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THE EFFECTS OF TGFU AND SET PEDAGOGICAL MODEL ON MALAYSIAN ABORIGINES' PRIMARY STUDENT IN COACHING CONTEXT

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ABSTRACT

Game-based approaches such as the Teaching Games for Understanding (TGfU) and the Malaysian game-based model labelled as Style E Tactical have not been tested for the efficacy among Malaysian Aborigines' students compared to Malaysian mainstream students in football game play. The purpose of this study was to examined the effects of TGfU and Style E tactical (SET) pedagogical model among Aborigines' primary school students in 5 versus 5 small sided game play. This study employed Quasi-Experimental design of pre and post-test with two intervention groups. The study utilized intact samples of, n=20, male, aged 10±12 years old who were divided equally into two groups of TGfU, (n=10) and SET, (n=10). This study completed six weeks of interventions. Players' game performance was evaluated in terms of decision making (attacking and defending), skill execution (passing, receiving the ball, dribbling, and scoring), adjust (movement to maintain the ball possession) as well as cover (assist their teammates in defending situations by helping their teammate who is trying to win the ball and marking the opponents who have no ball) in a modified game situation of 5 versus 5. The data was analyzed using One-way ANOVA. Findings indicated there was no significant difference in game component of decision-making between the TGfU (M/SD: 7.30±5.06) and SET (M/SD: 4.10±2.85), $F(1,18) = 3.04$, $p = .098$, $p > 0.05$) after intervention, skill execution between the TGfU (M/SD: 3.90±3.21) and SET (M/SD: 2.50±2.92), $F(1,18) = 1.04$, $p = .321$, $p > 0.05$) after intervention and adjust between the TGfU (M/SD: .40±.69) and SET (M/SD: .10±.32), $F(1,18) = 1.53$, $p = .232$, $p > 0.05$) after intervention. However, as for cover component findings indicated significant difference between the TGfU (M/SD: 2.10±1.59) and SET (M/SD: .40±.69), $F(1,18) = 9.53$, $p = .006$, $p < 0.05$) after intervention. In conclusion, TGfU model seems to be a better model especially for cover component (assist their teammates in defending situations by helping their teammate who is trying to win the ball and marking the opponents who have no ball). Thus, further research has to be done to confirm the effectiveness of TGfU and SET models for Aborigine students by employing the same components or other components of game play, integrating the physiological parameters and physical abilities. Apart from that, further research should pay attention on methodology aspects of maturation and selection and also the large number of samples by considering their needs and difficulties revolve around their sensitivities in terms of communication as well as cultural.

Keywords: Pedagogical model, Aborigines, decision making, skill execution, adjust, cover, game play

INTRODUCTION

Football is one of the favorite sports in the world. This game has its own affection in attracting people to love it either by playing during physical education learning class and coaching context or just by watching the game. Football is the most popular sport in Malaysia and played at various levels (Karim & Nadzalan, 2017 as echoed in Razak, Karim, & Hashim, 2020). The local football consultant, Subramaniam claimed the effort put into advancing the football potential of the Aboriginal people community by exposing them to proper channels is seriously inadequate, and the effects are apparent when there is a lack of indigenous representation in our national team (The Vibe. com, 2021, October 21).

There are of about 40,124 Aborigine youth across peninsular Malaysia (Orang Asli Development Department Portal, 2018), some of them can spur their potential in football for sure if the football governing body take serious on football development among Aborigine youth as well. Besides, Aboriginal people are known for their introverted character (Brown & Fraehlich, 2011 as cited in Abd Rahim & Mohamad Diah, 2017) and this factor will be such a hindrance in order to expose them to the proper channels. Thus, special attentiveness and approaches are needed to deal with them due to their natural shyness to speak out. Players have to be competent in all varieties of skills to be practiced in the games (Julismah Jani, Norkhalid Salimin, & Mohd Izwan Shahril, 2017) and players need to have sharp eyes as well as mental intelligence in terms of decision making in implementing strategies and tactics (offensive and defensive) in order to solve the problems that have been existed in a game play under a set of procedure and game structure (Capel, 2000 as adduced in Julismah Jani et al., 2017). Based on the researcher's needs analysis survey with consent letter from Education Planning Research and Development Department (EPRD) of Malaysia (KPM.600-3/2/3-eras (13774)), the findings orbit around game performances among Aborigines youth are very critical and further study are very needed to be conducted in order to find the best method by using game-based approaches to be applied by coaches in their training sessions. These findings are corresponded with the findings from interview session with Muhd Azizul Ab Ghani, the head coach of school football team at a chosen school (Personal Communication, 2022, August 4) indicated that Aborigine youth players cannot adapt with the game-based approach as well as cannot apply the effective decision-making and skill executions in the actual games.

