

Analysis of Students Academic Learning Time in Elementary Physical Education in Bahrain

By

Dr. Faisal Almulla-A.

Assistant Professor of Curriculum and Instruction

Department of Physical Education

University of Bahrain

دراسة تحليلية للزمن الأكاديمي للتعلم في التربية
الرياضية لتلاميذ المرحلة الابتدائية بمملكة البحرين

الدكتور فيصل الملا عبدالله

أستاذ المناهج وطرق التدريس المساعد

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الملخص

هدفت الدراسة الحالية إلى تحليل الزمن الأكاديمي للتعلم في التربية الرياضية لتلاميذ المرحلة الابتدائية بمملكة البحرين بغية قياس و تحديد نسبة الزمن المستثمر من زمن الدرس في الأداء الحركي الفعلي الموجه لتحقيق أهداف الدرس. تكونت عينة الدراسة من ٤٠ معلماً ومعلمة تم اختيارهم بطريقة عشوائية من مختلف مدارس المرحلة الابتدائية بمملكة البحرين. ولقد استخدم في الدراسة نظام لقياس وتحليل الزمن الأكاديمي للتعلم - للتربية الرياضية المعروف بـ (ALT-PE) وقد استخدم الباحث النسب المئوية والتكرارات والمتوسطات الحسابية واختبار زتر، فكانت أهم النتائج التي توصلت إليها الدراسة ما يلي:

- يمضي التلاميذ ما نسبته ٣٦,٨٪ من زمن الدرس في التنظيم و الانتقال،
- يمضي التلاميذ ما نسبته ٢٢,٦٪ من زمن الدرس في استقبال المعلومات،
- يمضي التلاميذ ما نسبته ١٩,٣٪ من زمن الدرس في الانتظار،
- يمضي التلاميذ ما نسبته ١٩,٩٪ فقط من زمن الدرس في الممارسة الفعلية الموجهة إلى تحقيق أهداف الدرس.
- لا توجد فروق ذات دلالة إحصائية بين متوسطات الزمن الأكاديمي للتعلم في التربية الرياضية لتلاميذ المرحلة الابتدائية بحسب الجنس
- توجد فروق ذات دلالة إحصائية بين متوسطات الزمن الأكاديمي للتعلم في التربية الرياضية لتلاميذ المرحلة الابتدائية بحسب نوع النشاط الحركي.
- خلصت الدراسة إلى ضرورة الاهتمام بزيادة الزمن الأكاديمي للتعلم في التربية الرياضية. وأوصى الباحث بإجراء المزيد من الدراسات ذات الصلة بموضوع الدراسة الحالية.

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Abstract

The purpose of this study was to analyse student academic learning time in elementary physical education in Bahrain. Forty physical education teachers were observed twice using the revised ALT-PE instrument. Data obtained were analyzed using descriptive and inferential statistics and included frequencies, percentages, and t-test. The major finding of this study were as follows:

- 1- Students in elementary physical education classes in Bahrain spent 23.4% of the lesson time in organizational and transitional activities.
- 2- Students in elementary schools in Bahrain spent 22.6% of the lesson time in the subject matter knowledge category.
- 3- Students in elementary schools in Bahrain spent 19.3% of every physical education lesson in waiting for something to happen.
- 4- Students in elementary schools in Bahrain spent 19.9% of every physical education lesson in ALT-PE.
- 5- No statistically significant difference was found in the ALT-PE mean score between male and female physical education teachers.
- 6- A statistically significant difference was found in ALT-PE mean score between individual and team activity lessons.

It was concluded that students academic learning time in elementary physical education in Bahrain movement education program for preschool children should be increased . Additional research is needed in this area.

Introduction

The last two decades have seen a marked shift in the interest of teaching effectiveness research in education. In the past most of the research on teaching effectiveness has focused upon interactive teaching, that is, the event that occurs when the students are present in classroom. In addition to provide a description of classroom processes, research on teaching effectiveness has focused on the question 'what teaching strategy work best?' Recently, researchers have narrowed the focus of their attention to systematically observing the classroom with an eye towards relating particular observed variables to student learning time and thus, indirectly predicting teaching effectiveness. Although many of the features of the teaching-learning process remain uncharted, a more purposeful understanding of teaching effectiveness in classroom has begun to emerge (Pangrazi, 1998; Siedentop, 1991).

Efforts to describe and analyse physical education classes have paralleled classroom research on teaching that utilized systematic observation to study student and teacher behaviours as they occurred in the natural setting (Rink, 1998). Encouraging similar research in the area of physical education, Siedentop (1991) has suggested that if teaching is defined primarily in terms of its impact on students, then one should observe what happening in the learning environment as an essential component in evaluating teaching effectiveness. Student learning time ultimately determines their performance of learning tasks and, therefore, student academic learning time is a critical factor that may enhance learning (Rink, 1998).

Applied learning time methodology has provided one strategy for establishing a data base that can be used to describe and evaluate the teaching effectiveness in the physical education classes (Siedentop, 1991). Although this information is valued, Cousineau and Luke (1990), Rink (1998), and Silverman, Devillier, and Ramirez (1991) have all recommended that the result from analysing student learning time be interpreted with caution because the learning environment is a complex setting in which many factors operate simultaneously.

