Construction of a Knowledge Test FOR SPORTS SHOWS DESIGNERS IN THE SCIENCES RELATED TO SPORTS SHOWS DESIGNING

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Abstract

The present study aims at constructing a knowledge test for sports shows designers in the sciences related to shows designing which are: the science of training, Mathematics, audio and video, organization and administration, computing, music, and direction. This test was constructed to measure designers' knowledge in those sciences, to know how it can classify the designers into different categories each according to his/her experience, knowledge and information in this area and to identify the strengths and support the weaknesses in order to raise the level of the designer. Consequently, improving the standard of sports shows can be reached. The researchers believe that the cognitive aspect in sports shows designing is one of the important aspects on which excellence in this area depends. The cognitive aspect is knowledge, information and concepts in the sciences related to shows designing. The researchers used the descriptive approach on a sample of 60 male and female designers. 7 basic pivots were nominated for the test. The test consists of 94 questions for those pivots: 14 questions for the science of training, 13 for Mathematics, audios and 9 videos, organization and administration, music and direction, and 15 for computing. Difficulty and easiness index and discrimination index were found. Appropriateness of the test in terms of the easiness and difficulty to measure knowledge attainment and to distinguish between the levels of sports shows designers had been proved.

Key words

Construction of a knowledge test – sports shows

Introduction:

Developed countries have focused on sports shows as they show how their societies are advanced in culture, arts, sports, civilization; these shows are the mirror of this progress and have a profound impact nationally and internationally. In addition, individuals' superiority in sports is based on these shows.

Laila (2001) argues that training process in this area has made great strides in modern age and it has evident influence on the progress of the society. Educational and training process is based on measurement and evaluation process which is regarded as the basis of planning to set up programmers. It is certain that taking care of the measurement process in sports is vital. Moreover, progress in measurement processes requires participation in all areas of sports and physical education to reach the results which reflect learners' level.

Rickson (1985) and Zang (1993) emphasize the importance of the methods used in acquiring both motor skills and the skill of expressing words, in addition to promoting the teacher's role in developing the cognitive area in order to be able to measure the information and skills of the students.

Singer and Dick (1980) argue that knowledge in sports and physical education includes learning and solving the problems that may hinder achieving the objectives.They add that the improvement must be done within the learning process and by using the knowledge tests.

Mathus (1982) states that the improvement in physical education could not be achieved without the knowledge tests. In this case, the learner's understanding the subject of any activities can be shown by doing written tests,The results of these tests enable the teacher to identify the weaknesses of the educational process.

Subhi Hasanein (1995) argues that tests being applied to the samples of the original population are regarded as the most viable of the tests being applied to the samples of any other population, whatever the degree of similarity between the two populations is.

Hasan Alawy and Nasr-Addin Radwan (2001) (1988) argue that these tests and measurements is one of the most means that indicates how learners are concerned about practice, encourages them to exert the utmost effort to reach the highest levels and helps in identifying the level of their capabilities and skills. The test is a

series of questions for learners to answer; it helps them to identify their capabilities, efficiency and knowledge.

Rasha (1988) highlights that knowledge is relevant to sports activities; it increases students' motivation to practice. This practice enables them to apply that knowledge so they can adapt to the environment and society. Although the motor and physical aspect generally dominates sports and physical education programmes, focusing on the cognitive aspect can help in improving learners' knowledge in their field. Furthermore, the more knowledge increases, the more sports activities can take a good and distinguished shape among cultures. Learners should increase their knowledge before practice.

According to Hasan Alawy (1997), the process of the individual's acquisition of information and knowledge associated with the skills and tactics to play is of a high importance. This process, Alawy adds, contributes in giving the individual perceptions necessary for proper performance. Moreover, Alawy thinks that practical application is based upon these knowledge and theoretical information and without them, one of the necessary elements of successful performance becomes absent.

Subhi Hasanein and Hamdi Abdul-Moneim (1997), Ali Yhya (1983) believe that the real success of the athlete is achieved through practicing the activity together with acquiring the related knowledge. Therefore, it is necessary for every athlete to master the information and knowledge of the practiced activity for it is not reasonable for the individual to exercise without being aware of the necessary information and knowledge for this practice. This knowledge may be a crucial dimension between an individual and another, since knowledge is a range of meanings, beliefs, concepts and developments that have been made up as a result of man's repeated attempts to understand the phenomena and the things surrounding him.

Furthermore, the researchers believe that the cognitive aspect in sports shows designing is one of the important aspects on which excellence in this area depends. The cognitive aspect is knowledge, information and concepts in the sciences related to shows designing that the designers may have as a result of multiple attempts and experience in designing these shows.

