

Implementing Badging System to Improve Students' Performance in Physical Education

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Abstract

The purpose of this study is to determine the use of Badging System in improving students' performance in Physical Education subject. Utilizing a quasi-experimental design, the participants of the study were asked to perform dribbling, shooting, and game play before and after the implementation of badging system. The assessments of their performance were graded twice –before and after the badging system, using the adapted standardized basketball rubric of the National Association for Sport and Physical Education (NASPE). The data gathered were analyzed using Skewness and Kurtosis for normality, followed by Paired T-Test.

Results showed that there is a significant difference between dribbling pre-test scores ($M=4.97$, $SD=1.01$) and post-test scores ($M=7.54$, $SD=0.854$) with a mean difference of -2.56 . The shooting scores have a mean difference in pre-test ($M=6.92$, $SD=1.40$) and post-test ($M=11.2$, $SD=1.37$) with a mean difference of -4.23 . The game play scores have a mean difference in pre-test ($M=11.5$, $SD=2.34$) and post-test ($M=18.6$, $SD=2.28$) having a mean difference of -7.05 . This study concludes that the implementation of badging system improves the students' performance in basketball –specifically in dribbling, shooting, and game play.

Keywords: *dribbling, shooting, game play, badging system*

Introduction

Schools implemented Physical Education as a subject from primary or elementary to college level because, knowing the new generation, students are becoming less healthy and less active. Physical Education is a subject that teaches students beneficial information and, at the same time, helps them get involved in different physical activities. Being physically active is vital for an individual's health and life. Physical activity is essential for preventing obesity, reducing the risk of Type 2 diabetes,

cardiovascular disease, and other chronic diseases, and enhancing general health, especially young people nowadays do not engage in the necessary level of physical exercise for outcomes connected to their health. Children should engage in at least 60 minutes of physical activity each day (Corredor, 2015).

The first recommendation encourages engaging in lifestyle, recreational, and organized activity forms to accumulate one hour of physical activity every day of at least moderate intensity or the equivalent of brisk walking. The second recommendation states that children should engage in activities that support musculoskeletal health on at least two occasions per week. Weight-bearing exercises emphasizing muscular power, stamina, flexibility, and bone health can help attain a goal. A context for regular and structured physical activity engagement is provided through school physical education. To this aim, there is already a clear statement and facts in favor of including physical education in the school curriculum in that it improves students' health and fitness (Fairclough, 2004).

Upon being stated and proven, Physical Education is in the curriculum because it is as essential as any other subject, but in the new generation, it was stated that students are becoming less engaged and less participative in physical activities conducted in Physical education classes. According to the first-ever global trends for adolescents who do not engage in enough physical activity, girls and boys between the ages of 11 and 17 need to engage in more physical activity right away. Researchers from the World Health Organization (WHO) published a study that found out “more than 80% of school-age adolescents around the world did not meet the current recommendations of at least one hour of physical activity per day, including 85% of girls and 78% of boys” (Lindmeier, 2019). This study aids in

solving student's inactive participation in physical activities through extrinsic motivation.

Motivation is what drives someone to do or not to do something. In Physical Education programs, motivation is frequently the student's only duty. It is a common misconception among teachers that certain pupils lack the motivation to engage in physical activity or exercise. Several motivational theories for physical education have been studied and may offer some insight into why kids are motivated. It is the duty of the teacher to be aware of the classroom's motivating climate and understanding motivational theories and how to apply them to enhance students' experiences in physical education (Fullerton, 2022).

The concept of extrinsic motivation is relevant whenever an action is carried out or undertaken to achieve a distinct goal. With its four forms, it shows that learners need extrinsic motivation to be more participative and engaged. *External regulation* refers to the reward or punishment, *Introjection* is seeking approval from others or oneself, *Identification* is knowing what is important or valuable and *Integration* becomes more self-determined when one internalizes and assimilates the motivations behind them into oneself and be congruent with goals (Deci, 2000).

