasm and pleasure in learning [13]

One of the most common training strategies is small side games [14]. Small side games are a system that combines movement patterns for physical development with soccer skills [14]. Small side games are a training strategy for physical development, tactics, and strategies of playing soccer, according to previous studies [15]. However, earlier research has found that little side games are more important for advanced soccer players' physical conditioning and specific techniques [16]

GEL (games experience learning) training approaches have only recently been discovered. Sulistiyono et al [16] coined the term "games experience learning." Games-based learning has adapted Kolb's theory, which stresses students' active participation to enhance skills, knowledge, effectiveness, and creative thinking through direct experience [16] [17]. In the realm of education, experience-based learning can help students build team leadership, make decisions, and deal with uncertainty [18]. The gaming approach can develop physical talents and technical skills in achievement sports [17]. A study from Sulistiyono stated that games experience learning was able to significantly improve teamwork, respect attitude, physical ability, and soccer playing skills [16]. Similar research also revealed that game experience learning was able to optimize skills and strengthen the character of adolescent soccer players [19]. This fact has made a new concept for researchers to re-test youth soccer players considering that the application of empirical practice methods is not yet optimal.

This study differs from prior research, in which Sulistiyono et al used an experimental technique, with the intervention group receiving the gaming experiential learning method and the control group receiving the traditional way [16]. Nevertheless, there were no characteristic variables in their study that the researchers expected would influence the implementation of an exercise approach, such as high fundamental movement skills and low fundamental movement skills. This will be the first in the research that will be conducted. Based on the issues raised, the goal of this research is to put the games experience learning method to the test and compare it to a technical approach for improving soccer abilities in youth players.

2. Materials and Methods

This research method involved field testing to determine the cause and effect relationship [20][21]. The approach used is a 2x2 factorial experiment, involving two manipulated independent variables, one controlled attribute variable, and one dependent variable. The dependent variable is soccer skills. The independent variables that were manipulated were the games experience learning exercise model and the technical approach training model which held 24 meetings in 8 weeks.

The participants were 48 soccer players, aged 9-10 years with an average height and weight of 140.98 ± 7.25 centimeters and 35.26 ± 8.67 kilograms. The study's inclusion criteria were athletes willing to train for 24 meetings, athletes in good health, and athletes who were serious about exercising, whereas the exclusion criteria were those who did not match the inclusion requirements. 48 soccer players were recruited based on these criteria, and a basic movement skill test was conducted to assess high and low fundamental movement skills. The TGMD-2 [22] was utilized in the fundamental movement skill test instrument, whereas the David Lee soccer test [23] was used in the soccer skill test instrument. Table 1 displays the factorial design.

Table 1. The 2x2 Factorial Design

Exercise Model (A) / Fudamental Movement Skills	GEL Approach Exercise Model (A1)	Technical Approach Practice Model (A2)
High (B1)	A1B1	A2B1
Low (B2)	A1B2	A2B2

2.1. Testing Procedures

Group A consisted of 24 participants who carried out a game experience learning exercise program, while 24 participants in group B carried out an exercise program with a technical approach. Participants carried out the exercise program 24 times for 8 weeks with 3 exercises per week. Before carrying out the training program, soccer players are given instructions regarding training procedures and guided to carry out further warm-up to core exercises before going to the cool-down stage. In this study, researchers were assisted by colleagues so that the given exercise program could run smoothly. The following is an explanation of the gel training program and the technical approach exercise program presented in tables 2 and 3.

The data analysis technique was carried out using a two-way ANOVA analysis of variance [24] and continued by using the Tukey test. Normality and homogeneity tests were carried out before the data analysis stage above. The normality test was carried out using the Shapiro-Wilk test, while the homogeneity test was carried out using the Levene test. The level of significance was set at 0.05 where all the results obtained were presented in terms of minimum, maximum, mean, and standard deviation [20]. The data were analyzed using the SPSS version 23 application.

Table 2. Exercise Program of Games Experience Learning

Meeting	Material and Description	
1-3	Core Exercise 1	Fishing Game, Goal Goal Game, Go Back So Door Dribble Ball Game
	Core Exercise 2	Fishing Game, Goal Goal Game, Go Back So Door Dribble Ball Game, 3 vs 1 Game, 4 vs 2 Game, 3 vs 3 + 4 Player Neutral Game
	Core Exercise3	Game 7 vs 7
4-6	Core Exercise 1	Time Bomb Games, Precious Feet Game, Police Vs Criminal Games
	Core Exercise 2	3 vs 3 Game, (Cave Breaking), Obstacle Passing Game or 3 vs 1 (+2), Opponent's Fortress Split Game (5 vs 5)
	Core Exercise 3	Game 7 vs 7
7-9	Core Exercise 1	Games of Together We Can, Horse Soccer Games, Chain Ball Games
		Game of Neutral Player Create Space for Shooting, 3 vs 2 Game, Continue Finishing, 3 Vs 3 + 2 Neutral Game
		Game 7 vs 7
10-12	Core Exercise 1	Pair Two Soccer Games, Fair Play Games, Treasure Keeper Games
	Core Exercise 2	3 vs 2 Dribbling Game, 4 vs 4 In Restricted Area Game, 4 vs 4 + 4 Player Neutral Game
	Core Exercise 3	Game 7 vs 7
13-15	Core Exercise 1	Team Frog Jump Games, Villain Shooting Games, Fun Hard Games
	Core Exercise 2	Game 4 vs 2 Become 6 vs 4, Ball Control Game Create a Shooting Room, Treasure Keeper Game
	Core Exercise 3	Game 7 vs 7
16-18	Core Exercise 1	Fishing Game, Goal Goal Game Goal Go Back So Door Game, Dribble Ball
	Core Exercise 2	3 vs 1 Game, 4 vs 2 Game, 3 vs 3 + 4 Player Neutral Game
	Core Exercise 3	Game 7 vs 7
19-21	Core Exercise 1	Games of Together We Can, Horse Soccer Games, Chain Ball Games
	Core Exercise 2	Game of Neutral Player Create Space for Shooting, 3 vs 2 Game, Continue Finishing, 3 Vs 3 + 2 Neutral Game
	Core Exercise 3	Game 7 vs 7
22-24	Core Exercise 1	Games of Together We Can, Horse Soccer Games, Chain Ball Games
	Core Exercise 2	Game Neutral Players Create Space for Shooting. Game 3 vs 2, Continue Finishing, Game of 3 Vs 3 + 2 Neutral
	Core Exercise 3	Game 7 vs 7

Description:

- Students can appropriately and correctly conduct receiving technique (receiving the ball).
- Students can accurately dribble.
- Students can demonstrate a teamwork mentality in practice/competition situations as well as in everyday encounters.
- Students can demonstrate respect for others in practice/competition scenarios as well as in everyday encounters.
- Students can practice other disciplines in practice/competition situations and daily life interactions.

Table 3. Exercise Program of Technical Training Model

Meeting	Material and Description	
1 and 19	Core Exercise 1	Drill Passing
	Core Exercise 2	Game Relation Passing
	Core Exercise 3	Game 7 vs 7
2 and 20	Core Exercise 1	Drill Passing
	Core Exercise 2	Game Relation Passing
	Core Exercise 3	Game 7 vs 7
3 and 21	Core Exercise 1	Drill Receiving
	Core Exercise 2	Game Relation Receiving
	Core Exercise 3	Game 7 vs 7
4 and 22	Core Exercise 1	Drill Receiving
	Core Exercise 2	Game Relation Receiving
	Core Exercise 3	Game 7 vs 7
5 and 23	Core Exercise 1	Drill Dribbling
	Core Exercise 2	Game Relation Dribbling
	Core Exercise 3	Game 7 vs 7
6 and 24	Core Exercise 1	Drill Dribbling
	Core Exercise 2	Game Relation Dribbling
	Core Exercise 3	Game 7 vs 7
7 to 9	Core Exercise 1	Drill shooting
	Core Exercise 2	Games relation passing
	Core Exercise 3	Games 7x7
10 to 12	Core Exercise 1	Drill receiving
	Core Exercise 2	Games relation receiving
	Core Exercise 3	Games 7x7
13 to 15	Core Exercise 1	Drill dribbling, drill passing, drill shooting
	Core Exercise 2	Games relation dribbling, games relation shooting, games relation passing
	Core Exercise 3	Games 7x7
16 to 18	Core Exercise 1	Drill passing, drill shooting, drill receiving
	Core Exercise 2	Games relation shotting, games relation receiving, games relation passing

Description:

- Students can perform receiving technique skills (receiving the ball) properly and correctly
- Students can perform dribbling technique skills (dribbling) properly and correctly
- Students can perform shooting technique skills (kicking the ball) properly and correctly

Table 4. Pretest-posttest Data on Soccer Playing Skills

Group	***Minimum***	***Maximum***	***Mean***	***Std. Deviation***
Pretest A1B1	35,00	57,00	49,17	7,04
Posttest A1B1	30,00	48,00	40,08	6,04
Pretest A2B1	35,00	61,00	50,58	8,53
Posttest A2B1	32,00	55,00	45,83	8,45
Pretest A1B2	62,00	78,00	70,00	5,20
Posttest A1B2	57,00	73,00	65,25	5,34
Pretest A2B2	62,00	77,00	70,08	4,96
Posttest A2B2	58,00	71,00	64,75	4,71

Table 5. Data Normality Test

Group	Significance	Status
Pretest A1B1	0,155	Normal
Posttest A1B1	0,581	Normal
Pretest A2B1	0,293	Normal
Posttest A2B1	0,101	Normal
Pretest A1B2	0,330	Normal
Posttest A1B2	0,243	Normal
Pretest A2B2	0,292	Normal
Posttest A2B2	0,140	Normal

Based on the normality test that has been carried out using the Shapiro-Wilk test in Table 5 above, shows that all pretest and post-test data on football playing skills can be said to be normal because the significance value of p> 0.05.

Table 6. Homogeneity Test

Variable	F	df1	df2	Sig.
Soccer Playing Skills	1.525	3	44	0,221

Based on the homogeneity test that has been carried out using the Levene test Wilk, a significance value of 0.05 is obtained. Thus, it can be said that the data group is homogeneous

Table 7. GEL Model ANOVA Test and Technical Approach

Source	Type III Sum of Squares	Df	Mean Square	F	Sig
Exercise Model	42.187	1	42.187	20.158	0.000

Based on the ANOVA test above, the F value is 20.158 and the significance value is 0.000 <0.05. In other words, it can be said that there is a significant difference between the games experience learning model and the technical training model on soccer playing skills

Table 8. Differences in Players with High and Low Fundamental Movement Skills based on the Anova Test

Source	Type III Sum of Squares	df	Mean Square	F	Sig
Fundamental Movement Skills	42.188	1	42.188	20.158	0.000

Based on the ANOVA test above, it was obtained that the F value is 20,158 and a significance value is 0.000 <0.05. Thus, it can be said that there is a significant difference between soccer players who have high fundamental movement skills and low fundamental movement skills on soccer playing skills.