Several systematic observation systems have been developed for measuring student learning time in physical education. Perhaps the best known observation system is the Academic Learning Time in Physical Education (ALT-PE) (Siedentop, Birdwell, & Metzler, 1979). The Academic Learning Time in Physical Education (ALT-PE) instrument was designed originally to study teach-

ing effectiveness in physical education and was developed based on the observation system used in the Beginning Teacher Education Study (BTES). The main purpose of the ALT-PE instrument is to measure the portion of time in a physical education lesson that a student is involved in motor activity at an appropriate success rate. Thus, the ALT-PE concept refers to the amount of time students spend working directly on meaningful learning tasks at a high success rate (Parker, 1989; Siedentop, 1991).

The ALT-PE provides a systematic approach for examining the relationships between what teachers are doing and the amount of time students spend on learning movement tasks. The Academic Learning Time in Physical Education (ALT-PE) instrument collects data about teacher behaviour and students' time-on-task, with the working hypothesis that there is positive relationship between student achievement and the amount of ALT-PE. Research suggested that ALT-PE observation instrument, even with its limitations, has played a major role in finding at least of the answer regarding teaching effectiveness and has contributed to an understanding of student achievement (Cousineau & Luke, 1990; Metzler, 1989; Parker, 1989; Siedentop, 1991; Silverman, Devillier, & Ramirez, 1991).

Thus, student learning time can be systematically observed, recorded, and analysed. This kind of data can be considered as the mediating variables that help to predict student achievement in physical education. With the increasing understanding of the effect of student learning time which teaching effectiveness research has provided, it is appropriate to analyse student academic learning time in elementary physical education classes in Bahrain.

Statement of the Problem

During the past twenty years many studies have been used student learning time as a variable to describe teaching effectiveness in physical education. One of the most significant finding from these studies was that the more time students spent appropriately practicing a task, the greater the learning of the task. Therefore, students taught by effective teachers consistently spent more of their lesson time in practicing appropriate motor tasks.

Considering the importance of the relationship between time and learning, it is surprising that such measurements of how time is spent in physical education classes have not been conducted in any research study in Bahrain. This is because the education in Bahrain has only recently become interested in the sys-

tematic study of teaching through the ALT instrument. At present, the problem is that there is no evidence of how students spent their time in elementary physical education classes in Bahrain. Also there is no data on the amount of time-on-task that students are involved with the subject matter.

Purpose of the Study

The purpose of this study was two-fold:

- 1- To investigate how elementary school students spent their time in physical education classes in Bahrain, and
- 2- To determine whether there were any statistically significant differences between the ALT-PE scores for gender of teacher and subject matter being taught.

Questions of the Study

The study was designed to answer the following three questions:

- 1- What were the mean scores of ALT-PE categories of students in elementary physical education classes in Bahrain?
- 2- Were there statistically significant differences in each category of ALT-PE for students in physical education lessons taught by male teachers against those taught by female teachers?
- 3- Were there statistically significant differences between ALT-PE scores for individual and team sports activities?

Significance of the Study

The result of this study can serve a diagnostic purpose to show the relationship between what teachers are doing and the amount of time students spend on learning specific movement task. The result of analysing ALT-PE may also show where remedial development is necessary in order to improve the effectiveness of physical education teachers in Bahrain. Furthermore, the results of the study can be used as an individual evaluation of teaching effectiveness and the suitability of teaching strategies. Above all, this study seek to contribute to research on teaching in Bahrain which could be used to provide a description of teacher and student behaviours in physical education classes.

Delimitations of the study

The study was delimited by the following:

- 1- The study was delimited to physical education students in the fourth, fifth, and sixth grades at elementary schools in Bahrain.
- 2- The study was delimited to elementary physical education teachers in Bahrain.
- 3- The study was delimited to the two independents variables of the gender of teacher and the subject matter taught.

Definition of Terms

General Content: Class time during which students are not intended to be involved in physical education activities such as transition time, management time, and organization time.

Subject Matter Knowledge Content: Class time when the primary focus is intended to be knowledge related to physical education content such as presentation time and demonstration time.

Subject Matter Motor Content: Class time when the primary focus is intended to be motor involvement in physical education activities.

Academic Learning Time- Physical Education (ALT-PE): The portion of lesson time that a student is involved in motor activity at an appropriate success rate.

Review of Related Studies

Many studies using the Academic Learning Time- Physical Education (ALT-PE) instrument have been conducted to measure the amount of ALT-PE in elementary physical education classes (Cousineau & Luke, 1990; Godbout, Brunelle & Tousignant, 1983; Grant, Ballard, & Glynn, 1989; Lacy, LaMaster, & Tommaney, 1996; LaMaster & Lacy, 1993; Placek & Randoll, 1986; Placek, Silverman, Dodds, & Rife, 1982; Placek & Randall, 1986).

Placek, Silverman, Shute, Dodds, and Rife (1982) conducted a study to examine how elementary students spend their class time in physical education. The investigation used the ALT-PE observation instrument system. They found that students spent 25% of the class time in the management activities and only

19% of the class time in doing activities directly related to learning outcomes (ALT-PE). They also found no statistically significant differences in the ALT-PE between male and female students. They suggested that teacher organization of students and equipments might affect ALT more than any other teacher-related variables.

Godbout, Brunelle, and Tousignant (1983) conducted a study to determine how much academic learning time was experienced by elementary and secondary school students during a regular physical education classes. All selected teachers were observed according to the ALT-PE observation instrument. They found that the ALT-PE mean results were 31.3% and 36.5% for the elementary and secondary school levels. Students spent 34% of the class time in activities other than class content activities. They pointed out that much of the ALT produced in physical education is cognitive rather than motor responding.

