



SMALL-SIDED GAMES IN BUILDING FEMALE STUDENTS' MOTIVATION FOR PRACTISING FOOTBALL IN PHYSICAL EDUCATION

Mochamad Ridwan^{1ABE}, Bayu Budi Prakoso^{1CDE} and Himawan Putranta^{2ACD}

¹Universitas Negeri Surabaya

²Universitas Islam Negeri Sunan Kalijaga Yogyakarta

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Corresponding Author: Mochamad Ridwan, E-mail: mochamadridwan@unesa.ac.id

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Abstract

Study purpose. This study aimed to analyze the effect of a small-sided games (SSGs) cooperative learning model on female students' motivation to participate in practical football learning.

Materials and methods. The one-group pretest-posttest design was used to identify the change in motivation on twenty female eleventh grade students selected as research subjects by random sampling techniques. Data on their motivation were collected before and after the small-sided games practice. Data analysis was carried out by using descriptive techniques and the dependent t-test.

Results. The results indicated a pretest value of 134.30 with 15.97 as the mean value. Meanwhile, the posttest resulted in a value of 152.60 with 15.73 as the mean value, which yields a difference of 18.3 in the mean values. It indicates an increase in motivation by 13.63%. The dependent t-test resulted in 6.654 as t-count value at 0.05 significance level. These results indicated that small-sided games cooperative learning model in physical education had a significant effect on improving female students' motivation to actively participate in football. Examining the implementation of football SSGs in school physical education courses and its effect on the motivation of female students to participate in practical football playing was the focus and novelty of this study.

Conclusions. This study findings will be useful resources for sports instructors and stakeholders in physical education to give more consideration to innovations such as SSGs in increasing awareness and participation of students in sports and physical activities, especially football, to improve their physical health, and as one of the determinants of achieving success in students' studies.

Keywords: female students, football, motivation, physical education, small-sided games.

Introduction

It has been a challenge to engage female students in the field of Physical Education for teachers/instructors (Azza-rito, Solmon, & Harrison, 2006; Enright & O'Sullivan, 2010; Slater & Tiggemann, 2010). One of the existing variables which contributes to the learning outcome of female students in Physical Education teaching and learning process is motivation. To construct students' activities, student motivation is the main aspect that should be achieved in the early phase of learning process (Darmawan, Ridwan, & Herdyanto, 2019). However, students' motivation to study physical education is experiencing a downward trend with increasing student school levels (Ha et al., 2018).

Sports research and physical education research have shown an intrinsic relationship of positive motivation with reduced boredom in students, increased enthusiasm, and determination to participate in physical activities. Many teaching innovations have been created by educators in teaching sports to high school students, one of which is Small-Sided Games (SSGs). Small-sided games (SSGs) are learning methods that involve physical sports in a minimized area, often using modified rules and involving fewer players than common sports. Halouani et al. (2017) focused their research on the need to test the optimal periodic strategy of SSGs training for the long-term development of physiological capacity, technical skills, and tactical abilities, and minimize the risk of injury to players. In addition, Trajkovic et al. (2017) studied SSGs vs instructional training to improve the accuracy of skills in young female volleyball players which proved that SSGs are more effective in increasing accuracy in young female

volleyball players. Furthermore, Jastrzębski and Radzimiński (2015) compared time-motion analysis and physiological responses that produce intensity in SSGs football players of all genders in 4 vs 4 SSGs and noted similarities.

Previous studies that discuss the implementation of small-sided games in football by women players abound, however, research that connects small-sided games as a method of learning football to increase the motivation and participation of female players (students) has not yet been conducted. This study's findings will be useful resources for sports instructors and stakeholders in physical education to give more consideration to innovations such as SSGs in increasing awareness and participation of students in sports and physical activities, especially football, to improve their physical health, and as one of the determinants of achieving success in student's studies. The purpose of this study is to analyze the influence of SSGs cooperative learning model on female students' motivation to participate in practical football learning.

Physical education influence on student learning outcome

Physical education (PE) gives a significant contribution to human resources development. According to that condition, physical education hopefully can make students healthier and have good physical fitness by applied teaching and learning processes based on a curriculum that can increase student competencies. Trost (2007) added that "... children who are physically active and fit tend to perform better in the classroom, and that daily physical education does not adversely affect academic performance, schools can provide outstanding learning environments while improving children's health through physical educations". However, there is discrimination between females and males in physical education during the teaching and learning process and they should actively make good teamwork and contribute to each other (Ulstad et al., 2016).