Sports shows have become one of the important subjects taught in many physical education faculties. Moreover, a lot of sports shows competitions are held among specialized and non-specialized faculties in the Arab Republic of Egypt. Despite this, the excellence of these shows in these competitions does not rise to the level of spectacular performances of many faculties. This was clear in some sports shows which were held at the opening session of the Second Arab Universities' Tournament in Cairo in which "seven" physical education faculties participated from the Arab Republic of Egypt.

Through their work in this area, the researchers believe in the need to construct a knowledge test that measures the designers' knowledge in the sciences related to sports shows designing. In addition, it classifies the designers into different categories, each according to his/her experience, knowledge and information, to identify the strengths and support weaknesses in order to raise the level of the designer. Consequently, improving the standard of physical presentations can be reached.

Significance of the study

The present study is an attempt to:

- ✓ *Measure the attainment of information and knowledge of the sports shows designers so that they can reach superiority in the area of designing shows.*
- ✓ *provide new method of measurement based on scientific bases aiming at improving the cognitive aspect of shows designers, and this helps them identify the weaknesses in the knowledge in the sciences related to shows designing on both levels, theoretical and practical.*
- ✓ *Construct a knowledge test that helps in classifying shows designers, males and females, into different categories according to their knowledge level, whether theoretical or practical.*

Aim of the study

The aim of the study is to construct a test to measure the knowledge of shows designers in the sciences related to designing shows which are: the science of training, Mathematics, audio and videos, organization and administration, computing, music and direction. The aim also is to determine how the test can distinguish between the designers' levels by measuring their attainment of knowledge in these sciences.

Research questions

- ✓ *Is the proposed test suitable for measuring the cognitive aspect of sports shows designers in the sciences related to shows designing?*
- ✓ *Can the proposed test differentiate between the designers' levels and classify them into different categories according to these levels?*

Procedures

Methods: *The researchers used the descriptive approach, using survey, as it is appropriate for the nature of this study.*

Research sample and population: *The population was selected from sports shows designers, with two-year experience as a minimum, from Arab Republic of Egypt. The population is 70 designers participated in designing sports shows in specialized and non-specialized faculties as well as in the opening session of Arab*

Universities' Tournament in 2010. 10 of them were excluded because they participated in the pilot study. The original population becomes 60 male and female designers.

Determining the knowledge levels: *The knowledge levels of the test are determined according to the levels in Blom's division (knowledge - understanding - application) and this was according to studies conducted in this area.*

Determining the test questions: *The test questions were put for measuring the knowledge attainment through interviews with experts in this field (validity). They all agreed upon the seven pivots which are: the science of training, Mathematics, audios and videos, organization and administration, computing, music and direction, with relative importance of 100% for each. The test consists of different forms of questions: true or false questions, multiple choice questions and gap-filling questions. The researchers form the questions in different ways in order to raise the questions objectivity. Previous studies by Safeya Ahmed (1990), Emad-Addin Abbas (1997), and Doaa (2009) proved that these kinds of questions are commonly used in knowledge tests. Amin Al-Khouly and Mahmoud Anan (1999) indicated that the more question forms vary, the more the test is characterized by validity and objectivity.*

The pilot study: *1- The researchers put different kinds of questions for each pivot mentioned above in different ways. The total number of questions is 150. Experts in the area of sports shows designing had been consulted (*) to know the question-pivot relations by putting tick (✓) in front of the question which is relevant to the pivot and the designers' knowledge, and by putting cross (×) in front of the question that is irrelevant. 45 questions were excluded from the test according to the experts' advice. As a result, the number of questions became 105. Modifications have been made according to the experts' guidance. The last version of the test was submitted to the experts for approval. (enclosed (1)). The experts expressed the opinion that the designers must be classified into levels according to the degree they got after applying the test: the first level is from (100: 80%), the second level is from (79:70%) and the third level is from (69:60%).*

2- The researchers applied the test to the pilot sample, from November 10, 2010 to November 15, 2010, to make sure that the questions are clear and well-formed, the unclear questions have been reformulated, and to determine the time of the test. The researchers calculated the difference between the time the first designer took to answer the test (30 minutes) and the last one (40 minutes). This time is called the experimental time of the test. Accordingly, the average time of the test was determined (35 minutes).

Applying the test: *The test was applied from November 20, 2010 to December 10, 2010 on the sample aiming at finding the statistical coefficients of the test.*

Discussion

Statistics tended to deal with the original sample of the research to judge the validity of each question to get the most accurate evidence. The result was that the coefficient of correlation, the difficulty and easiness index and the discrimination index ensure the validity of the final judgment on the questions in each pivot of the test. The reliability of the test was calculated through applying test-retest and the following tables illustrate this.