In a comparative study, Placek and Randall (1986) conducted a study to compare the academic learning time of elementary students in physical education classes taught by specialists with those taught by classroom teachers. Physical education classes of seven specialists and thirteen non-specialists were observed using the revised ALT-PE instrument. The data revealed that elementary classroom teachers and physical education specialists provided similarly low amounts of ALT-PE. They found that the percentages of ALT-PE were 15.6% and 14.1% respectively for the classroom teachers and physical education specialists. The results indicated that although specialists may select more appropriate learning activities, knowledge of content may not be the most significant variable in organizing for maximized students participation and success.

Grant, Ballard, and Glynn (1989) observed student behaviour in physical education classes. They observed eight teachers while they taught physical education classes. A modified version of the ALT-PE observation system was used to collect the data. The findings indicated that teachers allocated less than one half of the class time to learning. Across all classes, less than 20% of class time was spent in motor-on-task behaviour (ALT-PE).

LaMaster and Lacy (1993) conducted a study to describe teacher behaviours and students learning time in physical education classes as measured by the revised ALT-PE instrument. The results revealed that students were engaged in ALT-PE activities only 14.6% of lesson time. In conclusion, LaMaster and Lacy pointed out that many of physical education teachers were not aware that the stu-

dents spent only limited amounts of time engaged with motor skills.

Recently, Lacy, LaMaster and Tommancy (1996) conducted a study to analyse the teacher behaviours and student academic learning time in elementary physical education. A modified version of the ALT-PE observation system was used to collect the data. The results, which were almost identical to the findings of other studies, reported that the mean percentage of student ALT-PE was 20.1%. They found that 14-20% of class time was spent on management and transition activities, 15-25% in receiving information, and 22-28% in waiting to participate or take a turn. They concluded that elementary physical education classes appear to be characterized by much longer periods of non-motor engagement than motor-engagement.

Overall, the review of literature indicated that ALT-PE has been the focus of many research studies, particularly in the United States. However, no such studies have been conducted on the analysing of student academic learning time in elementary physical education classes in Bahrain. The results of the studies cited above concluded that elementary physical education students spent a small proportion of class time in learning activities related to motor skill achievement. There was a consistency in purpose among the research studies that were reviewed. Most of the studies included in this review were descriptive type investigations. The purpose and design of this study were closely related to the characteristics of the descriptive studies using the revised ALT-PE instrument summarized in this review. Therefore, the research of other investigations has served as a foundation upon which this study was developed and expanded.

Methods and Procedures

Participants

Teachers: Forty physical education teachers (20 males and 20 females), ranging in age from 24 to 40 years, participated in the study. Their teaching experiences ranged from 4 to 15 years. The 40 teachers were randomly selected from a total (N= 198) of PE teachers in elementary schools in Bahrain. All teachers who were selected to participate in the study then met with the researcher during the preparation period. The teachers were given an explanation about the nature and the purpose of the study, and the sampling procedures which had been used. In order to minimize the effects of the investigator's presence on observed behaviours, the subjects were not informed which of the specific target behav-

ious (management, waiting, practising...etc.) were being observed.

Students: All participating students were in the fourth, fifth, and sixth grades at elementary schools in Bahrain. For each lesson the researcher selected three target students for observation (one high-, one medium-, and one low- skilled). In order to obtain the teacher's perceptions of the three students high, medium, and low skill levels, he/she was asked to list the names of six students (two high-, two medium-, and two low-skilled) for the lesson before the beginning of the observation procedure. From each of these three groups the researcher randomly selected one high-, one medium-, and one low-skilled students to be subjects for each study lesson. The teachers were not informed which students were chosen nor the specific behaviours or events being observed during the observation. The eighty separate lessons provided a sample of 240 students.

Observation Instrument

The revised ALT-PE system developed by Siedentop et al. (1982) was used in the collection of data for this study. The ALT-PE observation system is an interval recording system. The typical interval length for the ALT-PE instrument is 12 seconds. During the observation the first six seconds of the interval was used to observe and the second six seconds to record the observation on the coding sheet, leading to the collection of five samples of behaviour during each minute. In each observation the observers were required to make two decisions. First, the content level of the class situation was determined (general content, subject matter knowledge, or subject matter motor), indicating how the teacher had structured the lesson. Second, the learner involvement level of a single student was determined (motor engaged, not motor engaged), indicating what the observed student was doing within the class context. The amount of time a student is involved in motor appropriate engaged is considered to be the amount of ALT-PE.

Data Collection

Prior to data collection, two observers were trained in the use of the modified ALT-PE observation system. Training was based on procedures outlined in the ALT-PE manual (Siedentop et al., 1982) and consisted of studying the defined categories and coding procedures, practicing using the system in a variety of physical education settings for short periods, coding a specially prepared training videotape, and observing complete lessons similar in content to those includ-

ed in the study. Observer training continued until interobserver agreement reached a minimum of 90%.

Each of the 40 teachers included in the study was videotaped teaching two physical education lessons. A total of 80 lessons were videotaped. Each lesson lasted approximately 40 minutes and observations were recorded for an average duration of 36 minutes. A variety of activities were observed for both male and female teachers. Movement education, gymnastics, volleyball, and basketball were taught by both male and female teachers. In addition, male teachers were observed teaching football, athletic, and handball. Data for all the teachers was coded for a total of 14,400 intervals (5 intervals per minute X 36 minutes per lesson X 80 lessons = 14,400 intervals).

