

Modification of Evaluation in Physical Education I Course: Standardization of Physical Fitness Testing and Preparation of Relevant Norms in Chabahar Maritime University

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Abstract

Purpose: The purpose of this study was to organize the evaluation process of the general physical training (1) course through standardization of fitness tests and the related norms at Chabahar Maritime University.

Material and Methods: The research was carried out using a descriptive and quasi-experimental design. The subjects of the study were randomly selected. The sample included 258 male and 139 female students. Frequent and standard physical Fitness tests for measuring muscular strength and endurance, body composition, balance, agility, aerobic and anaerobic power were done in three successive semesters. Then, based on Norms derived from these tests, scoring procedures of physical fitness course were conducted and given to instructors. Measurement tools included: *tape meters, digital scales, and digital stopwatches, sit-ups, bar machines, calipers, agility test and 1600-m speed test*. The obtained data were analyzed through running dependent t-test, one-way analysis of variances, (ANOVA), and correlation coefficients.

Results: Results indicated that progress was significant in all tests except for the bar machine ($p \geq 0.01$) and that there was a correlation of about 50% between pretest and post-test scores.

Discussion and Conclusion: The study showed that instructors generally prefer to have norms for systematic scoring. Moreover, instructors believed that attitudinal issues such as discipline, attendance, sports coverage, perseverance and progress should be reflected in the students' scores in general physical education (1) course. However, to achieve the optimal point, there is still a long distance.

Key words: Assessment, General physical training, Fitness, Norm Development, University

Introduction

Urban and mechanical life, has departed men from the nature, expanded his nutrients, and has intensively decreased his body activity. As a solution, modern man has mixed physical exercise with his life and governments have made physical education as a compulsory course in the schools. In countries with successful educational systems in fulfilling physical education course's goals, there is no need for compulsory exercising in college and post-college years and young and middle-aged people would use personal resources in order to exercise.

Nowadays, an appropriate performance in academic physical education sessions may expand the proper athletic culture in the communities with

severe need for it. Important goals in academic physical education include:

- a) Preparing proper physical fitness for the students
- b) Creating proper attitude and perspective toward exercising and its role in preparing individual and social health
- c) Creating correct athletic habits and utilizing the appropriate life style in the age of technology

The real question is how much has the existing method in conducting physical education courses have been successful in the universities around the country. Annual Conduction of academic physical education courses imposes multi-billion Rials on the Supreme Educational System. If there is a capacity of 700,000 student entrances per year with about 200,000 Rials for the education of each

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student, the annual cost of general physical education (1) course would be over 140 billion Rials. The cost does not seem like expensive regarding the benefits rising from it, as long as the mentioned goals and needs are covered.

The evaluation of educational programs in the process of academic physical education is the only effective way of answering the proposed question. For example, considering the results of physical fitness tests conducted from the students would be one of the most effective ways of evaluating the success of educational system in reaching the physical fitness preparation goal. Here the basic question would be whether nowadays youngsters enjoy better physical fitness as compared to the youngsters of one or two decades before. Unfortunately the existing educational system lacks proper archives needed for such studies. For the time being, the only use of conducting physical fitness tests is the scoring task. Of course, most of the times, the physical fitness tests have not been regarded even as little as mentioned and the scoring task is mostly affected by factors like presence, proper exercising suit, principals, athletic behavior, membership of sports team, seriousness, or the degree to which the student has been successful in other positive individual or social factors [1,2]. worse than that, sometimes negative factors such as individual relations and silence against façade (teacher not performing the classes appropriately) can also affect the scoring process, devalue the physical fitness tests, and make the physical fitness sessions seem unnecessary or having negative effects. At the same time, educational purposes should identify the method of evaluation and the scoring should be done through the contrastive analyses of the tests' results and based on the predefined standards [3]. Unfortunately, existing standards have been prepared regardless of scientific principles and do not meet the real needs and characteristics of the students. For example, in the existing academic physical norms, a score of 50% is regarded as 10 out of 20 [2,4,5]. If such norms were practically the basis of scoring process, half the students would fail the physical education course. Therefore illogical norms are for themselves one of the reasons discouraging the use of physical fitness tests. Moreover, the

tests do not have standard manuals and performance guiding notes. These problems would make the teacher's opinion the only resource for scoring the students. ;

Whatever mentioned so far would imply the need for practical and theoretical tests in accordance with the goals of physical education course, which are capable of being performed in the Chabahar Maritime University (CMU), and to be standardized and normalized, as well. If scoring of the physical education course were based on such tests, there would be a good archive to monitor the students' physical, dynamic, and theoretical capabilities, besides achieving the goals of the course.