Under extrinsic motivation, the *external regulation* is used in this study – specifically the badge system concept. Badges, often known as micro-credentials, are pictures that show the student or stakeholder has completed a goal or mastered a skill. They can be viewed in person or online, and many of them also have associated data that demonstrates how the badge was obtained (Bell, 2017).

According to an exploratory case study entitled, *The School-Based Badging*

System and Interest-Based Learning, School-Based Badging System and Interest-Based Learning had qualities that the students valued, like being creative, unique, and developing the abilities they thought were important for their personal lives. In addition, the School-Based Badging System and Interest-Based Learning were considered a means of tying success to a student's identity either by exposure to the badges' content or through the actions taken to proficiency. Finally, the badges' awards were prominently displayed in pupils' reactions. These incentives included the actual badges and the in-class benefits they received from the badging procedure outside of school, such as extra liberties in school and excursions away from it. Students frequently spoke when discussing their involvement in the badging program regarding the allure of having fun. One pupil, for instance, discussed that the School-Based Badging System and Interest-Based Learning made learning more interesting, exciting, and fun. Similar to the previous student, a student stated that everyone enjoys doing it because they are new and it is a new trend, and most people like it (Wardrip, 2014).

The concept of Classroom Badges presented in the infographic of Tolnai (2021) stated that giving badges can empower students as long as it includes multiple opportunities and increase student engagement. All education begins with a foundational concept or standard. First, there is a need to know the overall educational objective, and second, reinforce that how the students get there matters (Tolnai, 2021).

In the concept of the classroom badge, the teacher will first give micro badges, and the collected micro badges will have equivalent macro badges. It is up to the teacher what type of macro badges will be given and how many micro badges should be collected for the students to get the macro badges (Tolnai, 2021).

Adapting this concept of the Classroom Badge, the students will have to perform the performance task and will be graded with a specific rubric. A rubric is a tool used in assessing the learner's learning, as it also clarifies to the students what the learning goal expectations using rubrics is highly effective in assessing student's learning, especially when it deals with performance tasks or learning activities (Stevens, 2017).

The Badging system will be the tool that will help the student's participation and performance in Physical Education subjects. The grades of the respondents under performance task will serve as the measuring tool to know the efficiency of the badging system either it will improve student's performance in physical education or not. In the Department of Education, Senior High School Curriculum considers Physical Education a core subject. The grading system is twenty-five percent for written works (25%), twenty-five percent for quarterly assessment (25%), and fifty percent for performance tasks (50%). Especially Physical Education is a field where students learn through actions; the student's scores in performance tasks got the highest percentage in their grades (Dep.ed.gov.ph). Hence, the primary goal of this study is to improve students' grades in performance task in Physical Education subject through the Badging system.

Statement of the Problem

This study aimed to know the effect of the implementation of Badging System in students' performance in Physical Education. Specifically, the researcher aimed to answer the following:

1. What is the performance of the students before the intervention was

implemented?

2. What is the performance of the students after the intervention was implemented?
3. Is there a significant difference on the performance of students in Physical Education before and after the implementation of Badging system?

Methodology

This study is semi-experimental. Badging system will be implemented in STEM (Science, Technology, Engineering and Mathematics). The independent variable is the implementation of the badging system and the dependent variable is the performance task scores of the students.

The research was conducted at Junob National High School. The respondents of the study were Grade 11 STEM (Science, Technology, Engineering and Mathematics) students who are taking Physical Education section Aguinaldo.

Through a letter, the researcher requested permission from Junob National High School Principal, Physical Education teacher, parents of the students and the respondents, informing them of the students' participation in the action research. The Data Privacy Act of 2012 was also applied to the participating teachers, emphasizing that the teachers' participation and data would be kept with utmost confidentiality. During the implementation of the study, it happened that the student's lesson was Basketball, the performance tasks that were graded are the Basketball basic skills which are dribbling, shooting and game play. Students performed the skills twice,

before and after the implementation of the Badging System.