The videotapes were coded by the two observers. The three students selected for observation (one high-, one medium-, and one low-skilled) were listed alphabetically on the coding sheet. Each of the selected students was observed in turn throughout the lesson period, so that each of the three selected students was likely to be observed during 1/6 of the class period, another 1/6 being used to record his or her behaviour. Thus the three students were observed on a 36 second cycle. The observers observed Student 1 for six seconds, then recorded the information on Student 1 during the next six second interval, followed by observation of Student 2 for six seconds and then six seconds to record, and likewise for Student 3 always in that order. This sequence was repeated for the observation period. A pre-recorded audiotape was used for cueing observational intervals.

Interobserver Agreement

To obtain interobserver agreement (IOA) ten videotapes were randomly selected and coded independently by the two observers. The 85% level of agreement was used to accept the IOA. The scored-interval method (Hawkins & Dotson, 1975) was used to compute the IOA. The overall mean of the IOA was 90% which indicated that the IOA was adequate acceptable.

Data Analysis

The Statistical Package for Social Sciences (SPSS) computer program was used for statistical treatment of the data. Two main statistical methods were used for the purpose of analysing the ALT-PE data. The first utilized descriptive statistics and included frequencies and percentages for each category in the ALT-PE system. The descriptive statistics were computed to determine how many

times each one of 21 specific categories had been coded. Five category's scores were also computed, by adding together various specific sub-categories; they were general content, subject matter knowledge, subject matter motor, not motor engaged, and motor engaged. This was done for each lesson, and the frequencies were summed over all the observed lessons. The second method used an inferential statistic using a t-test analysis to examine the main central questions of this study. The .05 level of significance was used to determine whether to accept or reject the study questions.

Results

Study Question 1: What were the mean scores of ALT-PE categories of students in elementary physical education classes in Bahrain?

Table 1 and Figure 1 show that 36.90% of the total context level time (13 minutes, 25 second) was spent on general content. The most obvious observation relating to the general content sub-categories is that students at elementary schools in Bahrain spent much of their time in transitional activities. They spent approximately 23.40% of the lesson time (8 minutes, 42 second) in transitional and organisational activities such as changing activities, regrouping, placing equipment, changing formation, and receiving direction from the teacher.

Table 1 and Figure 1 also reveal that the forty teachers in the study spent approximately 22.60% of the context level time (8 minutes, 15 second) in the subject matter knowledge category. Approximately 19.80% of the time (7 minutes, 13 second) was devoted to relating information about motor skill technique. With respect to the subject matter motor category, about 40.50% of the context level time (14 minutes, 59 second) was spent in this category. Most teachers in the study allocated the greatest amount of subject matter motor time to skill practice (about 22.10%, 7 minutes, 96 second). It was somewhat surprising that scrimmages, in which students primarily rehearsed various skills while receiving feedback from their teacher, occurred slightly less than 2.30% of the time (79 second).

Table 1. Frequency of Interval, Percentage of Intervals, and Minutes of Lesson Time Spent in ALT-PE Context Level Categories.

Categories	Frequency of Interval (f)	Context Level %	Class Time min
Context Level			
Transition	3364	23.40	8.42
Management	948	6.50	2.34
Break	44	0.40	0.11
Warm-Up	950	6.60	2.38
General Content (total)	5306	36.90	13.25
Technique	2852	19.80	7.13
Strategy	318	2.30	0.79
Rules	18	0.10	0.05
Social Behaviour	20	0.10	0.05
Background	50	0.30	0.13
Subject Matter Knowledge Con. (total)	3258	22.60	8.15
Skill Practice	3182	22.10	7.96
Scrimmage/Routine	312	2.20	0.79
Game	954	6.60	2.38
Fitness	1388	9.60	3.46
Subject Matter Motor Content (total)	5836	40.50	14.59
Total Context Level	14400	100.0	36.00

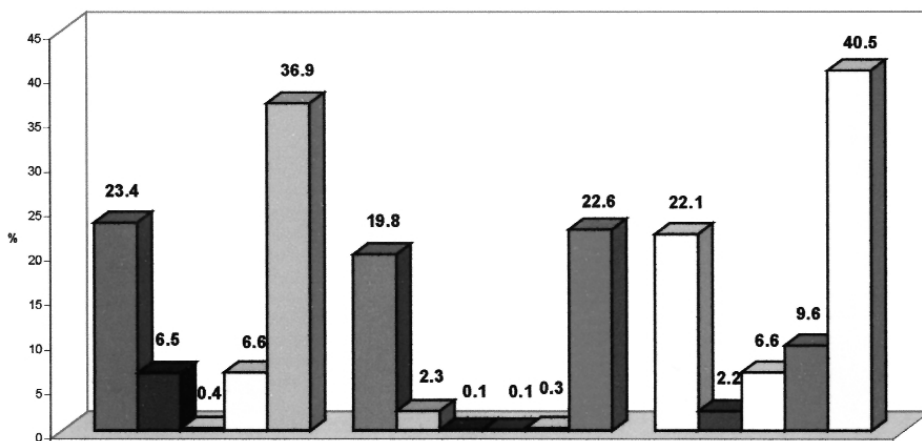


Figure 1. Percentage of ALT-PE Context Level Categories

As can be seen from Table 2 and Figure 2, the students in elementary schools in Bahrain spent more time not actively engaged in motor activity than actively engaged. Bahraini elementary students were not engaged in motor activity for 67.90% of the time in physical education lessons (24 minutes, 44 second). The results indicated that students in elementary schools in Bahrain spent about one-