Material and Methods

Research Tools: According to the review of literature and the existing facilities in the CMU and after consulting the university's general council of physical education, the research conductor and colleagues, chose seven tests to be performed in the general physical education (1) Course.

Pilot study of the chosen tests: all the seven chosen tests are standard and their authority and resistance have already been proved to be acceptable. However, in order to make sure that the tests were practical, they were piloted in a sample of 20 students.

Statistical population: the study's population consisted of all the students who took the general physical education (1) course between 2010 and 2011, and were healthy enough to perform the tests. The total number of the students was 397, including 258 male and 139 female students.

Sample: the tests were taken from the whole study population except for the students who were not able to participate in one or more tests because of health problems confirmed by a physician.

Testing conditions: All the tests were done in the same manner as in Olympiads in terms of equipment, location, and tests executives.

Statistical analyses: Descriptive statistics were used to extract the sample norms. Inferential statistics was used to propose standards. Comparison between groups was performed using analysis of variances (ANOVA). All the statistical procedures were done using SPSS software (version 13) and EXCEL software (version 2003).

Results

Table 1: results of kolomogrov-Smirnov Test. Assuming normal distribution of scores in the general physical education course at the existing situation

Source	k-s-z	Significance level
General physical education course at the existing situation	1/72	0/02

As table 1 shows, the scores of physical education course at the existing situation is not normal.

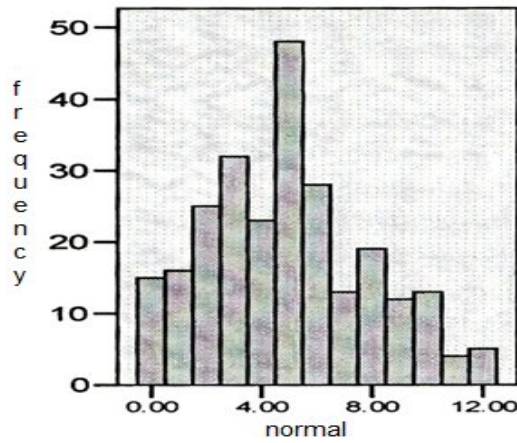


Figure1

Table 2: Test results from kolomogrov - Smirnov test assuming normal distribution of the scores of the general physical education lesson after the study

Source	k-s-z	significance level
General physical education course after the project	0/85	0/41

According to the results presented in table 2, the scores were normally distributed following the study. Normality of the data distribution has also been proved in Figure 2.

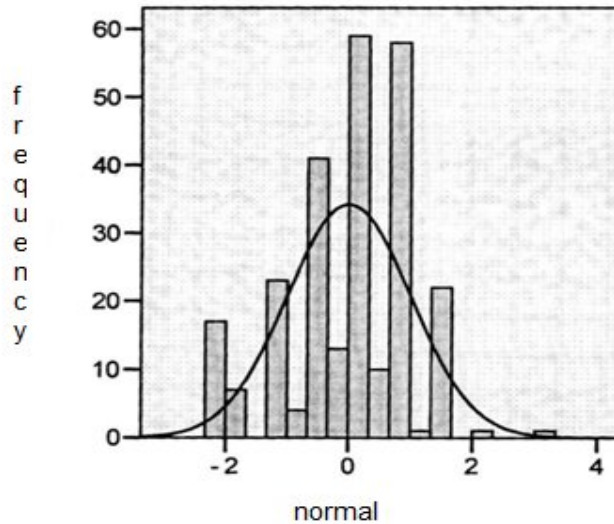


Figure 2

Table 3: results from the ANOVA test; comparison of the mean of scores from different instructors of physical education

Statistical indexes	Variance	Mean	Standard deviation	Df	F	Significance level
Vo2max		69/18	7/33			
Sit up		123/79	22/36			
High jump		50/49	55/70			
Sweep (go and back)		42/61	9/34	6	25/48	0/001
Pull ups		10/41	2/23			
Balance		14/59	14/13			
Fat		19/88	4/02			

According to the results, there is a significant difference between the means of scores in the tests in the present situation. ($P < 5\%$).

