



THE PERCEIVED SUITABILITY, ACCEPTABILITY AND DURABILITY OF IMPROVISED EQUIPMENT IN FITNESS EDUCATION

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ABSTRACT

This descriptive study generally aimed to investigate the perceived suitability, acceptability, and durability of the proposed six (6) improvised fitness equipment to address the scarcity of costly equipment detrimental to the delivery of effective teaching learning process. The researcher made use of a validated survey questionnaire administered to student and teacher respondents. Data collected were statistically treated using frequency, percentage, and weighted mean. Analysis of data showed that students and teachers participated in the conduct of this study assessed the six (6) proposed improvised fitness equipment as very suitable, very acceptable, and very durable. Findings of the study support the claim that the six (6) improvised equipment can be considered as alternatives for the limited and costly equipment to reinforce learning and attain educational goals.

INTRODUCTION

The advantages of physical education are massive in number in terms of long term and short-term benefits. But just like other subject areas, teaching physical education is not a bed of rose. PE teachers faced hurdles that hamper the effective delivery of learning.

Tagare (2022) mentioned some problems encountered by the teachers include the transition period or gaps from K-12 to tertiary. Allotment of budget for the purchase of equipment, tools, and facilities essential for the effective teaching of PE is also another issue. The existence but scarcity of these tools and equipment are not proportion to the number of enrollees, thus, shortchanging learning opportunities to learners affecting learning outcomes. These seem to be very trivial to higher institutions which have less regard on the importance of physical education. Investing in the education and development of skills of learners in PE seems to be too expensive for other school managers. Others resort to partnership with other institutions and local government units to address these concerns.

It is in this light that this study looks at ways to address this predicament vis a vis the improvisation of costly fitness equipment. Specifically, this study answers the question “Are the Improved Fitness Education Equipment Good Substitutes in terms of their Suitability, Acceptability and Durability?”

The study covers improvised physical education equipment made from recyclable and cheap materials as possible substitutes to high-end and more expensive P.E. equipment for fitness education. For the purpose of this study, fitness education is considered a specialized area of Physical Education. In teaching fitness education, a Physical Education instructor makes use of high value and expensive equipment that are suited for ensuring that specific areas of the body become fit through exercise and workouts. However, it is sometimes the case that P.E. teachers, due to budget constraints, resort to simulation during fitness education sessions rather than the actual use of said fitness equipment. In effect, equipment even serves as a hindrance to some schools which cannot afford them; thus, the need to look for ways to improve the physical fitness of students through the use of improvised equipment that are affordable by schools, given their tight budgets.

METHOD

This study utilized descriptive method of research to determine the perceived suitability, acceptability, and durability of improvised equipment in fitness education. A researcher can perform descriptive research utilizing many approaches such as observation, case study, and survey. All primary data collection methods are covered by these three, which provides a multitude of information. The goal of descriptive research is to describe a population, situation, or phenomena correctly and thoroughly. It can answer the questions what, where, when, and how, but not why. When the goal of the research is to discover traits, frequencies, trends, and classifications, descriptive research is an excellent choice. It is useful when little is known about a topic or problem (McCombes, 2022). In this study,



survey was the data collection used to describe the perception of end-users and teachers on the suitability, acceptability, and durability of the improvised fitness equipment fitness education. A simple frequency count, a type of descriptive statistics, was utilized. Frequency statistics simply counts the number of times that a variable occurs.

RESULTS

This section presents the data obtained from the results of the supervised surveys of first year students who took up the subject “Physical Fitness and Self-Testing Activities” and the responses of the three PE teachers who handled the circuit training for the use of the six improvised equipment during the same semester. It presents the results of the description of respondents’ perception on the suitability, acceptability, and durability of the six (6) improvised equipment, the identified lessons extracted from the comments and suggestions provided by the respondents with respect to the suitability, acceptability, and durability of the improvised equipment.

I. Respondents’ Perception on the Suitability, Acceptability and Durability of the Six (6) Improved Equipment

A. Students’ Perception on the Suitability

Table 2 shows that the student participants have rated all the improvised fitness equipment as very suitable ($M = 3.62, SD = 0.412$) ($M = 3.62, SD = 0.412$). This explains that the provided improvised equipment are suitable for teaching and learning purposes. Designs were still derived from the original structure and purpose of the costly equipment which makes the equipment suitable for the learners use.

Improved Equipment	Mean	Standard Deviation	Verbal Interpretation
1. Aero Step	3.62	0.524	Very Suitable
2. Agility Ladder	3.63	0.537	Very Suitable
3. Dumb Bell	3.70	0.534	Very Suitable
4. Jumping Rope	3.75	0.528	Very Suitable
5. Kettle Bell	3.56	0.597	Very Suitable
6. Medicine Ball	3.47	0.671	Very Suitable
Overall	3.62	0.412	Very Suitable

B. Students’ Perception on the Acceptability

Table 3 shows that the student participants have rated all the improvised fitness equipment as very acceptable ($M = 3.64, SD = 0.424$) ($M = 3.64, SD = 0.424$). Regarded by student participants as suitable and important, it is expected that with these characteristics, the six (6) improvised equipment are acceptable based on the learners’ perspective.