Female participation in football course

Nowadays, football is not only played by male but also female as well as give more opportunity for a female to join the competition and get the achievement as a professional football player. According to the International Federation of Association Football (FIFA), there are approximately 270 million people directly involved with football of which 840,000 are referees and assistant referees. Ninety-four percent are men and 6% are women (Orta, 2014). Murphy et al. (2014) supported this fact by mentioned that only about 6-7% of female students are interested in playing football. Therefore, his study suggested effective and innovative teaching methods for enhancing female students' engagement in physical education, especially football.

Small-sided games (SSGs)

SSGs exercise intensity is usually increased with the concurrent reduction in player number and increase in relative pitch area per player. A small number of influential SSGs players will be more effective in increasing the intensity of the game so that all players in SSGs show greater and more intense participation compared to SSGs with a large number of players. Furthermore, pitch area is the main factor that

has a strong influence on psychological stress in SSGs, the impact of which makes SSGs an effective sports teaching method for physical training/education. Direct coach supervision during SSGs has been shown to increase compliance with training programs, increase training intensity, and increase performance measures in various training modes. The physiological response to SSGs is significantly higher during situations with coach encouragement compared to no encouragement during all SSGs formats. The presence of the goalkeeper can also affect the intensity of the SSGs. In a study of Bujalance-Moreno et al. (2019), it was found that there was a positive influence of the goalkeeper on the intensity in SSGs format (4 vs 4). To date, only one study has explored the effect of game duration on physiological responses in SSGs football (Fanchini et al., 2011). There was a significant increase in HR response (expressed in percentage HRmax) between game duration 2 and 4 minutes (82, respectively, 4 vs 85.9%) and a decrease between the duration of games 4 and 6 minutes (85.9 vs 85.6%, respectively). There is only one study that explores energy expenditure and enjoyment during SSGs badminton games in boys who are overweight (reference). In this study, the finding indicates that it might be better to play SSGs in a larger court when space is available.

Materials and methods

General background and participants

This study used the quasi-experiment research design. The research design used was a one-group pre-test (before being given treatment/applying SSGs) and post-test (after being given treatment/applying SSGs). The population in this study comprised of twenty female eleventh grade students studying sciences from SMAN 11 Surabaya. The sample used in this study were female students due to several reasons. Many women were afraid of football because football had a lot of body contact or touch between bodies. Many women did not like football. In addition, the field for studying physical education in schools was still limited. The random sampling technique was applied using cluster random sampling to select the population of the study.

SSGs procedure

In this study, SSGs used a small playing field with a short duration of play. The number of students was determined constantly (4 vs 4) and three small pitch sizes were 10×15 (150 m^2), medium: 15×20 (300 m^2), and large: $20 \times 25 \text{ m}$ (500 m^2). The pitch ratio per player (pitch area divided by several players) was 1:19 m^2 , 1: 37.5 m^2 , and 1: 62.5 m^2 respectively for small, medium, and large pitch areas. Duration of the game, students do a 4×4 -minute game with a 2 minute recovery period in between. During the recovery period, the players were instructed to stop the ball and rest it under the sole in a zone 1 meter before the finish line of the playing field. Stopping the ball allows the player to determine a way to enter the "destination zone".

Data collection and analysis

The data collection instrument used was the questionnaire with items designed to follow football learning and

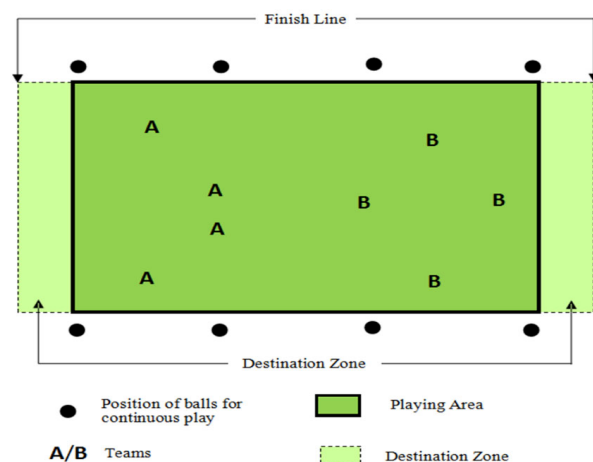


Fig. 1. SSG layout (football)

consisting of 40 items. The item validity test results = 0.323 - 0.789 ($n = 41$, r -table 0.2542) and the reliability test = 0.952. The pre-test was carried out during the first meeting by giving a motivational questionnaire to students which revealed the motivation that consists of perceived competence, task orientation, and motivational climate variables in learning football courses. The treatment phase was conducted in 2-4 football meetings with the subject focused on passing the lesson. In this phase, the students are formed into four groups. Meanwhile, the post-test was conducted at the 4th meeting of the small-sided games.