Table 9. Interaction of GEL and Technical Approach to High and Low Fundamental Movement Skills

Source	Type III Sum of Squares	df	Mean Square	F	Sig
Training Model*Fundamental Movement Skills	72.521	1	72.521	34.652	0.000

Based on the ANOVA test, an F value of 34,652 was obtained and a significance value of 0.000 < 0.05 which means that there is a significant interaction between the games experience learning exercise model and the technical approach training model with high and low fundamental movement skills.

Table 10. Tukey Test Results

Group	Interaction	Mean Difference	Std. Error	sig
A1B1	A2B1	4.3333*	.59059	.000
	A1B2	4.3333*	.59059	.000
	A2B2	3.7500*	.59059	.000
A2B1	A1B1	-4.3333*	.59059	.000
	A1B2	.0000	.59059	1.000
	A2B2	-.5833	.59059	.757
A1B2	A1B1	-4.3333*	.59059	.000
	A2B1	.0000	.59059	1.000
	A2B2	-.5833	.59059	.757
A2B2	A1B1	-3.7500*	.59059	.000
	A2B1	.5833	.59059	.757
	A1B2	.5833	.59059	.757

Based on the Tukey test on the asterisk sign (*), it is explained that the pairs that have interactions are: (1) A1B1-A2B1, (2) A1B1-A1B2, (3) A1B1-A2B2, while the other pairs are declared to have no difference The effects are: (1) A2B1-A1B2, (2) A2B1-A2B2, and (3) A1B2-A2B2

3. Discussion

The use of the appropriate exercise model is a necessary condition for achieving optimal results. Soccer players at a young age require a training program with complicated aspects. According to the study, the construction of training models must be done in a continuous, extended process with continual improvement following evolving science [25]. At the senior level, the training strategy for developing soccer-playing skills is critical to developing the best technique and performance. Furthermore, the age range of 9 to 12 years is critical for optimizing skills in some sports [7]. In this phase. training models need to be varied to increase passion for playing soccer. Complex training methods and models to optimize soccer playing skills have been found, one of which is the games experience learning (GEL) method [16].

Sulistiyono [8] created the game experience learning technique. Because this technique comprises stages of playing experience, reflection, concept understanding, and execution, it is necessary to employ the games experience learning exercise model [8]. The play experience stage is a genuine game built on learning via experience. In other words, the game is an important component of the experience that young football players must-have. The delivery of ethical knowledge to a young football player begins with the reflection stage. This is a question and guidance that soccer coaches provide to their players. As a result, this reflection might be considered an important aspect of acquiring moral ideals, respect, and success skills in later life. The next stage is that soccer players are expected to be able to understand, find, and conclude the concepts that have been given through guidance from the coach. After going through these 3 stages, it is hoped that after going through the last stage, football players can realize it well [8].

The game experience learning model contains 5-10 minutes of warm-up content and information, according to experts. For 20-30 minutes, Core Exercise 1 aims to promote character values and perform activities that apply to soccer skills. Core workout 2 consists of 20-30 minutes of technical skill development games. The core exercise consists of 7 vs 7 matches played in line with the Indonesian Football Association (PSSI) regulations for 20-30 minutes, followed by a 5-10 minute cool down [16][19]. Previous research has found that the games experience learning model improves teamwork, respect, passing, dribbling, speed, endurance, and power [8], As a result, given the numerous issues, researchers are interested in adopting the games experience learning approach in the practice area.

Based on a preliminary study conducted by researchers in the form of observations at the practice site, it was found that there were problems specifically related to soccer playing skills which included dribbling, passing, and receiving a weak ball. In addition, the passion for practice is also not optimal because the training approach given is still conventional. Based on interviews with five soccer coaches, it is known that the coaches have implemented training models that are games, but the results obtained are still not optimal. This finding is an impetus for researchers to conduct research using a games experience learning exercise model that aims to improve soccer playing skills in young soccer players.

The first hypothesis in this study is that "there is an effect of the games experience learning exercise model and the technical approach training model on soccer playing skills". Based on the ANOVA test conducted, the F value was 20.158 and the significance value was 0.000 <0.05. The results of the analysis found that the training model group GEL with an average difference of 10.08 seconds is stated to give better results than the technical training model with an average difference of 13.38 seconds. This finding indicates that there is a significant effect from the application of the GEL training model where the games experience learning training model group obtains better results.

The second hypothesis is that "there is a significant difference in the effect between students with high and low fundamental movement skillson soccer playing skills". It was found that based on the results of the ANOVA test, the F value was 20,158 and the significance value was 0.000 < 0.05. Based on the results of the analysis, students who have high fundamental movement skillsachieve better results with an average difference of 6.92 seconds than those with low fundamental movement skillswith an average difference of 5.04. Based on these results, it can be said that there is a significant effect, and the high basic skills group is better.

The third hypothesis of the research is that "there is a significant interaction between the games experience learning model and the technical approach exercise with high and low fundamental movement skills on soccer playing skills". The ANOVA test found a significance value of 0.000 < 0.05 which indicates that the hypothesis is answered or there is a significant interaction between the games experience learning exercise model and the technical approach with high and low fundamental movement skills on soccer playing skills.

The results of the Tukey test on the asterisk (*) indicate that the pair have significant interactions or there are significant differences, namely: games experience learning exercise model with high fundamental movement skills-technical approach training model with high fundamental movement skills (AIBI-A2B1), model games experience learning exercise with high fundamental movement skills-game experience learning model with low fundamental movement skills (A1B1-A1B2), games experience learning exercise model with high fundamental movement skills-technical approach training model with low fundamental movement skills (A1B1-A2B2).

This finding is reinforced by another study which revealed that the experience learning method can provide free space for students to learn theoretical and practical science that helps athletes gain different and new experiences [26]. The experience learning strategy can help students improve their achievement [[13]. Sports-based experiential learning can improve technical skills and physical performance [27]. Therefore, the application of game experience learning that is applied provides facts that prove that this method has succeeded in improving playing skills in soccer at a young age. For this reason, the researcher recommends the games experience learning model not only to train soccer playing skills but also to develop respect, cooperation, and psychosocial attitudes

4. Conclusions

Based on the findings and discussion, it was determined that (a) there is a significant difference between the games experience learning training model on soccer playing skills where the games experience learning training model group is better than the technical approach training model, (b) there is a significant difference in the effect between soccer players that has high and low fundamental movement skills on soccer playing skills where students with high fundamental movement skills are better than those with low fundamental movement skills, (c) there is a significant interaction between the games experience learning exercise model and the technical approach training model with fundamental movement skills high and low on soccer playing skills. Based on these findings, it is concluded that the games experience learning training model is capable of improving soccer playing skills in young soccer players, given that the games experience learning training model is an ideal model for training better basic techniques according to soccer players' chronological age which is basically at the stage of playing while practicing. Since this study primarily focuses on developing soccer skills, it is recommended that future studies include all components to obtain better research results.

Acknowledgements

The author would like to thank the Universitas Negeri Yogyakarta institutions and football clubs, for their help and support so that this research can be completed properly.

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- yudanto <yudanto@uny.ac.id>

Dear Prof Anthony Robinson Here we send a revision of the article with the title "The Effect of Games Experience Learning Model and Fundamental Movement Skills on Improving Soccer Playing Skills in Youth Soccer Players" as well as a publication agreement letter. Thank you Dr. Yudanto Best regards

3 pesan

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International Journal of Human Movement and Sport Science

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Comments	**Answer and Action**
This is an interesting paper. It is well written and edited. Some of the sentences are long, there are only a couple sentences that I highlighted that I think need reworded. There is one paragraph that was really awkward, the message is important and I think it would be best if it were broken down into a few sentences. The abstract is what needs the most work. I strongly recommend that the statistics are eliminated, and that parts of the paper's conclusion be used, literally copied, onto the abstract. Keep the abstract as simple to read as possible, it will increase your readership. **I recommend that after the minor changes, the manuscript be accepted for publication.**	Thanks for the comment. the article has been improved according to the comments given. Sentences that are too long will be corrected and made into short sentences. The statistics section in the abstract is omitted and made concise. The conclusion of the research results in the abstract is added.
I made suggestions on the attached paper. The abstract is very bulky, it needs trimmed and more focus.	Thanks for the comment. Abstract section and word error are fixed as per the comments given. Abstract will be made more concise and focused. Abstract contains research problems, objectives, research methods which include research instruments and data analysis techniques, and research results without including statistical results.

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The Effect of Games Experience Learning Model and Fundamental Movement Skills on Improving Soccer Playing Skills in Youth Soccer Players

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Abstract Games experience learning (GEL) exercise model to improve football playing skills. GEL testing has not been done much. The purpose of this study is to test the GEL model and engineering approach including (1) differences in the influence of GEL and technical approaches on football playing skills, (2) differences in the influence between students with high and low fundamental skills on football playing skills, (3) interaction of GEL models and technical approaches with high and low fundamental skills towards football playing skills. The research method was a factorial 2x2 experiment, participants of football players aged 9-10 years totaled 48, and research instruments David lee soccer test and TGMD-2. Data collection techniques are tests and measurements, and data analysis techniques using two-way Anova with the help of SPSS 23. Result (1) there is a significant difference between the GEL and the technical approach to the skill of playing football, the GEL method is better than the approach of using engineering techniques. (2) there is a significant difference between high and low fundamental skills in football playing skills, high fundamental skills are better than low skills. (3) there is a significant interaction between GEL and approaches using techniques with high and low fundamental skills for football playing skills. It is concluded that the GEL model is better than the model with a technical approach to improve football playing skills in young players

Keywords: Game Experience Learning, Fundamental Movement Skills, Soccer Playing Skills, Youth Soccer Players

1. Introduction

Football is a popular sport among the general public. Soccer has been played by over 260 million people, both amateur and professional [1]. Soccer's popularity is growing by the day, which naturally motivates players to aim for higher goals [2][28]. However, accomplishing these goals is not simple. According to Mills et al, becoming a trustworthy soccer player is not something that comes naturally, but must be developed over time [3]. A well-thought-out and disciplined training regimen are critical to obtaining optimum performance. Furthermore, the football player's greatest effort becomes the focal focus.

