Using Assessment to Support Basic Instruction Programs In Physical Education

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Abstract

College/University administrators have, for various reasons, scrutinized Physical Education basic instruction program (BIP) requirements for possible reduction. In an effort to defend these requirements, assessment should be undertaken to obtain objective and subjective data that measure a program's effectiveness. This study was conducted at a four-year university to obtain data from cardiorespiratory fitness test results, attitude questionnaires of current students, and attitude questionnaires of former students (alumni). Statistical results showed overwhelming physical fitness improvement for current fitness/ wellness students and positive attitude results from current and former students. These results verify that the BIP objectives are being met, which include having students learn fitness/ wellness fundamentals and applying this knowledge to the development of lifetime health/ exercise habits. Assessment data show that students enter physical fitness classes with a positive attitude towards the value of physical education, though most lack an understanding of health/fitness concepts.

Introduction

Physical Education has always been a soft target for college/university administrators who may be charged with reducing the general education requirement (GER) and thereby shifting curricular hours to other departments. This trend has been evident over many years as declining physical education requirements at colleges and universities in the United States have been documented (Almond & George, 1998). Hensley (2000) reported that required college physical education via basic instruction programs (BIP) dropped from 90% in the early 1960s to less than 60% in the late 1970s, but rebounded slightly over the next decade. Data through 1998 show that required college physical education via BIP is at 63% and a two-hour requirement is most common. Though the BIP requirement has remained relatively stable during the 1990s, Hensley reported that 25% of all institutions responded that their requirement had been challenged and considered for elimination during the previous five years.

Educational assessment can be defined as a shared vision of achieving defined outcomes through teaching and creating accountability for achieving those outcomes (DeStefano & Prestine, 1999). Physical Education assessment can be described as the process of gathering evidence to make inferences about what students learn, how they value physical education, and how students are progressing toward specific goals (Rink et al., 1995). The National Association for Sport and Physical Education (NASPE) identifies appropriate methods of student assessment (Poole et al., 1998). NASPE guidelines include the practice of basing student grades on achievement of course objectives that might include class activities, demonstration of skills, and demonstration of knowledge on written tests, presentations, and projects. When physical educators perform student assessment, they are congruently performing program assessment.

Physical education professionals should provide quality instruction for students that shows tangible results, which include improved physical

fitness, enhanced motor skill development, and improved attitudes toward physical education and lifetime fitness habits. Any effort to measure the value of a BIP must include an assessment of course objectives and learning outcomes. Assessment can be accomplished by obtaining objective and subjective data from fitness tests, motor skill performances, cognitive evaluations, and survey/questionnaire responses. Data should come from current *and* former students (i.e., alumni) to help gage the longevity (or lack thereof) of a BIP's impact on students' lifetime health, activity, and fitness habits. An example of BIP assessment at a four-year university is given in the following section.

BIP Assessment: A Case Study

Methods

Data obtained for this study came from three parameters that included cardiorespiratory fitness test results, attitude questionnaires of current students, and attitude questionnaires of former students. Seven classes from three different fitness/wellness courses (basic conditioning, run conditioning, and swim conditioning) with a combined enrollment of 188 students (140 male; 48 female) were used for this study, along with data from a 1996 alumni survey that provided responses from 605 former students (358 male; 247 female).

Instructors gathered data (pre and post) to determine current students' physical fitness status, their perception of physical education, and their understanding of how to structure a fitness program. Class time was devoted to cardiorespiratory (CR) training and fitness/wellness concepts. Two fitness courses (*basic conditioning* for inexperienced runners and *run conditioning* for more experienced runners) utilized running as the mode of exercise for CR improvement while one fitness course (*swim conditioning*) utilized swimming as the mode of exercise for CR improvement. Students in the run-oriented classes were measured for CR fitness via the Cooper Institute 1.5-Mile Run (Cooper, 1982); swim students were measured via the university swim conditioning performance scale for a 450-yard swim. Results, weighted one through six for scoring, were used to place each student in a fitness classification that ranged from very poor to superior.

In addition to physical fitness data, instructors obtained information related to current and former students' attitudes toward fitness/wellness classes. Pre and post questionnaires were used to measure current students' responses and to determine any change at the conclusion of the 15-week class (see Table 1). All data were used to verify that course objectives were met (see Table 2). Three core questions related to fitness from the 1996 alumni survey were used to obtain data from former students (see Table 3).