The skill-based approach (SB) or technical method has traditionally been predominant in the coaching of physical activities and sports among Malaysian youth players (Nathan, 2015) especially Pahang Aborigine youth players. The implementation of GBA approaches such as the Teaching Games for Understanding (TGfU) and the Malaysian game-based model labelled as Style E Tactical Model have not been tested extensively for the efficacy among Malaysian Aborigines' students with different cultural and emotion background compared to Malaysian mainstream students in football game play.

There are four research objectives for this study. The objectives are to determine the effects of TGfU and SET pedagogical models approaches on mini games performance of decision making (attacking and defending), skill execution (passing, receiving, dribbling and scoring), adjust (movement to maintain the ball possession) and cover (assist their teammates in defending situations by helping their teammate who is trying to win the ball and marking the opponents who have no ball) between football training groups which are TGfU and SET before and after interventions among Aborigine youth football players under 12 at a chosen primary school in 5 vs. 5 game play.

METHODOLOGY

This study employed Quasi-Experimental design of pre-and post-test with two intervention groups. The study utilized intact samples of, n=20, male, aged 10±12 years old who were divided equally into two groups of TGfU, (n=10) and SET, (n=10). This study completed six weeks of interventions. Players' game performance was evaluated in terms of decision making (attacking and defending), skill execution (passing, receiving the ball, dribbling, and scoring), adjust (movement to maintain the ball possession) as well as cover (assist their teammates in defending situations by helping their teammate who is trying

to win the ball and marking the opponents who have no ball) in a modified game situation of 5 versus 5. The data was analyzed using One-way ANOVA.