According to studies, being a dependable athlete takes at least 10 years of disciplined training and 10,000 hours of focused training [4]. Physiological, tactical, and technical components of football performance must all be understood [1]. The technical part of soccer is one of the most important aspects to improve [5]. To achieve top performance at the senior level, youth soccer players require good basic techniques. Based on the previous research, mastering good technique is a key prerequisite in soccer for things like outwitting opponents, scheming, passing and receiving the ball, and scoring goals in the opponent's goal [5].

At the age of 9-12, soccer players fall into the categories of the late foundation phase and early adolescent

developmental phase [6]. The theory from Balyi adds that the age of 9-12 is a golden age where children develop certain movement pattern skills that can become automatic movement patterns [7]. The development of soccer-playing skills at this stage of course must be fun so that a love for playing soccer is embedded.

Studies showed that young athletes who succeed in terms of performance mature early, but they are unable to maintain peak performance at the senior level due to a variety of factors [8]. Injury, reduced motivation, changes in life priorities, and early specialization, all of which produce extreme fatigue, are thought to impair athletes' achievement at a young age [9]. According to relevant studies, the optimal time to attain the maximum career sporting achievements is between the ages of 20 and 31 [10]. A coach's job is to devise training techniques for developing soccer playing skills following the player's chronological age [11]

When the coach does not recognize the value of a proper training method, this becomes a serious issue. As a result, to coach football success, one must have a mentality that prioritizes athletes over victories. The holistic development of soccer achievement at a young age is characterized by a comprehensive treatment approach in which the coach must include social and mental components. As a result, young athletes should participate in training activities that are both comfortable and enjoyable [12][13]. Previous research has suggested that the play model approach might develop a sense of enthusiasm and pleasure in learning [13]

One of the most common training strategies is small side games [14]. Small side games are a system that combines movement patterns for physical development with soccer skills [14]. Small side games are a training strategy for physical development, tactics, and strategies of playing soccer, according to previous studies [15]. However, earlier research has found that little side games are more important for advanced soccer players' physical conditioning and specific techniques [16]

GEL (games experience learning) training approaches have only recently been discovered. Sulistiyono et al [16] coined the term "games experience learning." Games-based learning has adapted Kolb's theory, which stresses students' active participation to enhance skills, knowledge, effectiveness, and creative thinking through direct experience [16] [17]. In the realm of education, experience-based learning can help students build team leadership, make decisions, and deal with uncertainty [18]. The gaming approach can develop physical talents and technical skills in achievement sports [17]. A study from Sulistiyono stated that games experience learning was able to significantly improve teamwork, respect attitude, physical ability, and soccer playing skills [16]. Similar research also revealed that game experience learning was able to optimize skills and strengthen the character of adolescent soccer players [19]. This fact has made a new concept for researchers to re-test youth soccer players considering that the application of empirical practice methods is not yet optimal.

This study differs from prior research, in which Sulistiyono et al used an experimental technique, with the intervention group receiving the gaming experiential learning method and the control group receiving the traditional way [16]. Nevertheless, there were no characteristic variables in their study that the researchers expected would influence the implementation of an exercise approach, such as high fundamental movement skills and low fundamental movement skills. This will be the first in the research that will be conducted. Based on the issues raised, the goal of this research is to put the games experience learning method to the test and compare it to a technical approach for improving soccer abilities in youth players.

2. Materials and Methods

This research method involved field testing to determine the cause and effect relationship [20][21]. The approach used is a 2x2 factorial experiment, involving two manipulated independent variables, one controlled attribute variable, and one dependent variable. The dependent variable is soccer skills. The independent variables that were manipulated were the games experience learning exercise model and the technical approach training model which held 24 meetings in 8 weeks.

The participants were 48 soccer players, aged 9-10 years with an average height and weight of 140.98 ± 7.25 centimeters and 35.26 ± 8.67 kilograms. The study's inclusion criteria were athletes willing to train for 24 meetings, athletes in good health, and athletes who were serious about exercising, whereas the exclusion criteria were those who did not match the inclusion requirements. 48 soccer players were recruited based on these criteria, and a basic movement skill test was conducted to assess high and low fundamental movement skills. The TGMD-2 [22] was utilized in the fundamental movement skill test instrument, whereas the David Lee soccer test [23] was used in the soccer skill test instrument. Table 1 displays the factorial design.

Table 1. The 2x2 Factorial Design

Exercise Model (A) / Fudamental Movement Skills	GEL Approach Exercise Model (A1)	Technical Approach Practice Model (A2)
High (B1)	A1B1	A2B1
Low (B2)	A1B2	A2B2

2.1. Testing Procedures

Group A consisted of 24 participants who carried out a game experience learning exercise program, while 24 participants in group B carried out an exercise program with a technical approach. Participants carried out the exercise program 24 times for 8 weeks with 3 exercises per week. Before carrying out the training program, soccer players were given instructions regarding training procedures and guided to carry out further warm-up to core exercises before going to the cool-down stage. In this study, researchers were assisted by colleagues so that the given exercise program could run smoothly. Tables 2 and 3 describe gel exercise programs and exercise programs with an engineering approach

The data analysis technique was carried out using a two-way ANOVA analysis of variance [24] and continued by using the Tukey test. Normality and homogeneity tests were carried out before the data analysis stage above. The normality test was carried out using the Shapiro-Wilk test, while the homogeneity test was carried out using the Levene test. The level of significance was set at 0.05 where all the results obtained were presented in terms of minimum, maximum, mean, and standard deviation [20][29]. The data were analyzed using the SPSS version 23 application.

Table 2. Exercise Program of Games Experience Learning

Meeting	Material and Description	
1-3	Core Exercise 1	Fishing Game, Goal Goal Game, Go Back So Door Dribble Ball Game
	Core Exercise 2	Fishing Game, Goal Goal Game, Go Back So Door Dribble Ball Game, 3 vs 1 Game, 4 vs 2 Game, 3 vs 3 + 4 Player Neutral Game
	Core Exercise3	Game 7 vs 7
4-6	Core Exercise 1	Time Bomb Games, Precious Feet Game, Police Vs Criminal Games
	Core Exercise 2	3 vs 3 Game, (Cave Breaking), Obstacle Passing Game or 3 vs 1 (+2), Opponent's Fortress Split Game (5 vs 5)
	Core Exercise 3	Game 7 vs 7
7-9	Core Exercise 1	Games of Together We Can, Horse Soccer Games, Chain Ball Games
		Game of Neutral Player Create Space for Shooting, 3 vs 2 Game, Continue Finishing, 3 Vs 3 + 2 Neutral Game
		Game 7 vs 7
10-12	Core Exercise 1	Pair Two Soccer Games, Fair Play Games, Treasure Keeper Games
	Core Exercise 2	3 vs 2 Dribbling Game, 4 vs 4 In Restricted Area Game, 4 vs 4 + 4 Player Neutral Game
	Core Exercise 3	Game 7 vs 7
13-15	Core Exercise 1	Team Frog Jump Games, Villain Shooting Games, Fun Hard Games
	Core Exercise 2	Game 4 vs 2 Become 6 vs 4, Ball Control Game Create a Shooting Room, Treasure Keeper Game
	Core Exercise 3	Game 7 vs 7
16-18	Core Exercise 1	Fishing Game, Goal Goal Game Goal Go Back So Door Game, Dribble Ball
	Core Exercise 2	3 vs 1 Game, 4 vs 2 Game, 3 vs 3 + 4 Player Neutral Game
	Core Exercise 3	Game 7 vs 7
19-21	Core Exercise 1	Games of Together We Can, Horse Soccer Games, Chain Ball Games
	Core Exercise 2	Game of Neutral Player Create Space for Shooting, 3 vs 2 Game, Continue Finishing, 3 Vs 3 + 2 Neutral Game
	Core Exercise 3	Game 7 vs 7
22-24	Core Exercise 1	Games of Together We Can, Horse Soccer Games, Chain Ball Games
	Core Exercise 2	Game Neutral Players Create Space for Shooting. Game 3 vs 2, Continue Finishing, Game of 3 Vs 3 + 2 Neutral

	Core Exercise 3	Game 7 vs 7

Description:

- Students can appropriately and correctly conduct receiving technique (receiving the ball).
- Students can accurately dribble.
- Students can demonstrate a teamwork mentality in practice/competition situations as well as in everyday encounters.
- Students can demonstrate respect for others in practice/competition scenarios as well as in everyday encounters.
- Students can practice other disciplines in practice/competition situations and daily life interactions.

Table 3. Exercise Program of Technical Training Model

Meeting	Material and Description	
1 and 19	Core Exercise 1	Drill Passing
	Core Exercise 2	Game Relation Passing
	Core Exercise 3	Game 7 vs 7
2 and 20	Core Exercise 1	Drill Passing
	Core Exercise 2	Game Relation Passing
	Core Exercise 3	Game 7 vs 7
3 and 21	Core Exercise 1	Drill Receiving
	Core Exercise 2	Game Relation Receiving
	Core Exercise 3	Game 7 vs 7
4 and 22	Core Exercise 1	Drill Receiving
	Core Exercise 2	Game Relation Receiving
	Core Exercise 3	Game 7 vs 7
5 and 23	Core Exercise 1	Drill Dribbling
	Core Exercise 2	Game Relation Dribbling
	Core Exercise 3	Game 7 vs 7
6 and 24	Core Exercise 1	Drill Dribbling
	Core Exercise 2	Game Relation Dribbling
	Core Exercise 3	Game 7 vs 7
7 to 9	Core Exercise 1	Drill shooting
	Core Exercise 2	Games relation passing
	Core Exercise 3	Games 7x7
10 to 12	Core Exercise 1	Drill receiving
	Core Exercise 2	Games relation receiving
	Core Exercise 3	Games 7x7
13 to 15	Core Exercise 1	Drill dribbling, drill passing, drill shooting
	Core Exercise 2	Games relation dribbling, games relation shooting, games relation passing
	Core Exercise 3	Games 7x7
16 to 18	Core Exercise 1	Drill passing, drill shooting, drill receiving
	Core Exercise 2	Games relation shotting, games relation receiving, games relation passing

Description:

- Students can perform receiving technique skills (receiving the ball) properly and correctly
- Students can perform dribbling technique skills (dribbling) properly and correctly
- Students can perform shooting technique skills (kicking the ball) properly and correctly

Table 4. Pretest-posttest Data on Soccer Playing Skills

Group	***Minimum***	***Maximum***	***Mean***	***Std. Deviation***
Pretest A1B1	35,00	57,00	49,17	7,04
Posttest A1B1	30,00	48,00	40,08	6,04
Pretest A2B1	35,00	61,00	50,58	8,53
Posttest A2B1	32,00	55,00	45,83	8,45
Pretest A1B2	62,00	78,00	70,00	5,20
Posttest A1B2	57,00	73,00	65,25	5,34
Pretest A2B2	62,00	77,00	70,08	4,96
Posttest A2B2	58,00	71,00	64,75	4,71

Table 5. Data Normality Test

Group	Significance	Status
Pretest A1B1	0,155	Normal
Posttest A1B1	0,581	Normal
Pretest A2B1	0,293	Normal
Posttest A2B1	0,101	Normal
Pretest A1B2	0,330	Normal
Posttest A1B2	0,243	Normal
Pretest A2B2	0,292	Normal
Posttest A2B2	0,140	Normal

Based on the normality test that has been carried out using the Shapiro-Wilk test in Table 5 above, shows that all pretest and post-test data on football playing skills can be said to be normal because the significance value of p> 0.05.