Results

Descriptive statistics were used to analyze the data. Ninety-three percent (176 of 188) of all students improved their times in the run or swim post-performance tests. Physical fitness improvement was most evident in the swim conditioning classes with an average per-student decrease in swim time of 93 seconds to complete the 450-yard post-test. The basic conditioning classes saw an average per-student decrease in run time of 61 seconds to complete the 1.5-mile run post- test; run conditioning students decreased run time by an average of 27 seconds to complete the 1.5-mile post-test. Specific pre/post performance data related to fitness classifications for each course is given in Table 4.

Current students responded to four questions to ascertain their attitude towards physical education and their fitness habits. Three of the four questions were repeated pre/post. Results showed that students had a positive attitude toward physical education (pre and post), improved their knowledge of how to establish a structured fitness program, and increased their exercise participation (and desire to continue) after taking a fitness/wellness class. Questionnaire responses are given in Table 5.

Data from the alumni survey showed that most alumni (86%) supported a required fitness/wellness course for all entering freshmen. A majority (80%) reported that their physical education experience in college improved their understanding of fitness/wellness concepts, and 78% said it positively influenced their current health/ exercise habits. Results are given in detail in Table 3.

Discussion

Statistical results from this study showed overwhelming physical performance improvement for almost all fitness/wellness students. The data verify that this BIP is reaching its first objective, which is to have students improve their cardiorespiratory fitness level. However, there were some abnormalities that warrant explanation. First, the basic conditioning class showed an improvement in per-student running time (decrease of 61 seconds to complete 1.5-mile post-test) that was more than double that of the run conditioning students (decrease of 27 seconds to complete 1.5-mile post-test). A plausible explanation is that students register for these conditioning classes primarily based upon course descriptions and entry/exit fitness requirements; thus, run conditioning students are normally more experienced (and fit) runners upon entry to class as compared to basic conditioning students. This explanation is supported by the fact that 44% of run conditioning students, but only 19% of basic conditioning students, were in the excellent/superior fitness classifications upon completion of the 1.5-mile pre-test. Therefore, run conditioning students had less room for improvement. Second, swim conditioning students showed the largest fitness gains of all students. An explanation for this result is that swimming, more than running, is technique- dependent. Thus, students in swim conditioning classes become faster swimmers via increased fitness *and* improved stroke mechanics from class instruction. Eighty-nine percent (16 of 18) of all swim students in the very poor fitness classification at the beginning of the course improved by at least one fitness classification level by the conclusion of the semester.

Ninety-four percent of all students in this study reported that their understanding of fitness/ wellness concepts improved as a result of taking a fitness/wellness class. Additionally, 95% of all students stated that they had the necessary knowledge to establish a fitness/wellness program after taking a fitness/wellness class, up from 62% prior to taking the class. Over 80% of alumni stated that their collegiate fitness/wellness class improved their understanding of fitness/wellness concepts. The data verify that this BIP is reaching its second objective, which is to have students learn and understand fitness/wellness fundamentals.

Several points arise from current students' attitude questionnaire responses. First, students apparently have a positive view of the *value* of physical education before and after taking a fitness/wellness class; results showed at least a 98% approval score pre/post. Physical educators have a mission to encourage students to *demonstrate* their commitment to physical education by becoming daily participants. Second, 84% of all students planned to continue exercising after taking a fitness/wellness class, an increase from 56% prior to taking the class. Third, alumni survey results showed that nearly 80% of all respondents agreed that their collegiate physical education experience positively influenced their present health/exercise habits. These data provide proof that the third objective of this BIP (application of knowledge of fitness/wellness concepts to develop and sustain lifetime health/exercise habits) is being reached.

Conclusions

Impressive results from one BIP case study do not translate to BIPs in general, nor are these results necessarily applicable to programs at other institutions. However, this study does provide an example of how such information can be useful to college/university administrators who desire to evaluate and improve their BIP. Data from this

case study illustrate how students come into BIP classes with a positive outlook about the value of physical education, though most are in need of educational reinforcement as it pertains to health/fitness concepts. Provided that BIPs are professionally run, students will graduate who are more physically fit, have a better understanding of health/fitness concepts, and maintain a positive attitude towards physical education and physical fitness. The following recommendations to physical educators and college/university administrators are suggested:

1- Use assessment tools (performance tests, surveys, student feedback, etc.) that include data from current *and* former students to calculate short-term and long-term results.

