Development and assessment of performance based evaluation instrument in rhythmic gymnastics

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ABSTRACT

Rhythmic Gymnastics is another component of Gymnastics curriculum under the subject of Physical Education. It is performed by both men and women at many levels, from local clubs and schools to colleges and universities, and in elite national and international competitions. It gained popularity as many considers it elite sports. Performers try to perform the most difficult routines in the most graceful way, thus impressing the judges with their mastery of the sport. Judging is very subjective and judgment may possibly be laden with bias if taken carelessly. The Developmental Research is a process of developing and validating products which make it appropriate in this research to acquire new systematic study of developing and evaluating the design product. Developmental Research is typically involved in product development process wherein the final product is analysed, described and assessed. This research conducted in the different campuses of the university that includes the Physical Education teachers teaching P.E. 1. This study sought to develop a performance-based assessment instruments in rhythmic gymnastics for college students with the following components: Description; Objectives; Contents; Administration; Scoring; and Interpretation. It also aimed to establish the quality of the instrument in terms of content validity and reliability.

Keywords: rhythmic gymnastics, performance-based assessment instrument

1. INTRODUCTION

The framework of physical education curriculum in any academic institution in the Philippines is founded on the legal and philosophical underpinning as reflected in Article IV Section 19 of the Philippine Constitution which mandates that:

"*The State shall promote physical education and encourage sports programs, league competitions, and amateur sports, including training for international competitions, to foster self-discipline, teamwork, and excellence for the development of a healthy and alert citizenry. All educational institutions shall undertake regular sports activities throughout the country, in cooperation with athletic clubs and other sectors.*" [1].

This is the reason why in the country, physical education subject has been mandatory in the first two years in college.

If the elementary, high school and college curriculum in the Philippine educational system would be analyzed, it would be discovered that the academic subjects it contains are balanced with character building and physical education [2]. Academic subjects are for the intellect, character building for the soul, and physical education for the body [3].

Another, PE area is getting more and more popular these days, the gymnastics. Gymnastics is another component of Physical Education curriculum. It originated from Greece and is characterized by disciplinary exercises which combine physical skills such as body control, coordination, dexterity, gracefulness, and strength with tumbling and acrobatics, all performed in artistic manner [4-7].

Considering that judging skill performances is a difficult task, it has become a source of concern in college levels where Physical Education teachers are expected to assess hundreds of students [8]. The number of performers' in College PE Gymnastics alone is already a big concern, which makes it necessary for the academe to devise an instrument which would not only be user - friendly but also bias free. This exactly is the concern of this study.

2.   METHOD AND MATERIALS

2.1. Research Design

This study employed the developmental method of research. Developmental research according to Catane (2000) refers to the systematic work drawing on existing knowledge gained from research and / or practical experience that is directed to producing new materials, products and devices. It also means development of something new in a chosen field.

2.2. Research Instrument

The student was adopted from the research entitled Development and Assessment of a Performance-Based Evaluation Instrument in Physical Education by Rivera-Ignacio, Sherryl V. and modified by the researcher. This instrument has undergone pilot testing and has establish its reliability and validity.

2.3. Respondents of the Study

The participants of the study were P.E. teachers and students. A group of students from the College of Education, NEUST performed the rhythmic gymnastics while they were simultaneously observed by the 22 Physical Education teachers from the 5 campuses of NEUST and distributed as follows: 14 Sumacab Campus, 4 San Isidro Campus, 1 Atate Campus, 1 Fort Magsaysay Campus and 2 Gabaldon Campus.

With regards to the age of the students it ranges from 17-19 years of old. For the Physical Education teacher, the greatest number of respondents are in the are ranges of 31-40 with 11 or   50%; 7 respondents or 31.82% were ages 21-30; were the ages 41 years old and above had the least number of respondents with 18.18%.