Table 6. Homogeneity Test

Variable	F	df1	df2	Sig.
Soccer Playing Skills	1.525	3	44	0,221

Based on the homogeneity test that has been carried out using the Levene test Wilk, a significance value of 0.05 is obtained. Thus, it can be said that the data group is homogeneous

Table 7. GEL Model ANOVA Test and Technical Approach

Source	Type III Sum of Squares	Df	Mean Square	F	Sig
Exercise Model	42.187	1	42.187	20.158	0.000

Based on the ANOVA test above, the F value is 20.158 and the significance value is 0.000 <0.05. In other words, it can be said that there is a significant difference between the games experience learning model and the technical training model on soccer playing skills

Table 8. Differences in Players with High and Low Fundamental Movement Skills based on the Anova Test

Source	Type III Sum of Squares	df	Mean Square	F	Sig
Fundamental Movement Skills	42.188	1	42.188	20.158	0.000

Based on the ANOVA test above, it was obtained that the F value is 20,158 and a significance value is 0.000 <0.05. Thus, it can be said that there is a significant difference between soccer players who have high fundamental movement skills and low fundamental movement skills on soccer playing skills.

Table 9. Interaction of GEL and Technical Approach to High and Low Fundamental Movement Skills

Source	Type III Sum of Squares	df	Mean Square	F	Sig
Training Model*Fundamental Movement Skills	72.521	1	72.521	34.652	0.000

Based on the ANOVA test, an F value of 34,652 was obtained and a significance value of 0.000 < 0.05 which means that there is a significant interaction between the games experience learning exercise model and the technical approach training model with high and low fundamental movement skills.

Table 10. Tukey Test Results

Group	Interaction	Mean Difference	Std. Error	sig
A1B1	A2B1	4.3333*	.59059	.000
	A1B2	4.3333*	.59059	.000
	A2B2	3.7500*	.59059	.000
A2B1	A1B1	-4.3333*	.59059	.000
	A1B2	.0000	.59059	1.000
	A2B2	-.5833	.59059	.757
A1B2	A1B1	-4.3333*	.59059	.000
	A2B1	.0000	.59059	1.000
	A2B2	-.5833	.59059	.757
A2B2	A1B1	-3.7500*	.59059	.000
	A2B1	.5833	.59059	.757
	A1B2	.5833	.59059	.757

Based on the Tukey test on the asterisk sign (*), it is explained that the pairs that have interactions are: (1) A1B1-A2B1, (2) A1B1-A1B2, (3) A1B1-A2B2, while the other pairs are declared to have no difference The effects are: (1) A2B1-A1B2, (2) A2B1-A2B2, and (3) A1B2-A2B2

3. Discussion

The use of the appropriate exercise model is a necessary condition for achieving optimal results. Soccer players at a young age require a training program with complicated aspects. According to the study, the construction of training models must be done in a continuous, extended process with continual improvement following evolving science [25][30]. At the senior level, the training strategy for developing soccer-playing skills is critical to developing the best technique and performance. Furthermore, the age range of 9 to 12 years is critical for optimizing skills in some sports [7]. In this phase. training models need to be varied to increase passion for playing soccer. Complex training methods and models to optimize soccer playing skills have been found, one of which is the games experience learning (GEL) method [16].

Sulistiyono [8] created the game experience learning technique. Because this technique comprises stages of playing experience, reflection, concept understanding, and execution, it is necessary to employ the games experience learning exercise model [8]. The play experience stage is a genuine game built on learning via experience. In other words, the game is an important component of the experience that young football players must-have. The delivery of ethical knowledge to a young football player begins with the reflection stage. This is a question and guidance that soccer coaches provide to their players. As a result, this reflection might be considered an important aspect of acquiring moral ideals, respect, and success skills in later life. The next stage is that soccer players are expected to be able to understand, find, and conclude the concepts that have been given through guidance from the coach. After going through these 3 stages, it is hoped that after going through the last stage, football players can realize it well [8].

The game experience learning model contains 5-10 minutes of warm-up content and information, according to experts. For 20-30 minutes, Core Exercise 1 aims to promote character values and perform activities that apply to soccer skills. Core workout 2 consists of 20-30 minutes of technical skill development games. The core exercise

consists of 7 vs 7 matches played in line with the Indonesian Football Association (PSSI) regulations for 20-30 minutes, followed by a 5-10 minute cool down [16][19]. Previous research has found that the games experience learning model improves teamwork, respect, passing, dribbling, speed, endurance, and power [8], As a result, given the numerous issues, researchers are interested in adopting the games experience learning approach in the practice area.

The results of the preliminary study stated that there were several problems in football playing skills such as dribbling, passing, and kicking the ball, besides that students were still not optimally carrying out training because they felt saturated and less passionate about training because the training was less varied. Coaches have applied exercises by combining games but the results are not optimal, so researchers are motivated to conduct research by testing a new model called game experience learning to improve football playing skills in young players

The first hypothesis in this study was "there is an effect of the games experience learning exercise model and the technical approach training model on soccer playing skills". The results of the analysis found that the training model group GEL with an average difference of 10.08 seconds is stated to give better results than the technical training model with an average difference of 13.38 seconds. This finding indicates that there is a significant positive effect from the application of the GEL training model, in which the games experience learning training model group obtains better results.

The second hypothesis was "there is a significant difference in the effect between students with high and low fundamental movement skillson soccer playing skills". Based on the results of the analysis, students who have high fundamental movement skills achieve better results with an average difference of 6.92 seconds than those with low fundamental movement skillswith an average difference of 5.04. Based on these results, it can be said that there is a significant effect, and the high basic skills group is better.

The third hypothesis of the research was "there is a significant interaction between the games experience learning model and the technical approach exercise with high and low fundamental movement skills on soccer playing skills". The ANOVA test supports that there was a significant interaction between the games experience learning exercise model and the technical approach with high and low fundamental movement skills on soccer playing skills. The results of the Tukey test outlined that some of the variables that had interactions were groups A1B1 and A2B1 groups A1B1 and A1B2, groups A1B1 and A2B2

is reinforced by another study which revealed that the experience learning method can provide free space for students to learn theoretical and practical science that helps athletes gain different and new experiences [26]. The experience learning strategy can help students improve their achievement [[13]. Sports-based experiential learning can improve technical skills and physical performance [27]. Therefore, the application of game experience learning that is applied provides facts that prove that this method has succeeded in improving playing skills in soccer at a young age. For this reason, the researcher recommends the games experience learning model not only to train soccer playing skills but also to develop respect, cooperation, and psychosocial attitudes

4. Conclusions

Based on the findings and discussion, it was determined that (a) there is a significant difference between the games experience learning training model on soccer playing skills where the games experience learning training model group is better than the technical approach training model, (b) there is a significant difference in the effect between soccer players that has high and low fundamental movement skills on soccer playing skills where students with high fundamental movement skills are better than those with low fundamental movement skills, (c) there is a significant interaction between the games experience learning exercise model and the technical approach training model with fundamental movement skills high and low on soccer playing skills. Based on these findings, it is concluded that the games experience learning training model is capable of improving soccer playing skills in young soccer players, given that the games experience learning training model is an ideal model for training better basic techniques according to soccer players' chronological age which is basically at the stage of playing while practicing. Since this study primarily focuses on developing soccer skills, it is recommended that future studies include all components to obtain better research results.

Acknowledgements

The author would like to thank the Universitas Negeri Yogyakarta institutions and football clubs, for their help and

support so that this research can be completed properly.

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The Effect of Games Experience Learning Model and Fundamental Movement Skills on Improving Soccer Playing Skills in Youth Soccer Players

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Received 2022; Revised 2022; Accepted 2022

Cite This Paper in the Following Citation Styles

(a): *[1] Yudanto, Wawan Sundawan Suherman, Sigit Nugroho, Guntur, Dewangga Yudhistira , "The Effect of Games Experience Learning Model and Fundamental Movement Skills on Improving Soccer Playing Skills in Youth Soccer Players," International Journal of Human Movement and Sports Sciences, Vol. 10, No. X, pp. XXX - XXX, 2022. DOI: 10.13189/saj.2022.100XXX.*

(b): *Yudanto, Wawan Sundawan Suherman, Sigit Nugroho, Guntur, Dewangga Yudhistira (2022). The Effect of Games Experience Learning Model and Fundamental Movement Skills on Improving Soccer Playing Skills in Youth Soccer Players. International Journal of Human Movement and Sports Sciences, 10(X), XXX - XXX. DOI: 10.13189/saj.2022.100XXX.*

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Abstract Games experience learning (GEL) exercise model is to improve football playing skills. GEL testing has not been done much. The purpose of this study is to test the GEL model and engineering approach including (1) differences in the influence of GEL and technical approaches on football playing skills, (2) differences in the influence between students with high and low fundamental skills on football playing skills, (3) interaction of GEL models and technical approaches with high and low fundamental skills towards football playing skills. The research method was a factorial 2x2 experiment, participants of football players aged 9-10 years totaled 48, and research instruments David lee soccer test and TGMD-2. Data collection techniques are tests and measurements, and data analysis techniques used two-way Anova with the help of SPSS 23. Result (1) there is a significant difference between the GEL and the technical approach to the skill of playing football, the GEL method is better than the approach of using engineering techniques. (2) there is a significant difference between high and low fundamental skills in football playing skills, high fundamental skills are better than low skills. (3) there is a significant interaction between GEL and approaches using techniques with high and low fundamental skills for football playing skills. It is concluded that the GEL model is better than the model with a technical approach to improve football playing skills in young players

Keywords Game Experience Learning, Fundamental Movement Skills, Soccer Playing Skills, Youth Soccer Players

1. Introduction

Football is a popular sport among the general public. Soccer has been played by over 260 million people, both amateurs and professionals [1]. Soccer's popularity is growing by the day, which naturally motivates players to aim for higher goals [2][28]. However, accomplishing these goals is not simple. According to Mills et al, becoming a trustworthy soccer player is not something that comes naturally, but must be developed over time [3]. A well-thought-out and disciplined training regimen are critical to obtain optimum performance. Furthermore, the

football player's greatest effort becomes the focal focus.