2- Arrange classes that increase the "user-friendliness" of physical education. For example, prior to 1997 the authors' basic instruction program required ALL students to take the basic conditioning class. In essence, students were required to become runners because that was the *only* mode of CR exercise. Core offerings have since expanded to include nine different fitness/wellness courses with various modes of CR exercise (e.g., aerobics, water aerobics, fitness walking, running, swimming, triathlon) from which students choose to fulfill their graduation requirement. This change received more positive response from students and faculty than any prior modifications made in the basic instruction program. Physical Educators should understand that not all entering students have the same fitness background and, consequently, not the same attitude towards certain fitness requirements. Collins, Wang, Ash, and Goldfine (2000) reported that students entering a fitness class with prior exercise experience had a significantly more positive attitude toward receiving additional opportunities to exercise than students without prior exercise experience.

3- Value the "long-term" effect made by physical educators. The alumni survey results represent students up to 10 years removed from a structured physical education class who are generally positive toward physical education.

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Table 1

Pre/Post Questionnaires for Current Students in All Fitness/Wellness Classes.

PRE

1—Would you have taken a fitness class if it were NOT a university requirement?

YES / NO

2—My overall perception of the value of Physical Education fitness classes is positive.

YES / NO

3—At the present time, I have the necessary knowledge to establish a structured physical fitness program.

YES / NO

4— At the present time, I regularly exercise and plan to continue to do so.

YES / NO

POST

1— My understanding of fitness/wellness concepts has improved after taking this class.

YES / NO

2— My overall perception of the value of Physical Education fitness classes is positive.

YES / NO

3— At the present time, I have the necessary knowledge to establish a structured physical fitness program.

YES / NO

4— At the present time, I regularly exercise and plan to continue to do.

YES / NO

Table 2

Course Objectives for All Fitness/Wellness Classes.

At the conclusion of this course, students should be able to:

1— Improve their cardiorespiratory fitness level.

2— Improve their understanding of fitness/wellness concepts as they apply to cardiorespiratory fitness, muscular fitness, flexibility, and body composition.

3— Apply their knowledge of fitness/wellness concepts to develop and sustain lifetime health/exercise habits.

Table 3

Responses to Fitness/Wellness Questions From 1996 Alumni Survey (n=605).

1— Should a fitness/wellness course be required of all entering freshmen?

yes = 86.1% no = 13.9%

2— To what extent did your fitness/wellness course improve your understanding of health/fitness concepts?

great help	= 24.3%
moderate help	= 55.9%
little help	= 17.7%
no help	= 2.2%

3— How did your physical education experience in college help develop your present health/exercise habits?

Strong positive influence	= 21.3%
Positive influence	= 57.7%
No influence	= 18.9%
Negative influence	= 1.7%
Strong negative influence	= 0.5%

Table 4

Pre/Post Fitness Classification Results for All Fitness/Wellness Students (n = 188).

	BASIC CONDITIONING (n = 32)	
Classification	Pre	Post
Superior	1	5
Excellent	5	5
Good	6	11
Average	14	7
Poor	6	4
Very poor	0	0
	RUN CONDITIONING (n = 97)	
Classification	Pre	Post
Superior	19	29
Excellent	24	24
Good	24	23
Average	21	15
Poor	9	6
Very poor	0	0
	SWIM CONDITIONING (n = 59)	
Classification	Pre	Post
Superior	3	7
Excellent	7	14
Good	11	16
Average	10	13
Poor	10	7
Very poor	18	2

Table 5

Pre/Post Questionnaire Results for Current Fitness/Wellness Students (n = 188).

Pre Questionnaire	YES	NO
1. Would you have taken a fitness class if it were not a university requirement?	85%	15%
2. My overall perception of the value of Physical Education fitness classes is positive.	99%	1%
3. At the present time, I have the necessary knowledge to establish a structured physical fitness program.	62%	38%
4. At the present time, I regularly exercise and plan to continue to do so.	56%	44%
Post Questionnaire	YES	NO
1. My understanding of fitness/wellness concepts has improved after taking this class.	94%	6%
2. My overall perception of the value of Physical Education classes is positive.	98%	2%
3. At the present time, I have the necessary knowledge to establish a structured physical fitness program.	97%	3%
4. At the present time, I regularly exercise and plan to continue to do.	84%	16%