fifth (19.30%, 3 minutes and 35 second) of every physical education lesson in waiting for something to happen (waiting in line, waiting for the next teacher direction, waiting for the ball to come and waiting for an activity to begin). In some lessons waiting behaviour reached an acceptably high level of 44.00%. Cognitive behaviours such as listening to teacher instructions, watching a demonstration or discussing a group task were the most dominant category in all lessons and were recorded as occurring for 20.80% (7 minutes, 48 second) of the lessons' times.

Table 2. Frequency of Interval, Percentage of Intervals, and Minutes of Lesson Time Spent in ALT-PE Learner Involvement Level Categories.

Categories	Frequency of Interval (f)	Context Level %	Class Time min
<u>Learner Involvement Level</u>			
Interim	124	0.80	2.88
Waiting	2780	19.30	3.35
Off Task	1054	7.30	2.63
On Task	2824	19.60	7.06
Cognitive	3000	20.80	7.48
<i>Not motor Engaged (total)</i>	9782	67.90	24.44
Motor Appropriate	2870	19.90	7.17
Motor Inappropriate	1616	11.20	4.03
Supporting	132	0.90	0.35
<i>Motor Engaged(total)</i>	4618	32.10	11.56
Total Learner Involvement Level	14400	100.0	36.00

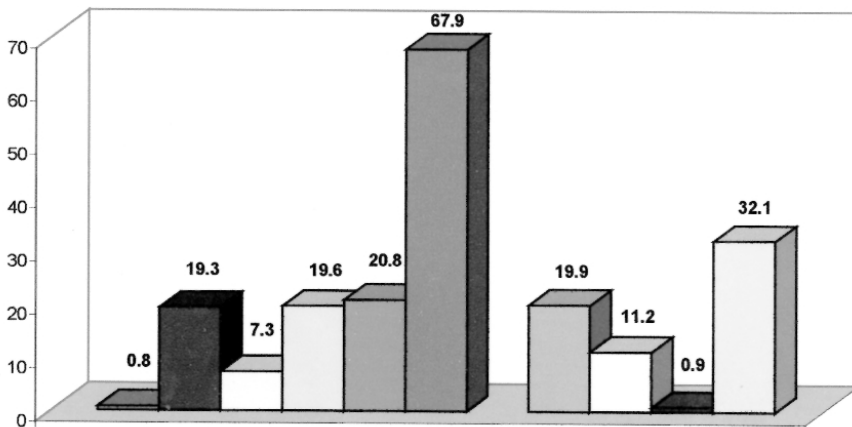


Figure2. Percentage of ALT-PE Learner Level Categories

According to Table 2 and Figure 2, approximately one-third (32.10%, 11 minutes and 56 second) of the learner involvement time was spent in motor engaged activity. Approximately more than half of the motor engaged time (19.90%, 7 minutes and 17 second), elementary students judged to be in the motor appropriate category reflecting the amount of Academic Learning Time in Physical Education (ALT-PE) which, by definition, suggested that the students were involved in motor activity in such a way as to produce a high degree of success.

Study Question 2: Were there significant differences in each category of ALT-PE for students in physical education lessons taught by male teachers against those taught by female teachers?

In order to effectively analyse the data, only those subcategories of the Academic Learning Time in Physical Education (ALT-PE) system which contained sufficient data were included in the analyses. The results of Context Level in Table 3 and Figure 3, a t-test analysis revealed that there was no statistically significant difference in the general content category mean scores between male and female teachers ($t = -1.01, p = >.05$). Within this category, a statistically significant difference was found in warm-up sub-category ($t = 1.99, p = <.05$). Male teachers spent significant more time than female teachers in warm-up activities in this study. No statistically significant difference was found in the subject matter knowledge category mean scores between male and female teachers ($t = -.99, p = >.05$). Within this category, a statistically significant difference was found in the strategy sub-category ($t = 3.62, p = <.05$). Regarding the subject matter motor category scores, Table 3 also showed that no statistically significant difference was found in this category ($t = -1.81, p = >.05$).

From the results of the Learner Involvement Level in Table 3 and Figure 3, a significant difference was found in the not engaged category mean scores between male and female teachers ($t = 2.01, p = <.05$). Students taught by male teachers spent more time in not motor engaged behaviours than did students taught by female teachers. A statistically significant difference was also found in the motor engaged category mean score ($t = -2.30, p = <.05$). Female teachers spent more time than male teachers in this category. Within the motor engaged category, a statistically significant difference was found in the motor inappropriate sub-category ($t = -4.26, p = <.05$). Students taught by female teachers spent more time in this category than students taught by male teachers. No statistically significant difference was found in the motor appropriate (ALT-PE) sub-category mean score. Thus, the gender of the Bahraini teachers at elemen-

tary school did not appear to be an important variable in relation to the nature of the students' engagement in physical education lessons.

Table 3. A t-test on Mean Score of ALT-PE Categories for Male and Female Teachers.