According to studies, being a dependable athlete takes at least 10 years of disciplined training and 10,000 hours of focused training [4]. Physiological, tactical, and technical components of football performance must all be understood [1]. The technical part of soccer is one of the most important aspects to improve [5]. To achieve top performance at the senior level, youth soccer players require good basic techniques. Based on the previous research, mastering good technique is a key prerequisite in soccer for things like outwitting opponents, scheming, passing and receiving the ball, and scoring goals in the opponent's goal [5].

At the age of 9-12, soccer players fall into the categories of the late foundation phase and early adolescent developmental phase [6]. The theory from Balyi adds that the age of 9-12 is a golden age where children develop certain movement pattern skills that can become automatic movement patterns [7]. The development of soccer-playing skills at this stage of course must be fun so that a love for playing soccer is embedded.

Studies showed that young athletes who succeed in terms of performance mature early, but they are unable to maintain peak performance at the senior level due to a variety of factors [8]. Injury, reduced motivation, changes in life priorities, and early specialization, all of which produce extreme fatigue, are thought to impair athletes' achievement at a young age [9]. According to relevant studies, the optimal time to attain the maximum career sporting achievements is between the ages of 20 and 31 [10]. A coach's job is to devise training techniques for developing soccer playing skills following the player's chronological age [11]

When the coach does not recognize the value of a proper training method, this becomes a serious issue. As a result, to coach football success, one must have a mentality that prioritizes athletes over victories. The holistic development of soccer achievement at a young age is characterized by a comprehensive treatment approach in which the coach must include social and mental components. As a result, young athletes should participate in training activities that are both comfortable and enjoyable [12][13]. Previous research has suggested that the play model approach might develop a sense of enthusiasm and pleasure in learning [13]

One of the most common training strategies is small side games [14]. Small side games are a system that combines movement patterns for physical development with soccer skills [14]. Small side games are a training strategy for physical development, tactics, and strategies of playing soccer, according to previous studies [15]. However, earlier research has found that little side games are more important for advanced soccer players' physical conditioning and specific techniques [16]

GEL (games experience learning) training approaches have only recently been discovered. Sulistiyono et al [16] coined the term "games experience learning." Games-based learning has adapted Kolb's theory, which stresses students' active participation to enhance skills, knowledge, effectiveness, and creative thinking through direct experience [16] [17]. In the realm of education, experience-based learning can help students build team leadership, make decisions, and deal with uncertainty [18]. The gaming approach can develop physical talents and technical skills in achievement sports [17]. A study from Sulistiyono stated that games experience learning was able to significantly improve teamwork, respect attitude, physical ability, and soccer playing skills [16]. Similar research also revealed that game experience learning was able to optimize skills and strengthen the character of adolescent soccer players [19]. This fact has made a new concept for researchers to re-test youth soccer players considering that the application of empirical practice methods is not yet optimal.

This study differs from prior research, in which Sulistiyono et al used an experimental technique, with the intervention group receiving the gaming experiential learning method and the control group receiving the traditional way [16]. Nevertheless, there were no characteristic variables in their study that the researchers expected would influence the implementation of an exercise approach, such as high fundamental movement skills and low fundamental movement skills. This will be the first in the research that will be conducted. Based on the issues raised, the goal of this research is to put the games experience learning method to the test and compare it to a technical approach for improving soccer abilities in youth players.

2. Materials and Methods

This research method involved field testing to determine the cause and effect relationship [20][21]. The approach used is a 2x2 factorial experiment, involving two manipulated independent variables, one controlled attribute variable, and one dependent variable. The dependent variable is soccer skills. The independent variables that were manipulated were the games experience learning exercise model and the technical approach training model which held 24 meetings in 8 weeks.

The participants were 48 soccer players, aged 9-10 years with an average height and weight of 140.98 ± 7.25 centimeters and 35.26 ± 8.67 kilograms. The study's inclusion criteria were athletes willing to train for 24 meetings, athletes in good health, and athletes who were serious about exercising, whereas the exclusion criteria were those who did not match the inclusion requirements. 48 soccer players were recruited based on these criteria, and a basic movement skill test was conducted to assess high and low fundamental movement skills. The TGMD-2 [22] was utilized in the fundamental movement skill test instrument, whereas the David Lee soccer test [23] was used in the soccer skill test instrument. Table 1 displays the factorial design.

Table 1. The 2x2 Factorial Design

Exercise Model (A) / Fudamental Movement Skills	GEL Approach Exercise Model (A1)	Technical Approach Practice Model (A2)
High (B1)	A1B1	A2B1
Low (B2)	A1B2	A2B2

2.1. Testing Procedures

Group A consisted of 24 participants who carried out a game experience learning exercise program, while 24 participants in group B carried out an exercise program with a technical approach. Participants carried out the exercise program 24 times for 8 weeks with 3 exercises per week. Before carrying out the training program, soccer players were given instructions regarding training procedures and guided to carry out further warm-up to core exercises before going to the cool-down stage. In this study, researchers were assisted by colleagues so that the given exercise program could run smoothly. Tables 2 and 3 describe gel exercise programs and exercise programs with an engineering approach.

Table 2. Exercise Program of Games Experience Learning

Meeting	Material and Description	
1-3	Core Exercise 1	Fishing Game, Goal Goal Game, Go Back So Door Dribble Ball Game
	Core Exercise 2	Fishing Game, Goal Goal Game, Go Back So Door Dribble Ball Game, 3 vs 1 Game, 4 vs 2 Game, 3 vs 3 + 4 Player Neutral Game
	Core Exercise3	Game 7 vs 7
4-6	Core Exercise 1	Time Bomb Games, Precious Feet Game, Police Vs Criminal Games
	Core Exercise 2	3 vs 3 Game, (Cave Breaking), Obstacle Passing Game or 3 vs 1 (+2), Opponent's Fortress Split Game (5 vs 5)
	Core Exercise 3	Game 7 vs 7
7-9	Core Exercise 1	Games of Together We Can, Horse Soccer Games, Chain Ball Games
		Game of Neutral Player Create Space for Shooting, 3 vs 2 Game, Continue Finishing, 3 Vs 3 + 2 Neutral Game
		Game 7 vs 7
10-12	Core Exercise 1	Pair Two Soccer Games, Fair Play Games, Treasure Keeper Games
	Core Exercise 2	3 vs 2 Dribbling Game, 4 vs 4 In Restricted Area Game, 4 vs 4 + 4 Player Neutral Game
	Core Exercise 3	Game 7 vs 7
13-15	Core Exercise 1	Team Frog Jump Games, Villain Shooting Games, Fun Hard Games
	Core Exercise 2	Game 4 vs 2 Become 6 vs 4, Ball Control Game Create a Shooting Room, Treasure Keeper Game
	Core Exercise 3	Game 7 vs 7
16-18	Core Exercise 1	Fishing Game, Goal Goal Game Goal Go Back So Door Game, Dribble Ball
	Core Exercise 2	3 vs 1 Game, 4 vs 2 Game, 3 vs 3 + 4 Player Neutral Game
	Core Exercise 3	Game 7 vs 7
19-21	Core Exercise 1	Games of Together We Can, Horse Soccer Games, Chain Ball Games
	Core Exercise 2	Game of Neutral Player Create Space for Shooting, 3 vs 2 Game, Continue Finishing, 3 Vs 3 + 2 Neutral Game
	Core Exercise 3	Game 7 vs 7
22-24	Core Exercise 1	Games of Together We Can, Horse Soccer Games, Chain Ball Games
	Core Exercise 2	Game Neutral Players Create Space for Shooting. Game 3 vs 2, Continue Finishing, Game of 3 Vs 3 + 2 Neutral
	Core Exercise 3	Game 7 vs 7

Description:

- Students can appropriately and correctly conduct receiving technique (receiving the ball).
- Students can accurately dribble.
- Students can demonstrate a teamwork mentality in practice/competition situations as well as in everyday encounters.
- Students can demonstrate respect for others in practice/competition scenarios as well as in everyday encounters.
- Students can practice other disciplines in practice/competition situations and daily life interactions.

Table 3. Exercise Program of Technical Training Model

Meeting	Material and Description	
1 and 19	Core Exercise 1	Drill Passing
	Core Exercise 2	Game Relation Passing
	Core Exercise 3	Game 7 vs 7
2 and 20	Core Exercise 1	Drill Passing
	Core Exercise 2	Game Relation Passing
	Core Exercise 3	Game 7 vs 7
3 and 21	Core Exercise 1	Drill Receiving
	Core Exercise 2	Game Relation Receiving
	Core Exercise 3	Game 7 vs 7
4 and 22	Core Exercise 1	Drill Receiving
	Core Exercise 2	Game Relation Receiving
	Core Exercise 3	Game 7 vs 7
5 and 23	Core Exercise 1	Drill Dribbling
	Core Exercise 2	Game Relation Dribbling
	Core Exercise 3	Game 7 vs 7
6 and 24	Core Exercise 1	Drill Dribbling
	Core Exercise 2	Game Relation Dribbling
	Core Exercise 3	Game 7 vs 7
7 to 9	Core Exercise 1	Drill shooting
	Core Exercise 2	Games relation passing
	Core Exercise 3	Games 7x7
10 to 12	Core Exercise 1	Drill receiving
	Core Exercise 2	Games relation receiving
	Core Exercise 3	Games 7x7
13 to 15	Core Exercise 1	Drill dribbling, drill passing, drill shooting
	Core Exercise 2	Games relation dribbling, games relation shooting, games relation passing
	Core Exercise 3	Games 7x7
16 to 18	Core Exercise 1	Drill passing, drill shooting, drill receiving
	Core Exercise 2	Games relation shotting, games relation receiving, games relation passing

Description:

- Students can perform receiving technique skills (receiving the ball) properly and correctly
- Students can perform dribbling technique skills (dribbling) properly and correctly
- Students can perform shooting technique skills (kicking the ball) properly and correctly

The data analysis technique was carried out using a two-way ANOVA analysis of variance [24] and continued by using the Tukey test. Normality and homogeneity tests were carried out before the data analysis stage above. The normality test was carried out using the Shapiro-Wilk test, while the homogeneity test was carried out using the Levene test. The level of significance was set at 0.05 where all the results obtained were presented in terms of minimum, maximum, mean, and standard deviation [20][29]. The data were analyzed using the SPSS version 23 application.