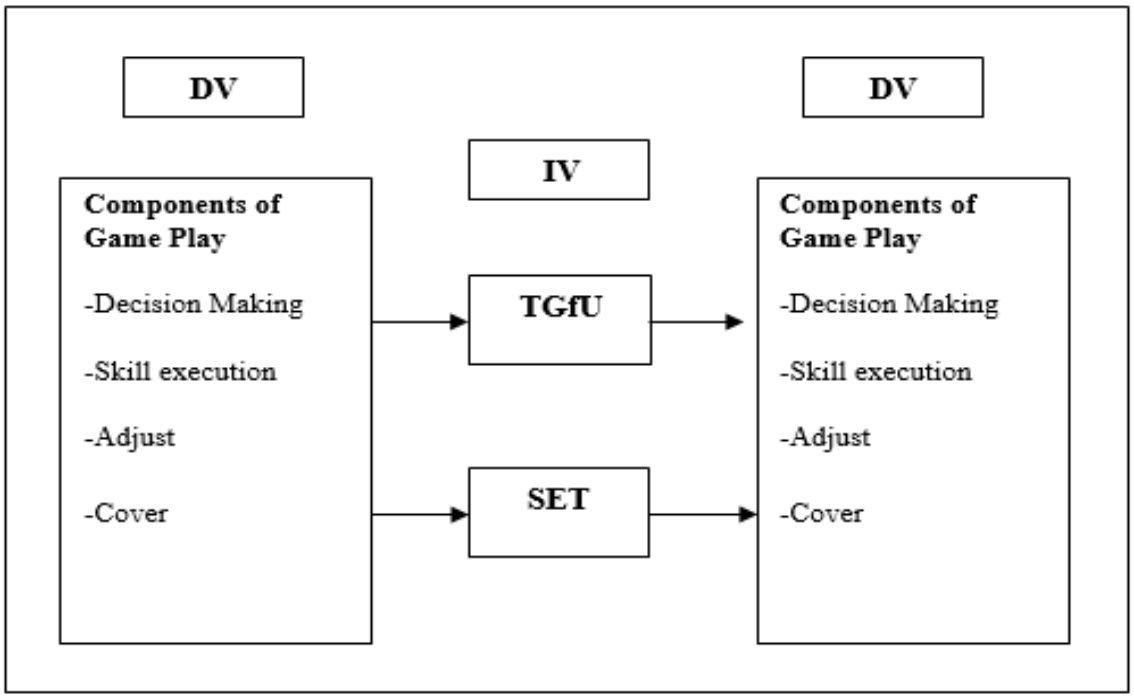

Figure 1: Research conceptual framework

This study employed Quasi-Experimental design of pre- and post-test with two intervention groups. Quasi-experimental design provides a mechanism that causes the range of unpredictable environments that produce specific causal conjunction and in real world settings, random allocation of the intervention may not be possible or fully under the control of investigators because of practical, ethical, social or logistic constraints (Handley, Lyles, McCulloch, & Cattamanchi, 2018). Handley et al. (2018) also stated that one of the strengths of quasi-experimental design is that they are often employed to examine intervention effects in real world settings and often, for more diverse populations and settings.

This study completed six weeks of interventions. All the subjects underwent two sessions per week for each group which are TGfU group as well as SET group with one hour per session respectively. Six weeks of maximal intensity depth is an optimal length of time for central nervous system to be stressed without excessive strain or fatigue and to induce neuromuscular adaptations that contributes to explosive power (Adam, O'shen, O'shea & Climstein, 1992 as cited in Asadi & Ramírez-Campillo, 2016). The fidelity by using these approaches which are TGfU as well as SET had been done by concerning the implementation aspects during the briefing session whereby the researcher had implemented a stint of training unit and also provided the checklists for coaches at chosen school.

The limitation of this study involved only one school which is primary school in a rural area. This school had been chosen based upon the fact that the majority of Aborigine students are schooling there. All the samples comprised intact samples of, n=20, male, aged 10±12 years old.

Before the researcher enters the field of study, the official permission from the Education Planning Research and Development Department (EPRD) of Malaysia and University party had been applied. Then, the consent forms from all the participants as well as their guardians had been got before interventions. The standard of operation for sports activities that have been decided by the Ministry Education of Malaysia (MOE) had been followed as well.

Intervention

The TGfU training sessions had complied all the six steps as proposed by the pioneers of TGfU approach which are Bunker & Thorpe (Nathan, 2015) and also nine features as recommended by Barquero-Ruiz, Morales-Belando, & Arias-Estero (2020). The TGfU lesson were carried out by utilizing nine features of implementation as adduced in Barquero-Ruiz et al. (2020). First, structuring sessions tasks refer to game form adapted from real game, teaching for understanding, drills for skill development, return to game form, review and closure to provide a direct bridge between tasks and full games. Second, contextualizing each session in one principle of play as the organizing centre for learning tasks (maintaining possession of the ball, winning the ball, shooting on goal, defending the goal, attacking the goal, challenging the opponents' progression) to be skillful-into-the-game players with tactical sense. Third, establishing tactical and technical aims and contents aligned according to the principles of play to develop players' tactical awareness and skills needed to perform in the game. Fourth, playing small-sided games to improve players' involvement and enable appropriate decision-making. Fifth, balancing between session task challenge and players' skill level to enable all the players to be successful. Sixth, feature is introducing rule modifications to promote the players' expected behaviors. Seventh, use questions based on players' experiences in previous sessions' tasks to make players aware of their knowledge and foster their understanding. Eighth, posing problems and setting exploratory tasks to allow players to wrestle with problems, explore and propose solutions. Ninth, coaches should lead through guided discovery, using questions and game modification instead of direct instruction to help players become active and independent learners.

Meanwhile, the SET training sessions had followed all the steps as proposed by Nathan (2018, February 13) who was the pioneer of this local centric pedagogical model. The early part of this lesson is labeled pre-impact or the planning stage as the teacher or coach prepares the task of subject matter or content and materials with different entries of difficulty level for all learners so that varying students or players will enjoy and capable of doing the planned task by the teacher or coach. Next, the impact stage deals with the task or lesson intervention, while post-impact refers to reflection on teaching or coaching and on students' or players' learning. The innovative pedagogical model of Style E pedagogical model (SET) is still at initial stages of development especially designed for invasion types of games learning such as hockey, football, and so on. The heuristic is being developed by principal researcher and SET creator Sanmuga Nathan. This model dwelled using various combination predominantly using Mosston's teaching style of E (Inclusion Style) in terms of pre-impact, impact and post-impact framework and activities merged with six steps of learning from original model of TGfU and skill drills development and cues from revised TGfU model. Besides, this SET pedagogical underpins three important elements (task, performer and environment constraints) of constraint-led theory.