Categories	Male M	Female M	t-value	p
Context Level				
Transition	22.30	24.50	-.95	N.S.
Management	5.60	7.10	-1.15	N.S.
Warm-Up	7.70	5.50	1.99	<.05
General Content	35.40	37.70	-1.01	N.S.
Technique	20.0	19.80	-.06	N.S.
Strategy	0.90	3.70	3.62	<.05
Subject Matter Knowledge Content	21.70	24.0	.99	N.S.
Skill Practice	22.20	21.40	.27	N.S.
Scrimmage/Routine	1.30	3.10	-1.90	N.S.
Game	8.40	6.50	.22	N.S.
Subject Matter Motor Content	43.90	38.70	1.81	N.S.
Learner Involvement Level				
Waiting	19.90	19.90	-.15	N.S.
On Task	20.0	19.20	.58	N.S.
Cognitive	21.20	20.50	-.35	N.S.
Not motor Engaged (total)	70.70	65.50	2.01	<.05
Motor Appropriate	20.10	19.90	.12	N.S.
Motor Inappropriate	7.80	13.70	-4.26	<.05
Motor Engaged	29.60	34.60	-2.30	<.05

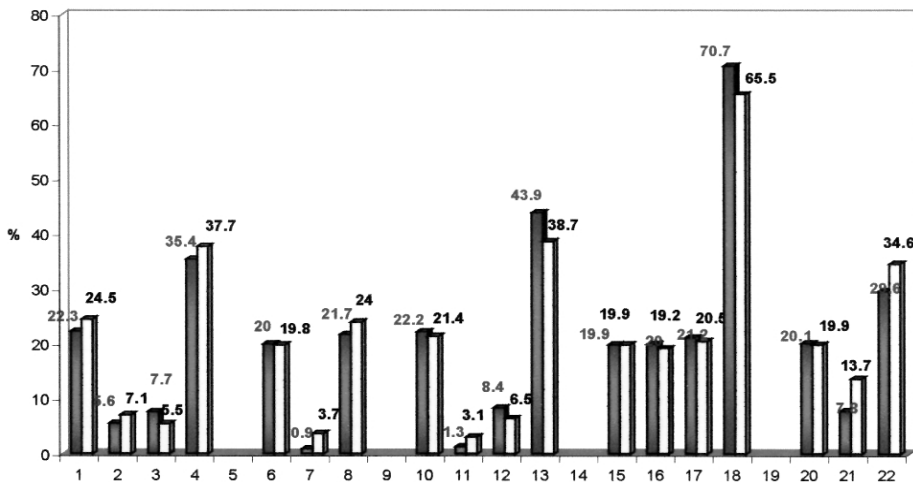


Figure3. Comparison of ALT-PE Categories for Male and Female

Study Question 3: Were there significant differences between ALT-PE scores for individual and team sports activities?

The results of the Context Level in Table 4 and Figure 4, revealed that a statistically significant difference was found in the general content category mean scores between individual and team activity lessons ($t = -2.26, p = <.05$). Teachers of individual activity lessons spent more time in general content than the teachers of team activity lessons. Within the general content category, a statistically significant difference was found between individual and team activity lessons for the transition ($t = -3.80, p = <.05$) and warm up ($t = -2.83, p = <.05$) sub-categories. Teachers of individual activities spent a quantity of time in managerial and organizational behaviours than the teachers of team activities. No statistically significant difference was found in the subject matter knowledge category mean scores between individual and team activity lessons ($t = .04, p = >.05$). A statistically significant difference was found in the subject matter motor category mean scores ($t = -2.26, p = <.05$). Team activity lessons devoted more time to subject matter motor activities than teachers of individual activity lessons. Within this category, a statistically significant difference was found in skill practice sub-category between individual and team activity lessons ($t = -1.97, p = <.05$). Individual activity lessons spent more time in practicing skills.

Regarding Learner Involvement Level, Table 4 and Figure 4 showed that no statistically significant difference was found in the not motor engaged category mean scores between individual and team activity lessons ($t = -1.29, p = >.05$). No statistically significant difference was also found in motor engaged category mean scores ($t = 1.1, p = >.05$). However, a statistically significant difference was found in motor appropriate (ALT-PE) sub-category mean score between individual and team activity lessons ($t = 2.05, p = <.05$). The students in team activity lessons spent more time in practicing tasks those at appropriate levels of difficulty (ALT-PE). Thus, the result supported the notion that the nature of the lesson content might differentially influence student ALT-PE score.

Table 4 .A t-test on Mean Score of ALT-PE Categories for Individual and Team Activities Lessons

Categories	Individual M	Team M	t-value	p
Context Level				
Transition	27.10	19.80	-3.80	<.05
Management	6.80	6.40	-.26	N.S.
Warm-Up	5.0	7.90	2.83	<.05
General Content	39.90	34.0	-2.26	<.05
Technique	19.0	21.0	-.48	N.S.
Strategy	2.50	2.0	-.55	N.S.
Subject Matter Knowledge Content	22.40	23.30	.04	N.S.
Skill Practice	22.90	20.40	-1.97	<.05.
Scrimmage/Routine	1.80	1.60	-.54	N.S.
Game	5.80	7.50	.68	N.S.
Subject Matter Motor Content	38.10	42.80	2.26	<.05
Learner Involvement Level				
Waiting	22.50	15.40	-1.97	<.05
On Task	20.0	19.30	-.54	N.S.
Cognitive	19.90	21.90	1.30	N.S.
Not motor Engaged (total)	69.50	65.50	-1.29	N.S.
Motor Appropriate	18.10	21.60	2.05	<.05
Motor Inappropriate	11.60	10.90	-.92	N.S.
Motor Engaged	30.60	34.40	1.16	N.S.