Table 4. Pretest-posttest Data on Soccer Playing Skills

Group	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Pretest A1B1	35,00	57,00	49,17	7,04
Posttest A1B1	30,00	48,00	40,08	6,04
Pretest A2B1	35,00	61,00	50,58	8,53
Posttest A2B1	32,00	55,00	45,83	8,45
Pretest A1B2	62,00	78,00	70,00	5,20
Posttest A1B2	57,00	73,00	65,25	5,34
Pretest A2B2	62,00	77,00	70,08	4,96
Posttest A2B2	58,00	71,00	64,75	4,71

Table 5. Data Normality Test

Group	Significance	Status
Pretest A1B1	0,155	Normal
Posttest A1B1	0,581	Normal
Pretest A2B1	0,293	Normal
Posttest A2B1	0,101	Normal
Pretest A1B2	0,330	Normal
Posttest A1B2	0,243	Normal
Pretest A2B2	0,292	Normal
Posttest A2B2	0,140	Normal

Based on the normality test that has been carried out using the Shapiro-Wilk test in Table 5 above, it shows that all pretest and post-test data on football playing skills can be said to be normal because the significance value of p> 0.05.

Table 6. Homogeneity Test

Variable	F	df1	df2	Sig.
Soccer Playing Skills	1.525	3	44	0,221

Based on the homogeneity test that has been carried out using the Levene test Wilk, a significance value of 0.05 is obtained. Thus, it can be said that the data group is homogeneous.

Table 7. GEL Model ANOVA Test and Technical Approach

Source	Type III Sum of Squares	Df	Mean Square	F	Sig
Exercise Model	42.187	1	42.187	20.158	0.000

Based on the ANOVA test above, the F value is 20.158 and the significance value is 0.000 <0.05. In other words, it can be said that there is a significant difference between the games experience learning model and the technical training model on soccer playing skills.

Table 8. Differences in Players with High and Low Fundamental Movement Skills based on the Anova Test

Source	Type III Sum of Squares	df	Mean Square	F	Sig
Fundamental Movement Skills	42.188	1	42.188	20.158	0.000

Based on the ANOVA test above, it was obtained that the F value is 20,158 and a significance value is 0.000 <0.05. Thus, it can be said that there is a significant difference between soccer players who have high fundamental movement skills and low fundamental movement skills on soccer playing skills.

Table 9. Interaction of GEL and Technical Approach to High and Low Fundamental Movement Skills

Source	Type III Sum of Squares	df	Mean Square	F	Sig
Training Model*Fundamental Movement Skills	72.521	1	72.521	34.652	0.000

Based on the ANOVA test, an F value of 34,652 was obtained and a significance value of 0.000 < 0.05 which means that there is a significant interaction between the games experience learning exercise model and the technical approach training model with high and low fundamental movement skills.

Table 10. Tukey Test Results

Group	Interaction	Mean Difference	Std. Error	sig
A1B1	A2B1	4.3333*	.59059	.000
	A1B2	4.3333*	.59059	.000
	A2B2	3.7500*	.59059	.000
A2B1	A1B1	-4.3333*	.59059	.000
	A1B2	.0000	.59059	1.000
	A2B2	-.5833	.59059	.757
A1B2	A1B1	-4.3333*	.59059	.000
	A2B1	.0000	.59059	1.000
	A2B2	-.5833	.59059	.757
A2B2	A1B1	-3.7500*	.59059	.000
	A2B1	.5833	.59059	.757
	A1B2	.5833	.59059	.757

Based on the Tukey test on the asterisk sign (*), it is explained that the pairs that have interactions are: (1)

A1B1-A2B1, (2) A1B1-A1B2, (3) A1B1-A2B2, while the other pairs are declared to have no difference The effects are: (1) A2B1-A1B2, (2) A2B1-A2B2, and (3) A1B2-A2B2.

3. Discussion

The use of the appropriate exercise model is a necessary condition for achieving optimal results. Soccer players at a young age require a training program with complicated aspects. According to the study, the construction of training models must be done in a continuous, extended process with continual improvement following evolving science [25][30]. At the senior level, the training strategy for developing soccer-playing skills is critical to develop the best technique and performance. Furthermore, the age range of 9 to 12 years is critical for optimizing skills in some sports [7]. In this phase,. training models need to be varied to increase passion for playing soccer. Complex training methods and models to optimize soccer playing skills have been found, one of which is the games experience learning (GEL) method [16].

Sulistiyono [8] created the game experience learning technique. Because this technique comprises stages of playing experience, reflection, concept understanding, and execution, it is necessary to employ the games experience learning exercise model [8]. The play experience stage is a genuine game built on learning via experience. In other words, the game is an important component of the experience that young football players must-have. The delivery of ethical knowledge to a young football player begins with the reflection stage. This is a question and guidance that soccer coaches provide to their players. As a result, this reflection might be considered an important aspect of acquiring moral ideals, respect, and success skills in later life. The next stage is that soccer players are expected to be able to understand, find, and conclude the concepts that have been given through guidance from the coach. After going through these 3 stages, it is hoped that after going through the last stage, football players can realize it well [8].

The game experience learning model contains 5-10 minutes of warm-up content and information, according to experts. For 20-30 minutes, Core Exercise 1 aims to promote character values and perform activities that apply to soccer skills. Core workout 2 consists of 20-30 minutes of technical skill development games. The core exercise consists of 7 vs 7 matches played in line with the Indonesian Football Association (PSSI) regulations for 20-30 minutes, followed by a 5-10 minute cool down [16][19]. Previous research has found that the games experience learning model improves teamwork, respect, passing, dribbling, speed, endurance, and power [8], As a result, given the numerous issues, researchers are interested in adopting the games experience learning approach in the practice area.

The results of the preliminary study stated that there were several problems in football playing skills such as dribbling, passing, and kicking the ball, besides that students were still not optimally carrying out training because they felt saturated and less passionate about training because the training was less varied. Coaches have applied exercises by combining games but the results are not optimal, so researchers are motivated to conduct research by testing a new model called game experience learning to improve football playing skills in young players

The first hypothesis in this study was "there is an effect of the games experience learning exercise model and the technical approach training model on soccer playing skills". The results of the analysis found that the training model group GEL with an average difference of 10.08 seconds is stated to give better results than the technical training model with an average difference of 13.38 seconds. This finding indicates that there is a significant positive effect from the application of the GEL training model, in which the games experience learning training model group obtains better results.

The second hypothesis was "there is a significant difference in the effect between students with high and low fundamental movement skillson soccer playing skills". Based on the results of the analysis, students who have high fundamental movement skills achieve better results with an average difference of 6.92 seconds than those with low fundamental movement skills with an average difference of 5.04. Based on these results, it can be said that there is a significant effect, and the high basic skills group is better.

The third hypothesis of the research was "there is a significant interaction between the games experience learning model and the technical approach exercise with high and low fundamental movement skills on soccer playing skills". The ANOVA test supports that there was a significant interaction between the games experience learning exercise model and the technical approach with high and low fundamental movement skills on soccer playing skills. The results of the Tukey test outlined that some of the variables that had interactions were groups A1B1 and A2B1 groups A1B1 and A1B2, groups A1B1 and A2B2.

This finding is reinforced by another study which revealed that the experience learning method can provide free space for students to learn theoretical and practical science that helps athletes gain different and new experiences [26]. The experience learning strategy can help students improve their achievement [13]. Sports-based experiential learning can improve technical skills and physical performance [27]. Therefore, the application of game experience learning that is applied provides facts that prove that this method has succeeded in improving playing skills in soccer at a young age. For this reason, the researcher recommends the games experience learning model not only to train soccer playing skills but also to develop respect, cooperation, and psychosocial attitudes.

4. Conclusions

Based on the findings and discussion, it was determined that (a) there is a significant difference between the games experience learning training model on soccer playing skills where the games experience learning training model group is better than the technical approach training model, (b) there is a significant difference in the effect between soccer players that has high and low fundamental movement skills on soccer playing skills where students with high fundamental movement skills are better than those with low fundamental movement skills, (c) there is a significant interaction between the games experience learning exercise model and the technical approach training model with fundamental movement skills high and low on soccer playing skills. Based on these findings, it is concluded that the games experience learning training model is capable of improving soccer playing skills in young soccer players, given that the games experience learning training model is an ideal model for training better basic techniques according to soccer players' chronological age which is basically at the stage of playing while practicing. Since this study primarily focuses on developing soccer skills, it is recommended that future studies include all components to obtain better research results.

Acknowledgements

The author would like to thank the Universitas Negeri Yogyakarta institutions and football clubs, for their help and support so that this research can be completed properly.