Table (1):

Difficulty, easiness, discrimination and variation coefficients of questions on (the science of training – Mathematics)

Question number	Science of training				Mathematics			
	difficulty	easiness	variation	discrimination	difficulty	easiness	variation	discrimination
1	*0.36	*0.46	0.23	*0.49	*0.33	*0.67	0.22	*0.50
2	*0.45	*0.55	0.25	*0.43	0.19	*0.81	0.15	*0.45
3	*0.30	*0.70	0.21	*0.48	*0.27	*0.73	0.20	*0.50
4	*0.55	*0.45	0.25	*0.50	*0.35	*0.65	0.24	*0.50
5	*0.60	*0.40	0.24	*0.47	*0.47	*0.53	0.25	*0.50
6	*0.38	*0.62	0.24	*0.45	*0.32	*0.68	0.22	*0.50
7	*0.32	*0.68	0.22	*0.50	0.08	*0.92	0.74	0.28
8	*0.48	*0.52	0.25	*0.43	*0.46	*0.54	0.25	*0.50
9	*0.31	*0.69	0.21	*0.50	*0.36	*0.64	0.23	*0.43
10	0.18	*0.82	0.15	0.26	*0.38	*0.63	0.23	*0.50
11	*0.47	*0.53	0.25	*0.48	0.12	*0.88	0.11	0.25
12	*0.31	*0.69	0.21	*0.50	*0.40	*0.60	0.24	*0.50
13	*0.57	*0.43	0.25	*0.49	0.29	*0.71	0.21	*0.50
14	0.26	*0.54	0.14	*0.50	*0.32	*0.68	0.22	*0.48
15	*0.37	*0.63	0.23	*0.49	*0.37	*0.63	0.23	*0.50

* difficulty and easiness index (0.20:0.80)

* discrimination index (0.30 and more)

Table (2):

Difficulty, easiness, discrimination and variation coefficients of questions on (audio and video – organization and administration)

Question number	Audio & video				Organization & administration			
	difficulty	easiness	variation	discrimination	difficulty	easiness	variation	Discrimination
1	*0.26	*0.74	0.20	*0.49	*0.45	*0.55	0.25	*0.49
2	*0.57	*0.43	0.25	*0.47	*0.35	*0.65	0.23	*0.47
3	*0.62	*0.38	0.24	*0.48	0.25	*0.75	0.19	*0.48
4	0.15	*0.85	0.13	0.26	0.14	*0.86	0.11	0.22
5	*0.32	*0.68	0.22	*0.47	*0.63	*0.37	0.23	*0.47
6	*0.48	*0.52	0.25	*0.49	*0.42	*0.58	0.24	*0.49
7	0.29	*0.71	0.21	*0.50	*0.52	*0.48	0.25	*0.50
8	*0.39	*0.64	0.23	*0.43	*0.48	*0.52	0.25	*0.43
9	*0.41	*0.59	0.24	*0.50	0.29	*0.71	0.21	*0.50
10	*0.31	*0.69	0.21	*0.50	0.16	*0.64	0.11	*0.50
11	*0.55	*0.45	0.25	*0.48	*0.35	*0.65	0.23	*0.48
12	*0.46	*0.54	0.25	*0.50	*0.30	*0.70	0.21	*0.50
13	*0.56	*0.44	0.25	*0.49	*0.48	*0.52	0.25	*0.49
14	0.27	*0.73	0.20	*0.47	*0.40	*0.60	0.24	*0.50
15	0.19	*0.81	0.15	0.22	0.28	*0.72	0.20	*0.50

* difficulty and easiness index (0.20:0.80)

* discrimination index (0.30 and more)

Table (3):

Difficulty, easiness, discrimination and variation coefficients of questions on (computing – music – direction)