Table 4: ANOVA results; comparison of mean scores given by different instructors of physical education course for the male students in the present situation

Statistical indexes	Variance	Mean	Standard deviation	Df	F	Significance level
Vo2max		71/91	4/07			
Sit up		126/09	17/99			
High jump		54/58	68/29			
Sweep (go and back)		46/05	7/18	6	15/77	0/001
Pull ups		9/45	0/52			
Balance		9/02	3/93			
Fat		21/11	3/20			

the results, shows that the scores from different instructors are significantly different for the male students in the present situation. ($P < 5\%$),

Table 5: results of the ANOVA; comparison of mean scores given by different instructors of physical education course for female students in the present situation

Statistical indexes	Variance	Mean	Standard deviation	Df	F	Significance level
Vo2max		64/11	9/15			
Sit up		118/75	29/77			
High jump		42/77	11/31			
Sweep (go and back)		36/24	9/58	6	20/85	0/001
Pull ups		12/21	2/95			
Balance		24/92	19/45			
Fat		17/52	4/14			

The results show that the scores from different instructors are significantly different for the female students in the present situation. ($P < 5\%$),

Table 6: results from the ANOVA test; comparison of mean scores given by different instructors of physical education course following the study.

Statistical indexes	Variance	Mean	Standard deviation	Df	F	Level significance
Vo2max		73/34	4/77			
Sit ups		35/11	14/31			
High jump		36/71	7/48			
Sweep (go and back)		11	2/06	6	14/77	0/001
Pull ups		10/33	16/84			
Balance		17/23	14/84			
Fat		20/42	3/92			

The results, show that the scores from different instructors are significantly different following the study ($P < 5\%$).

Table 7: results of ANOVA; comparison of mean scores given by different instructors of physical education course to female students following the study.

Statistical indexes	Variance	Mean	Standard deviation	Df	F	Significance level
Vo2max		74/82	6/07			
Sit ups		37/12	22/18			
High jump		30/32	6/45			
Sweep (go and back)		12/21	2/95	6	13/74	0/001
Pull ups		20/21	25/25			
Balance		13/11	15/19			
Fat		17/66	4/15			

The presented results show that the scores from different instructors are significantly different for the female students following the study ($P < 5\%$).

Table 8: ANOVA test results; comparison of mean scores given by different instructors of physical education course to male students following the study.

Statistical indexes	Variance	Mean	Standard deviation	Df	f	Significance level
Vo2max		72/55	3/66			
Sit ups		33/99	6/79			
High jump		40/21	5/40			
Sweep (go and back)		10/34	0/77	6	16/78	0/001
Pull ups		4/94	2/92			
Balance		19/54	14/35			
Fat		21/77	3/30			

Here again the results show that the scores from different instructors are significantly different for the male students following the study. ($P < 5\%$),

Table 9: results of the coefficient correlation between the current scores and the assumed existing norm

Source	frequency	R	Significance level
Current scores with the existing norm	397	0/33	0/001

According to the results, the observed r at the level of $p \leq 0.05$, indicates a significant, positive correlation between the current scores and the assumed existing norm

Table 10: results of the coefficient correlation between the current scores and the norm obtained from the study.

Source	frequency	R	Significance level
Scores with norms rising from the project	397	0/41	0/001

According to the results, the observed r at the level of $p \leq 0.05$, indicates a positive and meaningful correlation between the scores and the norms obtained from the present study.

Table 11: dependent t-test results; comparing the means of the standardized tests in the proposed lesson plan

Criteria	Variance	Mean	Standard deviation	dF	t	Significance level
Vo2max	Pretest	69/18	7/33	396	4/45	0/001
	Post-test	73/34	4/77			
Sit ups	Pretest	123/79	22/36	396	66/54	0/001
	Post-test	35/06	14/25			
High jump	Pretest	50/50	7/98	396	4/89	0/001
	Post-test	36/71	7/47			
Sweep (go and back)	Pretest	42/61	5/34	396	64/70	0/001
	Post-test	11	2/05			
Pull ups	Pretest	10/41	2/22	396	0/13	0/90
	Post-test	10/31	4/75			
Balance	Pretest	14/59	14/13	396	2/51	0/01
	Post-test	17/40	14/98			
Fat	Pretest	19/52	4/16	396	3/77	0/001

According to the results, the observed t at the level of $\alpha = 0.05$, indicates that there is a meaningful correlation between various standardized components (except for push-ups) in male students, in the first and last semester. In other words, the tests utilized to evaluate Vo2max, sit ups, high jump, sweep (go and back), balance and fat percentage can be considered as appropriate standards to be used in lesson planning for the male students' general physical education course.