The students' performance was graded with the adapted standardized basketball rubric of National Association for Sport and Physical Education (NASPE). This rubric is used both during the pre-test and post-test. National Association for Sport and Physical Education include professors at colleges and universities as well as physical education instructors, coaches, sports directors, and trainers (Play and Playground Encyclopedia, 2023). Weighted rubric is added for the reason that what are being graded are skills and they vary in terms of difficulties. Dribbling has its weighted rubric of $\times 2$, shooting has its weighted rubric of $\times 3$, and game play has its weighted rubric of $\times 5$ for the reason that in game play students are already applying the basic rules in basketball and all the basic skills which already includes passing, running, and rebounding. Students were graded individually both in pre-test and post-test.

Mechanics in the Badging System

Students will perform the Basketball skills that is in the rubric which are the dribbling, shooting and game play and it will serve as the pre-test.

Students will be graded individually in each skill using the adapted standardized rubric.

Students who get the highest scores per skill will be given a "Good Job" badge. Badges are stickers and students will paste it in their Physical Education Notebook.

Students will prepare and practice for a week since there will be a final demonstration in the following week and students will perform again for the

last time.

On the final demonstration, students will perform again the basic skills such as dribbling, shooting and game play and will be graded individually using the same rubric from the pre-test, then it will serve as the post-test.

Students who collected 5-6 “Good Job” badge will receive a Golden badge.

Students who collected 3-4 “Good Job” badge will receive a Silver badge.

Students who collected 1-2 “Good Job” badge will receive a Bronze badge.

The “Good Job” badges are the micro badges, and the Gold, Silver and Bronze are the Macro Badges.

Students who got the Macro Badges will receive prizes or simple gifts depending on the type of Macro badge as exchange to the student’s effort and improvement.

Results

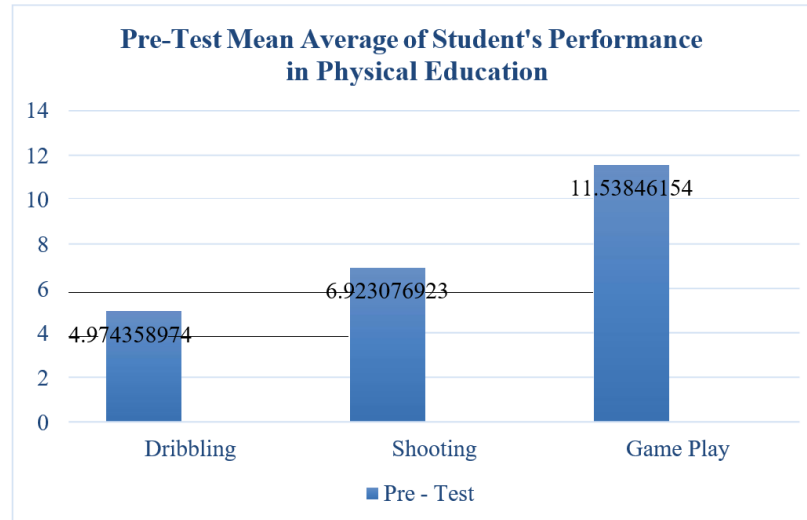


Figure 1. Pre-test Mean Average of Students' Performance in Physical Education

Figure 1 shows the mean average of students' performance in Physical Education Basketball Basic skills before the intervention was implemented. For dribbling, the mean average is 4.97, for shooting, the mean average is 6.92 and for game play, the mean average is 11.53.