Improved Equipment	Mean	Standard Deviation	Verbal Interpretation
1. Aero Step	3.68	0.506	Very Acceptable
2. Agility Ladder	3.69	0.503	Very Acceptable
3. Dumb Bell	3.68	0.488	Very Acceptable
4. Jumping Rope	3.71	0.531	Very Acceptable
5. Kettle Bell	3.56	0.626	Very Acceptable
6. Medicine Ball	3.54	0.643	Very Acceptable
Overall	3.64	0.424	Very Acceptable

C. Students’ Perception on Durability

Table 4 shows that the student participants have rated all the improvised fitness equipment as very durable ($M = 3.61, SD = 0.424$) ($M = 3.61, SD = 0.424$). The six (6) improvised fitness equipment were assessed as sturdy for maximum use.



Table 4			
<i>Durability of the Improvised Fitness Equipment According to the Student Participants</i>			
Improvised Equipment	Mean	Standard Deviation	Verbal Interpretation
1. Aero Step	3.55	0.567	Very Durable
2. Agility Ladder	3.63	0.587	Very Durable
3. Dumb Bell	3.63	0.630	Very Durable
4. Jumping Rope	3.73	0.553	Very Durable
5. Kettle Bell	3.56	0.641	Very Durable
6. Medicine Ball	3.56	0.733	Very Durable
Overall	3.61	0.424	Very Durable

D. Teacher-Respondents’ Perception on the Suitability, Acceptability and Durability of the Improvised Equipment

Table 7 shows that the teacher participants have rated all the improvised fitness equipment as very suitable, very acceptable and very durable. These findings converge with the result of the student participants as the equipment were assessed in terms of suitability, acceptability and durability.

Table 7			
<i>Rating of Improvised Fitness Equipment According to the Teacher Participants (n=3)</i>			
Criteria	Mean	Standard Deviation	Verbal Interpretation
Suitability	3.67	0.577	Very Suitable
Acceptability	4.00	0.000	Very Acceptable
Durability	4.00	0.000	Very Durable

DISCUSSION

Based on the results of the survey, the student participants find the six improvised equipment, namely the aero step, agility ladder, jumping rope, dumb bell, kettle bell and medicine ball, very durable, very suitable and very acceptable.

Suitability in a general context is defined as the appropriateness of the improvised materials or equipment in the absence of the actual one without compromising the beneficial outcomes and serving the purpose of its use. Okori and Jerry (2017) described this characteristic of improvisation as a primary consideration in designing improvised equipment especially in teaching. With this characteristic as reference, the six (6) improvised equipment were perceived as suitable in learning fitness and Physical Education competencies because these were modelled and designed after the actual equipment with only difference on the material used and commercialized standards.

On the other hand, Arante (2018) highlighted that acceptability of improvised equipment depends on the extent of usability and characteristic in terms of economy compared with the costly commercialized equipment which cannot be provided by colleges with reference to availability. Based on the computed cost of the materials used in developing the improvised equipment, the proponent saves 90.91% budget compared to the purchasing price of actual equipment. The computed cost of the improvised equipment is P668.25 which are as follows: (a) agility ladder -P85.00, (b) aero step -P157.00, (c) dumbbell-P133.00, (d) medicine ball-P136.00, (e) kettle bell -P78.75, and (f) jumping rope -P78.50. While the commercialized price of actual equipment is P7,350.00 which were indicated as follows: (a) agility ladder -P1,395.00, (b) aero step -P2,235.00, (c) dumbbell-P450.00, (d) medicine ball-P1,415.00, (e) kettle bell -P1,200.00, and (f) jumping rope -P655.00.

In terms of durability, half of the student population utilized the improvised equipment without any encounter of malfunction and damaged. The ability to last a long time without noticeable deterioration is referred to as durability. A long-lasting substance benefits the environment by saving resources, decreasing waste, and lowering the environmental effect of maintenance and replacement. In this case, all of these requirements were met based on the assessment of the respondents.



These findings as experienced by the student participants in the study validate the idea presented over the last four decades by different authors regarding employing used or old materials to create equipment for physical education or re-creation. Some authors have described the improvised equipment as “low-cost” or “inexpensive” (Jackson & Bowerman, 2009), but most of them refer to these materials as “homemade material or equipment” (Walkwitz, 2005). Still some authors say that these equipment are “nontraditional” (Maeda & Burt, 2003) or “recycled” materials (Grigg, 2009) that are not difficult to adapt and use in physical education (Moss, 2004). Additionally, many authors believe that homemade equipment should be done by teachers who feel that they need extra materials to enhance their physical education programs (Jackson & Bowerman, 2009; Kozub, 2008; Maeda & Burt, 2003; Moss, 2004; Walkwitz, 2005). Other authors believe that these materials could be built with the teachers and students working together, depending on how difficult the construction process seems to be (Grigg, 2009).