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The Effect of Games Experience Learning Model and Fundamental Movement Skills on Improving Soccer Playing Skills in Youth Soccer Players

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Received 2022; Revised 2022; Accepted 2022

Cite This Paper in the Following Citation Styles

(a): *[1] Yudanto, Wawan Sundawan Suherman, Sigit Nugroho, Guntur, Dewangga Yudhistira , "The Effect of Games Experience Learning Model and Fundamental Movement Skills on Improving Soccer Playing Skills in Youth Soccer Players," International Journal of Human Movement and Sports Sciences, Vol. 10, No. X, pp. XXX - XXX, 2022. DOI: 10.13189/saj.2022.100XXX.*

(b): *Yudanto, Wawan Sundawan Suherman, Sigit Nugroho, Guntur, Dewangga Yudhistira (2022). The Effect of Games Experience Learning Model and Fundamental Movement Skills on Improving Soccer Playing Skills in Youth Soccer Players. International Journal of Human Movement and Sports Sciences, 10(X), XXX - XXX. DOI: 10.13189/saj.2022.100XXX.*

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Abstract Games experience learning (GEL) exercise model is to improve football playing skills. GEL testing has not been done much. The purpose of this study is to test the GEL model and engineering approach including (1) differences in the influence of GEL and technical approaches on football playing skills, (2) differences in the influence between students with high and low fundamental skills on football playing skills, (3) interaction of GEL models and technical approaches with high and low fundamental skills towards football playing skills. The research method was a factorial 2x2 experiment, participants of football players aged 9-10 years totaled 48, and research instruments David lee soccer test and TGMD-2. Data collection techniques are tests and measurements, and data analysis techniques used two-way Anova with the help of SPSS 23. Result (1) there is a significant difference between the GEL and the technical approach to the skill of playing football, the GEL method is better than the approach of using engineering techniques. (2) there is a significant difference between high and low fundamental skills in football playing skills, high fundamental skills are better than low skills. (3) there is a significant interaction between GEL and approaches using techniques with high and low fundamental skills for football playing skills. It is concluded that the GEL model is better than the model with a technical approach to improve football playing skills in young players

Keywords Game Experience Learning, Fundamental Movement Skills, Soccer Playing Skills, Youth Soccer Players

1. Introduction

Football is a popular sport among the general public. Soccer has been played by over 260 million people, both amateurs and professionals [1]. Soccer's popularity is growing by the day, which naturally motivates players to aim for higher goals [2][28]. However, accomplishing these goals is not simple. According to Mills et al, becoming a trustworthy soccer player is not something that comes naturally, but must be developed over time [3]. A well-thought-out and disciplined training regimen are critical to obtain optimum performance. Furthermore, the

football player's greatest effort becomes the focal focus.

According to studies, being a dependable athlete takes at least 10 years of disciplined training and 10,000 hours of focused training [4]. Physiological, tactical, and technical components of football performance must all be understood [1]. The technical part of soccer is one of the most important aspects to improve [5]. To achieve top performance at the senior level, youth soccer players require good basic techniques. Based on the previous research, mastering good technique is a key prerequisite in soccer for things like outwitting opponents, scheming, passing and receiving the ball, and scoring goals in the opponent's goal [5].

At the age of 9-12, soccer players fall into the categories of the late foundation phase and early adolescent developmental phase [6]. The theory from Balyi adds that the age of 9-12 is a golden age where children develop certain movement pattern skills that can become automatic movement patterns [7]. The development of soccer-playing skills at this stage of course must be fun so that a love for playing soccer is embedded.

Studies showed that young athletes who succeed in terms of performance mature early, but they are unable to maintain peak performance at the senior level due to a variety of factors [8]. Injury, reduced motivation, changes in life priorities, and early specialization, all of which produce extreme fatigue, are thought to impair athletes' achievement at a young age [9]. According to relevant studies, the optimal time to attain the maximum career sporting achievements is between the ages of 20 and 31 [10]. A coach's job is to devise training techniques for developing soccer playing skills following the player's chronological age [11]

When the coach does not recognize the value of a proper training method, this becomes a serious issue. As a result, to coach football success, one must have a mentality that prioritizes athletes over victories. The holistic development of soccer achievement at a young age is characterized by a comprehensive treatment approach in which the coach must include social and mental components. As a result, young athletes should participate in training activities that are both comfortable and enjoyable [12][13]. Previous research has suggested that the play model approach might develop a sense of enthusiasm and pleasure in learning [13]

One of the most common training strategies is small side games [14]. Small side games are a system that combines movement patterns for physical development with soccer skills [14]. Small side games are a training strategy for physical development, tactics, and strategies of playing soccer, according to previous studies [15]. However, earlier research has found that little side games are more important for advanced soccer players' physical conditioning and specific techniques [16]

GEL (games experience learning) training approaches have only recently been discovered. Sulistiyono et al [16] coined the term "games experience learning." Games-based learning has adapted Kolb's theory, which stresses students' active participation to enhance skills, knowledge, effectiveness, and creative thinking through direct experience [16] [17]. In the realm of education, experience-based learning can help students build team leadership, make decisions, and deal with uncertainty [18]. The gaming approach can develop physical talents and technical skills in achievement sports [17]. A study from Sulistiyono stated that games experience learning was able to significantly improve teamwork, respect attitude, physical ability, and soccer playing skills [16]. Similar research also revealed that game experience learning was able to optimize skills and strengthen the character of adolescent soccer players [19]. This fact has made a new concept for researchers to re-test youth soccer players considering that the application of empirical practice methods is not yet optimal.

This study differs from prior research, in which Sulistiyono et al used an experimental technique, with the intervention group receiving the gaming experiential learning method and the control group receiving the traditional way [16]. Nevertheless, there were no characteristic variables in their study that the researchers expected would influence the implementation of an exercise approach, such as high fundamental movement skills and low fundamental movement skills. This will be the first in the research that will be conducted. Based on the issues raised, the goal of this research is to put the games experience learning method to the test and compare it to a technical approach for improving soccer abilities in youth players.

2. Materials and Methods

This research method involved field testing to determine the cause and effect relationship [20][21]. The approach used is a 2x2 factorial experiment, involving two manipulated independent variables, one controlled attribute variable, and one dependent variable. The dependent variable is soccer skills. The independent variables that were manipulated were the games experience learning exercise model and the technical approach training model which held 24 meetings in 8 weeks.

The participants were 48 soccer players, aged 9-10 years with an average height and weight of 140.98 ± 7.25 centimeters and 35.26 ± 8.67 kilograms. The study's inclusion criteria were athletes willing to train for 24 meetings, athletes in good health, and athletes who were serious about exercising, whereas the exclusion criteria were those who did not match the inclusion requirements. 48 soccer players were recruited based on these criteria, and a basic movement skill test was conducted to assess high and low fundamental movement skills. The TGMD-2 [22] was utilized in the fundamental movement skill test instrument, whereas the David Lee soccer test [23] was used in the soccer skill test instrument. Table 1 displays the factorial design.

Table 1. The 2x2 Factorial Design

Exercise Model (A) / Fudamental Movement Skills	GEL Approach Exercise Model (A1)	Technical Approach Practice Model (A2)
High (B1)	A1B1	A2B1
Low (B2)	A1B2	A2B2

2.1. Testing Procedures

Group A consisted of 24 participants who carried out a game experience learning exercise program, while 24 participants in group B carried out an exercise program with a technical approach. Participants carried out the exercise program 24 times for 8 weeks with 3 exercises per week. Before carrying out the training program, soccer players were given instructions regarding training procedures and guided to carry out further warm-up to core exercises before going to the cool-down stage. In this study, researchers were assisted by colleagues so that the given exercise program could run smoothly. Tables 2 and 3 describe gel exercise programs and exercise programs with an engineering approach.

Table 2. Exercise Program of Games Experience Learning

Meeting	Material and Description	
1-3	Core Exercise 1	Fishing Game, Goal Goal Game, Go Back So Door Dribble Ball Game
	Core Exercise 2	Fishing Game, Goal Goal Game, Go Back So Door Dribble Ball Game, 3 vs 1 Game, 4 vs 2 Game, 3 vs 3 + 4 Player Neutral Game
	Core Exercise3	Game 7 vs 7
4-6	Core Exercise 1	Time Bomb Games, Precious Feet Game, Police Vs Criminal Games
	Core Exercise 2	3 vs 3 Game, (Cave Breaking), Obstacle Passing Game or 3 vs 1 (+2), Opponent's Fortress Split Game (5 vs 5)
	Core Exercise 3	Game 7 vs 7
7-9	Core Exercise 1	Games of Together We Can, Horse Soccer Games, Chain Ball Games
		Game of Neutral Player Create Space for Shooting, 3 vs 2 Game, Continue Finishing, 3 Vs 3 + 2 Neutral Game
		Game 7 vs 7
10-12	Core Exercise 1	Pair Two Soccer Games, Fair Play Games, Treasure Keeper Games
	Core Exercise 2	3 vs 2 Dribbling Game, 4 vs 4 In Restricted Area Game, 4 vs 4 + 4 Player Neutral Game
	Core Exercise 3	Game 7 vs 7
13-15	Core Exercise 1	Team Frog Jump Games, Villain Shooting Games, Fun Hard Games
	Core Exercise 2	Game 4 vs 2 Become 6 vs 4, Ball Control Game Create a Shooting Room, Treasure Keeper Game
	Core Exercise 3	Game 7 vs 7
16-18	Core Exercise 1	Fishing Game, Goal Goal Game Goal Go Back So Door Game, Dribble Ball
	Core Exercise 2	3 vs 1 Game, 4 vs 2 Game, 3 vs 3 + 4 Player Neutral Game
	Core Exercise 3	Game 7 vs 7
19-21	Core Exercise 1	Games of Together We Can, Horse Soccer Games, Chain Ball Games
	Core Exercise 2	Game of Neutral Player Create Space for Shooting, 3 vs 2 Game, Continue Finishing, 3 Vs 3 + 2 Neutral Game
	Core Exercise 3	Game 7 vs 7
22-24	Core Exercise 1	Games of Together We Can, Horse Soccer Games, Chain Ball Games
	Core Exercise 2	Game Neutral Players Create Space for Shooting. Game 3 vs 2, Continue Finishing, Game of 3 Vs 3 + 2 Neutral
	Core Exercise 3	Game 7 vs 7

Description:

- Students can appropriately and correctly conduct receiving technique (receiving the ball).
- Students can accurately dribble.
- Students can demonstrate a teamwork mentality in practice/competition situations as well as in everyday encounters.
- Students can demonstrate respect for others in practice/competition scenarios as well as in everyday encounters.
- Students can practice other disciplines in practice/competition situations and daily life interactions.