Instrumentation

The study utilized the Game Play Observational Instrument (GPAI) to measure the effect of interventions on all the dependent variables. Players' game performance was evaluated in terms of decision making (attacking and defending), skill execution (passing, receiving the ball, dribbling, and scoring), adjust (movement to maintain the ball possession) as well as cover (assist their teammates in defending situations by helping their teammate who is trying to win the ball and marking the opponents who have no ball). The reliability by using this instrument is 0.85 on decision making and 0.97 on skill execution in football (Oslin, Mitchell, & Griffin, 1998). Table below showed the game's components, criteria and index calculation (GPAI).

Table 1: Game's components, criteria and index calculation (GPAI)

Game's Components	Criteria	Index Calculation
Decision Making	Choosing the right skill and open and closed space while attacking and defending situations. Players or students make the appropriate decisions when they have the ball or without the ball: a) Players or students make the passing to the other teammate, receiving the ball from teammate, dribbling, running to create space to keep the ball possession in open and closed space and do scoring while in attacking situations. b) Players or students trying to win the ball, make the passing to the other teammate, receive the ball from teammate, dribble, run to create space to keep the ball possession in open and closed space and do clearance while in defending situations.	DMI = Appropriate decision made / Inappropriate decision made.
Skill Executions	Players or students need to make effective skill executions in terms of passing, receiving the ball, dribbling, and scoring.	SEI = Effective skill executions / Ineffective skill executions.
Adjust	Players or students move to maintain ball possession	AI= Appropriate adjust / Inappropriate adjust
Cover	Players or students who do not have ball must help their teammates in defending situations by helping their teammate who is trying to win the ball and marking the opponents who have no ball.	CI= Appropriate cover / Inappropriate cover

There were 20 samples which are male students aged 10±12 years old involved in pioneer study to ensure the reliability of TGfU and SET training unit as well as the instrument (GPAI). Game play was recorded in 20 m x 10 m grid and the evaluation was conducted by using GPAI. Test and re-test method had been carried out for reliability purpose and the findings indicated r =.859 for decision making, r =.841 for skill execution, r =.526 for adjust and r =.336 for cover.

Data Collection

The data had been gained once at pre-test and the second time at post-test. Players' game performance was evaluated in terms of decision making (attacking and defending), skill execution (passing, receiving the ball, dribbling, and scoring), adjust (movement to maintain the ball possession) as well as cover (assist their teammates in defending situations by helping their teammate who is trying to win the ball and marking the opponents who have no ball) in a modified game situation of 5 versus 5. Having finished with pre-test, the interventions had been done for six weeks with two days per week (one hour for every session) for TGfU and SET groups respectively. The post-test had also been carried out after six weeks of interventions had completed. All the dependent variables were evaluated by utilizing game play observational instrument by watching all video tapes of 5 versus 5 at pre and post-test for 10 minutes respectively in game play situations. Figure below illustrated the field area and the position of camera during video recording.