The data analysis was descriptive statistics. Tests were conducted to test the effect of independent variables (SSGs) on the dependent variable (motivation) and its difference in pre-test and post-post using the t-test with a significance level of 0.05. Data analysis was performed using Cronbach's alpha to determine its reliability. The study design was an unequal control group design and manipulation checks were carried out on the pre-test to check for any major differences in motivation. Analysis of variance (ANOVA) was performed to compare the differences between the two educational conditions on motivation with t-tests conducted to show a significant analysis.

Result

Small-sided games used as the treatment in four meetings showed significant impacts on female students' motivation in practicing football. Table 1 described the results of descriptive analysis of female students' motivation. The pre-test of perceived competence obtained an average value of 134.30, with a standard deviation value of 15.97, the lowest value of 112.00, and the highest value of 165.00. While the post-test obtained an average value of 152.60, with a standard deviation value of 15.73, the lowest value is 129.00, and the largest value is 179.00. Likewise, the value of task orientation and motivational climate is greater at post-test, so it can be concluded that SSGs are effective in increasing competence, orientation towards tasks, and motivational climate in teams. Furthermore, a normality test was conducted to continue the parametric statistical analysis to test the effect of the small-sided games on the motivation of female students in participating in the football course.

Meanwhile, Table 2 presented normality test of the form of motivation data distribution between pre-test and post-test. Based on the results of the normality test the distribution of motivational data indicated a normal distribution, so the parametric statistical analysis using the t-dependent test was conducted (Table 3). In addition to knowing the effect of small-sided games on the motivation of female students in participating in learning football, a large increase in motivation was calculated before using small-sided games and after using small-sided games.

Also, the results of the analysis of the influence of small-sided games on female student motivation are explained in Table 3. Different tests of normality in this study also used parametric statistical analysis, namely the paired sample t-test. Whereas to find out the magnitude of the effect of applying the small-sided games model, it was calculated using the difference between the results of the pre-test and post-test that was divided by the average pre-test results multiplied by 100%, and the following results were obtained. It was found that student motivation has an average pretest of 134.30 and a posttest average of 152.60 with a difference of 18.3, a t-value of 6.654 with a significance of 0.000 < 0.05, so there is an increase of 13.62%.

Table 1. Descriptive statistics

Variable	N	Test	Mean	SD	Min.	Max.
Perceived competence	20	Pre-test	134.30	15.97	112.00	165.00
		Post-test	152.60	15.73	129.00	179.00
Task-orientation	20	Pre-test	133.50	15.60	113.00	162.00
		Post-test	154.00	14.80	124.00	174.00
Motivational climate	20	Pre-test	130.26	14.70	114.00	151.00
		Post-test	151.80	15.30	121.00	168.00

Table 2. Normality test result

Variable	N	Test	Z	Sig.
Perceived competence	20	Pre-test	0.140	0.200
		Post-test	0.186	0.068
Task-orientation	20	Pre-test	0.139	0.019
		Post-test	0.187	0.069

Table 3. T-test dependent results

Variable	N	Test	Mean	Diff.	Gain (%)	t	Sig
Perceived competence	20	Pre-test	134.3	18.3	13.62	6.654	0.00
		Post-test	152.6				
Task-orientation	20	Pre-test	135.6	18.4	13.56	6.656	0.00
		Post-test	154.0				
Motivational climate	20	Pre-test	136.8	19.00	13.88	6.705	0.00
		Post-test	155.8				

Discussion

This research results indicate a significant decrease in orientation in traditional conditions before the post-test. The motivational climate did not show any significant changes

under the conditions of sports education but has shown a significant decrease in scores under traditional conditions for motivational climate. These results support previous research on teacher understanding of sports education having a positive effect on student motivation in physical education (Alexander & Luckman, 2001; Grant, 1992). Furthermore, Hastie (1998) has shown that insisting on sports education planning can improve student skills and tactical development.

There is a significant difference between sports education and traditional conditions based on perceptions of competence, task orientation, and motivational climate with the size decreasing from pre-test to post-test under traditional conditions compared to the conditions of sports education. Previous studies of sports education models have shown that these results can be linked to student excitement, engagement, and participation (Wallhead & O'sullivan, 2005). A motivational climate that is perceived to be more oriented towards competitiveness prevails more in sports education, which can be attributed to task orientation and positive motivation (Castro-Sánchez et al., 2019).