3.   RESULT AND DISCUSSION

3.1. Components of the Instrument:

The developed instrument intended for Rhythmic Gymnastics has six components, namely: description, objectives, content, administration, scoring, and interpretation. These are all discussed in details as follows:

3.1.1.   Description

Criteria	Descriptors	Scoring Level				
		5	4	3	2	1
1. Timing and Coordination (40%) The regulation of occurrence, pace or coordination of movements to achieve a desired effect in the performance as in synchronization of movements, steps and teamwork.	**1.1 Synchronization of Movements** – execution of movements within the group is simultaneous.					
	1.2 Proper Execution – the adaptation of a creative routine were precisely shown.					
	1.3 Rhythm/Tempo – proper selection of music pattern resulted to the occurrence of strong and weak melodic and showmanship.					
2. Choreography (30%) The Art of designing sequences of movements in terms of originality/creativity, musicality, and formation/variations.	**2.1 Originality/Creativity -** inventiveness or uniqueness of the presentation					
	2.3 Musicality – being tuneful or in harmony with the music.					
	2.4 Formation/variation - positioning of the participants, considering spacing of participants and variation of positions and movements.					
3. Projection (20%) The attribution of one's own ideas, feelings or attitudes to other people especially the facial expression, enjoyment, character, connection /togetherness and performance confidence.	**3.1 Facial Expression** – the eyes, lips and forehead are coordinate with the total body movement.					
	3.2 Gracefulness – see them ease of action, attitude or posture including the elegance and harmony.					
	3.3 Enjoyment – something that gives joy or satisfaction based on the different performances.					
	3.4 Attitude – clearly see the passion of the performers by a convincing expression.					
4. Over All Impact (10%) How the audience is affected by whatever the performers doing, their reaction to the performance, how it made them feel and react to the gracefulness, shape, x-factor and presentation they made during the performance.	**4.1 X-Factor** – exceptional characteristic that performer must have, in order for them to make an impact or make it remarkable.					
Total= 100%						

Table 1. Rubrics for Rhythmic Gymnastics

The instrument for Rhythmic Gymnastics and Stunts is for group scoring and the tumbling is for individual performances [9]. The instrument contains rubrics that categorize the performances of the students based on criteria and descriptors identified by Physical Education teachers and approved by the proponent's critic and expert consultants based on the prescribed curriculum for gymnastics.

The PBEI-G for Rhythmic Gymnastics have 11 item descriptors. The performance of the students in rhythmic gymnastics can be objectively categorized as Excellent, Very Satisfactory, Satisfactory, Fair, or Poor.

3.1.2. Objectives

Components	Descriptor/s	Weighted Mean	Interpretation
1. Description–it is intended to facilitate assessment of the performances of college students taking up rhythmic gymnastics, stunts and tumbling.	1.1 The instrument facilitates assessment of group performance in rhythmic gymnastics.	5.00	Excellent
2. Objectives- to provide readily standardized bias free PBEI-G.	2.1 The instrument measures rhythmic gymnastics skills without bias even long after the performance is done.	4.82	Excellent
3. Contents – the PBEI-G content is based on the college gymnastics curriculum which emphasizes testing practical skills.	3.1The contents of the instrument represent salient skills in rhythmic gymnastics as prescribed in the curriculum.	5.00	Excellent
4. Administration – the administration of the PBEI-G is procedural and transparent	4.1 Administration of the instrument gives the student performer's idea on the criteria with which they will be evaluated.	5.00	Excellent
	4.2 The instrument provides steps / procedures for administration.	4.91	Excellent
	4.3 It also provides instruction on necessary activities before, during, and after organization of activities.	4.91	Excellent
5. Scoring - scores from 1 – 5, with 5 is the highest and 1 is the lowest is used in scoring students' gymnastics performance	5.1 The instrument comes with user friendly scoring guide.	4.95	Excellent
	5.2 The scoring guide can easily be remembered by the user.	5.00	Excellent
	5.3 The scores for the performance are clear and definite.	4.91	Excellent
6. Interpretation – the total scores are interpreted based on the equivalent quality description of the scores.	6.1 The instrument comes with definite interpretation for every score obtained.	5.00	Excellent
	6.2 It comes with bias free interpretation guide.	5.00	Excellent
	6.3 It also comes with equivalent quality description for the total score obtained in the performance.	5.00	Excellent
Average Mean		**4.96**	**Excellent**

Table 2. Assessment Instrument of PBEI for Rhythmic Gymnastics

- To provide the Physical Education Department of the University with readily bias free performance-based evaluation instrument in gymnastics;

- To standardize the performance evaluation of the students of the rhythmic gymnastics; and

- To allow the teachers to objectively review the performance of their students along the said areas even days after the actual performances.