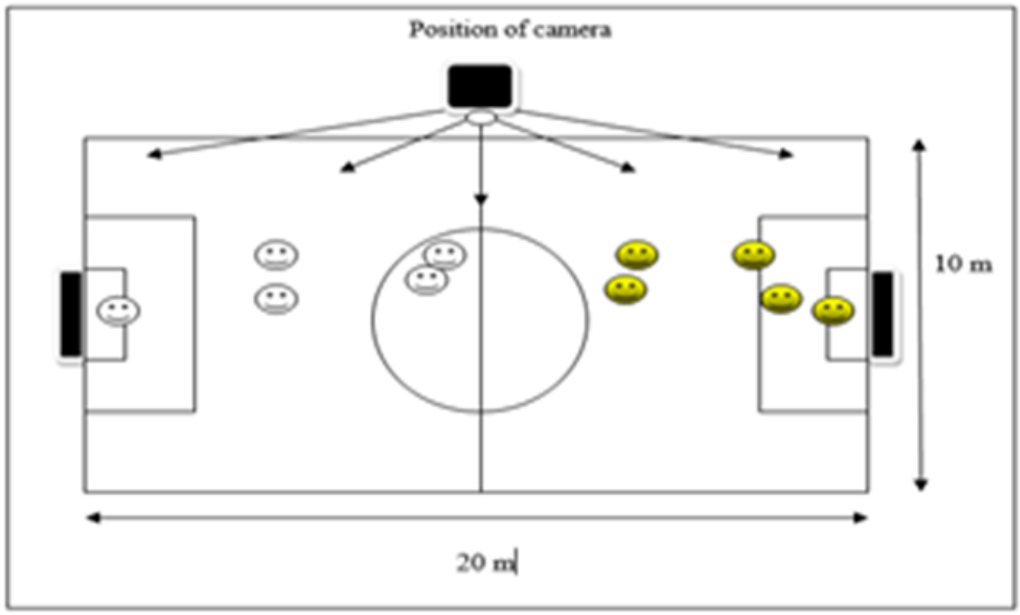

Figure 2: The field area and the position of camera during video recording.

RESULTS

Score data at pre and post-test were analyzed by using Statistical Packages for Social Science (SPSS) version 23.0. One-way between-groups ANOVA had been utilized to find the significant score in terms of decision making (attacking and defending), skill execution (passing, receiving the ball, dribbling, and scoring), adjust (movement to maintain the ball possession) as well as cover (assist their teammates in defending situations by helping their teammate who is trying to win the ball and marking the opponents who have no ball) in a modified game situation of 5 versus 5. The findings of mean (M), standard deviation (SD) and ANOVA were compared with each group to test the null hypotheses at pre and post-test level.

Decision-making

At pre-test, there was a significant difference between TGfU (M/SD: 8.70±5.20), and SET (M/SD: 3.20±2.29, (F (1,18)=9.33, p < 0.05). However, at post-test, there was no significant difference between TGfU (M/SD: 7.30±5.05), and SET (M/SD: 4.10±2.84, (F (1,18)=3.04, p > 0.05). Table and figures below showed the Mean (M) and Standard deviation (SD) for decision-making at pre and post-test.

Table 2: Pre and post-test for decision-making

Model	***M***	***SD***	***N***	***P***
Pre-test				
TGfU	8.70	5.20	10	$F(1,18)=9.33$,
SET	3.20	2.29	10	$p < 0.05$
Post-test				
TGfU	7.30	5.05	10	$F(1,18)=3.04$,
SET	4.10	2.84	10	$p > 0.05$

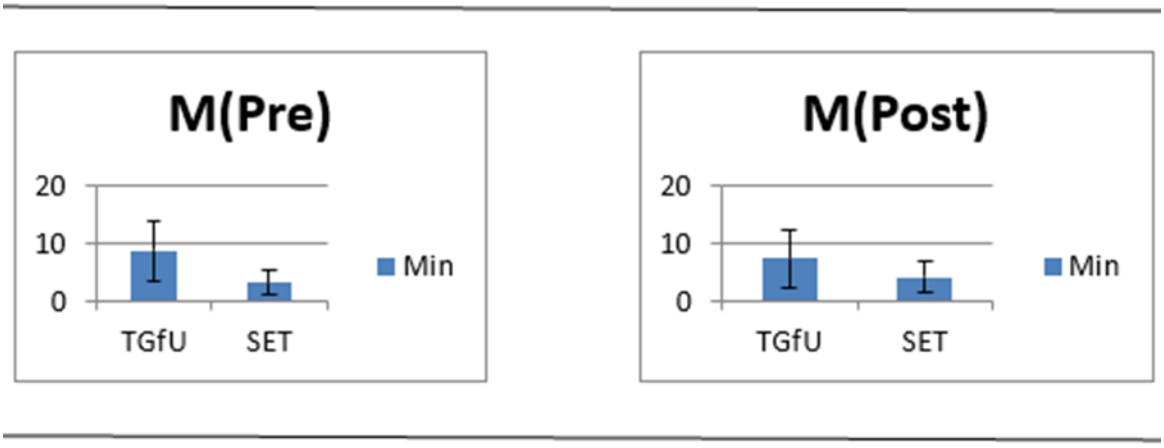

Figure 2: Decision-making pre and post-test (Mean)