Table 3. Exercise Program of Technical Training Model

Meeting	Material and Description	
1 and 19	Core Exercise 1	Drill Passing
	Core Exercise 2	Game Relation Passing
	Core Exercise 3	Game 7 vs 7
2 and 20	Core Exercise 1	Drill Passing
	Core Exercise 2	Game Relation Passing
	Core Exercise 3	Game 7 vs 7
3 and 21	Core Exercise 1	Drill Receiving
	Core Exercise 2	Game Relation Receiving
	Core Exercise 3	Game 7 vs 7
4 and 22	Core Exercise 1	Drill Receiving
	Core Exercise 2	Game Relation Receiving
	Core Exercise 3	Game 7 vs 7
5 and 23	Core Exercise 1	Drill Dribbling
	Core Exercise 2	Game Relation Dribbling
	Core Exercise 3	Game 7 vs 7
6 and 24	Core Exercise 1	Drill Dribbling
	Core Exercise 2	Game Relation Dribbling
	Core Exercise 3	Game 7 vs 7
7 to 9	Core Exercise 1	Drill shooting
	Core Exercise 2	Games relation passing
	Core Exercise 3	Games 7x7
10 to 12	Core Exercise 1	Drill receiving
	Core Exercise 2	Games relation receiving
	Core Exercise 3	Games 7x7
13 to 15	Core Exercise 1	Drill dribbling, drill passing, drill shooting
	Core Exercise 2	Games relation dribbling, games relation shooting, games relation passing
	Core Exercise 3	Games 7x7
16 to 18	Core Exercise 1	Drill passing, drill shooting, drill receiving
	Core Exercise 2	Games relation shotting, games relation receiving, games relation passing

Description:

- Students can perform receiving technique skills (receiving the ball) properly and correctly
- Students can perform dribbling technique skills (dribbling) properly and correctly
- Students can perform shooting technique skills (kicking the ball) properly and correctly

The data analysis technique was carried out using a two-way ANOVA analysis of variance [24] and continued by using the Tukey test. Normality and homogeneity tests were carried out before the data analysis stage above. The normality test was carried out using the Shapiro-Wilk test, while the homogeneity test was carried out using the Levene test. The level of significance was set at 0.05 where all the results obtained were presented in terms of minimum, maximum, mean, and standard deviation [20][29]. The data were analyzed using the SPSS version 23 application.

Table 4. Pretest-posttest Data on Soccer Playing Skills

Group	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Pretest A1B1	35,00	57,00	49,17	7,04
Posttest A1B1	30,00	48,00	40,08	6,04
Pretest A2B1	35,00	61,00	50,58	8,53
Posttest A2B1	32,00	55,00	45,83	8,45
Pretest A1B2	62,00	78,00	70,00	5,20
Posttest A1B2	57,00	73,00	65,25	5,34
Pretest A2B2	62,00	77,00	70,08	4,96
Posttest A2B2	58,00	71,00	64,75	4,71

Table 5. Data Normality Test

Group	Significance	Status
Pretest A1B1	0,155	Normal
Posttest A1B1	0,581	Normal
Pretest A2B1	0,293	Normal
Posttest A2B1	0,101	Normal
Pretest A1B2	0,330	Normal
Posttest A1B2	0,243	Normal
Pretest A2B2	0,292	Normal
Posttest A2B2	0,140	Normal

Based on the normality test that has been carried out using the Shapiro-Wilk test in Table 5 above, it shows that all pretest and post-test data on football playing skills can be said to be normal because the significance value of p> 0.05.

Table 6. Homogeneity Test

Variable	F	df1	df2	Sig.
Soccer Playing Skills	1.525	3	44	0,221

Based on the homogeneity test that has been carried out using the Levene test Wilk, a significance value of 0.05 is obtained. Thus, it can be said that the data group is homogeneous.

Table 7. GEL Model ANOVA Test and Technical Approach

Source	Type III Sum of Squares	Df	Mean Square	F	Sig
Exercise Model	42.187	1	42.187	20.158	0.000

Based on the ANOVA test above, the F value is 20.158 and the significance value is 0.000 <0.05. In other words, it can be said that there is a significant difference between the games experience learning model and the technical training model on soccer playing skills.

Table 8. Differences in Players with High and Low Fundamental Movement Skills based on the Anova Test

Source	Type III Sum of Squares	df	Mean Square	F	Sig
Fundamental Movement Skills	42.188	1	42.188	20.158	0.000

Based on the ANOVA test above, it was obtained that the F value is 20,158 and a significance value is 0.000 <0.05. Thus, it can be said that there is a significant difference between soccer players who have high fundamental movement skills and low fundamental movement skills on soccer playing skills.

Table 9. Interaction of GEL and Technical Approach to High and Low Fundamental Movement Skills

Source	Type III Sum of Squares	df	Mean Square	F	Sig
Training Model*Fundamental Movement Skills	72.521	1	72.521	34.652	0.000

Based on the ANOVA test, an F value of 34,652 was obtained and a significance value of 0.000 < 0.05 which means that there is a significant interaction between the games experience learning exercise model and the technical approach training model with high and low fundamental movement skills.

Table 10. Tukey Test Results

Group	Interaction	Mean Difference	Std. Error	sig
A1B1	A2B1	4.3333*	.59059	.000
	A1B2	4.3333*	.59059	.000
	A2B2	3.7500*	.59059	.000
A2B1	A1B1	-4.3333*	.59059	.000
	A1B2	.0000	.59059	1.000
	A2B2	-.5833	.59059	.757
A1B2	A1B1	-4.3333*	.59059	.000
	A2B1	.0000	.59059	1.000
	A2B2	-.5833	.59059	.757
A2B2	A1B1	-3.7500*	.59059	.000
	A2B1	.5833	.59059	.757
	A1B2	.5833	.59059	.757

Based on the Tukey test on the asterisk sign (*), it is explained that the pairs that have interactions are: (1)

A1B1-A2B1, (2) A1B1-A1B2, (3) A1B1-A2B2, while the other pairs are declared to have no difference The effects are: (1) A2B1-A1B2, (2) A2B1-A2B2, and (3) A1B2-A2B2.

3. Discussion

The use of the appropriate exercise model is a necessary condition for achieving optimal results. Soccer players at a young age require a training program with complicated aspects. According to the study, the construction of training models must be done in a continuous, extended process with continual improvement following evolving science [25][30]. At the senior level, the training strategy for developing soccer-playing skills is critical to develop the best technique and performance. Furthermore, the age range of 9 to 12 years is critical for optimizing skills in some sports [7]. In this phase,. training models need to be varied to increase passion for playing soccer. Complex training methods and models to optimize soccer playing skills have been found, one of which is the games experience learning (GEL) method [16].

Sulistiyono [8] created the game experience learning technique. Because this technique comprises stages of playing experience, reflection, concept understanding, and execution, it is necessary to employ the games experience learning exercise model [8]. The play experience stage is a genuine game built on learning via experience. In other words, the game is an important component of the experience that young football players must-have. The delivery of ethical knowledge to a young football player begins with the reflection stage. This is a question and guidance that soccer coaches provide to their players. As a result, this reflection might be considered an important aspect of acquiring moral ideals, respect, and success skills in later life. The next stage is that soccer players are expected to be able to understand, find, and conclude the concepts that have been given through guidance from the coach. After going through these 3 stages, it is hoped that after going through the last stage, football players can realize it well [8].

The game experience learning model contains 5-10 minutes of warm-up content and information, according to experts. For 20-30 minutes, Core Exercise 1 aims to promote character values and perform activities that apply to soccer skills. Core workout 2 consists of 20-30 minutes of technical skill development games. The core exercise consists of 7 vs 7 matches played in line with the Indonesian Football Association (PSSI) regulations for 20-30 minutes, followed by a 5-10 minute cool down [16][19]. Previous research has found that the games experience learning model improves teamwork, respect, passing, dribbling, speed, endurance, and power [8], As a result, given the numerous issues, researchers are interested in adopting the games experience learning approach in the practice area.

The results of the preliminary study stated that there were several problems in football playing skills such as dribbling, passing, and kicking the ball, besides that students were still not optimally carrying out training because they felt saturated and less passionate about training because the training was less varied. Coaches have applied exercises by combining games but the results are not optimal, so researchers are motivated to conduct research by testing a new model called game experience learning to improve football playing skills in young players

The first hypothesis in this study was "there is an effect of the games experience learning exercise model and the technical approach training model on soccer playing skills". The results of the analysis found that the training model group GEL with an average difference of 10.08 seconds is stated to give better results than the technical training model with an average difference of 13.38 seconds. This finding indicates that there is a significant positive effect from the application of the GEL training model, in which the games experience learning training model group obtains better results.

The second hypothesis was "there is a significant difference in the effect between students with high and low fundamental movement skillson soccer playing skills". Based on the results of the analysis, students who have high fundamental movement skills achieve better results with an average difference of 6.92 seconds than those with low fundamental movement skills with an average difference of 5.04. Based on these results, it can be said that there is a significant effect, and the high basic skills group is better.

The third hypothesis of the research was "there is a significant interaction between the games experience learning model and the technical approach exercise with high and low fundamental movement skills on soccer playing skills". The ANOVA test supports that there was a significant interaction between the games experience learning exercise model and the technical approach with high and low fundamental movement skills on soccer playing skills. The results of the Tukey test outlined that some of the variables that had interactions were groups A1B1 and A2B1 groups A1B1 and A1B2, groups A1B1 and A2B2.

This finding is reinforced by another study which revealed that the experience learning method can provide free space for students to learn theoretical and practical science that helps athletes gain different and new experiences [26]. The experience learning strategy can help students improve their achievement [13]. Sports-based experiential learning can improve technical skills and physical performance [27]. Therefore, the application of game experience learning that is applied provides facts that prove that this method has succeeded in improving playing skills in soccer at a young age. For this reason, the researcher recommends the games experience learning model not only to train soccer playing skills but also to develop respect, cooperation, and psychosocial attitudes.

4. Conclusions

Based on the findings and discussion, it was determined that (a) there is a significant difference between the games experience learning training model on soccer playing skills where the games experience learning training model group is better than the technical approach training model, (b) there is a significant difference in the effect between soccer players that has high and low fundamental movement skills on soccer playing skills where students with high fundamental movement skills are better than those with low fundamental movement skills, (c) there is a significant interaction between the games experience learning exercise model and the technical approach training model with fundamental movement skills high and low on soccer playing skills. Based on these findings, it is concluded that the games experience learning training model is capable of improving soccer playing skills in young soccer players, given that the games experience learning training model is an ideal model for training better basic techniques according to soccer players' chronological age which is basically at the stage of playing while practicing. Since this study primarily focuses on developing soccer skills, it is recommended that future studies include all components to obtain better research results.

Acknowledgements

The author would like to thank the Universitas Negeri Yogyakarta institutions and football clubs, for their help and support so that this research can be completed properly.

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ETHICS APPROVAL STATEMENT

No. B/6.4/UN34.21/TU/2021

To whom it may concern,
This statement is to inform that the ethics committee at Institute of Research and Community Service (Lembaga Penelitian dan Pengabdian pada Masyarakat), Universitas Negeri Yogyakarta, has approved a study:

Title: **Pengaruh Model *Games Experience Learning* dan Keterampilan Gerak Dasar terhadap Peningkatan Keterampilan Bermain Sepak Bola pada Pemain Sepak Bola Muda**

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The procedure and instruments of the research has satisfied the ethics requirement to conduct and collect data from August 1, -September 30, 2021.

Yogyakarta, 30 July 2021
Vice of Director

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