Quest. No.	Computing				Music				Direction			
	Diff.	Easi.	Var.	Disc.	Diff.	Easi.	Var.	Disc.	Diff.	Easi.	Var.	Disc.
1	*0.37	*0.63	0.23	*0.50	*0.35	*0.65	0.23	*0.50	*0.32	*0.68	0.22	*0.49
2	*0.44	*0.56	0.25	*0.49	*0.58	*0.42	0.24	*0.49	*0.48	*0.52	0.25	*0.50
3	*0.36	*0.74	0.27	*0.50	*0.53	*0.47	0.25	*0.48	0.29	*0.71	0.21	*0.48
4	*0.56	*0.44	0.25	*0.50	*0.46	*0.54	0.25	*0.50	*0.36	*0.64	0.23	*0.50
5	*0.62	*0.38	0.24	*0.50	*0.31	*0.69	0.21	*0.47	0.13	*0.87	0.11	0.26
6	*0.41	*0.59	0.24	*0.50	*0.49	*0.51	0.25	*0.49	*0.31	*0.69	0.21	*0.49
7	*0.32	*0.68	0.22	*0.46	0.18	*0.82	0.15	0.22	0.20	*0.80	0.16	0.26
8	*0.48	*0.52	0.25	*0.50	*0.35	*0.65	0.23	*0.43	*0.46	*0.54	0.25	*0.43
9	0.29	*0.71	0.21	*0.43	0.25	*0.75	0.19	*0.49	*0.36	*0.64	0.23	*0.50
10	*0.36	*0.64	0.23	*0.50	*0.30	*0.70	0.21	*0.50	*0.32	*0.68	0.22	*0.50
11	*0.46	*0.54	0.25	*0.48	*0.57	*0.43	0.25	*0.48	*0.43	*0.57	0.25	*0.49
12	*0.34	*0.66	0.22	*0.50	*0.46	*0.54	0.25	*0.50	*0.27	*0.73	0.20	*0.50
13	0.20	*0.80	0.16	*0.50	*0.40	*0.60	0.24	*0.43	*0.56	*0.44	0.25	*0.50
14	*0.55	*0.45	0.25	*0.50	*0.47	*0.53	0.25	*0.50	*0.41	*0.59	0.24	*0.50
15	*0.49	*0.51	0.25	*0.43	0.15	*0.85	0.13	0.26	*0.39	*0.61	0.24	*0.46

* difficulty and easiness index (0.20:0.80)

* discrimination index (0.30 and more)

It is noted from tables (1, 2, 3) that the coefficient is consistent with what "Jackson" (1975) referred to. Jackson prefers the easiness indices to constitute 50% of the test questions with easiness index (0.25, 0.75), and 25% of which are higher than (0.75), and 25% of which are less than (0.25). Moreover, discrimination indices are consistent with what is indicated by the "Salah al-Din Allam" (2000). He mentions that the discrimination index varies between (±1) and that the positive coefficient indicates that the correct answer of any question contributes to the total score.

Table (4):

The reliability of the test in its final form

	pivots	Number of questions	First application		Second application		Coefficient of correlation
			Mean	Standard Deviation	Mean	Standard Deviation	
1	Science of training	14	13.34	4.51	13.55	4.56	*0.784
2	Mathematics	13	13.62	3.11	14.41	3.22	*0.702
3	Audio & video	13	14.12	4.63	14.52	4.71	*0.695
4	Organization & administration	13	19.82	4.27	20.31	4.83	*0.805
5	Computing	15	14.47	3.26	15.23	3.41	*0.764
6	Music	13	13.58	3.17	14.01	3.25	*0.743
7	Direction	13	13.97	3.27	14.02	3.68	*0.792

R = 0.232

Table (4) shows that the calculated values of the correlation coefficient exceeded its value on the spreadsheet. This shows the existence of the correlation between the first application and the second application of the knowledge test which proves its reliability.

Based on the above, and after the exclusion of a number of questions that did not achieve the required level of validity and reliability, these questions have been rejected after being applied to the original sample (designers). The first pivot, the science of training, has denied question number (10). The second pivot, Mathematics, rejected questions (7, 11), the third pivot, audio and video, rejected questions (4, 15). The fourth pivot, organization and administration, has denied questions (4, 10). The sixth pivot, music, rejected questions (7, 15). The seventh pivot, direction, rejected questions (5, 7). These questions have been rejected as they do not achieve the required level of discrimination and the difficulty.

Conclusions

First, 7 basic pivots had been nominated for the test. The number of questions was 94: 14 questions for the science of training pivot, 13 questions for Mathematics, audio and videos, organization and administration, music and direction and 15 questions for computing.

Second, the difficulty and easiness index and discrimination indications were found. Appropriateness of the test in terms of easiness and difficulty to distinguish between the levels of sports shows designers had been proved.

Third, the test is regarded as one of the modern scientific methods for

measuring the knowledge attainment of male and female shows designers in the sciences related to shows designing.

Recommendations

- ✓ *Applying the knowledge test to all sports shows designers nationally to measure their knowledge level. Doing this test should be an essential prerequisite for anyone to participate in designing sports shows.*
- ✓ *It is necessary for physical education faculties to concern about providing their students with knowledge in the sciences related to shows designing by giving them educational and training courses to be successful in this field.*
- ✓ *It is recommended to conduct further future studies dealing with other pivots not included in this study to measure the knowledge attainment in the sciences related to other activities.*

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