Teacher-respondents rated all the improvised fitness equipment as very suitable, very acceptable and very durable. These converge with the results of the administered questionnaire to students.

Ndihokubwayo et. al., (2018) explained that it is essential for teachers and students to be on the same page when it comes to understanding the purpose of using improvised materials not just to augment the scarcity of available learning materials but primarily to provide equally relevant and quality teaching-learning process. Through the use of improvised materials, both students and teachers were exposed to creativity and innovative ways to combat hurdles that impedes effective learning. Results on the converged assessment of teachers and students on the suitability, acceptability and durability of improvised materials is an indication that both end-users have positive reception on the use of these as effective fitness equipment.

Based on the findings of the study, the following conclusions were proposed:

1. Student-respondents evaluated the proposed 6 (six) improvised fitness equipment as very important in learning journey and taking physical education subject. The absence of these equipment does not hinder the delivery of effective teaching and learning process. These were also assessed as very suitable as alternative equipment in learning fitness and competencies in PE. With regard to acceptability, since these equipment were considered very suitable for learning, acceptability follows. Aside from suitability and acceptability, another characteristic that was measured was durability. Fortunately, improvised equipment were assessed as very durable. This connotes that students and teacher can maximize the use of these learning equipment to reinforce learning and address concerns in the absence of costly equipment.

More than half of the student-respondents experienced the use of these equipment and find these learning equipment very comfortable to use in spite of nature as alternative or improvised structure.

2. Teacher respondents assessed improvised equipment as very suitable, very acceptable, and very durable. These findings converged with the results analyzed from the data gathered on participants' responses. The two groups of respondents shared the same perspective on the potentials of these equipment in addressing the scarcity of costly equipment and impeding effect of this scenario.

Based on the findings of the study and the aforementioned conclusions, the following are hereby recommended:

1. It is recommended that the six (6) improvised fitness equipment have to be proposed to higher educational institutions experiencing scarcity of costly fitness equipment as such to address concerns affecting the effective delivery of classroom instruction because of this existing problem. The suitability, durability, and acceptability of the equipment in the academe passed scrutinous evaluation of end-users and experts.
2. Teachers from Higher Educational Institutions should consider the utilization of these improvised equipment whether for effective delivery of teaching and learning or for fostering fitness among students and school personnel. The presence of these equipment must be maximized through the help of teachers to serve the ultimate purpose of such initiative.
3. End-users have to be oriented on how the equipment were made to ensure the maximum use and shell life of the equipment.
4. These equipment are not just for academic use but even for fitness and health programs. Data and findings were validated using different approaches. This establishes a robust claim that the improvised equipment serves the designed ultimate purpose in providing economically designed but durable, sustainable, and acceptable learning and fitness equipment. It is also recommended that the use of recycled materials and cheaper budget allotment may proposed a high percentage of fitness equipment availability for learners used.
5. Findings of this study may be used as reference for future researchers inclined to conduct study pertaining to the provision and effective use of improvised fitness equipment.



REFERENCES

1. Arante, Ramil. (2018). *Effectiveness of the improvised logic gates simulator in basic digital electronics instruction*. 10. 367-375. 10.18844/ijlt.v10i4.3634.
2. Grigg, A. (2009). *Trash balls*, *Physical & Health Education Journal*, Autumn, 24-26
3. Jackson, D.J., & Bowerman, S.J. (2009). *Development of Low Cost Functional Adaptive Aquatic Equipment*. *TAHPERD Journal*. Fall Issue, 8-10. Johnson, D. W., &
4. Maeda, J.K., & Burt, T. (2003). *Inexpensive equipment preschool movement activities*. *Teaching Elementary Physical Education*, March, 32-34. Marston, R., (1994).
5. McCombes, S. (2022). *Descriptive research design. Definition, methods and examples* <https://www.scribbr.com/methodology/descriptive-research/>
6. Moss, D. (2004). *Sports and Physical Education equipment you can make yourself*. Ontario, Canada: *Physical Education Digest*.
7. Okari, O.A. & Jerry, O. (2017). *Improvisation and utilization of resources in the teaching and learning of Science and Mathematics in secondary schools in cross river state* *Global Journal of Educational Research* Vol. 16, 2017:21-28
8. Ndiokubwayo, K. Uwamahoro, J. & Ndayambaje, I. (2018). *Use of improvised experiment materials to improve teacher training college students' achievements in Physics, Rwanda*
9. Tagare, R. L. Villaluz, G. D. (2021). *Probing the delivery of tertiary physical education among the generation Z students in the transition years of Philippine K to 12*.
10. Walkwitz, E. and Lee, A. (1992) 'The Role of Teacher Knowledge in Elementary Physical Education Instruction: An Exploratory Study', *Research Quarterly for Exercise and Sport* 63: 179-86.