This research findings can be utilized in learning physical education because football is included in the material must be implemented starting from elementary school to high school. The state of the school in Indonesia, which on average does not have a standard football field and has become an open secret that more female students are passive in physical education lessons, especially in football. For this, small-sided games are suitable to be applied in such a situation so that they can be interesting student interest as well as the enthusiasm of students in participating in football learning and students will get new experiences in football games that have not been obtained before. With the facilities and infrastructure available at school, given the application of small-sided games conducted by researchers can stimulate students to be more active, have an enthusiastic play, and have high motivation in participating in football learning, which at first was not enthusiastic when given it conducted on hot weather conditions.

Conclusion

As this research findings showed that SSGs positively affected female students' motivation in practicing football through the aspects the strategy covered, SSGs can be continuously used by trainers in developing players' skills specialized skills, in addition to increasing their perseverance. The aspects need closer attention to implement SSGs to get optimum effect on students' motivation were number of players, pitch areas, coach encouragement, the involvement of goalkeeper, game duration, and exploration of energy expenditure and enjoyment.

Further research is needed to gain more insight into the SSGs' core interactions the best way to use them to improve student's physical education. Recommendations to physical education teachers when teaching sports lessons are to endeavor to alter team setups and vary the intensity of exercise during SSGs. More to that, effective sports teacher encouragement is vital in intensifying exercises, as well as giving comments.

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Conflict of interest

The authors declare that there are no conflicts of interest.

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РОЛЬ ІГОР НЕПОВНИМИ СКЛАДАМИ В ПОБУДОВІ МОТИВАЦІЇ ШКОЛЯРОК ДО ПРАКТИЧНОГО НАВЧАННЯ ГРИ У ФУТБОЛ НА ЗАНЯТТЯХ ІЗ ФІЗИЧНОГО ВИХОВАННЯ

Мочамад Рідван^{1ABE}, Баю Буді Пракосо^{1CDE}, Хімаван Путранта^{2ACD}

¹Сурабайський державний університет

²Джок'якартський державний ісламський університет імені Сунана Каліджаги

Реферат. Стаття: 5 с., 3 табл., 1 рис., 19 джерел.

Мета дослідження. Метою цього дослідження було проведення аналізу впливу моделі колективного навчання з використанням ігор неповними складами (ІНС) на мотивацію школярок до участі в практичному навчанні футболу.

Матеріали та методи. Дослідження проводили за планом попереднього та підсумкового тестування на одній групі для визначення зміни мотивації двадцяти одинадцятикласниць, відібраних учасницями дослідження методами випадкової вибірки. Дані про їхню мотивацію збирали до та після практичних занять з ігор неповними складами. Аналіз даних проводили з використанням описових методів і t-критерію Стюдента для залежних вибірок.

Результати. Результати показали значення попереднього тестування 134,30 із середнім значенням 15,97. Тоді як підсумкове тестування дало в результаті значення 152,60 із середнім значенням 15,73, що дає різницю середніх значень 18,3. Це означає зростання мотивації на 13,63%. За результатами застосування t-критерію Стюдента було отримано значення 6,654 за рівня значущості 0,05. Ці результати показали, що модель колективного навчання з використанням ігор неповними складами на заняттях із фізичного виховання статистично значущо впливали на підвищення мотивації школярок до активної участі у грі у футбол. Основна мета й новизна цього дослідження полягали у вивченні реалізації ІНС у футбол на шкільних заняттях із фізичного виховання та її впливу на мотивацію школярок до участі в практичній грі у футбол.

Висновки. Результати цього дослідження будуть корисними джерелами інформації для вчителів фізичного виховання та зацікавлених осіб у галузі фізичного виховання, які приділятимуть більшу увагу ролі таких інновацій, як ІНС, у підвищенні обізнаності та участі учнів у спорті та фізичній діяльності, особливо у футболі, для покращення їхнього фізичного здоров'я, і розглядатимуть такі інновації як один із вирішальних чинників досягнення успіху в навчанні учнів.

Ключові слова: школярки, футбол, мотивація, фізичне виховання, ігри неповними складами.

Information about the authors:

Mochamad Ridwan: mochamadridwan@unesa.ac.id; <https://orcid.org/0000-0001-7385-0960>; Department of Sports Education, Faculty of Sports Sciences, Universitas Negeri Surabaya, Surabaya, Indonesia.

Bayu Budi Prakoso: bayuprakoso@unesa.ac.id; <https://orcid.org/0000-0002-1615-7753>; Department of Sports Education, Faculty of Sports Sciences, Universitas Negeri Surabaya, Surabaya, Indonesia.

Himawan Putranta: himawan.putranta@uin-suka.ac.id; <https://orcid.org/0000-0003-2646-8237>; Department of Physics Education, Faculty of Tarbiyah and Teacher Training, Universitas Islam Negeri Sunan Kalijaga Yogyakarta, Yogyakarta, Indonesia.

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