Discussion and Conclusion

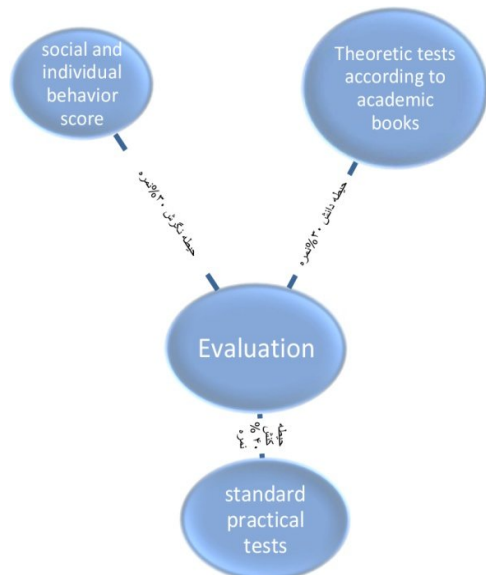
According to the results, the physical education scores of the freshmen was not normally distributed, indicating that the physical education (1) course is not capable of evaluating the students. However after performing the standard tests for the seniors, based on the plan proposed by the

researcher, the students' scores was normalized, indicating the positive effects of the proposed lesson plan on study's population.

Also comparing distribution of scores obtained from different teachers' before and after the study, indicated a meaningful difference between all the components being studied. It can be concluded that the present study has caused a meaningful difference between the components and the scores registered by the teachers.

There was a meaningful correlation between the registered scores before and after the study, which indicates that the registered scores by the teachers can be an effective means of evaluation in general physical education course. The standardized pre- and post-tests were significantly different indicating the appropriateness of the proposed lesson plan r for general physical education course.

Experts believe that the evaluation of any course must take into account the goals of the course. In other words, experts consider some major goals for any named course, and while evaluating, the students are being observed to see whether they have achieved the mentioned goals. The general goal of physical education course in Iranian universities is to develop the students in three fields: knowledge, attitude and athletic action [6,7,8]. In the field of knowledge, the student should know why it is important to practice, what the right ways of practicing are, and what facilities are available. In the field of attitude, they should be educated in a manner that the practicing would be regarded as a value for them; in a manner that they attend the athletic environments enthusiastically and orderly, and enjoy presenting fair play and creative social encounters with others. In other words, they should get used to practice. In the field of action, they should be capable of successfully performing the practices at their own level and the same as their counterparts with the same age, sex, and capacity, and enjoy physical performance. They should practice correctly, safely, and away from risky factors. They should be able to evaluate their own physical activity and success rate in correct performance.



General evaluation model depending on triple goals of physical education (1) course

The next question to consider is whether the evaluation system of universities is able to test students' attitudes to these goals.

Now, the evaluation system only considers the

part of these purposes observed in physical abilities. This system has a long way to improve itself. Figure 1 presents more detailed purposes of general PE.

Evaluation of P.E courses in all the universities of Iran has been limited to physical abilities tests. Therefore evaluation from athletic action field was the main purpose of this research. So, normally applied physical tests and their norms were recognized and studied in this research. Above tests are parallel to balance measurement. Stork, stand, sit-ups, pull-ups (for power and stamina measurements), go and back test to measure agility, running 1600 m for male and 540 m for the female students to measure aerobic capacity (cardiovascular _respirational fitness) and height and weight for calculating BMI and to measure fitness level. The norm for the above tests were just reported up to the 20% point rank in order to prevent omission of those who have gained scores below that point. In this way the students who are weak and are ranked below the 50% rank are encouraged to attend the course with more pleasure.

On the other hand, managing to get the 80% point is considered the border of A mark(out of 20).

In other words, a performance of 80 percent would guarantee 85 % of the test score. It means that the proposed scoring system consists of both minimum and maximum scale. The minimum scale is a point at 20 %, which no one is allowed to achieve less than that, and is easily available for everyone. The maximum scale is a point at 80 %, which everyone should try to achieve, however it takes a lot of endeavor to be reached.