Skill Execution

At pre-test, there was a significant difference between TGfU (*M/SD*: 5.30±3.52), and SET (*M/SD*: 2.40±2.27, (*F* (1,18)=4.77, $p < 0.05$). However, at post-test, there was no significant difference between TGfU (*M/SD*: 3.90±3.21), and SET (*M/SD*: 2.50±2.91, (*F* (1,18)=1.04, $p > 0.05$). Table and figures below showed the Mean (M) and Standard deviation (SD) for skill execution at pre and post-test.

Table 3: Pre and post-test for skill execution

Model	*M*	*SD*	*N*	*P*
Pre-test				
TGfU	5.30	3.52	10	$F(1,18)=4.77$, $p < 0.05$
SET	2.40	2.27	10	
Post-test				
TGfU	3.90	3.21	10	$F(1,18)=1.04$, $p > 0.05$
SET	2.50	2.91	10	

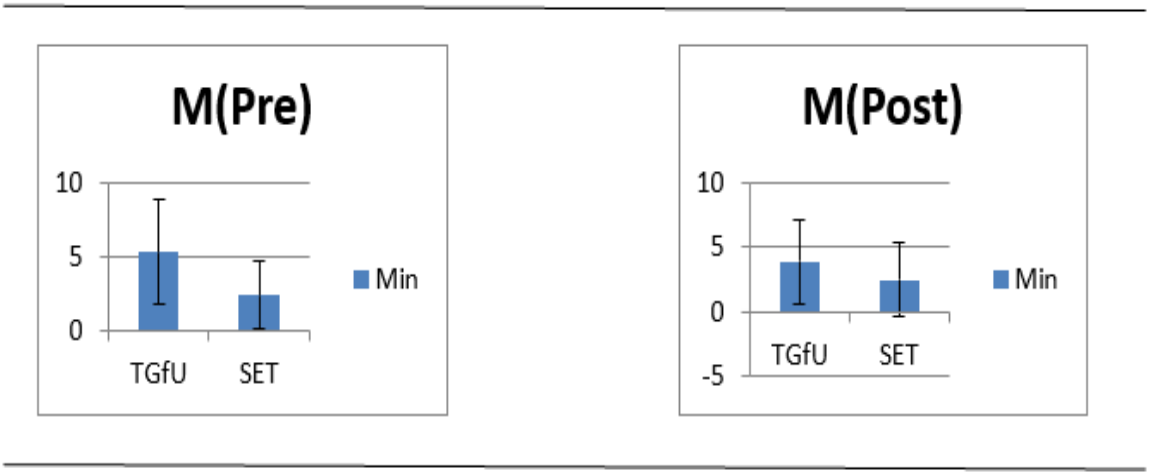

Figure 3: Skill execution pre and post-test (Mean)

Adjust

At pre-test, there was no significant difference between TGfU (*M/SD*: .10±.31), and SET (*M/SD*: .00±.00, (*F* (1,18)=1.00, $p > 0.05$). Meanwhile, at post-test, there was also no significant difference between TGfU (*M/SD*: .40±.69), and SET (*M/SD*: .10±.31, (*F* (1,18)=1.53, $p > 0.05$). Table and figures below showed the Mean (M) and Standard deviation (SD) for adjust at pre and post-test.

Table 4: Pre and post-test for adjust

Model	*M*	*SD*	*N*	*P*
Pre-test				
TGfU	.10	.31	10	$F(1,18)=1.00, p > 0.05$
SET	.00	.00	10	
Post-test				
TGfU	.40	.69	10	$F(1,18)=1.53, p > 0.05$
SET	.10	.31	10	