The contents of PBEI-G for Rhythmic Gymnastics are classified into four criteria, namely: timing and coordination which includes the synchronization of movements, proper execution, and rhythm/tempo; choreography contains the originality/creativity, musicality, and formation/variation; projection which comprises the facial expression, gracefulness, enjoyment, and attitude; and overall impact which involves the x-factor description [10-11].

3.1.3. Content

Table 3. Reliability indexes for the Rhythmic Gymnastics	
Reliability	Coefficient
No. of cases	11
No. of items	11
Alpha (first class)	.884
Alpha (second class)	.879

3.1.4. Administration

The instrument is recommended to be administered before the start of the presentation in order for the teacher to inform the presenter/s the criteria to be judged during the time of performance/s.

3.1.5. Scoring

In rating the performance of the students, the teacher used the numbers 1-5, with corresponding equivalent, 5 is the highest and 1 is the lowest. The rating of the teacher in the different items are summarized. Each item checked is counted as score.

3.1.6. Interpretation

The teachers interpreted to the students' earned points based on their performance in Gymnastics skills.

3.2. Quality Characteristics on the Instrument for Rhythmic Gymnastics

3.2.1. Content Validity

The content validity of the instrument was checked by an expert in measurement and evaluation and by another expert in Physical Education from the Nueva

Scale	Respondents' Degree of Agreement
4.20 – 5.00	Strong Agreement
3.40 – 4.19	Agreement
2.60 – 3.39	Moderate Agreement
1.80 – 2.59	Disagreement
1.00 – 1.79	Strong Disagreement

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To further establish the content validity of the instrument, it was further subjected to the evaluation of 22 PE teachers who served as respondents of the study. They scored the content validity of the instrument by agreeing whether the items thereat really represent the skill contents of gymnastics [12-13].

For the Description it shown that there was no comment and suggestion given about the PBEI-G for Rhythmic Gymnastics and it claim the perfect weighted mean rating of 5.00; the Objectives have a weighted mean rating of 4.82; Contents is also graded as excellent with a perfect mean rating of 5.00; 4.94 is the mean rating of Administration; Scoring got the 4.95 mean rating; and, for the Interpretation will also got the perfect mean rating of 5.00. This implies that the instrument excellently facilitates assessment of group performance.

The PBEI-G for Rhythmic Gymnastics was rated 4.96 or excellent by the set of evaluators. This implies that they believe that the instrument used is valid as far as the rhythmic gymnastics is concerned.

3.2.2. Reliability

The reliability of the instrument was established using the internal consistency method. The scores turned over by the 22 teacher judges were randomly halved resulting to two sets of scores: the first set from the first 11 teachers and the second set from the next 11 teachers. These scores were then subjected to statistical analysis using Cronbach alpha, the output of which is .884 in the first group and .879 for the second group, which means good reliability indexes based on the scale proposed by George and Mallery (2003) [14].

4. CONCLUSION

The following are the conclusions arrived at concerning the PBEI-G:

1. The PBEI-G by description is an instrument appropriate for assessing the performance of the students in rhythmic gymnastics.
2. The instrument has sound and attainable objectives.
3. Its contents really represent the skills expected to be developed in rhythmic gymnastics.
4. It is user friendly and easy to administer.
5. It has well defined scoring system.
6. It has sound and clear-cut interpretation guide.
7. The validity of the instrument is well established. It will measure what it intends to measure.
8. It has good reliability index and internal consistency. It will consistently measure what it intends to measure.

5. ACKNOWLEDGEMENT

6. CONFLICT OF INTEREST

The authors have declared that there is no conflict of interest.

7. SOURCE/S OF FUNDING

NA

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