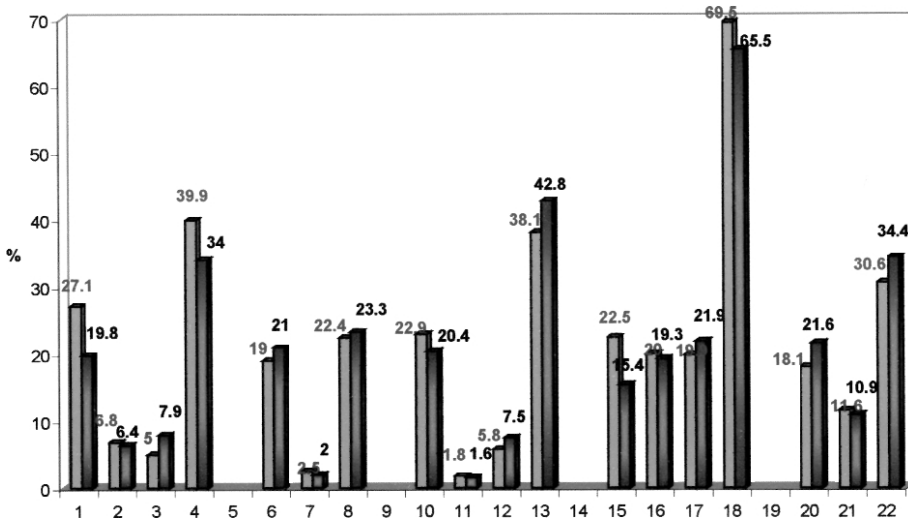


Figure 4. Comparison of ALT-PE Categories for Individual and Team Activities

Discussion

The first question examined in this study was the mean of Academic Learning Time in Physical Education (ALT-PE) of students in elementary physical education classes in Bahrain. The ALT-PE data indicated that the ALT-PE score for students of elementary physical education classes in Bahrain was typically quite low, often no more than 7 to 10 minutes per 40-45 minutes lesson. This score compares with results from other elementary physical education ALT studies outside Bahrain in which Cousineau and Luke (1990), Godbout et al. (1983), Lacy et al. (1996), Placek et al. (1982), and Placek reported slightly higher percentages of the ALT-PE scores. Elementary school students in Bahrain spent a striking amount of their lesson time in not motor engaged activities - behaviour not likely to lead towards the intended learning outcome. As a group, physical education students were more likely to be waiting, listening, in management, in transition, and performing unplanned tasks than to be in skill practice exercise, motor engagement, and motor appropriate activities.

It is clear from the results that Bahraini elementary teachers spend a considerable proportion of their time organizing students and getting the environment and equipment ready for the lesson. The proportion of transition and management activities is higher than the proportions of Cousineau and Luke (1990), Godbout et al. (1983), and Placek and Randall (1986) found in elementary school physical education classes. Teachers can expect to spend some time engaged in transitional and managerial behaviours in physical education lessons in general. In particular, the management and organisation of students and equipment affects the level of student academic learning time. In this study, the favoured form of organisation which allows the students to spent more time in management behaviour was where the whole class worked in groups of a large size with little equipment. This form of organisation tended to increase the amount of waiting time.

In this study much of the transition and management time was spent carrying equipment from either storage or some area around the gymnasium especially during gymnastic lessons. Thus, the way activities were organized in physical education lessons taught by elementary school teachers in Bahrain provided long periods of waiting time. The proportion of waiting time in this study (19.3%) is quite higher than the 9.9% Cousineau & Luke (1990) found in elementary physical education classes. Research shows that it is possible to cut down the amount of inactive time in lessons by developing good management skills such as rou-

tines (Fink & Siedentop, 1989). In this study, the lessons in which students had a higher ALT-PE rate, teachers had implemented classroom rules and instructional routines. Thus, establishing such routines does appear to be one of the keys to reducing managerial and transitional time in lessons and in turn increasing the time students may spend in leaning.

Most of the elementary school teachers in Bahrain spent more time dealing with off-task activities. One way to reduce off-task time and devoted much of lesson time to actual learning is to place the equipment in many locations around the play area. In fact, having distributing the equipment may be highly effective in terms of time than having the students pick up their own equipment from one area. Teachers in the present study appeared to start lessons slowly, place the equipment in one area, and use large sized groups. Thus, in order to allocate most of the lesson time to motor activity, elementary physical education teachers need to use small sized groups than large sizes groups and place the equipment in many areas rather than in one area.

Research shows that an effective teacher presents information clearly in a way that increases academic learning time. The concept of clarity simply means that instructions, demonstrations, and discussions are not only clear to the student but also take less time because of their clarity. In this study the teachers talked a lot and spent more time in unnecessary conversation. This mean, much of ALT produced in physical education lessons at elementary schools level in Bahrain are more likely to be cognitive rather than motor. Time spent in cognitive behaviour (students receiving information) does not necessarily mean more students involvement in the learning tasks. Thus, the importing of information does not seem to contribute to student ALT-PE. The findings of this study appear to support other ALT-PE studies (Cousinean & Luke, 1990; Shute et al., 1982) in which physical education students accumulated much more cognitive behaviour time than motor appropriate time.