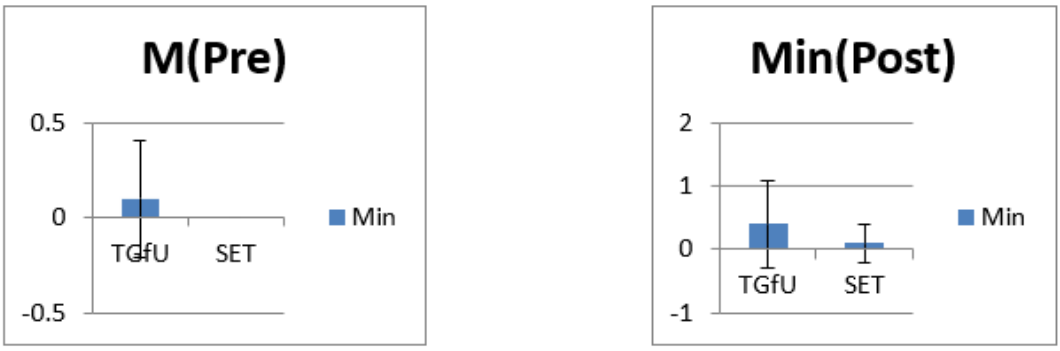

Figure 4: Adjust pre and post-test (Mean).

Cover

At pre-test, there was no significant difference between TGfU (*M/SD*: 2.10±2.37), and SET (*M/SD*: .50±.70, (*F* (1,18)=4.15, $p > 0.05$). However, at post-test, there was a significant difference between TGfU (*M/SD*: 2.10±1.59), and SET (*M/SD*: .40±.69, (*F* (1,18)=9.53, $p < 0.05$). Table and figures below showed the Mean (M) and Standard deviation (SD) for adjust at pre and post-test.

Table 5: Pre and post-test for cover

Model	*M*	*SD*	*N*	*P*
Pre-test				
TGfU	2.10	2.37	10	$F(1,18)=4.15, p > 0.05$
SET	.50	.70	10	
Post-test				
TGfU	2.10	1.59	10	$F(1,18)=9.53, p < 0.05$
SET	.40	.69	10	

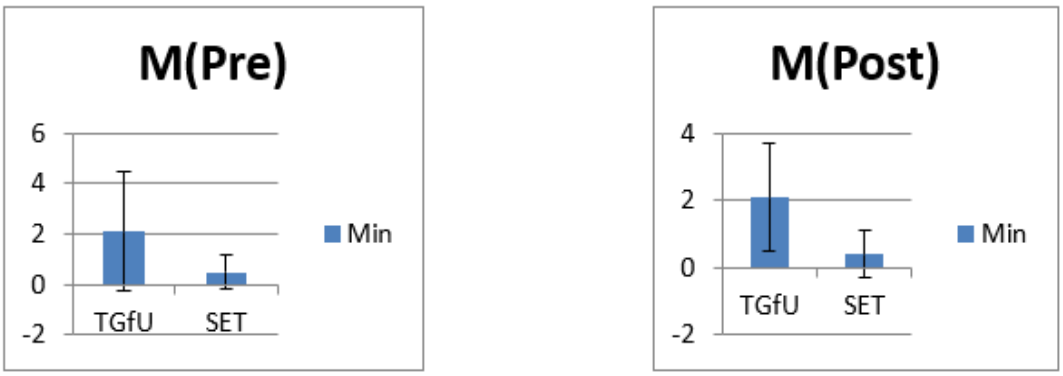

Figure 5: Cover pre and post-test (Mean)

DISCUSSION

In this study the samples were assigned randomly into two groups of intervention. That means, n=10 players had been assigned into the TGfU group and n=10 players had been assigned into the SET group. The players performance in this study was very impressive especially at post-test results. The players performance was also in line with the previous studies orbit around decision-making and skill execution. Whilst, the game components of adjust and cover also showed the corresponding results with the several previous studies. The decision-making component showed significant improvement in this study for two groups which are TGfU as well as SET and this result was parallel with the findings in decision-making component for children by the previous researchers (Balakrishnan, Rengasamy, & Aman, 2011). This is because these approaches emphasized on tactical awareness (what to do?), (when to do?), (where to do?) and (which one is appropriate?) in terms of decision-making. Meanwhile, the technical of skill execution had been built up from the guided-discovery revolving around (how to do?) certain skills in actual game. Even though there was a significant difference result at pre-test, eventually there was no significant difference at post-test. Actually, at pre-test level, there was a significant difference for game components of decision-making as well as skill execution between TGfU and SET group in this study.