If the elite level is considered beyond that, it looks impossible for the majority of students who may give up on achieving it. To keep motivation of upper 30 percent, who are around 80 percent in the beginning of the semester, and can easily reach the elite level by midterm, there are still 3 scores beyond 17 to keep them motivated. Study of the norms used in American and European evaluation systems indicates using the method. The only major difference is that instead of 20 values, their scoring system usually consists of 6 values as follows: A=great, B=good, C=almost good, D=almost weak, E=weak, F=failed

Such a norm creating system, while motivating the students to try to achieve higher records, takes into account the natural capacity and limitations of

the students and would not discourage the weaker students. Scientific observations have proved that only people with test score less than 20% are in danger of diseases resulting from industrial life. Thus, the most important physical-dynamical goal of physical education would be to conquer the 20% point, and then reaching the 80% point. Iranian current norms are from 1 to 99 percent, and a score of 50% is regarded as 10 out of 20. It means half the people should fail the course and can never pass it. It is obvious that such a pattern, which its scientific and logical basics are not clear and it seems impossible to be performed, could not be regarded as important to the present research.

Evaluation of attitude or individual and social behavior is of special importance in the technical evaluation passages in physical education. In some of these passages, it has been strongly recommended that while watching for disciplinary and moral affairs, they should not be reflected in the physical education score [8,9]. In other words, most of the passages prefer and recommend, as well, that the physical education score should be reconciled from the fields of action and knowledge. However, the authors of American and European academic passages agree that the physical education teachers do not regard the recommendation, and in practice, disciplinary and moral affairs play an important part in physical education course's score. Figure 3 lists the issues involved in the attitudinal field of physical

education overseas. [10,11,12] argue that evaluation approaches are one of the pillars of the evaluation in physical education, yet they are also recommended. Note that while serious, they do not contribute to the score. However, in this study it was found that academic seafaring and marine science of Chabahar strongly supported the involvement of ethical issues in the discipline of Physical Education, but, unfortunately the relevant standards did not paved the way in doing so.

Specially, among the male teachers were people who believed that ordered attendance, disciplines, and enthusiastic progress would be enough for a student to achieve A score because, body limitations are natural and one cannot deal with them. For the mentioned teachers it was important that the students do their bests in the practical classes. From their point of view, teacher should not lead such endeavors from students to be incomplete, and offering a low score, discourage students from practicing forever. On the other hand, some teachers believed that the students were responsible for being disciplined, and if not, they would be excluded from the class.[13,14,15]

Athletic talent is the same as academic talent (e.g. math); as the math exam sheet is the only resource for math score, the practical test is the only resource for physical education score, and attitudes can change one's score only upto one or two points.

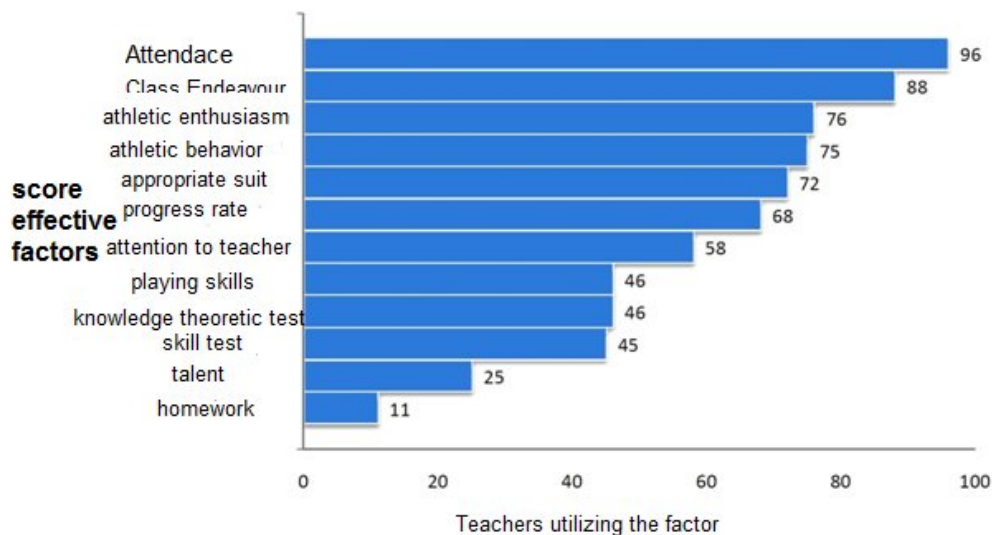


Figure 3: attitudinal factors affecting the PE score

As a conclusion the researcher and his colleagues found out that creating an appropriate attitude

towards sports should be a major goal for academic PE.

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