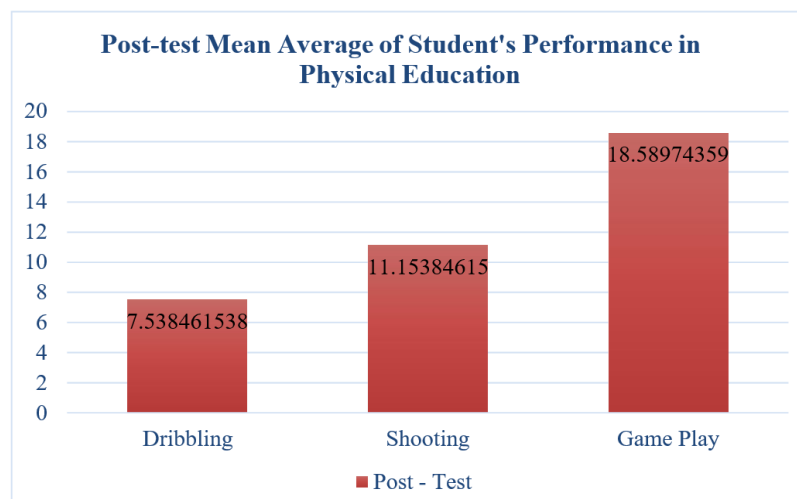


Figure 2. Post-test Mean Average of Students' Performance in Physical Education

Figure 2 shows the mean average of students' performance in Physical Education Basketball Basic skills after the intervention was implemented. For dribbling the mean average is 7.53, for shooting the mean average is 11.15 and for game play the mean average is 18.58.

Table 1: Average of Pre-test and Post-test of Performance tasks

	Pre-Test (Dribbling) 8 points	Post-Test (Dribbling) 8 points	Pre-Test (Shooting) 12 points	Post-Test (Shooting) 12 points	Pre-Test (Game Play) 20 points	Post - Test (Game Play) 20 points (2)
N	39	39	39	39	39	39
Mean	4.97	7.54	6.92	11.2	11.5	18.6
Median	4	8	6	12	10	20
Mode	4.00	8.00	6.00	12.0	10.0	20.0
Standard deviation	1.01	0.854	1.40	1.37	2.34	2.28
Variance	1.03	0.729	1.97	1.87	5.47	5.20

As shown in Table 1, the total respondents were 39 students. All students had their pre-test and post-test, and both were under performance tasks. The activities they did were dribbling, shooting, and game play. They were graded using the criteria that were presented. For the mean, in dribbling the pre-test is 4.97 and in post-test is 7.54. In shooting the pre-test is 6.92 and post-test is 11.2. For game play, the pre-test is 11.5 and the post-test is 18.6. For the median, in dribbling the pre-test is 4 and post-test is 8, in shooting the pre-test is 6 and post-test is 12, and in game play the pre-test is 10 and post-test is 20. For the Mode, in dribbling the pre-test is 4.00 and post-test is 8.00, in shooting the pre-test is 6.00 and post-test is 12.0, in game play the pre-test is 10.0 and post-test is 20.0. For the standard deviation, in dribbling the pre-test is 1.01 and post-test is 0.85, in shooting the pre-test is 1.40 and

post-test is 1.37 and in game play, the pre-test is 2.34 and post is 2.28.

Moreover, *table 2* shows –using a paired T-test, a significant difference between dribbling pre-test scores ($M = 4.97$, $SD = 1.01$) and post-test scores ($M = 7.54$, $SD = 0.854$) with a mean difference of -2.56 . The shooting scores have a mean difference in pre-test ($M = 6.92$, $SD = 1.40$) and post-test ($M = 11.2$, $SD = 1.37$) with a mean difference of -4.23 . The game play scores have a mean difference in pre-test ($M = 11.5$, $SD = 2.34$) and post-test ($M = 18.6$, $SD = 2.28$) with a mean difference of -7.05 .

Table 2: Paired T-test

Paired Samples T-Test

								95% Confidence Interval	
			statistic	df	p	Mean difference	SE difference	Lower	Upper
Pre-Test (Dribbling) 8 points	Post-Test (Dribbling) 8 points	Student's t	-12.4	38.0	<.001	-2.56	0.207	-2.98	-2.14
Pre-Test (Shooting) 12 points	Post-Test (Shooting) 12 points	Student's t	-12.3	38.0	<.001	-4.23	0.344	-4.93	-3.54
Pre-Test (Game Play) 20 points	Post-Test (Game Play) 20 points (2)	Student's t	-13.0	38.0	<.001	-7.05	0.542	-8.15	-5.95