Although the elementary physical education teachers in Bahrain allocate a percentage of their lesson time for skill practice, discussion held in this part of the study indicated that the activities selected and the way in which they were organized and managed by the teachers provided low ALT-PE. This was the case. Many teachers failed to devote large percentages of time to motor appropriate behaviour. Perhaps they did not fully understand the concept of ALT-PE. Perhaps they were not conscious of either the effects of the lesson structure or lesson momentum on ALT-PE. Whatever the reason, it is clear now that physi-

cal education teachers in Bahrain should pay more attention to the amount of time students spend working directly on meaningful learning tasks (ALT-PE).

The second question addressed here was that of the difference in ALT-PE for students taught by male teachers against those taught by female teachers. The findings suggest that no statistically significant difference existed in the ALT-PE provided for students taught by male and female teachers during PE lessons. Although the students of female teachers spent more of their lesson time in transition and management activities than the students of male teachers, the gender of the teacher did not seem to make a noticeable difference in terms of student learning time and ALT-PE score. Thus Bahraini male and female teachers appeared to adopt similar teaching approaches and behaviors which in turn led to similar levels of student ALT-PE. The findings of this study were similar to the finding of Godbout et al. (1983) and Placek et al. (1982) who found that male and female teachers devoted similar amount of engagement time. However, the findings of this study were different from the finding of LaMaster and Lacy (1993) who reported differences in the amount of ALT-PE accrued by male and female students. As much of the lesson time was used in management and transition activities by female teachers, it was reasonable to suggest that male teachers were more effective in class management and student transition than were female teachers. Therefore, despite some differences between male and female lessons, the findings suggested that students had equal amount of time in physical education lesson in which to practice motor skills regardless of the sex of the teacher.

The third question addressed in this study was the differences in ALT-PE between individual and team activities. Analysis of the ALT-PE data suggested that time spent in ALT-PE categories can be influenced by the subject matter being taught. Teachers of individual activity lessons spent significantly more time in organisational behaviour and in management equipment than did teachers of team activities. This was probably due to the fact that placing and getting the gymnastic apparatus in individual activity lessons often required large amount of time. Thus, it appears that the factors of reducing management and organization time in team activity led to an increase in ALT-PE.

Instructional time was typically high in both lessons. A similar pattern of traditional individual and team activity instructions appeared in elementary physical education lessons in Bahrain. This involved giving the students information about the techniques and strategies of the activity and then putting them into

practice. Generally, instruction time was high at the start of a unit in both lessons and low toward the end of a unit, when students were more likely to be engaged in culminating activities.

The findings from this investigation suggest that students in individual activity lessons had fewer opportunities to actively participate during practices than the students in team activity lessons. Much of this difference was accounted for by the time these students in individual activity lessons spent waiting. The high percentage of waiting behaviour seemed to be related to the poor organisation and management made by the teachers of individual activity lessons. During the time the students in team activity lessons were involved, they experienced greater success performing team activity skills and accrued more ALT-PE than the students in individual lessons. If teachers of individual activity lessons want to increase the amount of ALT-PE, they should cut down on the time spent getting the environment and equipment ready for the lessons. They should also reduce the time students spent waiting to participate or waiting for next event to occur.

Thus, there is little doubt that ALT-PE will range according to the nature of activity being taught. Lessons involving high quality individual work such as in gymnastic and athletic activities will obviously have a lower work rate commitment than an activity in game lessons. In this study it was not surprising that a higher percentage of time was spent in the motor appropriate category for team activity lessons than individual activity lessons because of the different organization and equipment requirement. Thus, Analysis of the Academic Learning Time in Physical Education (ALT-PE) data indicated that ALT-PE might be influenced by factors such as the nature of the activities taught.

Conclusion

The main purpose of this study was to examine how time elementary students spent in physical education classes in Bahrain. Many of the physical education teachers in elementary schools in Bahrain were not aware that the students in PE lessons spent only limited amounts of time directly engaged with the motor skills. The results showed that the teachers allocated less than one-fifth of the available lesson time for student participation in motor activities directly related to the subject matter being taught which reflect the amount of ALT-PE. Students spent more than half of their time in non-motor- activities. The findings also indicated that when students were engaged, they spent more time in cognitive

and on-task engagement than in motor responding.

Comparison analysis across teacher gender has shown that there were no statistically significant differences in the amount of ALT-PE rate for elementary school students in physical education lessons taught by male teachers against those taught by female teachers from the data collected through the ALT-PE instrument. These results give strong support to the notion that male and female teachers provide similar amounts of ALT-PE. Analysis of the ALT-PE data of this study would suggest that time spent in ALT-PE categories can be influenced by the subject matter of the lesson. Statistical analysis revealed that teachers of team activity lessons spent more time practising tasks those at an appropriate level of difficulty. This could largely be attributed to the time that was spent getting the equipment ready for the activities in individual lessons.

The ALT-PE instrument was considered to be a valid and reliable system with which to record and measure how time is spent in physical education classes. Data such as this should raise the Bahraini teachers understanding of their teaching strategies and behaviours. Further studies are needed to determine the effects of adaptations and more use of different teaching styles on increasing the percentage of ALT-PE and student achievement. Also, future research study in this area should be continued in order to identify ALT-PE across different lessons with different activities taught by the same teachers, and in lessons of the same activity taught by different teachers.

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