This scenario happened due to samples selection were different for two groups in which most of the high-skilled players were assigned for the TGfU group. Meanwhile, the lion's share of the low-skilled players had assigned into the SET group. However, at post-test level, both components showed improvement whether in the TGfU group or the SET group and there was no significant difference between TGfU and also SET group. These findings were in line with the previous studies in the context of GBA approaches on decision-making and also skill execution components as adduced in Nathan, Ahmad, Boon, Shariff, Madon, & Rasyhid (2013), Nathan & Khanna (2014), Nathan (2015), Jani, Salimin, & Shahril (2017) and Sierra-Ríos, Clemente, Rey, & González-Víllora (2020). This phenomenon was occurred when the students or players had been given such opportunities to wrestle with the problem that had been set-up by the coaches or teachers. It is noticeable that coaches and teachers should consider more on indirect teaching or instructions to give students or players freely freedom to discover the problems that had been structured. Nathan (2012) started the investigation revolved around the usage of SET pedagogical model for high-skilled, medium-skilled and low-skilled players in hockey context. The results indicated that the low-skilled players showed significant improvement at the post-test level in terms of decision-making and skill execution. In the context of Aboriginal youth, there are some hindrances to follow all the procedures by concerning indirect teaching or instructions because for years they had used to conventional approach. Besides, there are also some issues with respect to their custom, culture as well as communication to implement full order of indirect teaching or instructions especially for low-skilled players. In 2015, Nathan pointed out that indirect teaching or instructions cannot fully implemented when we have to engage with low-skilled players. There is need to combine with traditional method as well because at some points these students or players will be blurred when try to understand certain skills to be applied in actual games. They wanted to know how certain skills can be performed successfully before their eyes with some examples or demonstrations. Thus, apparently there are big voids between advanced countries and developing countries such Malaysia mainly in football.

As for the findings on adjust and cover components, there was no significant difference at post-test level in term of adjust component but there was a significant difference in term of cover component at post-test level between TGfU and SET groups in this study. This phenomenon was also caused by the disparity between two groups which are high-skilled players (TGfU) and low-skilled players (SET). Furthermore, the samples had been chosen by using intact samples and had assigned randomly into two groups of intervention. Harvey (2003) pointed out that the improvement in terms of adjust as well as cover components will be seen gradually and in his study the improvement on these components can be seen bit by bit. Sierra-Ríos et al. (2020) also pointed out that the training sessions by using game-based approaches should be a long-term process to see more advancements of game configurations as well as others associated parameters. Nevertheless, the researcher also addressed that most of Aborigine players in this study were shrinking violet mostly low-skilled players. They were very shy to speak out due to

natural shyness inside them. Thus, the guided discovery by using questions most of the time were stunted. In fact, Aboriginal people are known for their introverted character (Brown & Fraehlich, 2011 as cited in Abd Rahim et al., 2017).

In a nutshell, this study is very crucial to be conducted and it is noticeable that Aborigine youth can also spur their potential with the best methods of training. Aborigines youth may have great difficulty coping when they are separated from their traditional communities and live in a social environment that does not promote their participation in economic or social life and this can have devastating effects on their sense of self-worth and cultural identify as well as may lead to a range of serious health and social problems such as depression and substance abuse (United Nation, 1995). Finally, caution while dealing with Aboriginal communities in terms of their sensitivities because in fact, they are still left behind revolving around politics, social as well as economic development (Mustapha et al., 2010).

CONCLUSION

In conclusion, TGfU model seems to be a better model especially for cover component (assist their teammates in defending situations by helping their teammate who is trying to win the ball and marking the opponents who have no ball). This phenomenon was caused by the disparity between two groups which are high-skilled players (TGfU) and low-skilled players (SET). Thus, further research has to be done to confirm the effectiveness of TGfU and SET models for Aborigine students by employing the same components or other components of game play, integrating the physiological parameters and physical abilities. Apart from that, further research should pay attention on methodology aspects which are the maturation and selection (high-skills, moderate-skills and low-skills players to be assigned equally) and also the large number of samples by considering their needs and difficulties orbit around their sensitivities in terms of communication as well as cultural.

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