Note. $H_a: \mu \text{ Measure 1} - \text{Measure 2} \neq 0$

Discussion

Physical education is an essential part of any educational curriculum, and performance tasks are crucial to this subject. Articles about performance tasks in physical education provide valuable insights into the importance of these tasks and their impact on students' overall development. Respondents of this study happened to have their lesson about Basketball, and their performance tasks are dribbling, shooting and game play which also included all the basic skills and basic rules of Basketball. The research tool is a standardized basketball rubric adapted from National Association for Sport and Physical Education (NASPE) that is used to grade the students' performance in three different skills: dribbling, shooting and game play. Members of the National Association for Sport and Physical Education include professors at colleges and universities as well as physical education instructors, coaches, sports directors, and trainers. NASPE –a non-profit organization, “enhances knowledge, improves professional practice, and increases support for high-quality physical education, sport, and physical activity programs.” Through a top-notch physical education curriculum, NASPE supports the growth of physically educated K–12 students who possess the knowledge, abilities, and confidence to partake in healthy physical exercise (Play and Playground Encyclopedia, 2023).

Before the Badging was implemented, respondents were taught and asked to practice the three different skills in Basketball, and the Basketball rubric was presented and served as the pre-performance task or pre-test. They are graded using the adapted rubric, and afterward the badging system was implemented. Respondents were asked to perform the three skills again for their final performance task, which served as the post-test. The students were graded with the same rubric used in the pre-test so that a clear

difference was observed.

According to a study by the University of Michigan, students who received badges for their achievements showed increased motivation and engagement in their studies. The badges acted as a form of recognition and validation for their hard work, encouraging them to continue performing well (Ajlen, 2020). The researcher used *Jamovi*, a user-friendly, open-source spreadsheet that offers a full suite of analyses, including t-tests, ANOVAs, correlation and regression, non-parametric tests, contingency tables, reliability, and factor analysis, which are crucial statistical treatments to achieve the result in this study, to analyze and examine the data gathered for this study (Aybek, 2019).

The data gathered using the *Jamovi* and with the adapted standardized rubric showed that before the intervention was implemented, the basketball skill dribbling had a weighted mean of 4.97. After the implementation, the weighted mean was 7.53. In the basketball skill shooting, before the intervention the weighted mean was 6.92, and after the intervention, the weighted mean was 11.15. In the basketball skill game play, before the intervention, the weighted mean was 11.53 and after the intervention was 18.58.

Conclusions and Recommendations

In Physical Education, there are many performance tasks that the students will perform. Each performance task will be graded with its corresponding rubric so that students will be graded fairly and accordingly. For this study, the intervention was conducted during the basketball lesson therefore, the badging system was implemented on the basketball basic skills such as dribbling, shooting and game play. With the results and discussion, it is shown that using the adapted standardized basketball rubric, there is a significant difference between the performance of the students in performing the three Basketball skills, which are dribbling, shooting and game play before the badging system was implemented and after the badging system was implemented. The performance tasks scores of the student during their basketball skills demonstration increased and the Intervention badging system was effective since it improved the student's performance in Physical Education specifically during the Basketball lesson.

Based on the findings of the study, it is recommended to implement the intervention, which is the badging system with another performance task under Physical Education subject. It can be Dancing, First Aid demonstration, Badminton, swimming, and other Physical Activities. This can help strengthen the intervention and how it can be effective in different performance tasks in Physical Education, for as long as there is another standardized or relevant rubric that will be used in grading the performance task. In addition, it is also recommended to use another instrument that can be used in grading the performance of the students in performing basketball skills. There can be another standardized rubric that is already used in other

published studies that might be easier, more specific, and more attainable by the students or specifically by senior high school students that will perform Basic skills in Basketball. This study can be strengthened through widening its scope and integrating other lessons to prove more than the badging system can improve student's performance in variety of physical activities in Physical Education.

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